Реле TYCO, TE купить в Минске tel. +375447584780
www.fotorele.net www.tiristor.by радиодетали, электронные компоненты
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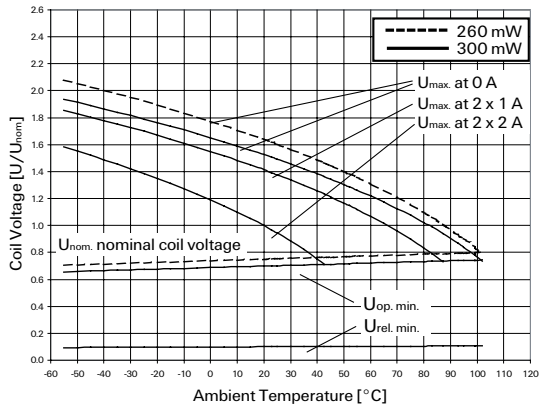
каталог, описание, технические, характеристики, datasheet, параметры, маркировка,габариты, фото, **Электромеханические, реле, TE, Connectivity, Tyco Electronics.**

QR код

FP2 Relay (Continued)

■ **Telecom/signal relay (dry circuit, test access, ringing)**



■ **Slim line 14x9mm (.551x.354")**

■ **Switching current 2A**

■ **2 form C bifurcated contacts (2 CO)**

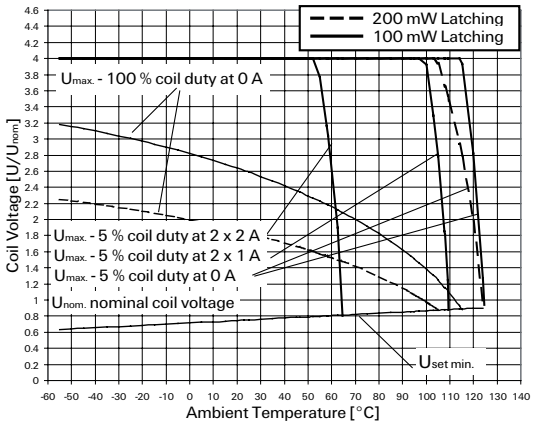
■ **High sensitivity results in low nominal power consumption, 80mW for high sensitive, 140mW for sensitive version**

■ **High mechanical shock resistance, up to 300g functional, up to 1500g survival**

Typical applications
Communications equipment, linecard application - analog, ISDN, xDSL, PABX, voice over IP, office and business equipment, measurement and control equipment, consumer electronics, set top boxes, HiFi, medical equipment

Approvals

UL 508 File No. E 111441



Technical data of approved types on request.

Contact Data

Contact arrangement	2 form C (CO)
Max. switching voltage	220VDC, 250VAC
Rated current	2A
Limiting continuous current	2A
Switching power	60W, 62.5VA
Contact material	PdRu, Au covered
Contact style	twin contacts
Min. recommended contact load	100µV/1µA
Initial contact resistance	<50mΩ
Thermoelectric potential	<10µV
Operate time	typ. 3ms, max. 4ms
Release time,	
without diode in parallel	typ. 1ms, max. 3ms
with diode in parallel	typ. 3ms, max. 4ms
Set/reset time min.	20ms
Bounce time max.	typ. 1ms, max. 5ms
Electrical endurance	
contact application 0 (≤30mV/≤10mA)	min. $2.5x10^6$ operations
cable load open end	min. $2.0x10^6$ operations
resistive, 24V / 1.25A - 30W	min. $5x10^5$ operations
resistive, 30VDC / 2A - 60W	min. $5x10^5$ operations
resistive, 125VDC / 0.24A - 30W	min. $5x10^5$ operations
Contact ratings, UL contact rating	220VDC, 0.24A, 60W 125VDC, 0.24A, 30W 250VAC, 0.25A, 62.5VA 125VAC, 0.5A, 62.5VA 30VDC, 2A, 60W
Mechanical endurance	$100x10^6$ operations

Coil Data

Magnetic system	polarized, monostable, bistable 1 coil, bistable 2 coils
Coil voltage range	3 to 48VDC
Max. coil temperature	125°C.
Thermal resistance	<150K/W

Coil versions, monostable

Coil code	Rated voltage VDC	Operate voltage VDC	Limiting voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW
Standard version, monostable						
06	3	2.10	6.60	0.30	64	140
04	4.5	3.15	9.90	0.45	145	140
09	5	3.50	11.00	0.50	178	140
05	6	4.20	13.20	0.60	257	140
10	9	6.30	19.80	0.90	574	140
02	12	8.40	26.40	1.20	1028	140
12	24	16.80	44.30	2.40	2880	200
13	48	33.60	72.30	4.80	7680	300
High sensitive version, monostable						
21	3	2.10	8.70	0.30	113	80
22	4.5	3.15	13.10	0.45	353	80
23	5	3.50	14.60	0.50	313	80
24	6	4.20	17.50	0.60	450	80
25	9	6.30	24.20	0.90	1013	80
26	12	8.40	35.00	1.20	1800	80
27	24	16.80	52.80	2.40	4114	140
28	48	36.00	77.60	4.80	8882	260

All figures are given for coil without pre-energization, at ambient temperature +23°C.

Coil Data (continued)

Coil versions, bistable

Coil code	Rated voltage VDC	Set voltage VDC	Max. set voltage VDC	Reset voltage VDC	Coil resistance Ω±10%	Rated coil power mW
Standard, bistable 1 coil						
41	3	2.25	7.80	-2.25	90	100
42	4.5	3.38	11.70	-3.38	203	100
43	5	3.75	13.00	-3.75	250	100
44	6	4.50	15.60	-4.50	360	100
45	9	6.75	23.50	-6.75	810	100
46	12	9.00	31.30	-9.00	1440	100
47	24	18.00	47.50	-18.00	3840	150

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FP2 Relay V23079

Standard, bistable 2 coils

61	3	2.10	5.50	-2.10	45	200
62	4.5	3.15	8.30	-3.15	101	200
63	5	3.20	7.20	-3.20	125	200
64	6	4.20	11.10	-4.20	180	200
65	9	6.30	16.80	-6.30	405	200
66	12	8.40	28.10	-8.40	720	200
67	24	16.80	44.30	-16.80	1920	300

All figures are given for coil without pre-energization, at ambient temperature +23°C.

U_{max} upper limit of the operative range of the coil voltage (limiting voltage) when coils are continuously energized
$U_{op\ min}$ lower limit of the operative range of the coil voltage (reliable operate voltage)
$U_{rel\ min}$ lower limit of the operative range of the coil voltage (reliable release voltage)

Insulation

Initial dielectric strength	
between open contacts	$750V_{rms}$
between contact and coil	$1000V_{rms}$
between adjacent contacts	$1000V_{rms}$
Initial surge withstand voltage	
between open contacts	1100V
between contact and coil	1500V
between adjacent contacts	1500V
Initial insulation resistance	
between insulated elements	$>10^9\Omega$
Capacitance	
between open contacts	max. 4pF
between contact and coil	max. 1pF
between adjacent contacts	max. 1pF
Cross talk at 100MHz/900MHz	-40.2dB/-22.3dB
Insertion loss at 100MHz/900MHz	0.03dB/0.25dB
Voltage standing wave ratio (VSWR)	
at 100MHz/900MHz	1.01/1.07

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-40°C to +85°C
Thermal resistance	<150K/W
Category of environmental protection	
IEC 61810	RT III - immersion cleanable
Degree of protection, IEC 60529	IP 67, immersion cleanable
Vibration resistance (functional)	20g, 10 to 500Hz
Shock resistance (functional), half sinus 11ms	50g
Shock resistance (destructive), half sinus 0.5ms	1500g
Terminal type	PCB-THT
Weight	max. 2g
Resistance to soldering heat THT	
IEC 60068-2-20	265°C/10s
Ultrasonic cleaning	not recommended
Packaging unit	tube/50 pcs., box/1000 pcs.

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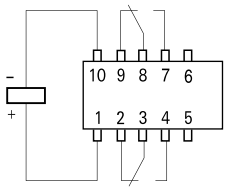
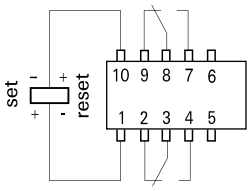
FP2 Relay (Continued)

Terminal assignment
TOP view on component side of PCB

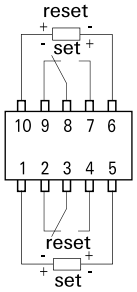
Monostable version



Bistable version, 1-coil

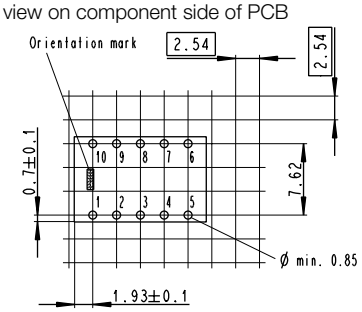


Bistable version, 2-coils

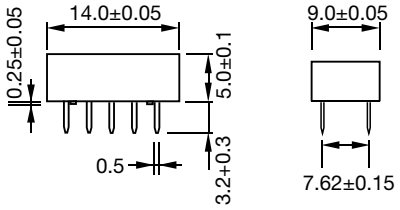


Contacts are shown in reset condition.
Both coils can be used as either set or reset coils.
Contact position might change during transportation and must be reset before use.

PCB layout
TOP view on component side of PCB

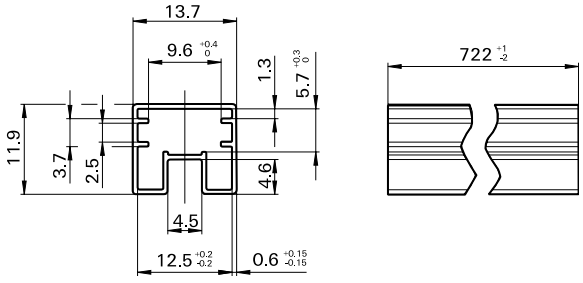


Dimensions



Packing

Tube for THT version
50 relays per tube, 1000 relays per box



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FP2 Relay (Continued)

Product code structure

Typical product code **D30** **02**

Type

D30 Signal Relays FP2
2 form C, 2 CO

Coil

Coil code: please refer to coil versions table
Performance and coil type
0x,1x Standard version, monostable
2x High sensitive version, monostable
4x Standard version, bistable 1 coil
6x Standard version, bistable 2 coils

Product code	Arrangement	Perf. type	Coil type	Coil	Part number
D3006	2 form C (2 CO)	Standard	Monostable	3VDC	1-1462033-3
D3004				4.5VDC	1462033-9
D3009				5VDC	1-1462033-4
D3010				9VDC	2-1462033-1
D3002				12VDC	1462033-5
D3012				24VDC	2-1462033-2
D3013				48VDC	2-1462033-6
D3021	2 form C (2 CO)	High sensitive	Monostable	3VDC	3-1462033-2
D3022				4.5VDC	3-1462033-3
D3023				5VDC	3-1462033-4
D3025				9VDC	3-1462033-6
D3026				12VDC	3-1462033-7
D3027				24VDC	3-1462033-8
D3041	2 form C (2 CO)	Standard	Bistable 1 coil	3VDC	4-1462033-0
D3042				4.5VDC	4-1462033-1
D3043				5VDC	4-1462033-2
D3046				12VDC	4-1462033-5
D3047				24VDC	4-1462033-6
D3061	2 form C (2 CO)	Standard	Bistable 2 coils	3VDC	4-1462033-7
D3062				4.5VDC	4-1462033-8
D3063				5VDC	4-1462033-9
D3066				12VDC	5-1462033-4
D3067				24VDC	5-1462033-6

This list represents the most common types and does not show all variants covered by this datasheet.
Other types on request.

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Catalog product data, 'Definitions' section, application notes and all specifications are subject to change.

D2n Relay V23105

- **Standard DIL relay**
- **Dimensions 20x10x11mm (.795x.394x.433")**
- **Switching and continous current 3A**
- **2 form C contacts (2 CO, 2 changeover contacts)**
- **Immersion cleanable**
- **Four different coil sensitivities, 150mW, 200mW, 400mW, >500mW**
- **Surge voltage resistance meets FCC Part 68 requirement: 1.5kV (10/700µs) between coil and contacts**

Typical applications
Communications equipment, office equipment, measurement and control equipment, entertainment electronics, medical equipment, consumer electronics.

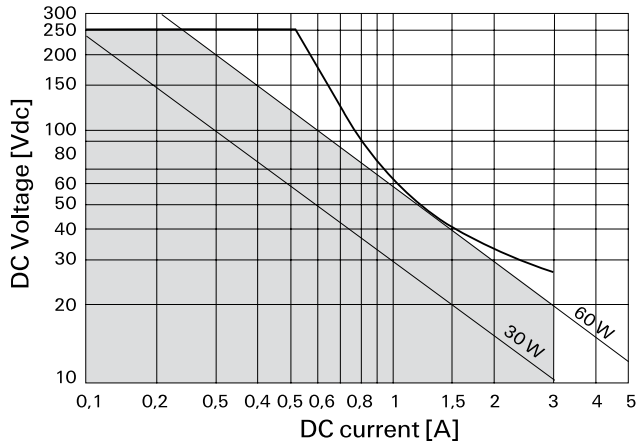
Approvals

UL 508 File No. E 111441
Technical data of approved types on request

Contact Data

Contact arrangement	2 form C (CO)
Max. switching voltage	220VDC, 250VAC
Rated current	3A
Limiting continuous current, 85°C	3A
Contact material	AgNi, gold-covered
Min. recommended contact load	10mA at 20mV
Minimum switching voltage	100µV
Initial contact resistance	<100mΩ at 10mA, 20mV
Frequency of operation without load	max. 50 operations/s
Operate / release time max.	6ms/4ms
Bounce time max.	5 ms
Electrical endurance	
at 230VAC/0.5A	typ. $3x10^5$ operations
at 6VDC/0.1A	typ. $2x10^6$ operations
at 30VDC/1A	typ. $5x10^5$ operations
at 30VDC/2A	typ. $1x10^5$ operations
Contact ratings, UL	30VDC/1.0A
	100VDC/0.3A
150mW and 200mW coil	125VAC/0.5A
400mW and 500mW coil	125VAC/1.0A
Mechanical endurance	typ. $15x10^6$ operations

Max. DC load breaking capacity



Coil Data

Magnetic system	neutral
Coil voltage range	3 to 48VDC
Max. coil temperature	85 °C
Thermal resistance	< 85K/W

Coil versions, monostable

Coil code	Rated voltage VDC	Operate voltage $VDC_{min.}$	Limiting Voltage $VDC_{max.}$	Release voltage $VDC_{min.}$	Coil resistance Ω±10%	Rated coil power mW
150mW coil power						
001	5	4.0	11.7	0.25	167	150
002	6	4.8	14.0	0.30	240	150
006	9	7.2	21.0	0.45	540	150
003	12	9.6	28.0	0.60	960	150
005	24	19.2	56.0	1.20	3840	150
200mW coil power						
308	3	2.1	6.1	0.15	45	200
301	5	3.5	10.1	0.25	125	200
302	6	4.2	12.2	0.30	180	200
306	9	6.3	18.2	0.45	405	200
303	12	8.4	24.3	0.60	720	200
305	24	16.8	48.6	1.20	2880	200
307	48	33.6	97.2	2.40	11520	200
400mW coil power						
401	5	3.5	7.2	0.25	62	400
402	6	4.2	8.6	0.30	90	400
406	9	6.3	12.9	0.42	203	400
403	12	8.4	17.2	0.60	360	400
405	24	16.8	34.3	1.20	1440	400
407	48	33.6	68.6	2.40	5760	400
>500mW coil power						
501	5	3.5	6.1	0.25	36	695
502	6	4.2	7.3	0.30	70	515
506	9	6.3	10.9	0.45	140	580
503	12	8.4	14.5	0.60	280	515
505	24	16.8	29.1	1.20	1050	550
507	48	33.6	58.1	2.40	4000	575

All figures are given for coil without pre-energization, at ambient temperature +23°C.
Other coil voltages on request.

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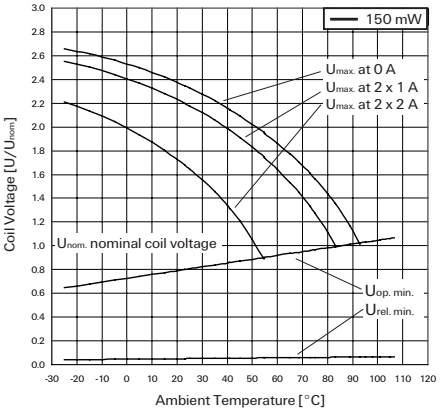
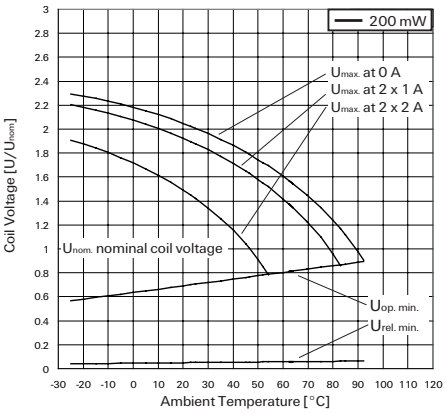
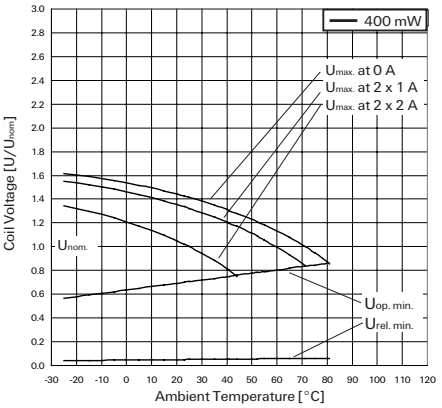
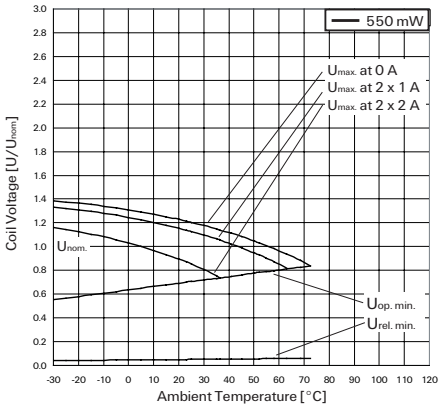
D2n Relay V23105 (Continued)

Coil Data (continued)









Coil Data (continued)

Coil operative range graphs

U_{nom}	Nominal coil voltage
U_{max}	Upper limit of the operative range of the coil voltage (limiting voltage) when coils are continously energized
$U_{op.\ min.}$	Lower limit of the operative range of the coil voltage (reliable operate voltage)
$U_{rel.\ min.}$	Lower limit of the operative range of the coil voltage (reliable release voltage)

Insulation Data

Initial dielectric strength	
between open contacts	$750V_{rms}$
between contact and coil	$1050V_{rms}$
between adjacent contacts	$750V_{rms}$
Initial surge withstand voltage	
between open contacts	1500V
between contact and coil	1500V
between adjacent contacts	1500V
Initial insulation resistance at 500 VDC	$> 10^9\Omega$
Capacitance	
between open contacts	max. 2pF
between contact and coil	max. 4pF
between adjacent contacts	max. 2 pF

RF Data

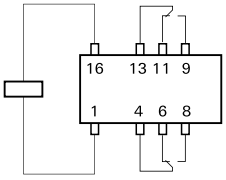
Isolation at 100MHz/900MHz	-39.0dB/-20.7dB
Insertion loss at 100MHz/900MHz	-0.02dB/-0.27dB
Voltage standing wave ratio (VSWR)	
at 100MHz/900MHz	1.04/1.40

Other Data

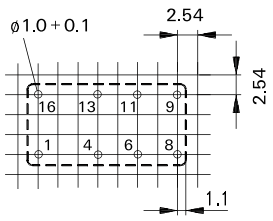
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter

Ambient temperature	-40 to +85°C
Category of environmental protection	
IEC 61810	RT III - immersion cleanable
Degree of protection, IEC 60529	IP 67
Vibration resistance (functional)	10g, 10 to 55Hz
Shock resistance (functional)	
IEC 60068-2-27 (half sine)	10g
Shock resistance (destructive)	50g
Terminal type	PCB-THT
Weight	max. 6g
Resistance to soldering heat THT	
IEC 60068-2-20	265°C/10s
Ultrasonic cleaning	not recommended
Packaging unit	1000 pcs.

Terminal assignment
TOP view on component side of PCB



PCB layout
TOP view on component side of PCB



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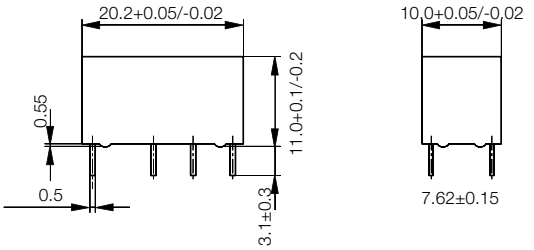
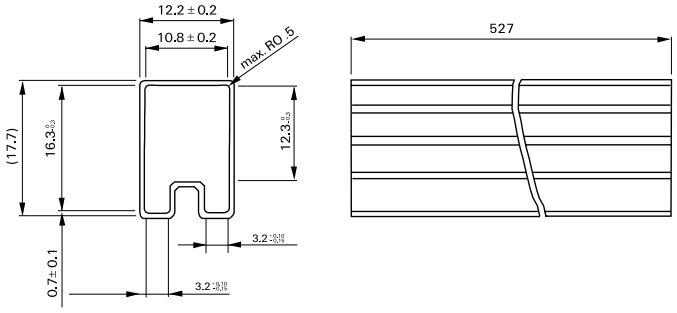
D2n Relay V23105 (Continued)

Dimensions



Packing



Product code structure — Typical product code: **V23105-A5** **001** **A201**

Type
V23105-A5 D2n Series Signal Relay

Coil
Coil code: please refer to coil versions table
Coil power
0xx 150 mW **4xx** 400 mW
3xx 300 mW **5xx** 550 mW

Contacts
A201 2 form C, 2 CO, AgNi+Au contacts

Product Code	Version	Coil power	Coil voltage	Part number
V23105A5001A201	AgNi+Au	150mW	5VDC	8-1393792-5
V23105A5002A201	contacts		6VDC	8-1393792-7
V23105A5006A201			9VDC	9-1393792-1
V23105A5003A201			12VDC	8-1393792-8
V23105A5005A201			24VDC	9-1393792-0
V23105A5308A201		200mW	3VDC	1393793-5
V23105A5301A201			5VDC	9-1393792-3
V23105A5302A201			6VDC	9-1393792-5
V23105A5306A201			9VDC	1393793-2
V23105A5303A201			12VDC	9-1393792-7
V23105A5305A201			24VDC	9-1393792-9
V23105A5307A201			48VDC	1393793-3
V23105A5401A201		400mW	5VDC	1393793-6
V23105A5402A201			6VDC	1393793-7
V23105A5406A201			9VDC	1-1393793-0
V23105A5403A201			12VDC	1393793-8
V23105A5405A201			24VDC	1393793-9
V23105A5407A201			48VDC	1-1393793-1
V23105A5501A201		>500mW	5VDC	1-1393793-6
V23105A5502A201			6VDC	1-1393793-8
V23105A5506A201			9VDC	2-1393793-3
V23105A5503A201			12VDC	1-1393793-9
V23105A5505A201			24VDC	2-1393793-1
V23105A5507A201			48VDC	2-1393793-4
V23105A5475A201		BT 47 type	5VDC	1-1393793-2
V23105A5479A201		spec T4563C	10VDC	3-1393794-0
V23105A5476A201		(current tested)	12VDC	1-1393793-3
V23105A5477A201			24VDC	1-1393793-4
V23105A5478A201			48VDC	1-1393793-5

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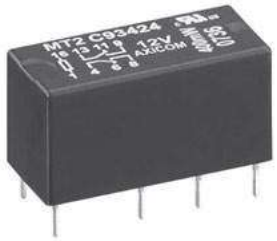
MT2 Relay

- **Telecom/signal relay (dry circuit, test access, ringing)**
- **Slim line 20x10mm (.795x.393")**
- **Switching current 2A**
- **2 form C contacts (2 CO, 2 changeover contacts)**
- **Bifurcated contacts**
- **Meets FCC Part 68 and ITU-T K20**



Typical applications
Communications equipment, linecard application – analog, ISDN, xDSL, PABX, voice over IP, office and business equipment, measurement and control equipment, consumer electronics, set top boxes, HiFi, medical equipment, automotive Equipment.

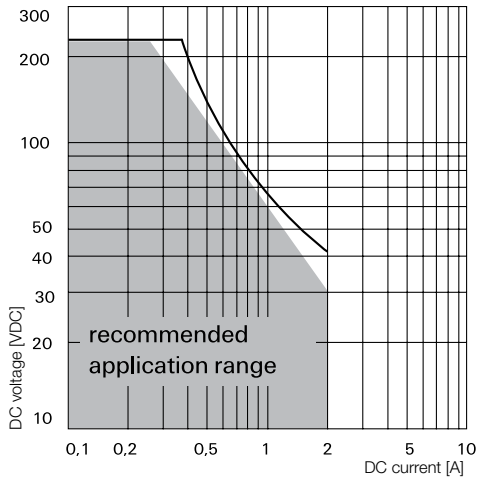
Approvals

UL 508 File No. E 111441
Technical data of approved types on request.

Contact Data

Contact arrangement	2 form C (2 CO)
Max. switching voltage	220VDC, 250VAC
Rated current	2A
Limiting continuous current, 85°C	2A
Contact material	AgNi, gold-covered
Contact style	bifurcated contacts
Min. recommended contact load	10mA at 20mV
Minimum switching voltage	100µV
Initial contact resistance	< 70mΩ at 10mA, 20mV
Frequency of operation, without load max.	50 operations/s
Operate / release time max.	5ms/3ms
Bounce time max.	5ms
Electrical endurance	
contact application 0 (≤30mV/≤10mA)	min. $5x10^6$ operations
cable load open end	min. $2.5x10^6$ operations
resistive load 150V/0.2A - 30W	min. $2x10^5$ operations
24V/1.25A - 30W	min. $2x10^5$ operations
Contact ratings, UL	220VDC/0.24A - 60W
	125VDC/0.24A - 30W
	250VAC/0.25A - 62.5VA
	125VAC/0.5A - 62.5VA
	30VDC/2A - 60W
Mechanical endurance	typ. $100x10^6$ operations

Max. DC load breaking capacity



Coil Data

Magnetic system	neutral
Coil voltage range	3 to 48VDC
Max. coil temperature	115°C
Thermal resistance	< 85K/W

Coil versions, monostable

Coil code	Rated voltage VDC	Operate voltage $VDC_{min.}$	Limiting Voltage $VDC_{max.}$	Release voltage $VDC_{min.}$	Coil resistance Ω±10%	Rated coil power mW
High sensitive version, 150mW						
00	3	2.1	8.1	0.3	60	150
07	3.3	2.3	8.8	0.33	72	150
06	4.5	3.2	12.2	0.45	136	150
01	5	3.6	13.5	0.5	168	150
27	6	4.3	16.2	0.6	240	150
05	9	6.4	24.3	0.9	544	150
02	12	8.6	32.4	1.2	968	150
03	24	17.1	64.8	2.4	3872	150
04	48	34.1	129.6	4.8	15468	150
Sensitive version, 200mW						
14	3	2	7	0.3	45	200
15	4.5	2.9	10.5	0.45	101	200
16	5	3.3	11.6	0.5	125	200
28	6	3.9	14	0.6	180	200
17	9	5.9	21	0.9	405	200
18	12	7.8	28	1.2	720	200
19	24	15.6	59.9	2.4	2880	200
20	48	31.2	112	4.8	11520	200
Sensitive version, 300mW						
33	4.5	3.1	8.9	0.45	73	300
34	5	3.4	9.9	0.5	90	300
12	12	8.25	23.6	1.2	515	300
35	24	16.5	47.3	2.4	2060	300
36	48	32.5	54.6	4.8	8240	300
Standard version, 400mW						
21	4.5	2.9	8.9	0.45	50	400
22	5	3.3	9.9	0.5	63	400
29	6	3.9	11.8	0.6	90	400
23	9	5.9	17.7	0.9	203	400
24	12	7.8	23.6	1.2	360	400
25	24	15.6	47.3	2.4	1440	400
26	48	31.2	94.6	4.8	5760	400
Standard version, 550mW						
38	4.5	2.9	6.3	0.45	36	550
50	5	3.3	7	0.5	45	550
37	6	3.9	8.4	0.6	66	550
32	12	7.8	16.8	1.2	280	550
31	24	15.6	33.6	2.4	1050	550
30	48	31.2	67.2	4.8	4100	550

All figures are given for coil without pre-energization, at ambient temperature +23°C.
Other coil voltages on request.

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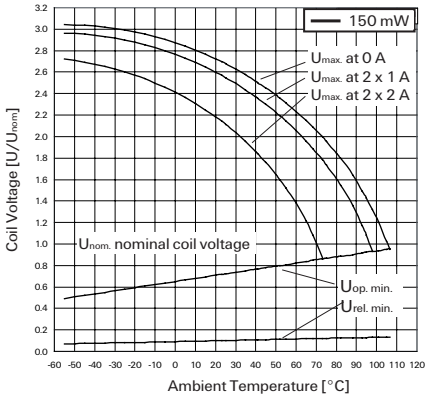
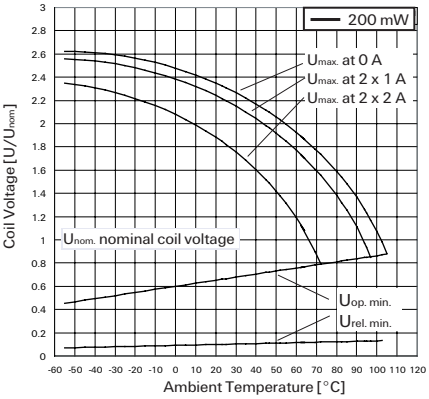
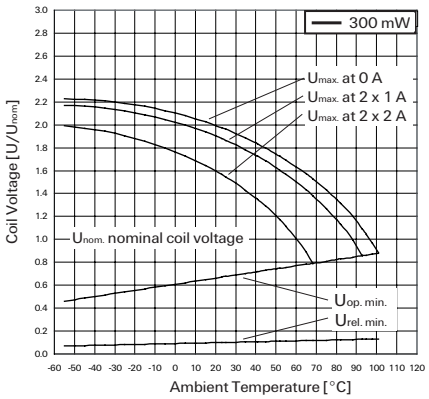
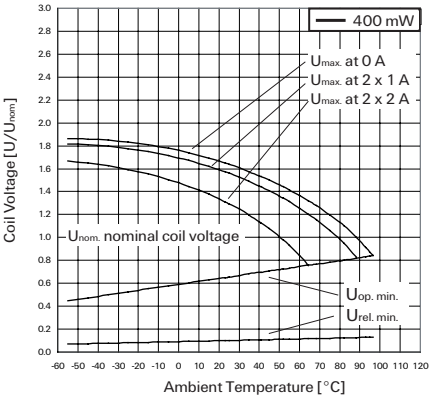
MT2 Relay (Continued)

Coil Data (continued)

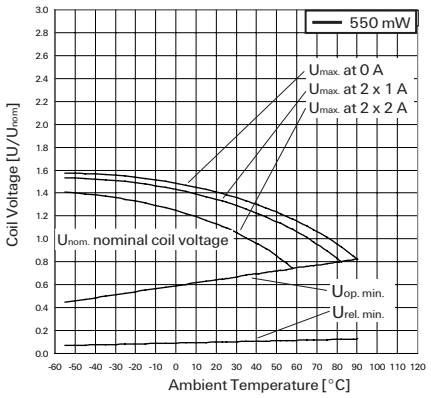








Coil Data (continued)



Coil operative range graphs

U_{nom}	Nominal coil voltage
U_{max}	Upper limit of the operative range of the coil voltage (limiting voltage) when coils are continously energized
$U_{op.\ min.}$	Lower limit of the operative range of the coil voltage (reliable operate voltage)
$U_{rel.\ min.}$	Lower limit of the operative range of the coil voltage (reliable release voltage)

Insulation Data

Initial dielectric strength	
between open contacts	$750V_{rms}$
between contact and coil	$1050V_{rms}$
between adjacent contacts	$750V_{rms}$
Initial surge withstand voltage	
between open contacts	1500V
between contact and coil	1500V
between adjacent contacts	1500V
Initial insulation resistance at 500VDC	$> 10^9\Omega$
Capacitance	
between open contacts	max. 2pF
between contact and coil	max. 4pF
between adjacent contacts	max. 2 pF

RF Data

Isolation at 100MHz/900MHz	-31.8dB/-14.2dB
Insertion loss at 100MHz/900MHz	-0.02dB/-0.97dB
Voltage standing wave ratio (VSWR)	
at 100MHz/900MHz	1.03/1.31

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter

Ambient temperature	-55 to +85°C
Category of environmental protection	
IEC 61810	RT III - immersion cleanable
Degree of protection, IEC 60529	IP 67
Vibration resistance (functional)	10g, 10 to 500Hz
Shock resistance (functional)	
IEC 60068-2-27 (half sine)	10g/30g
Shock resistance (destructive)	500g
Terminal type	PCB-THT
Weight	max. 5g
Resistance to soldering heat THT	
IEC 60068-2-20	265 °C / 10 s
Ultrasonic cleaning	not recommended
Packaging unit	1000 pcs.

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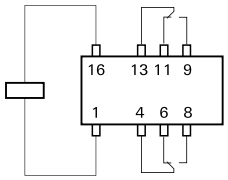
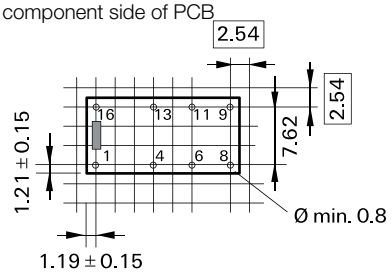
MT2 Relay (Continued)

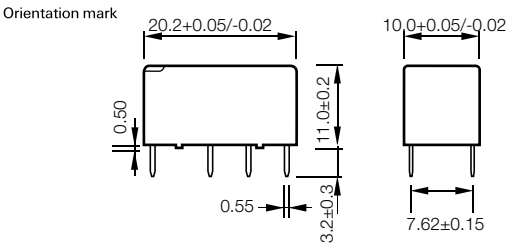
Terminal assignment
TOP view on component side of PCB



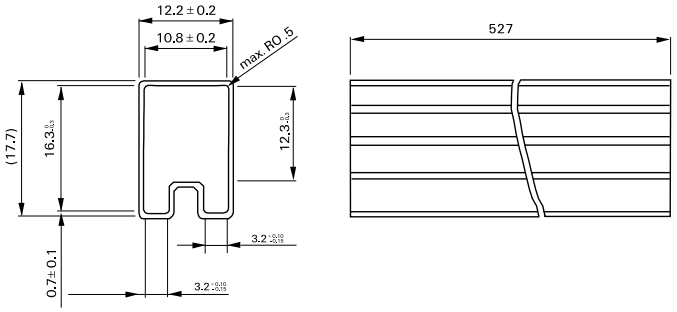
PCB layout
TOP view on component side of PCB



Dimensions



Packing



Product code structure

Typical product code **C934** **22**

Type		
	C934	MT2 Series Signal Relay 2 form C, 2 CO, AgNi +Au contacts
Coil		
		Coil code: please refer to coil versions table

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MT2 Relay (Continued)

Product Code	Version	Coil	Coil power	Coil voltage	Part number
C93400	2 form C (2CO)	High	150mW	3VDC	1-1462001-2
C93407	AgNi+Au	sensitive		3.3VDC	1-1462001-3
C93406	contacts			4.5VDC	2-1462000-2
C93401				5VDC	1462000-1
C93427				6VDC	5-1462000-6
C93405				9VDC	2-1462000-0
C93402				12VDC	1462000-7
C93403				24VDC	1-1462000-3
C93404				48VDC	1-1462000-8
C93414		Sensitive	200mW	3VDC	1-1462001-1
C93415				4.5VDC	3-1462000-0
C93416				5VDC	3-1462000-1
C93428				6VDC	5-1462000-7
C93417				9VDC	3-1462000-6
C93418				12VDC	3-1462000-7
C93419				24VDC	4-1462000-1
C93420				48VDC	4-1462000-5
C93433		Sensitive	300mW	4.5VDC	6-1462000-6
C93434				5VDC	6-1462000-8
C93412				12VDC	2-1462000-6
C93435				24VDC	7-1462000-0
C93436				48VDC	7-1462000-2
C93421		Standard	400mW	4.5VDC	4-1462000-7
C93422				5VDC	4-1462000-8
C93429				6VDC	5-1462000-8
C93423				9VDC	5-1462000-0
C93424				12VDC	5-1462000-1
C93425				24VDC	5-1462000-3
C93426				48VDC	5-1462000-5
C93438		Standard	550mW	4.5VDC	7-1462000-7
C93450				5VDC	8-1462000-5
C93437				6VDC	7-1462000-6
C93432				12VDC	6-1462000-2
C93431				24VDC	6-1462000-1
C93430				48VDC	5-1462000-9

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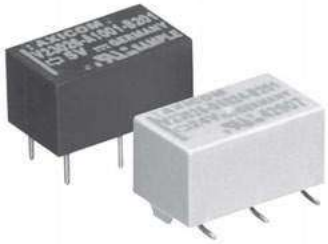
P1 Relay V23026

- **Directly triggerable with TTL standard modules as ALS, HCT & ACT**
- **Slim line 13.5x7.85mm (0.531x0.309")**
- **Switching current 1 A**
- **Bifurcated 1 form C (CO) contact**
- **Immersion cleanable**
- **High sensitivity results in low nominal power consumption, 65 to 130mW for monostable and 30 to 150mW for bistable (latching)**
- **Initial surge withstand voltage**
  2.5kV (2/10µs) meets the Bellcore Requirement GR-1089
  1.5kV (10/160µs) meets FCC Part 68



Typical applications
Automotive equipment, CAN bus, imobilizer, office equipment, measurement and control equipment, medical equipment, safety equipment.

Approvals

UL 508 File No. E 111441

Technical data of approved types on request.

Contact Data

Contact arrangement	1 form C (CO)
Max. switching voltage	125VDC, 150VAC
Rated current	1A
Limiting continuous current, 85°C	1A
Breaking capacity max.	see max. DC load breaking capacity
Contact material	Palladium nickel, gold-rhodium covered
Contact style	bifurcated contact
Min. recommended contact load	10mA at 20mV
Initial contact resistance	≤50mΩ at 10mA/20mV
Frequency of operation without load	200 ops./s
Operate/release time max.	2ms
Set/reset time max.	2ms
Bounce time max.	3ms
Electrical endurance	
at 12V/10mA	typ. $50x10^6$ operations
at 6V/100mA	typ. $10x10^6$ operations
at 30V/1000mA	typ. $10x10^3$ operations
Contact ratings	
UL contact ratings	30VDC/1A
	65VDC/0.46A
	150VAC/0.46A
Mechanical endurance	typ. 10^9 operations

Coil Data

Magnetic system	polarized
Coil voltage range	3 to 24VDC
	other coil voltages on request
Operative range, IEC 61810	see coil operative range
Max. coil temperature	85°C
Thermal resistance	<130K/W

Coil versions, THT, monostable

Coil code	Rated voltage VDC	Operate voltage $VDC_{min.}$	Release voltage $VDC_{min.}$	Coil resistance Ω ±10%	Rated coil power mW
006	3	2.25	0.3	137	66
001	5	3.75	0.5	370	68
005	9	6.75	0.9	1165	70
002	12	9.00	1.2	2250	34
004	24	18.00	2.4	4500	128

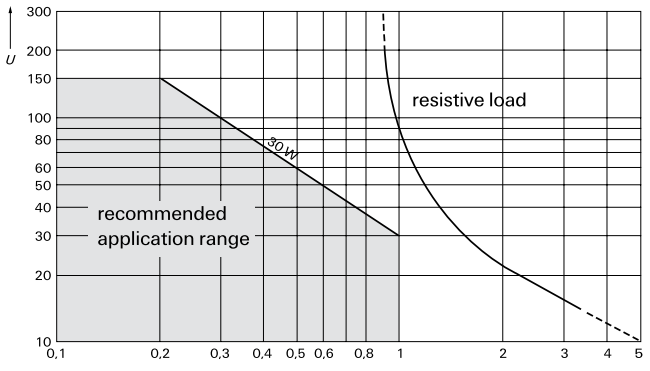
All figures are given for coil without pre-energization, at ambient temperature +23°C.

Coil versions, SMT, monostable

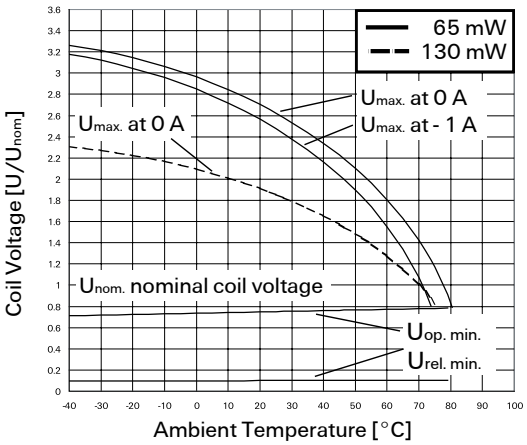
Coil code	Rated voltage VDC	Operate voltage $VDC_{min.}$	Release voltage $VDC_{min.}$	Coil resistance Ω ±10%	Rated coil power mW
026	3	2.25	0.3	113	80
021	5	3.75	0.5	313	80
025	9	6.75	0.9	1015	80
022	12	9.00	1.2	1800	80
024	24	18.00	2.4	4500	128

All figures are given for coil without pre-energization, at ambient temperature +23°C.

Max. DC load breaking capacity



Coil operative range, monostable DC coil



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P1 Relay V23026 (Continued)

Coil data (continued)

Coil versions, THT and SMT, bistable 2 coils

Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Coil resistance Ω ±10%	Rated coil power mW
106	3	2.25	2.25	130	69
101	5	3.75	3.75	390	64
105	9	6.75	6.75	1200	68
102	12	9.00	9.00	1500	96
	24[1)]				

All figures are given for coil without pre-energization, at ambient temperature +23°C.
Coils I and II are identical.
[1)] A nominal voltage of 24VDC is feasible with a 12VDC coil with a series resistor (1500Ω).

Coil data (continued)

Coil versions, THT, bistable 1 coil

Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Coil resistance Ω ±10%	Rated coil power mW
056	3	2.25	-2.25	300	30
051	5	3.75	-3.75	740	34
057	9	6.75	-6.75	2160	38
052	12	9.00	-9.00	4500	32
054	24	18.00	-18.00	4500	128

Coil data (continued)

Coil versions, SMT, bistable 1 coil

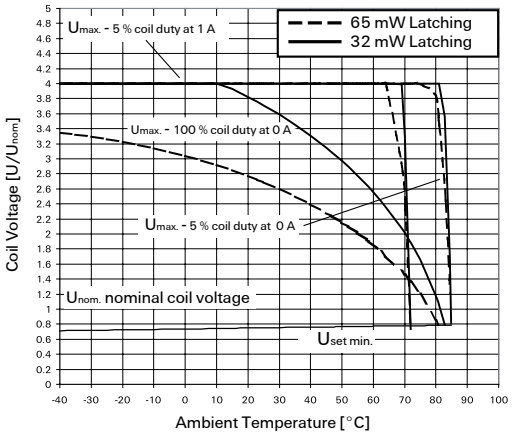
Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Coil resistance Ω ±10%	Rated coil power mW
051	5	3.75	-3.75	740	34
052	12	9.00	-9.00	4500	32

A nominal voltage of 24V is feasible with a 12V coil with a series resitor (4500Ω)

Other coil voltages on request.
All figures are given for coil without pre-energization, at ambient temperature +23°C.
Coils I and II are identical.

Coil operative range, bistable

U_{max} upper limit of the operative range of the coil voltage (limiting voltage) when coils are continuously energized.
$U_{op\ min}$ lower limit of the operative range of the coil voltage (reliable operate voltage).
$U_{rel\ min}$ lower limit of the operative range of the coil voltage (reliable release voltage).



Insulation Data

Initial dielectric strength	
between open contacts	$500V_{rms}$
between contact and coil	$1500V_{rms}$
Initial surge withstand voltage	
between contact and coil	2500V
Capacitance	
between open contacts	max. 5pF
between contact and coil	max. 6pF
Clearance/creepage	
between contact and coil	0.75mm
between adjacent contacts	0.75mm

RF Data

Isolation at 100MHz/900MHz	-30.0dB/-18.0dB
Insertion loss at 100MHz/900MHz	-0.12dB/-1.9dB
Voltage standing wave ratio (VSWR)	
at 100MHz/900MHz	1.06/1.75

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-40 to +85°C
Category of environmental protection,	
IEC 61810	RT III - immersion cleanable
Vibration resistance (functional)	20g, 200 to 2000Hz 40g, 10 to 200Hz
Shock resistance (functional)	
IEC 60068-2-27 (half sine)	50 g
Terminal type	PCB terminals and SMT terminals
Weight	max. 2g
Resistance to soldering heat THT	
IEC 60068-2-20	265 °C/10s
Resistance to soldering heat SMT	
IEC 60068-2-58	see reflow profile
Moisture sensitive level, JEDEC J-Std-020D	MSL3
Washing	not recommended
Ultrasonic cleaning	possible
Packaging unit	
THT	2000 pcs.
SMT	2400 pcs.

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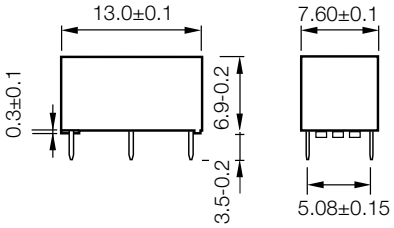
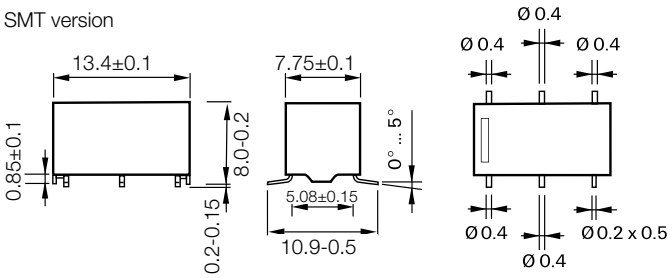
P1 Relay V23026 (Continued)

Dimensions

THT version



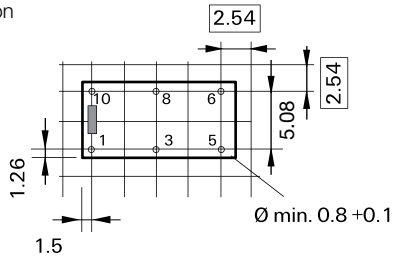
SMT version



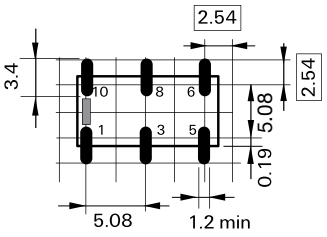
PCB layout

TOP view on component side of PCB

THT version

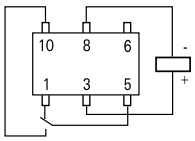


SMT version

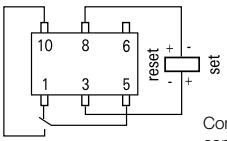


Terminal assignment

Monostable version
rest condition



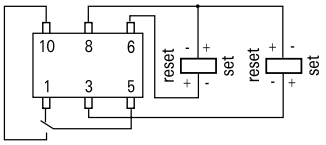
Bistable version, 1 coil
reset condition



Contacts are shown in reset condition. Both coils can be used either as set or reset coil.

Contact position might change during transportation and must be reset before use.

Bistable version, 2 coils
reset condition



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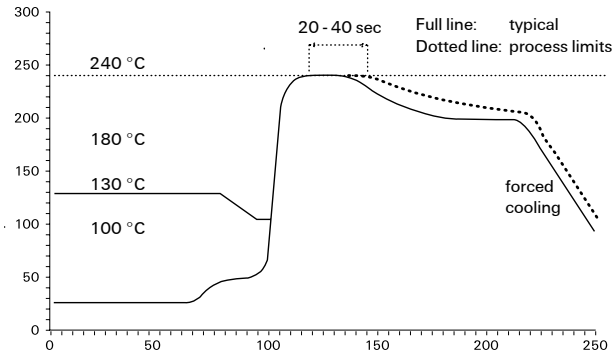
P1 Relay V23026 (Continued)

Processing

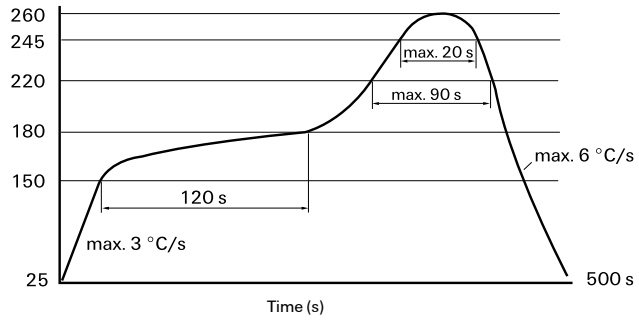
Recommended soldering conditions

Soldering conditions according IEC 60058-2-58 and IPC/JEDEC J-STD-020B



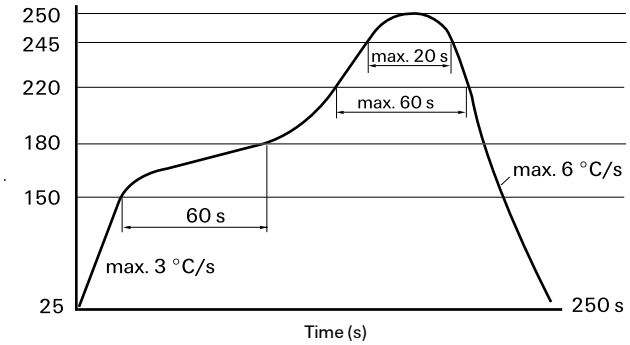
Vapor Phase Soldering: temperature/time profile (lead and housing peak temperature)

Resistance to soldering heat - Reflow profile



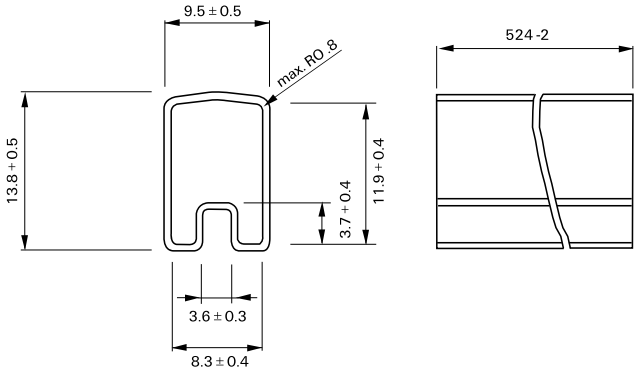
Infrared Soldering: temperature/ time profile (lead and housing peak temperature)

Recommended reflow soldering profile

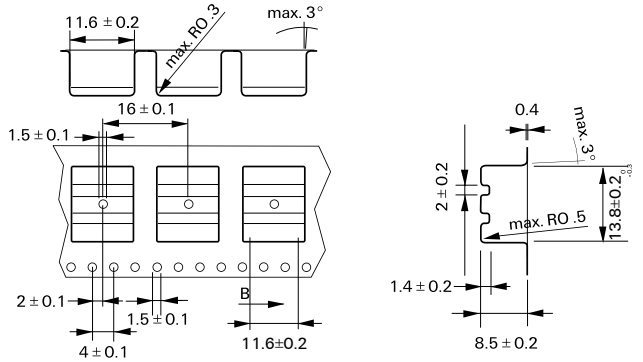


Packing

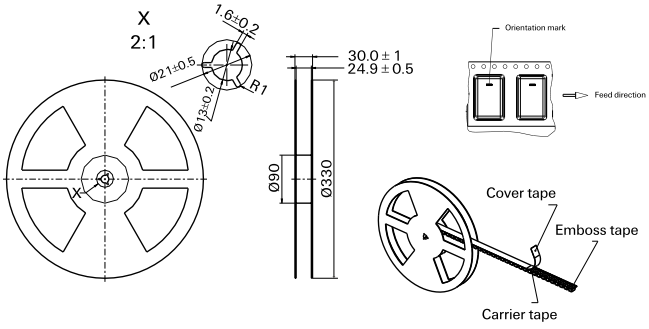
Tube for THT version
40 relays per tube, 2000 relays per box



Tape and reel for SMT version
480 relays per reel, 2400 relays per box



Reel dimensions



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P1 Relay V23026 (Continued)

Product code structure — Typical product code: **V23026** **A1** **002** **B201**

Type
V23026 P1 Series Signal Relay

Version
A1 THT, monostable
B1 THT, bistable (latching), 2 coils
C1 THT, bistable (latching), 1 coil
D1 SMT, monostable
E1 SMT, bistable (latching), 2 coils
F1 SMT, bistable (latching), 1 coil

Coil
Coil code: please refer to coil versions table

Contacts
B201 1 form C, 1 CO

Product Code	Version	Coil	Coil voltage	Part Number
V23026A1006B201	THT version	monostable	3VDC	1-1393774-7
V23026A1001B201			5VDC	1393774-1
V23026A1005B201			9VDC	1-1393774-5
V23026A1002B201			12VDC	1393774-8
V23026A1004B201			24VDC	1-1393774-2
V23026B1106B201		bistable, 2 coils	3VDC	1393775-3
V23026B1101B201			5VDC	3-1393774-4
V23026B1105B201			9VDC	1393775-2
V23026B1102B201			12VDC	3-1393774-5
V23026C1056B201			3VDC	2-1393774-6
V23026C1051B201			5VDC	2-1393774-0
V23026C1057B201			9VDC	2-1393774-7
V23026C1052B201			12VDC	2-1393774-1
V23026C1054B201			24VDC	2-1393774-4
V23026D1026B201	SMT version	monostable	3VDC	1393776-8
V23026D1021B201			5VDC	1393776-3
V23026D1025B201			9VDC	1422015-9
V23026D1022B201			12VDC	1393776-4
V23026D1024B201			24VDC	1393776-7
V23026E1106B201		bistable, 2 coils	3VDC	1393777-3
V23026E1101B201			5VDC	1422015-6
V23026E1105B201			9VDC	1393777-2
V23026E1102B201			12VDC	1393776-9
V23026F1051B201			9VDC	1422015-8
V23026F1052B201			12VDC	4-1393774-3

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W11 Relay V23101

- **Multi purpose relay**
- **Small size permitting high packing density**
- **1 form C contact (1 CO, 1 changeover contact)**
- **200mW and 450mW coils**
- **1A and 3A contacts**
- **High shock resistance of 30g**
- **Ambient temperature for sensitive version up to 85°C**
- **Immersion cleanable**

Typical applications
Security devices, electric door openers, duplex intercommunication systems, measurement and controls.

Approvals

UL 508 File No. E 111441
Technical data of approved types on request.

Contact Data

	1.25A	3A
Contact arrangement	1 form C (CO)	
Max. switching voltage	120VDC, 125VAC	
Rated current	1.25A	3A
Limiting continuous current, 85°C	1.25A	3A
Switching power	30W, 62.5VA	72W, 360VA
Contact material	AgPd, gold plated AgNi, gold plated	AgNi
Min. recommended contact load	10mA at 20 mV	
Minimum switching voltage	100µV	
Initial contact resistance	100mΩ at 10mA, 20mV	
Frequency of operation, without load max.	20 operations/s	
Operate / release time max.	7ms/5ms	
Bounce time max., form A/form B	2/10ms	
Electrical endurance,		
standard version		
at 24VDC / 1.25A	min. $3x10^5$ ops.	
at 24VDC / 3A		min. $2x10^5$ ops.
at 120VAC / 1.25A	min. $1.5x10^5$ ops.	
at 120VAC / 3A		min. $4x10^5$ ops.
sensitive version		
at 24VDC / 1.25A	min. $2x10^5$ ops.	
at 24VDC / 3A		min. $1x10^5$ ops.
at 120VAC / 1.25A	min. $1x10^5$ ops.	
at 120VAC / 3A		min. $3x10^5$ ops
Mechanical endurance	typ. $10x10^6$ operations	

Coil Data

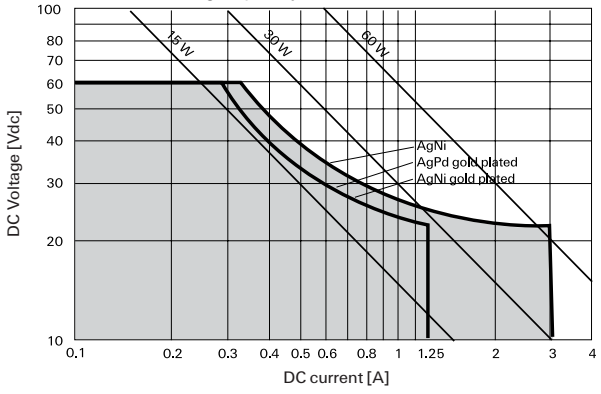
Magnetic system	neutral
Coil voltage range	1.5 to 24VDC
Max. coil temperature	130°C
Thermal resistance	< 125K/W

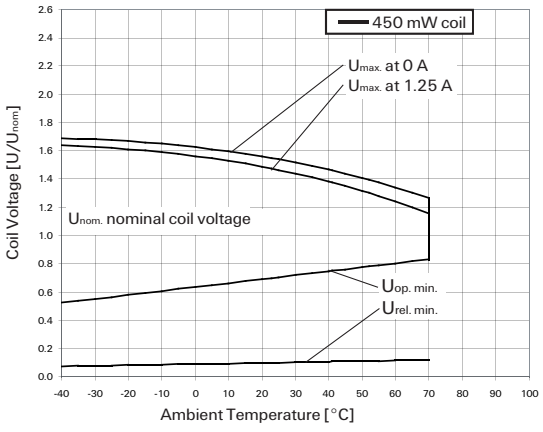
Coil versions, monostable

Coil code	Rated voltage VDC	Operate voltage $VDC_{min.}$	Limiting Voltage $VDC_{max.}$	Release voltage $VDC_{min.}$	Coil resistance Ω±10%	Rated coil power mW
Standard coil, 450mW						
001	1.5	1.3	2.6	0.15	6	375
002	3	2.1	4.7	0.30	20	450
003	5	3.5	7.9	0.50	56	446
004	6	4.2	9.5	0.60	80	450
005	9	6.3	14.2	0.90	180	450
006	12	8.4	19.0	1.20	320	450
007	24	16.8	38.0	2.40	1280	450
Sensitive coil, 200mW						
101	1.5	1.1	3.6	0.15	12	188
102	3	2.3	7.1	0.30	45	200
103	5	3.8	11.6	0.50	120	208
104	6	4.5	14.2	0.60	180	200
105	9	6.8	21.2	0.90	400	203
106	12	9.0	28.0	1.20	700	206
107	24	18.0	56.0	2.40	2800	206
108	18	13.5	33.0	1.80	1620	200

All figures are given for coil without pre-energization, at ambient temperature +23°C.

Max. DC load breaking capacity





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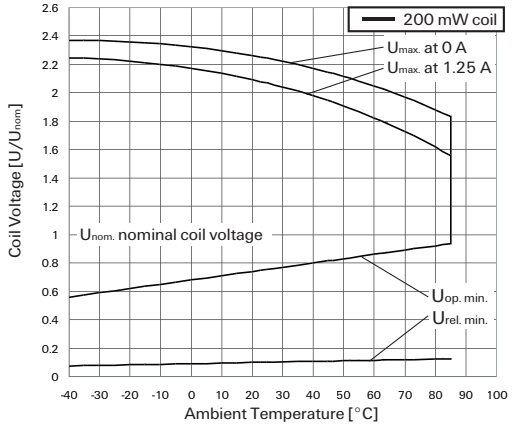
W11 Relay V23101 (Continued)

Coil Data (continued)



Coil operative range graphs

U_{nom}	Nominal coil voltage
U_{max}	Upper limit of the operative range of the coil voltage (limiting voltage) when coils are continously energized
$U_{op.\ min.}$	Lower limit of the operative range of the coil voltage (reliable operate voltage)
$U_{rel.\ min.}$	Lower limit of the operative range of the coil voltage (reliable release voltage)

Insulation Data

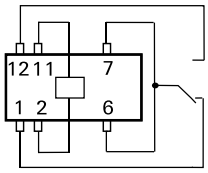
Initial dielectric strength	
between open contacts	750Vrms
between contact and coil	1000Vrms
Initial insulation resistance at 500VDC	> 109Ω
Capacitance	
between open contacts	max. 2pF
between contact and coil	max. 10pF

Other Data

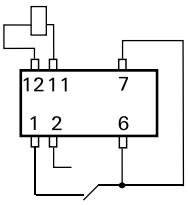
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-40 to +85°C
Category of environmental protection	
IEC 61810	RT III - immersion cleanable
Degree of protection, IEC 60529	IP 67
Vibration resistance (functional)	10g, 10 to 200Hz
Shock resistance (functional)	
IEC 60068-2-27 (half sine)	30g
Shock resistance (destructive)	100g
Terminal type	PCB-THT
Weight	max. 4g
Resistance to soldering heat THT	
IEC 60068-2-20	265°C/10s
Ultrasonic cleaning	not recommended
Packaging/unit	tube/25 pcs. box/625 pcs.

Terminal assignment
TOP view on component side of PCB

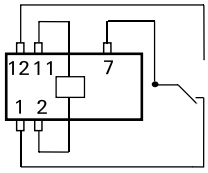
6 pin version with symmetrical coil assignment
V23101-D0xxx-Axxx



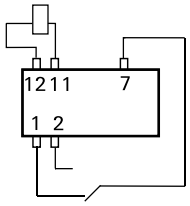
6 pin version with asymmetrical coil assignment
V23101-D0xxx-Bxxx



5 pin version with symmetrical coil assignment
V23101-D1xxx-Axxx

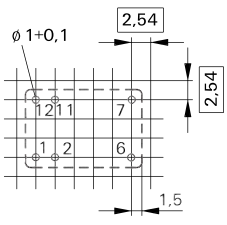


5 pin version with asymmetrical coil assignment
V23101-D1xxx-Bxxx

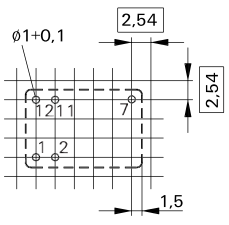


PCB layout
TOP view on component side of PCB

6 pin version



5 pin version



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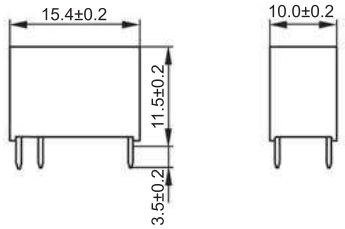
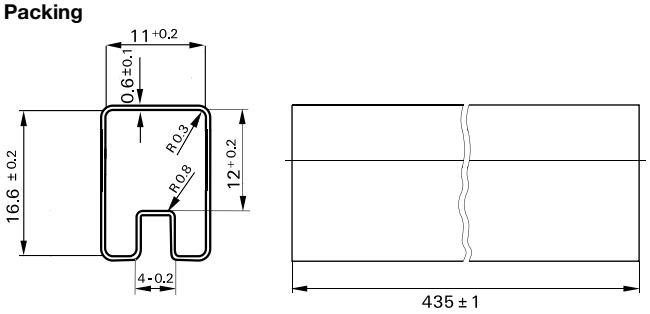
W11 Relay V23101 (Continued)

Dimensions



Packing



Product code structure

Typical product code	V23101	D0	104	B	401

Type
- **V23101** W11 Series Signal Relay

Pinning
- **D0** 6 pin vetrsion (standard)
- **D1** 5-pin version (without pin no. 6)

Coil

Coil code: please refer to coil versions table

Coil terminal assignment
- **A** Symmetrical coil assignment
- **B** Asymmetrical coil assignment

Contacts
- **201** 1 form C (CO), AgPd, gold plated
- **301** 1 form C (CO), AgNi
- **401** 1 form C (CO), AgNi, gold plated

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W11 Relay V23101 (Continued)

Product Code	Pinning	Coil	Coil voltage	Coil assignment	Cont.material	Part number
V23101-D0001-A201	6 pins	Standard	1.5VDC	Symmetrical	AgPd, Au plated	1393779-1
V23101-D0002-A201	version	coil	3VDC			1393779-3
V23101-D0003-A201			5VDC			1393779-5
V23101-D0004-A201			6VDC			1393779-8
V23101-D0005-A201			9VDC			1-1393779-1
V23101-D0006-A201			12VDC			1-1393779-3
V23101-D0007-A201			24VDC			1-1393779-8
V23101-D0001-B201			1.5VDC	Asymmetrical		1393779-2
V23101-D0002-B201			3VDC			1393779-4
V23101-D0003-B201			5VDC			1393779-6
V23101-D0004-B201			6VDC			1-1393779-0
V23101-D0005-B201			9VDC			1-1393779-2
V23101-D0006-B201			12VDC			1-1393779-6
V23101-D0007-B201			24VDC			2-1393779-2
V23101-D0006-A301			12VDC	Symmetrical	AgNi	4-1419172-4
V23101-D0003-B301			5VDC	Asymmetrical		1393779-7
V23101-D0006-B301			12VDC			1-1393779-7
V23101-D0007-B301			24VDC			2-1393779-1
V23101-D0003-A401			5VDC	Symmetrical	AgNi, Au plated	1422028-2
V23101-D0006-A401			12VDC			1422028-3
V23101-D0007-A401			24VDC			1422028-5
V23101-D0006-B401			12VDC	Asymmetrical		1422028-4
V23101-D0007-B401			24VDC			1422028-6
V23101-D1006-A201	5 pins		12VDC	Symmetrical	AgPd, Au plated	4-1393779-1
V23101-D1003-B201			5VDC	Asymmetrical		4-1393779-0
V23101-D1006-B201			12VDC			4-1393779-2
V23101-D1007-B201			24VDC			1413012-1
V23101-D1006-A401			12VDC	Symmetrical	AgNi, Au plated	1-1422028-2
V23101-D1006-B401				Asymmetrical		1-1422028-3
V23101-D0101-A201	6 pins	Sensitive	1.5VDC	Symmetrical	AgPd, Au plated	2-1393779-2
V23101-D0102-A201	version	coil	3VDC			2-1393779-4
V23101-D0103-A201			5VDC			2-1393779-6
V23101-D0104-A201			6VDC			2-1393779-8
V23101-D0105-A201			9VDC			3-1393779-0
V23101-D0106-A201			12VDC			3-1393779-2
V23101-D0107-A201			24VDC			3-1393779-5
V23101-D0108-A201			18VDC			3-1393779-9
V23101-D0101-B201			1.5VDC	Asymmetrical		2-1393779-3
V23101-D0102-B201			3VDC			2-1393779-5
V23101-D0103-B201			5VDC			2-1393779-7
V23101-D0104-B201			6VDC			2-1393779-9
V23101-D0105-B201			9VDC			3-1393779-1
V23101-D0106-B201			12VDC			3-1393779-3
V23101-D0107-B201			24VDC			3-1393779-8
V23101-D0106-A301			12VDC	Symmetrical	AgNi	1422037-2
V23101-D0107-A301			24VDC			3-1393779-7
V23101-D0106-B301			12VDC	Asymmetrical		3-1393779-4
V23101-D0103-A401			5VDC	Symmetrical	AgNi, Au plated	1422028-7
V23101-D0106-A401			12VDC			1422028-8
V23101-D0107-A401			24VDC			1422028-9
V23101-D0108-A401			18VDC			1-1422028-1
V23101-D0107-B401			24VDC	Asymmetrical		1-1422028-0
V23101-D1106-A201	5 pins		12VDC	Symmetrical	AgPd, Au plated	4-1393779-3
V23101-D1107-A201			24VDC			4-1393779-6
V23101-D1106-B201			12VDC	Asymmetrical		4-1393779-4
V23101-D1107-B201			24VDC			4-1393779-7
V23101-D1106-B301			12VDC		AgNi	4-1393779-5
V23101-D1106-A401				Symmetrical	AgNi, Au plated	1-1422028-4
V23101-D1106-B401				Asymmetrical		1-1422028-5

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Signal PCB Relay TSC

- **1pole, 1A, 1 form C (CO)**
- **2.54mm terminal pitch same as I.C. socket terminal pitch**

Typical applications
Telecommunications, office machine.

Approvals

UL E82292, CSA LR48471-189
Technical data of approved types on request.

Contact Data

Contact arrangement	1 form C (CO)
Rated voltage	24VDC, 120VAC
Max. switching voltage	30VDC, 120VAC
Rated current	1A
Switching power	120VA, 24W
Contact material	AgNi Alloy
Min. recommended contact load	1mA at 1VDC
Initial contact resistance	50mΩ at 100mA, 6VDC
Frequency of operation	72000 ops/h
Operate/release time max.	5/5ms
Electrical endurance	
1A, 120VAC, resistive,	$100x10^3$ ops.
1A, 24VDC, resistive,	$100x10^3$ ops.
Contact ratings	1A, 120VAC/24VDC
Mechanical endurance	$10x10^6$ operations

Coil Data

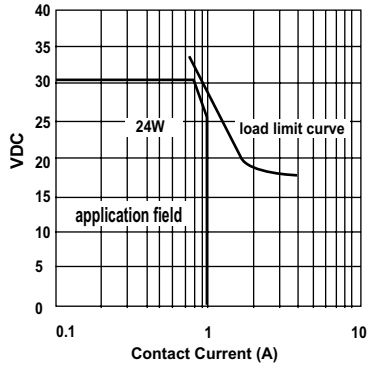
Coil voltage range 5 to 24VDC

Coil versions, DC coil

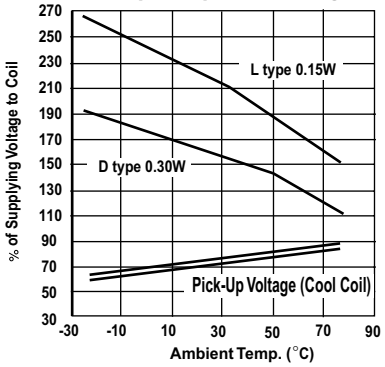
Coil code	Rated voltage VDC	Operate voltage $VDC_{min.}$	Release voltage $VDC_{min.}$	Coil resistance Ω±10%	Rated coil power mW
Standard coil, 300mW					
05	5	3.75	0.25	83	300
06	6	4.5	0.3	120	300
09	9	6.75	0.45	270	300
12	12	9.0	0.6	480	300
24	24	18.0	1.2	1.920	300
Sensitive coil 150mW					
05	5	3.75	0.25	166	150
06	6	4.5	0.3	240	150
09	9	6.75	0.45	540	150
12	12	9.0	0.6	960	150
24	24	18.0	1.2	3840	150

All figures are given for coil without pre-energization, at ambient temperature +23°C.

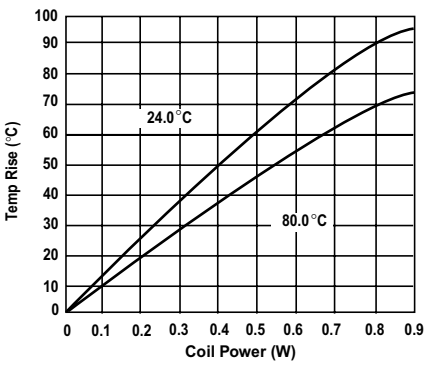
Max DC load breaking capacity



Coil operative range



Coil temperature rise



Insulation Data

Initial dielectric strength	
between open contacts	$400V_{rms}$
between contact and coil	$1000V_{rms}$
Initial surge withstand voltage	
between contact and coil	1500V (10/160µs)
Clearance/creepage	
between contact and coil	2.0/1.5mm

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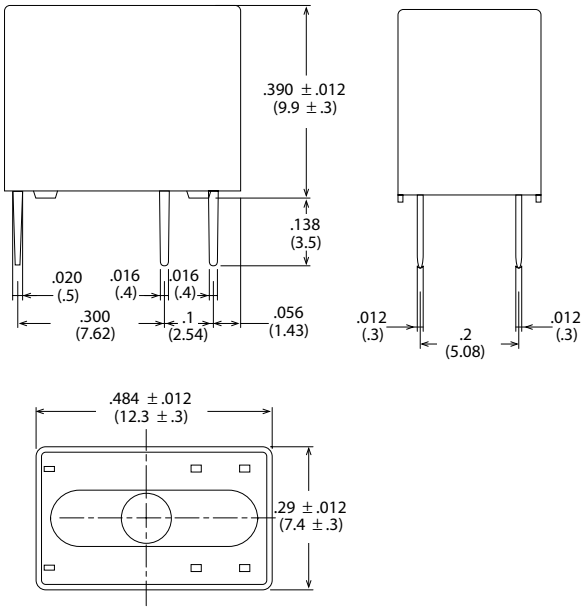
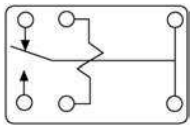
Signal PCB Relay TSC (Continued)

Other Data	
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-30 to 80°C
Category of environmental protection	
IEC 61810	RTII - flux proof, RTIII - wash tight
Vibration resistance (functional)	10 to 50Hz, 1.5mm double amplitude
Shock resistance (functional)	
IEC 60068-2-27 (half sine)	98m/s², 11ms
Terminal type	PCB-THT
Weight	3g
Resistance to soldering heat THT	
IEC 60068-2-20	260°C/5s
Packaging/unit	tube/50 pcs., box/2000 pcs.

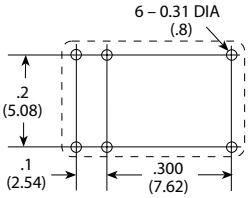
Dimensions



Terminal assignment
Bottom view on solder pins



PCB layout
Bottom view on solder pins



Product code structure — Typical product code: **TSC -1 12 D 3 H ,000**

Type			
TSC	Signal PCB Relay TSC		
Pole			
1	1pole		
Coil			
	Coil code: please refer to coil versions table		
Coil power			
D	Standard 300mW	**L**	Sensitive 150mW
Contact material			
3	AgNi		
Sealing			
Blank	Flux proof	**H**	Wash tight
Suffix			
,000	Standard		

Product code	Version	Contact	Cont.material	Coil power	Coil voltage	Sealing	Part number
TSC-105D3H,000	1A	1 form C (CO)	AgNi Alloy	300mW	5VDC	Wash tight	1-1419130-0
TSC-112D3H,000					12VDC		2-1419130-1
TSC-124D3H,000					24VDC		5-1440007-3
TSC-105L3H,000				150mW	5VDC		1-1419130-2
TSC-112L3H,000					12VDC		2-1419130-4
TSC-124L3H,000					24VDC		2-1419130-8

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Signal PCB Relay OUAZ

- **1pole, 1A, 1form A (NO), 1 form C (CO)**
- **2.54mm terminal pitch same as I.C. socket terminal pitch**
- **Gold overlay AgPd alloy contact suitable for low loads**

Typical applications
Telecommunications, office machine.

Approvals

UL E82292, CSA LR48471, TuV R50138762 (Z)
Technical data of approved types on request.

Contact Data

Contact arrangement	1 form A (NO), 1 form C (CO)
Rated voltage	24VDC, 120VAC
Max. switching voltage	24VDC, 120VAC
Rated current	1A
Switching power	120VA, 30W
Contact material	AgPd Alloy
Min. recommended contact load	1mA at 1VDC
Initial contact resistance	50mΩ at 100mA, 6VDC
Frequency of operation	72000h^{-1}
Operate/release time max.	
standard coil	5/7ms
sensitive coil	10/7ms
Electrical endurance	
1A, 120VAC, resistive,	100x10^3 ops.
1A, 24VDC, resistive,	100x10^3 ops.
Contact ratings	1A, 120VAC/24VDC
Mechanical endurance	10x10^6 operations

Coil Data

Magnetic system	
Coil voltage range	5 to 24VDC

Coil Data (continued)

Coil versions, DC coil

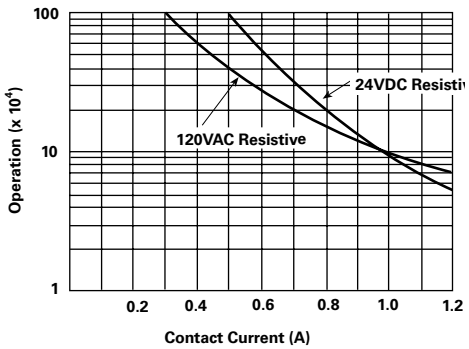
Coil code	Rated voltage VDC	Operate voltage $VDC_{min.}$	Release voltage $VDC_{min.}$	Coil resistance Ω±10%	Rated coil power mW
Standard coil, 450mW					
05	5	3.5	0.25	55	450
06	6	4.2	0.3	80	450
09	9	6.3	0.45	180	450
12	12	8.4	0.6	320	450
24	24	16.8	1.2	1.280	450
Sensitive coil, 200mW					
05	5	3.75	0.5	125	200
06	6	4.5	0.6	180	200
09	9	6.75	0.9	400	200
12	12	9.0	1.2	700	200
24	24	18.0	2.4	2800	200

All figures are given for coil without pre-energization, at ambient temperature +23°C.

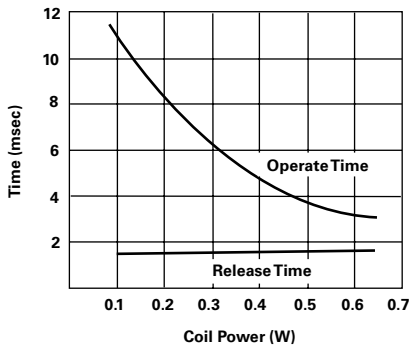
Insulation Data

Initial dielectric strength	
between open contacts	500V$_{rms}$
between contact and coil	1000V$_{rms}$
high insulation version (Z)	1500V$_{rms}$
Initial surge withstand voltage	
between contact and coil	1500V (10/160µs)
Clearance/creepage	
between contact and coil	1.5/1.76mm

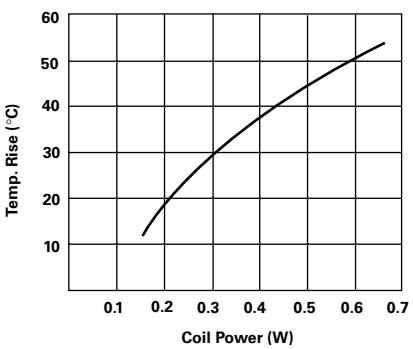
Electrical endurance



Operate time



Coil temperature rise



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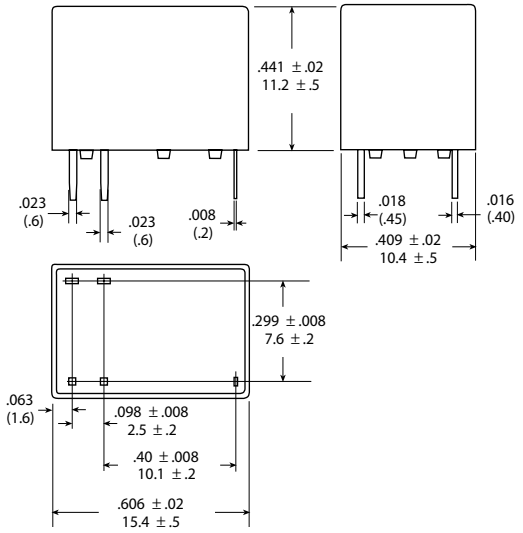
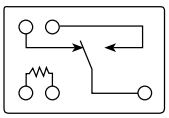
Signal PCB Relay OUAZ (Continued)

Other Data	
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	
standard coil	-30 to 60°C
sensitive coil	-30 to 70°C
Category of environmental protection	
IEC 61810	RTII - flux proof, RTIII - wash tight
Vibration resistance (functional)	10-50Hz, 1.5mm double amplitude
Shock resistance (functional)	
IEC 60068-2-27 (half sine)	98m/s², 11ms
Terminal type	PCB-THT
Weight	3.5g
Resistance to soldering heat THT	
IEC 60068-2-20	260°C/5s
Packaging/unit	tube/25 pcs., box/2000 pcs.

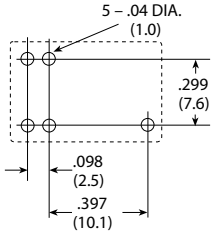
Dimensions



Terminal assignment
Bottom view on solder pins



PCB layout
Bottom view on solder pins



Product code structure — Typical product code: **OUAZ -SS 1 12 D M ,900**

Type
OUAZ Signal PCB Relay OUAZ

Sealing
SS Flux proof **SH** Wash tight

Pole
1 1pole

Coil
coil code: please refer to coil versions table

Coil Power
D Standard 540mW **L** Sensitive 200mW

Contact Arrngement
Blank 1 form C (CO) **M** 1 form A (NO)

Insulation
Blank Standard **Z** High Insulation (1500V)

Suffix
,900 Standard **,800** High Insulation (1500V)

Product code	Version	Contact	Cont.material	Coil power	Coil voltage	Sealing	Part number
OUAZ-SS-105D,900	1A	1 form C (CO)	AgPd Alloy	450mW	5VDC	Flux proof	8-1419130-3
OUAZ-SS-112D,900				450mW	12VDC		5-1419145-7
OUAZ-SS-124D,900				450mW	24VDC		1461015-1
OUAZ-SS-105L,900				200mW	5VDC		8-1419130-6
OUAZ-SS-112L,900				200mW	12VDC		1419131-5
OUAZ-SS-124L,900				200mW	24VDC		1-1419131-1
OUAZ-SH-105D,900				450mW	5VDC	Wash tight	3-1419145-9
OUAZ-SH-112D,900				450mW	12VDC		5-1419130-6
OUAZ-SH-124D,900				450mW	24VDC		1461015-4
OUAZ-SH-105L,900				200mW	5VDC		4-1419145-0
OUAZ-SH-112L,900				200mW	12VDC		6-1419130-5
OUAZ-SH-124L,900				200mW	24VDC		4-1419145-8

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T81 Series Signal PCB Relay

- **Au clad contacts in a 1 form C (CO) arrangement**
- **Standard 0.1" (2.54mm) grid spacing in a DIP configuration**
- **Standard or sensitive DC coils through 24 volts**
- **High dielectric strength**
- **Wash tight case**
- **Quiet operation for security applications**

Typical applications
Audio communications circuits, logic and process control, vending machines, thermostats, office automation.

Approvals

UL E29244, CSA LR48471
Technical data of approved types on request.

Contact Data

Contact arrangement	1 form C (CO)
Rated voltage	24VDC, 120VAC
Max. switching voltage	60VDC, 125VAC
Rated current	1A
Limiting continuous current	2A
Switching power	120VA, 30W
Contact material	Au overlay AgPd alloy
Contact style	single contact
Min. recommended contact load	1mA at 1VDC
Initial contact resistance	50mΩ at 100mA, 6VDC
Frequency of operation	72000 ops/h
Operate/release time max.	
standard coil	5/7ms
sensitive coil	10/7ms
Electrical endurance	
1A, 120VAC, resistive	$100x10^3$ ops.
1A, 24VDC, resistive	$100x10^3$ ops.
Contact ratings	1A, 120VAC/24VDC, resistive 2A, 125VAC/30VDC, resistive (NO)
Mechanical endurance	$10x10^6$ ops.

Coil Data

Magnetic system	neutral
Coil voltage range	5 to 24VDC
Max. coil temperature	105°C

Coil Data (continued)

Coil versions, DC coil

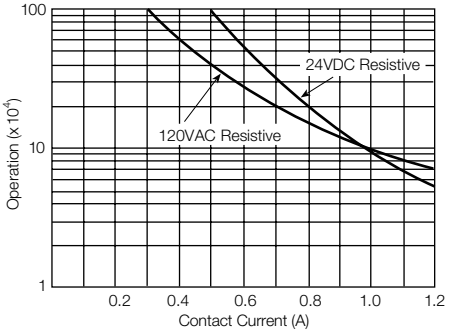
Coil code	Rated voltage VDC	Operate voltage $VDC_{min.}$	Release voltage $VDC_{min.}$	Coil resistance Ω±10%	Rated coil power mW
Standard coil, 450mW					
05	5	3.5	0.25	55	450
06	6	4.2	0.3	80	450
09	9	6.3	0.45	180	450
12	12	8.4	0.6	320	450
24	24	16.8	1.2	1280	450
Sensitive coil, 200mW					
05	5	3.75	0.5	125	200
06	6	4.5	0.6	180	200
09	9	6.75	0.9	400	200
12	12	9.0	1.2	700	200
24	24	18.0	2.4	2800	200

All figures are given for coil without preenergization, at ambient temperature +23°C.

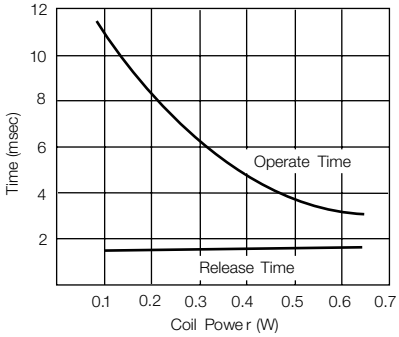
Insulation Data

Initial dielectric strength	
between open contacts	$500V_{rms}$
between contact and coil	$1000V_{rms}$
Initial surge withstand voltage	1500Vrms (10/160µs)
Initial insulation resistance	
between insulated elements	$10^9Ω$
Clearance/creepage	
between contact and coil	1.5/1.76mm

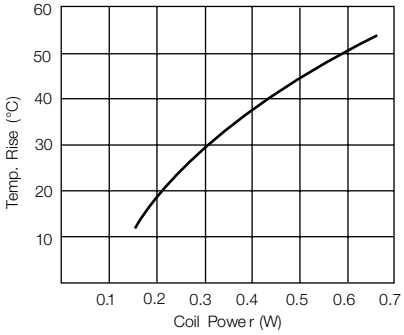
Electrical endurance



Operate time



Coil temperature rise



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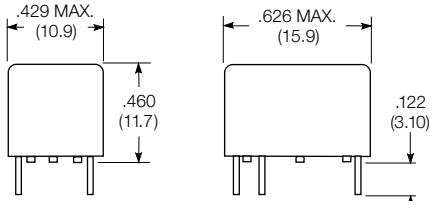
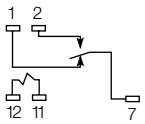
T81 Series Signal PCB Relay (Continued)

Other Data	
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	
standard coil	-30ºC to 60ºC
sensitive coil	-30ºC to 70ºC
Category of environmental protection	
IEC 61810	RTIII - wash tight
Vibration resistance (functional)	10-50Hz, 1.5mm double amplitude
Shock resistance (functional)	
IEC 60068-2-27 (half sine)	
standard coil	98m/s^2, 11ms
sensitive coil	65m/s^2, 11ms
Terminal type	PCB-THT
Weight	3.5g
Resistance to soldering heat THT	
IEC 60068-2-20	260°C/5s
Packaging/unit	tube/25 pcs., box/2000pcs.

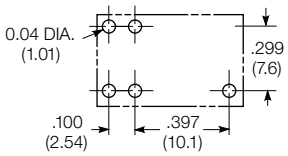
Dimensions



Terminal assignment
Bottom view on solder pins



PCB layout
Bottom view on solder pins



Product code structure — Typical product code: **T81 H 5 D 3 1 2**

Type
T81 Signal PCB Relay T81

Coil sensitivity
N Standard coil (450mw) **H** Sensitive coil (200mw)

Contact arrangement
5 1 form C (CO)

Coil input
D DC voltage

Dielectric strength
3 High dielectric strength

Contact rating
1 1A, 24VDC; 1A, 120VAC

Contact material
2 Au overlay AgPd alloy

Coil voltage
Coil code: please refer to coil versions table

Product code	Contact material	Coil power	Coil voltage	Part number
T81H5D312-05	Au overlay AgPd Alloy	Sensitive, 200mW	5VDC	5-1393779-5
T81H5D312-06			6VDC	5-1393779-6
T81H5D312-09			9VDC	5-1393779-7
T81H5D312-12			12VDC	5-1393779-8
T81H5D312-24			24VDC	5-1393779-9
T81N5D312-05		Standard, 450mW	5VDC	6-1393779-9
T81N5D312-09			9VDC	7-1393779-0
T81N5D312-12			12VDC	7-1393779-1
T81N5D312-24			24VDC	7-1393779-2

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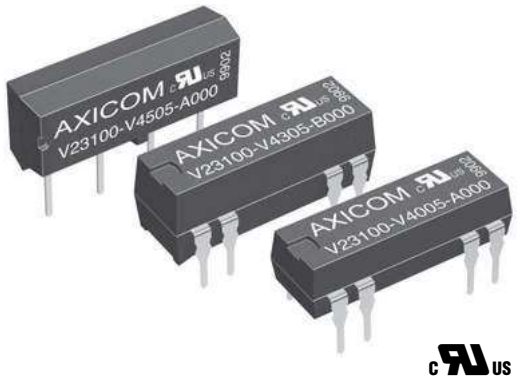
Reed Relay V23100 -V4

- **Direct coil control with TTL-signals possible**
- **Highly reliable switching**
- **High switching rates**
- **Ultrasonic cleanable**
- **High vibration and shock resistance**



Typical applications
Incircuit tester, measuring and control systems, telecom equipment, alarm and security equipment.

Approvals

UL File No. 111441
Technical data of approved types on request.

Contact Data

	form A	form C
Contact arrangement	1 form A (1 NO), 2 form A (2 NO)	1 form C (CO)
Max. switching voltage		
at rated coil voltage 5VDC	200VDC/VAC_{peak}	175VDC
at rated coil voltage 12to 24VDC	200VDC/VAC_{peak}	175VDC_{peak}
Limiting continuous current	1A	1.2A
Switching power	10W, 10VA	3W, 3VA
Contact material	Ruthenium	
Contact style	reed contact	
Initial contact resistance	<150mΩ	
Operate / release time max.	0.75/0.15ms	1.1/1.6ms
Electrical endurance		
at 12V/10mA	$50x10^6$ operations	
at 24V/400mA	$5x10^6$ operations	

Coil Data

Magnetic system	neutral
Coil voltage range	5 to 24VDC
Max. coil temperature	105°C
Thermal resistance	< 75K/W

Coil versions, monostable

Coil code	Rated voltage VDC	Operate voltage $VDC_{min.}$	Release voltage $VDC_{min.}$	Coil resistance Ω±10%	Rated coil power mW
1 form A (1 NO) contact					
05	5VDC	3.5	0.75	500	50
12	12VDC	8.4	1.80	1000	144
15	15VDC	10.5	2.25	2000	112
24	24VDC	16.8	3.60	2000	288
2 form A (2 NO) or 1 form C (1 CO) contact					
05	5VDC	3.5	0.75	200	125
12	12VDC	8.4	1.80	500	288
15	15VDC	10.5	2.25	2000	112
24	24VDC	16.8	3.60	2000	288

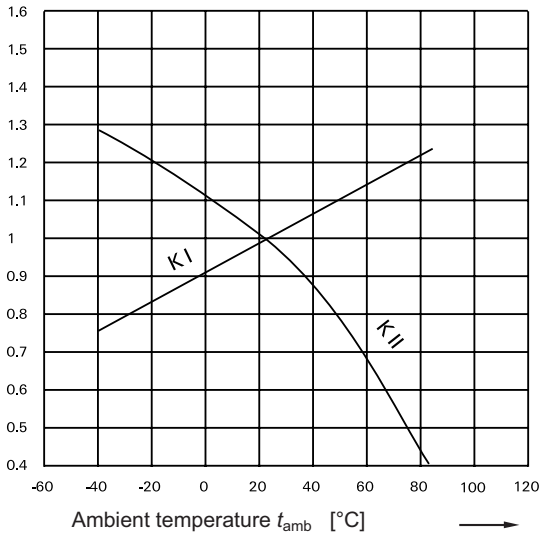
All figures are given for coil without pre-energization, at ambient temperature +23°C.

Coil Data (continued)

Coil versions, limiting operate voltage

Coil code	DIP flat, SIL, 1 form A	DIP flat 1 form A with diode	DIP high 1 form C	DIP high 2 form A std,diode	DIP high 1 form C diode+ shield	Mini SIL 1 form A
	VDC	VDC	VDC	VDC	VDC	VDC
05	22.0	14.0	13.0	14.0	14.5	13.6
12	33.0	25.0	22.0	25.0	23.5	21.6
15	44.0	47.0	44.0	47.0	14.5	-
24	44.0	47.0	44.0	47.0	49.0	-

All figures are given for coil without pre-energization, at ambient temperature +23°C.



Coil operative range
Coil operative range graphs

U_I	Minimum voltage at 23°C after pre-energizing with rated voltage without contact current
U_{II}	Maximum continous voltage at 23°C
	The operating voltage limits U_I and U_{II} depend on the temperature according to the formula:
$U_{I\ tamb}$	$K_I x U_I$ 23°C and
$U_{II\ tamb}$	$K_{II} x U_{II}$ 23°C
tamb	Ambient temperature
$U_{I\ tamb}$	Minimum voltage at ambient temperature, tamb
$U_{II\ tamb}$	Maximum voltage at ambient temperature, tamb
K_I , K_{II}	Factors (dependent on temperature), see diagram

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Reed Relay V23100 -V4 (Continued)

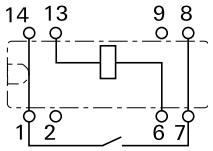
Insulation Data	
Initial dielectric strength	
between open contacts	
DIP and SIL, 1 form A (NO), 2 form A (2 NO)	250VDC
DIP, 1 form C (CO)	200VDC
Mini SIL, 1 form A (NO)	225VDC
between contact and coil	1500VDC
Initial insulation resistance at 500 VDC	$>10^9\Omega$
Capacitance	
between open contacts	max. 1pF
between contact and coil	max. 2pF
between adjacent contacts	max. 1pF

Other Data	form A	form C
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter		
Ambient temperature	-40 to +85°C	
Category of environmental protection		
IEC 61810	RT-III - immersion cleanable	
Degree of protection, IEC 60529	IP67	
Vibration resistance (functional)	30g, 10 to 2000Hz	30g, 50 to 2000Hz
Shock resistance (functional),		
IEC 60068-2-27 (half sine),DIP and SIL	150g	50g
Mini SIL	50g	-
Terminal type	PCB-THT	
Resistance to soldering heat THT		
IEC 60068-2-20	265 °C / 10 s	

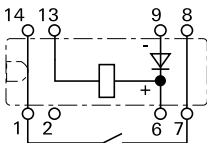
Terminal assignment
TOP view on component side of PCB

DIP, flat version

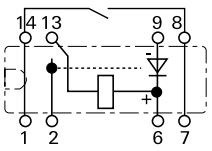
1 form A (NO)
standard
V23100-V4xxx-A000



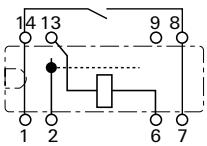
1 form A (NO)
with diode
V23100-V4xxx-A010



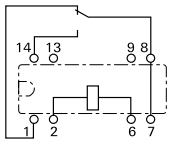
1 form A (NO)
with electrostatic shield + diode
V23100-V4xxx-A011



1 form A (NO)
with electrostatic shield
V23100-V4xxx-A001

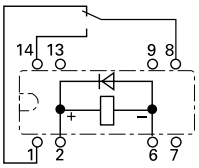


1 form C (CO)
standard
V23100-V4xxx-C000

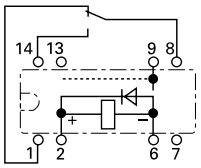


DIP, high version

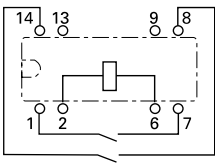
1 form C (CO)
with diode
V23100-V4xxx-C010



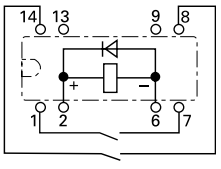
1 form C (CO)
with electrostatic shield + diode
V23100-V4xxx-C011



2 form A (NO)
standard
V23100-V43xx-B000

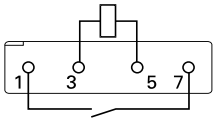


2 form A (NO)
with diode
V23100-V43xx-B010

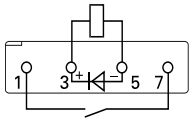


SIL version

1 form A (NO)
standard
V23100-V45xx-A000

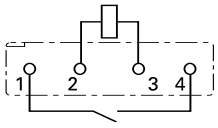


1 form A (NO)
with diode
V23100-V45xx-A010

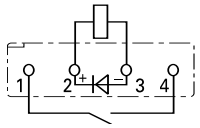


Mini SIL version

1 form A (NO)
standard
V23100-V46xx-A000



1 form A (NO)
with diode
V23100-V46xx-A010



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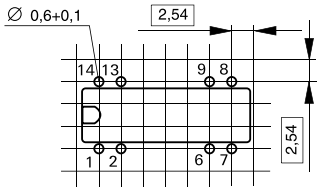
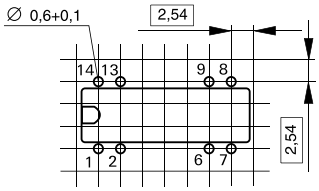
Reed Relay V23100 -V4 (Continued)

PCB layout
TOP view on component side of PCB

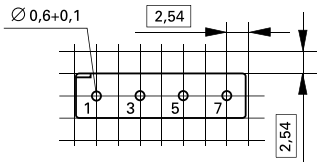
DIP, flat version



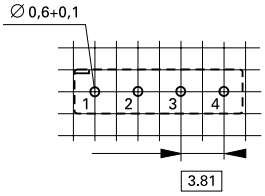
DIP, high version



SIL version

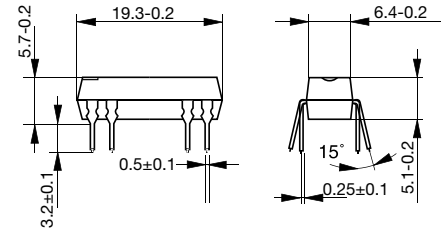


Mini SIL version

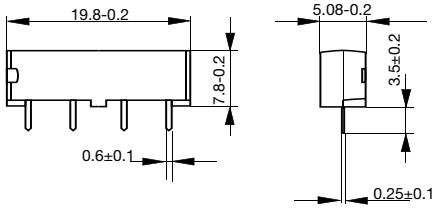


Dimensions

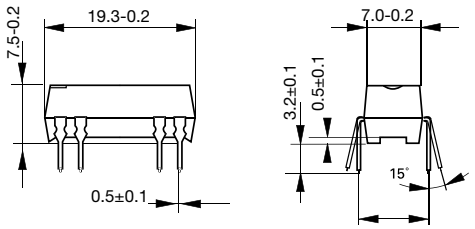
DIP, flat version



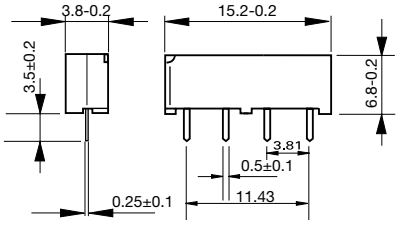
SIL version



DIP, high version



Mini SIL version



Product code structure

Typical product code: **V23100-V4 | 0 | 05 | A0 | 10**

Type
- **V23100-V4** Reed Relay, V23100-V4 Series

Version
- **0** DIP flat, 1 form A (NO) contact or 1 form C (CO) contact without diode
- **3** DIP high, 2 form A (NO) or 1 form C (CO) contacts
- **5** SIL, 1 form A (NO) contact
- **6** Mini SIL, 1 form A (NO) contact

Coil
Coil code: please refer to coil versions table
- **05** 5VDC coil
- **12** 12VDC coil
- **15** 15VDC coil
- **24** 24VDC coil

Contact arrangement
- **A0** 1 form A (NO) contact, DIP flat or SIL package
- **B0** 2 form A (NO) contacts, DIP high package
- **C0** 1 form C (CO) contact, DIP high package

Coil circuit
- **00** Standard
- **10** With diode
- **11** With diode and electrostatic shield

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Reed Relay V23100 -V4 (Continued)

Product Code	Version	Coil	Arrangement	Diode/shield	Part number
V23100-V4005-A000	DIP flat	5VDC	1 form A (NO)	Standard	1393763-1
V23100-V4012-A000		12VDC			1393763-6
V23100-V4015-A000		15VDC			1-1393763-0
V23100-V4024-A000		24VDC			1-1393763-4
V23100-V4005-A010		5VDC		Diode	1393763-4
V23100-V4012-A010		12VDC			1393763-8
V23100-V4015-A010		15VDC			1-1393763-2
V23100-V4024-A010		24VDC			1-1393763-6
V23100-V4305-C000		5VDC	1 form C (CO)	Standard	2-1393763-0
V23100-V4312-C000		12VDC			2-1393763-8
V23100-V4315-C000		15VDC			3-1393763-4
V23100-V4324-C000		24VDC			4-1393763-0
V23100-V4005-A011		5VDC	1 form A (NO)	Diode and shield	1393763-3
V23100-V4012-A011		12VDC			1393763-9
V23100-V4015-A011		15VDC			1-1393763-3
V23100-V4024-A011		24VDC			1-1393763-7
V23100-V4305-B000	DIP high	5VDC	2 form A (NO)	Standard	1-1393763-8
V23100-V4312-B000		12VDC			2-1393763-6
V23100-V4315-B000		15VDC			3-1393763-2
V23100-V4324-B000		24VDC			3-1393763-8
V23100-V4305-B010		5VDC		Diode	1-1393763-9
V23100-V4312-B010		12VDC			2-1393763-7
V23100-V4315-B010		15VDC			3-1393763-3
V23100-V4324-B010		24VDC			3-1393763-9
V23100-V4305-C010		5VDC	1 form C (CO)		2-1393763-2
V23100-V4312-C010		12VDC			3-1393763-0
V23100-V4315-C010		15VDC			3-1393763-6
V23100-V4324-C010		24VDC			4-1393763-2
V23100-V4305-C011		5VDC		Diode and shield	2-1393763-3
V23100-V4312-C011		12VDC			3-1393763-1
V23100-V4315-C011		15VDC			3-1393763-7
V23100-V4324-C011		24VDC			4-1393763-3
V23100-V4505-A000	SIL	5VDC	1 form A (NO)	Standard	4-1393763-4
V23100-V4512-A000		12VDC			4-1393763-7
V23100-V4515-A000		15VDC			4-1393763-9
V23100-V4524-A000		24VDC			5-1393763-1
V23100-V4505-A010		5VDC		Diode	4-1393763-5
V23100-V4512-A010		12VDC			4-1393763-8
V23100-V4515-A010		15VDC			5-1393763-0
V23100-V4524-A010		24VDC			5-1393763-2
V23100-V4605-A000	Mini SIL	5VDC		Standard	1422026-2
V23100-V4612-A000		12VDC			1422026-3
V23100-V4605-A010		5VDC		Diode	1422026-5
V23100-V4612-A010		12VDC			1422026-6

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JWD/JWS Series Reed Relays

- **JWD has dual in-line package (DIP) configuration (14-pin DIP)**
- **JWS has single in-line package (SIP) configuration**
- **Low cost, dry reed reliability with various contact arrangements**
- **Wave solderable and immersion cleanable molded epoxy package**
- **Optional coil suppression diode**

Typical applications
Telecommunications, measurement and control, automated test equipment, security systems, medical equipment.

Approvals

UL E29244, CSA LR81479

Technical data of approved types on request.

Contact Data

Contact arrangement	
JWD and JWS	1 form A (NO) contact
JWD only	1 form B (NC), 1 form C (CO), 2 form A (NO)
Rated voltage	
1 form A, 1 form B and 2 form A	20VDC, 500mA
1 form C (CO)	10 VDC, 500mA and 10VDC, 10mA
Max. switching voltage	
1 form A, 1 form B and 2 form A	100VDC
1 form C (CO)	28VDC
Rated current	
1 form A, 1 form B and 2 form A	500mA, 20VDC
1 form C (CO)	500mA, 10VDC
Limiting making current	500mA
Limiting breaking current	500mA
Switching power	
form A (NO) and form B (NC)	10W
form C (CO)	3W
Contact material	Ruthenium
Min. recommended contact load	10mV, 10mA
Minimum switching voltage	10mV
Initial contact resistance	200mΩ max. at 10mA, 6VDC
Frequency of operation	100Hz
Operate/release time max., incl. bounce	
form A (NO) and form B (NC)	1.5/0.5ms
form C (CO)	1.5/3.0ms
Electrical endurance	
form A (NO) and form B (NC), resistive load, +25°C	
20VDC, 500mA	$1x10^6$ ops.
20VDC, 250mA	$20x10^6$ ops.
5VDC, 1mA	$100x10^6$ ops.
form C (CO) contact, resistive load, +25°C	
10VDC, 500mA	$1x10^6$ ops.
10VDC, 250mA	$20x10^6$ ops.
5VDC, 1mA	$100x10^6$ ops.
Contact ratings	
1 form A, 1 form B and 2 form A	500mA, 20VDC
1 form C (CO)	500mA, 10VDC
Mechanical endurance	$100x10^6$ operations

Coil Data

Coil voltage range	5 to 24VDC
Min./Max. energization duration	continuous
Max. coil temperature	105° C
Thermal resistance	approximately 100°C/W
Coil insulation system according UL	class A

Insulation Data

Initial dielectric strength	
between open contacts	
form A (NO) and form B (NC)	250VDC,
form C (CO)	175VDC
between contact and coil	500VDC
between adjacent contacts	
2 form A (NO) of JWD only	500VDC
Initial insulation resistance	
between insulated elements	10^{10}Ω at 100VDC
Capacitance between open contacts	typ. 0.5pF

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-35°C to +85°C
Category of environmental protection	
IEC 61810	RTIII -wwash tight
Vibration resistance (functional)	20g, 10 to 2000 Hz
Shock resistance (functional), 3 planes, half sine pulse, 8ms	
form A (NO)	100g
form B (NC) and form C (CO)	50g
Terminal type	PCB-THT
Mounting position	any
Weight	approximately 2.3g (0.08 oz.)
Resistance to soldering heat THT	
IEC 60068-2-20, wave solder	max. 260°C/10s
Ultrasonic cleaning	no
Conformal coating	yes
Packaging/unit	tray/50 pcs., bundle/250 pcs., box/500 pcs.

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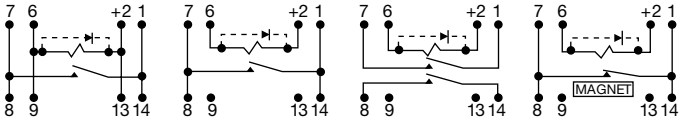
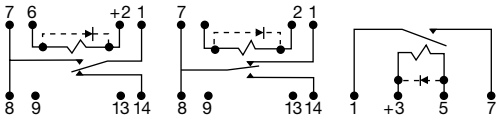
JWD/JWS Series Reed Relays (Continued)

Terminal assignment
TOP view on component side of PCB

Dia. 1 Dia. 2 Dia. 3 Dia. 4





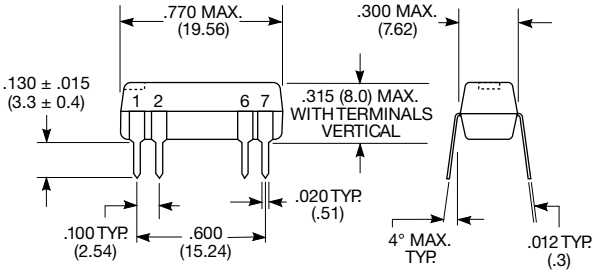
Dia. 5 Dia. 6 Dia. 7

Note: Terminal numbers are for reference only and do not appear on relays.

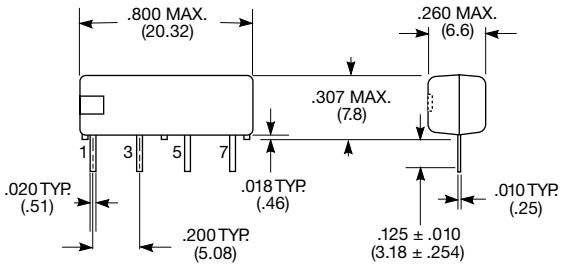
Note: Magnetic shielding may be required between relays when they are placed in very close proximity to one another.

Dimensions

JWD Series



JWS Series



Product code	Contacts	Max. rating	Diode	Coil voltage	Coil resistance[1)]	Operate voltage	Coil power	Wiring diagram	Part number
JWD-107-1	1 form A,	10W	No	5/6VDC	500ohm	3.8VDC	50/72mW	1	1393771-3
JWD-107-5	1 NO contact		Yes	5/6VDC	500ohm	3.8VDC	50/72mW	1	1393771-5
JWD-107-3			No	12VDC	1200ohm	9.6VDC	120mW	1	1393771-4
JWD-107-7			Yes	12VDC	1200ohm	9.6VDC	120mW	1	1393771-6
JWD-171-5			No	24VDC	2150ohm	19.2VDC	268mW	2	2-1393771-0
JWD-171-10			Yes	24VDC	2150ohm	19.2VDC	268mW	2	1393771-7
JWD-171-21	2 form A,		No	5/6VDC	200ohm	3.8VDC	125/180mW	3	1-1393771-4
JWD-171-25	2 NO contacts		Yes	5/6VDC	200ohm	3.8VDC	125/180mW	3	1-1393771-7
JWD-171-23			No	12VDC	500ohm	9.6VDC	288mW	3	1-1393771-5
JWD-171-27			Yes	12VDC	500ohm	9.6VDC	288mW	3	1-1393771-8
JWD-171-24			No	24VDC	2200ohm	19.2VDC	262mW	3	1-1393771-6
JWD-171-28			Yes	24VDC	2200ohm	19.2VDC	262mW	3	1-1393771-9
JWD-171-12	1 form B,		No	5/6VDC	500ohm	3.8VDC	50/72mW	4	1393771-8
JWD-171-17	1 NCO contact		Yes	5/6VDC	500ohm	3.8VDC	50/72mW	4	1-1393771-1
JWD-171-14			No	12VDC	1200ohm	9.6VDC	120mW	4	1393771-9
JWD-171-19			Yes	12VDC	1200ohm	9.6VDC	120mW	4	1-1393771-2
JWD-171-15			No	24VDC	2200ohm	19.2VDC	262mW	4	1-1393771-0
JWD-171-20			Yes	24VDC	2200ohm	19.2VDC	262mW	4	1-1393771-3
JWD-172-1	1 form C,	3W	No	5/6VDC	200ohm	3.8VDC	125/180mW	5	2-1393771-1
JWD-172-5	1 CO contact		Yes	5/6VDC	200ohm	3.8VDC	125/180mW	5	2-1393771-9
JWD-172-3			No	12VDC	500ohm	9.6VDC	288mW	5	2-1393771-7
JWD-172-7			Yes	12VDC	500ohm	9.6VDC	288mW	5	3-1393771-0
JWD-172-4			No	24VDC	2200ohm	19.2VDC	262mW	5	2-1393771-8
JWD-172-8			Yes	24VDC	2200ohm	19.2VDC	262mW	5	3-1393771-1
JWD-172-155			No	5/6VDC	200ohm	3.8VDC	125/180mW	6	2-1393771-2
JWD-172-159			Yes	5/6VDC	200ohm	3.8VDC	125/180mW	6	2-1393771-4
JWD-172-161			Yes	12VDC	1000ohm	9.6VDC	144mW	6	2-1393771-5
JWD-172-158			No	24VDC	2150ohm	19.2VDC	268mW	6	2-1393771-3
JWD-172-162			Yes	24VDC	2150ohm	19.2VDC	268mW	6	2-1393771-6
JWS-117-1	1 form A,	10W	No	5VDC	500ohm	3.8VDC	50mW	7	3-1393771-2
JWS-117-6	1 NO contact		Yes	5VDC	500ohm	3.8VDC	50mW	7	3-1393771-8
JWS-117-3			No	12VDC	530ohm	9.6VDC	272mW	7	3-1393771-4
JWS-117-8			Yes	12VDC	530ohm	9.6VDC	272mW	7	3-1393771-6
JWS-117-18			Yes	12VDC	1850ohm	9.6VDC	78mW	7	3-1393771-3
JWS-117-5			No	24VDC	2150ohm	19.2VDC	268mW	7	3-1393771-5

1) Coil resistance ±10%.

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R10 Series Relay

- **1 through 8 form C (CO) contact arrangement**
- **Broad range of coil options provides sensitivity ranging from 25 to 750mW**
- **Various contacts switch from dry circuit to 7.5 amps**
- **Many mounting and termination options**

R10 R10-R R10S R10-T

Typical applications
Coin changers, audio equipment, elevators, traffic controls, ultrasonic test equipment, parking toll readers.

Approvals

UL E29244; CSA LR15734
Technical data of approved types on request.

Contact Data

Contact arrangement	1, 2, 3, 4, 6 and 8 form C (CO)
Rated voltage	120VAC
Rated current	7.5A
Contact material	Ag, AgCdO, Au overlay Ag, AuPtAg
Contact style	Single or bifurcated crossbar
Min. recommended contact load	
W type, AgCdO, single contact	300mA, 12VDC
X type, AgCdO, single contact	300mA, 12VDC
M type, AgCdO, bifurcated contact	300mA, 12VDC
Y type, Ag, single contact	100mA, 12VDC
Z type, Ag, bifurcated crossbar	1mA, 12VDC
P type, Au overlay Ag, bifurcated crossbar	dry circuit
L type, AuPtAg, bifurcated crossbar	dry circuit
Initial contact resistance	
All AgCdO contact types	100mΩ
All other contact materials and types	50mΩ
Frequency of operation	360 ops./hr

Contact ratings

Type	Load	Cycles
UL 508		
W type, AgCdO, single contact		
	7.5A, 120VAC, resistive	
	7.5A, 28VDC, resistive	
	1/8HP, 120VAC, same polarity	
	1/6HP, 240VAC, same polarity	
X type, AgCdO, single contact		
	2A, 30VDC, resistive	$100x10^3$
	5A, 120VAC, resistive	$6x10^3$
	5A, 30VDC, resistive	$100x10^3$
	1/20HP, 120VAC, same polarity	
	1/10HP, 240VAC, same polarity	
M type, AgCdO, bifurcated contact		
	5A, 120VAC, resistive	$6x10^3$
	5A, 28VDC, resistive	$6x10^3$
Y type, Ag, single contact		
	2A, 120VAC	$6x10^3$
	2A, 28VDC	$6x10^3$
	250VA, 250VAC	$30x10^3$
	125VA, 125VAC	$100x10^3$
Z type, Ag, bifurcated crossbar contact		
	3A, 120VAC	$6x10^3$
	3A, 28VDC	$6x10^3$
	2A, 30VDC	$100x10^3$

Contact ratings (continued)

Type	Load	Cycles
UL 508		
P type, Au overlay Ag, bifurcated crossbar contact		
	2A, 120VAC, resistive	$100x10^3$
	3 A, 120 VAC, resistive	$6x10^3$
	3 A, 30 VDC, resistive	$100x10^3$
L type, AuPtAg, bifurcated crossbar contact		
	500mA, 28VDC, resistive	$6x10^3$
Mechanical endurance	$10x10^6$ ops., except W type is $1x10^6$ ops.	

Coil Data

Coil voltage range: 3 to 115VDC, 4.5mA to 20mA, 6 to 115VAC

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Coil resistance Ω±10%	Rated coil power mW
V - standard DC voltage adjustment				
1, 2 and 4 pole				
V10	3	2.25	10	900
V28	5	3.75	28	900
V52	6	4.5	52	900
V185	12	9	185	900
V700	24	18	700	900
V2.5K	48	36	2500	900
V5.8K	72	54	5800	900
V15.0K	115	86	15000	900
6 pole				
V6	3	2.25	6	1,500
V16	5	3.75	16	1,600
V25	6	4.5	25	1,500
V90	12	9	90	1,600
V430	24	18	430	1,400
V1.5K	48	36	1500	1,600
V3.5K	72	54	3500	1,500
V9.0K	115	86	9000	1,500
8 pole				
V5	3	2.25	5	1,800
V14	5	3.75	14	1,800
V20	6	4.5	20	1,800
V72	12	9	72	2,000
V350	24	18	350	1,700
V1.25K	48	36	1250	1,900
V2.8K	72	54	2800	1,900
V8.0K	115	86	8000	1,700

All figures are given for coil without preenergization, at ambient temperature +23°C.

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R10 Series Relay (Continued)

Coil versions, DC coil (continued)

Coil code	Rated voltage VDC	Operate voltage VDC	Coil resistance Ω±10%	Rated coil power mW
Q - special DC voltage adjustment				
1 and 2 pole				
Q52	5	3.1	52	500
Q110	6	4.5	110	350
Q450	12	9.2	450	350
Q1.8K	24	17.4	1,800	350
Q7.5K	48	36.2	7500	310
Q15.0K	72	49.5	15000	350
Q30.0K	115	67.5	30000	450
3 and 4 pole				
Q32	5	3.8	32	800
Q52	6	4.2	52	700
Q185	12	8.4	185	800
Q1.0K	24	17.2	1000	600
Q3.2K	48	31.1	3200	750
Q7.5K	72	49.3	7500	700
Q15.0K	115	67.5	15000	900
S - sensitive DC voltage adjustment				
1 and 2 pole				
S50	3	2.25	50	180
S140	5	3.75	140	180
S200	6	4.5	200	180
S800	12	9	800	180
S3.2K	24	18	3200	180
S13.0K	48	36	13000	180
S28.0K	72	54	28000	190
S50.0K	115	86	50000	270
3 and 4 pole				
S30	3	2.25	30	300
S80	5	3.75	80	350
S110	6	4.5	110	350
S450	12	9	450	350
S1.8K	24	18	1800	350
S7.5K	48	36	7500	300
S16.0K	72	54	16000	350
S40.0K	115	86	40000	350
6 pole				
S20	3	2.25	20	500
S56	5	3.75	56	500
S80	6	4.5	80	500
S320	12	9	320	500
S1.2K	24	18	1200	500
S5.2K	48	36	5200	500
S13.0K	72	54	13000	400
S30.0K	115	86	30000	500
8 pole				
S12	3	2.25	12	750
S35	5	3.75	35	750
S52	6	4.5	52	700
S200	12	9	200	750
S800	24	18	800	750
S3.2K	48	36	3200	750
S7.5K	72	54	7500	700
S16.0K	115	86	16000	850
SS - ultra sensitive DC voltage adjustment				
1 pole				
SS220	3	2.25	220	45
SS700	5	3.75	700	40
SS1.0K	6	4.5	1000	40
SS4.0K	12	9	4000	40
SS9.0K	18	13.5	9000	40
SS15.0K	24	18	15000	40
SS30.0K	36	27	30000	45

Coil versions, DC coil (continued)

Coil code	Rated voltage VDC	Operate voltage VDC	Coil resistance Ω±10%	Rated coil power mW
S - sensitive DC voltage adjustment (continued)				
2 pole				
SS110	3	2.25	110	85
SS350	5	3.75	350	75
SS500	6	4.5	500	75
SS2.0K	12	9	2000	75
SS4.5K	18	13.5	4500	75
SS7.5K	24	18	7500	80
SS15.0K	36	27	15000	85
SS30.0K	48	36	30000	80
3 and 4 pole				
SS52	3	2.25	52	175
SS175	5	3.75	175	150
SS250	6	4.5	250	150
SS1.0K	12	9	1000	150
SS2.2K	18	13.5	2200	150
SS3.7K	24	18	3700	150
SS7.5K	36	27	7500	175
SS15.0K	48	36	15000	150

Coil code	Maximum coil current mADC	Operate current mADC	Coil resistance Ω±10%	Pick-up coil power mW
J - sensitive DC current adjustment				
2 pole				
J1.0K	45	8.5	1000	75
J2.5K	28	5.8	2500	85
J5.0K	20	4.1	5000	85
J10.0K	14	3.1	10000	100
J15.0K	11.5	2.6	15000	100
J30.0K	8.3	1.7	30000	85
4 pole				
J1.0K	45	13	1000	175
J2.5K	28	8.4	2500	175
J5.0K	20	6.2	5000	200
J10.0K	14	4.5	10000	200
J15.0K	11.5	3.5	15000	200
J30.0K	8.3	2.5	30000	200
6 pole				
J1.0K	45	16	1000	250
J2.5K	28	10	2500	250
J5.0K	20	7.2	5000	250
J10.0K	14	5	10000	250
J15.0K	11.5	4.2	15000	270
J30.0K	8.3	2.9	30000	250
8 pole				
J1.0K	45	20	1000	250
J2.5K	28	13	2500	250
J5.0K	20	9	5000	250
J10.0K	14	6.4	10000	250
J15.0K	11.5	5.3	15000	270
J30.0K	8.3	3.7	30000	250
J - sensitive DC current adjustment - R10S types only				
1 pole				
J500[1)]	–	4.5	500	10
J1.0K[1)]	–	3.2	1000	10
J2.5K	–	2	2500	10
J5.0K[2)]	–	1.4	5000	10
J10.0K	–	1	10000	10
J16.0K	–	0.8	16000	10
J30.0K[3)]	–	0.6	30000	11

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R10 Series Relay (Continued)

Coil versions, DC coil (continued)

Coil code	Maximum coil current mADC	Operate current mADC	Coil resistance Ω±10%	Pick-up coil power mW
J - sensitive DC current adjustment – R10S types only				
2 pole				
J500[1)]	–	6.3	500	20
J1.0K	–	4.5	1000	20
J2.5K[2)]	–	2.9	2500	25
J5.0K	–	2	5000	20
J10.0K[3)]	–	1.4	10000	20
J16.0K	–	1.2	16000	25
J30.0K	–	0.8	30000	20
4 pole				
J500	–	9	500	45
J1.0K	–	6.5	1000	45
J2.5K[2)]	–	4.1	2500	45
J5.0K[3)]	–	2.9	5000	45
J10.0K	–	2	10000	40
J16.0K	–	1.4	16000	35
J30.0K	–	1.2	30000	45
JJ - ultrasensitive DC current adjustment				
1 pole				
JJ1.0K	45	4.5	1000	20
JJ2.5K	28	2.9	2500	25
JJ5.0K	20	2.1	5000	25
JJ10.0K	14	1.5	10000	25
JJ15.0K	11.5	1.2	15000	25
JJ30.0K	8.3	0.85	30000	25
2 pole				
JJ1.0K	45	6.5	1000	45
JJ2.5K	28	4.1	2500	45
JJ5.0K	20	2.9	5000	45
JJ10.0K	14	2	10000	40
JJ15.0K	11.5	1.7	15000	45
JJ30.0K	8.3	1.2	30000	45
4 pole				
JJ1.0K	45	9	1000	85
JJ2.5K	28	5.8	2500	85
JJ5.0K	20	4.1	5000	85
JJ10.0K	14	3	10000	90
JJ15.0K	11.5	2.4	15000	85
JJ30.0K	8.3	1.7	30000	90

1) Suggested for 5VDC operation
2) Suggested for 12VDC operation
3) Suggested for 24VDC operation

All figures are given for coil without preenergization, at ambient temperature +23°C.

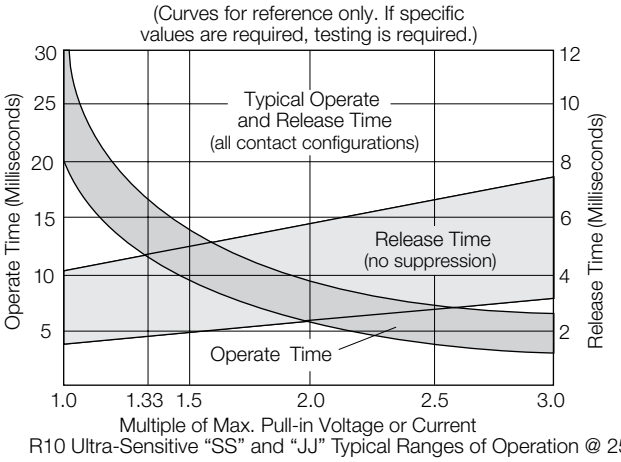
Coil versions, AC coil (dual coil diode rectified construction)

Coil code	Rated voltage VAC	Operate voltage VAC	Coil resistance Ω±20%
Standard AC			
2 and 4 pole			
6V	6	5	25
12V	12	9	120
24V	24	18	500
48V	48	36	2000
115V	115	86	9000
6 and 8 pole			
6V	6	5	15
12V	12	9	90
24V	24	18	350
48V	48	36	1400
115V	115	86	7500

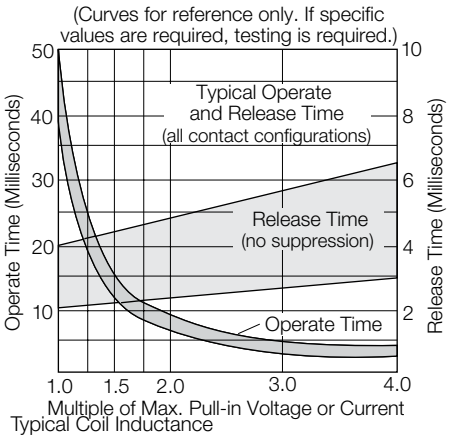
All figures are given for coil without preenergization, at ambient temperature +23°C.

Operative Range

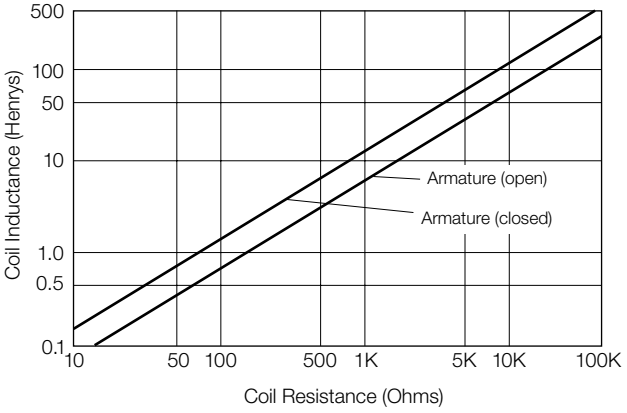
R10 Relays (DC Only) Typical Ranges of Operations @ 25°C



R10 Ultra-Sensitive "SS" and "JJ" Typical Ranges of Operation @ 25°C



Typical Coil Inductance



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R10 Series Relay (Continued)

Insulation Data	
Initial dielectric strength	
between open contacts	500V_{rms}
between contact and coil	1000V_{rms}
between adjacent contacts	1000V_{rms}
Initial insulation resistance	
between insulated elements	10GΩ, 500VDC

Other Data	
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-55ºC to 75ºC
Category of environmental protection	
IEC 61810	RTI - dust protected and RTIII - wash tight

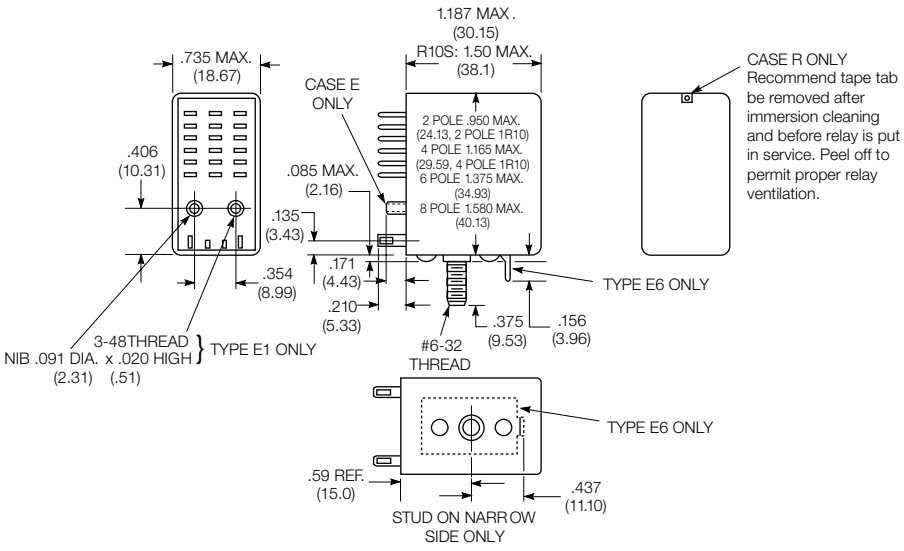
Other Data (continued)	
Terminal type	Solder/plug-in terminals, PCB-THT, 8- or 11-PIN octal type plug
Weight	23 to 40g
Packaging/unit	tray/50 pcs., box/350pcs.

Accessories	
For details see datasheet	Sockets and Accessories, R10 Relays

Product Code	Description
Many versions of sockets and clips available.	

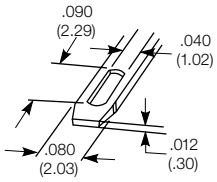
NOTE: Relays with contact current <50mA are not recommended for use in sockets.

Dimensions

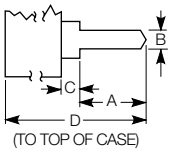


Terminal dimensions

Solder terminal dimensions

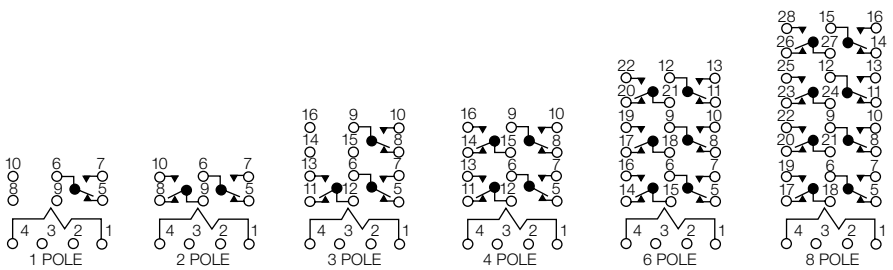


Printed circuit terminal dimensions

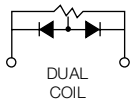


	A	B	C	D	Arrang.
Type 2	.131	.050	.064	1.251	Inline
Type 7	.131	.040	.013	1.20	Inline
Type 9	.170	.040	.000	1.187	Staggered
Thickness	.012	.012	.012	.013	—

Terminal assignment



R10 - AC Coil Diagram



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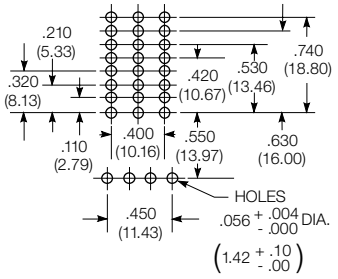
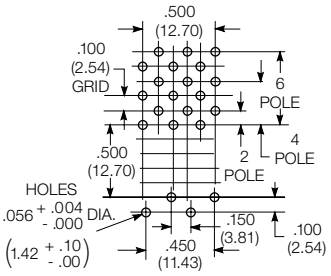
R10 Series Relay (Continued)

PCB layout
Bottom view on solder pins

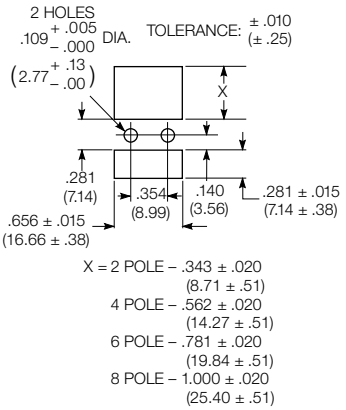
Terminal Types E2 & R2
(Omit unnecessary holes)



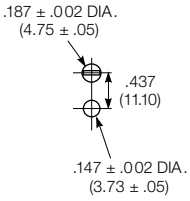
Terminal Types E9 & R9
(Omit unnecessary holes)



Suggested panel cutout for relay



Mounting hole layout for terminal & mounting style 6



Product code structure

Typical product code: **R10 -E 1 Y 4 -V700**

Type
- **R10** Cradle-style relay with form C contacts
- **R10S** Super sensitive cradle-style relay with form C contacts

Case style
- **E** Non-sealed polycarbonate dust cover (RTI)
- **R** Wash-tight (RTIII), tape sealed plastic case [1)]
- **T** Octal style base on non-sealed polycarbonate dust cover (terminal types 1 & 2 only; 1, 2 & 3 poles only)

1) R10 type only, terminal code 2 or 9 only, no ground or stud

Terminal and mounting
- **1** Solder/Plug-in terminals with #3-48 mounting stud on R10-E; 8-pin octal type on R10-T
- **2** PCB terminals (std.) 1.62mm (.064in) clearance, 31.75mm (1.25in) seated ht.; 11-pin octal type on R10-T
- **6** Side mounting plate with #6-32 stud, solder/plug-in terminals (#3-48 stud not included)
- **7** Narrow 1.02mm (.04in) PCB terminals, .33mm (.013in) clearance, 30.48mm (1.2in) seated ht.
- **9** Non-shouldered, narrow 1.02mm (.04in) PCB terminals in staggered arrangement [2)]

2) Available only on 1 through 6 pole models

Contact style and rating [3)]
- **W** Single contact rated 7.5A max, 300mA min. [4) 5)]
- **X** Single contact rated 5A max, 300mA min. [5) 6)]
- **M** Bifurcated contact rated 5A max, 300 mA min. [5) 6)]
- **Y** Single contact rated 2A typ, 3A max, 100mA min.
- **Z** Bifurcated low level contacts rated 100mA typ, 2A max, 1mA min.
- **P** Bifurcated crossbar dry circuit contacts rated 1mA typ, 3A max, dry circuit min.
- **L** Bifurcated crossbar dry circuit contacts rated 500 microA typ, 250 mA max, dry circuit min.

3) Ratings are at 28VDCV or 115VAC. Total load must not exceed 30A per relay.
4) Use ungrounded frame for AC load of ≥5A. Max ratings are 7.5A at 115VAC and 4A at 28VDC for coil codes S & J
5) Only available on R10 type, only available with coil adjustment code V, Q, S and J.
6) Use ungrounded frame for AC load of ≥5A. Max ratings are 5A at 115VAC and 3A at 28VDC for coil codes S & J

Number of poles
- **1** 1 pole
- **2** 2 pole
- **3** 3 pole
- **4** 4 pole (not available on R10-T)
- **6** 6 pole (not available on R10-T) [7)]
- **8** 8 pole (not available on R10-T) [8)]

7) Not available with contact code W
8) Only available with case style E, not available with contact code W

Coil voltage
Coil code: please refer to coil versions table
- **AC voltage** Specify coil code consisting of nominal coil voltage followed by W (example: 24V)
- **DC voltage** Specify coil code consisting of coil adjustment code letter followed by coil resistance (example: V700)

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R10 Series Relay (Continued)

Product Code	Arrangement	Material	Contact Style/Rating	Nom. Coil V	Terminals & Mounting	Part Number
R10-E1P2-115V	2 form C, 2 CO	Au overlay Ag	Bif crossbar / dry circuit	115 VAC	Solder/plug-in w/ #3-48 mounting stud	7-1393765-0
R10-E1P2-V700				24 VDC		6-1393765-9
R10-E1P4-115V	4 form C, 4 CO			115 VAC		7-1393765-6
R10-E1P4-V700				24 VDC		7-1393765-5
R10-E1W2-V185	2 form C, 2 CO	AgCdO	Single contact / 7.5A	12 VDC		8-1393765-9
R10-E1W2-V700				24 VDC		9-1393765-1
R10-E1W4-V185	4 form C, 4 CO			12 VDC		9-1393765-3
R10-E1W4-V700				24 VDC		9-1393765-5
R10-E1X2-24V	2 form C, 2 CO		Single contact / 5A	24 VAC		1-1393766-1
R10-E1X2-115V				115 VAC		1-1393766-0
R10-E1X2-S800				12 VDC		1393766-3
R10-E1X2-V185						1393766-5
R10-E1X2-V700				24 VDC		1393766-9
R10-E1X4-115V	4 form C, 4 CO			115 VAC		1-1393766-8
R10-E1X4-V185				12 VDC		1-1393766-4
R10-E1X4-V700				24 VDC		1-1393766-7
R10-E1X4-V2.5K				48 VDC		1-1393766-5
R10-E1X6-115V	6 form C, 6 CO			115 VAC		2-1393766-5
R10-E1X6-V90				12 VDC		2-1393766-4
R10-E1X6-V430				24 VAC		2-1393766-2
R10-E1Y2-J1.0K	2 form C, 2 CO	Ag	Single contact / 2A typical	Not applicable		3-1393766-3
R10-E1Y2-J2.5K						3-1393766-4
R10-E1Y2-V185				12 VDC		4-1393766-0
R10-E1Y2-V700				24 VDC		4-1393766-4
R10-E1Y2-V2.5K				48 VDC		4-1393766-1
R10-E1Y2-V15.0K				115 VDC		3-1393766-9
R10-E1Y4-J10.0K	4 form C, 4 CO			Not applicable		4-1393766-9
R10-E1Y4-V52						5-1393766-6
R10-E1Y4-V2.5K				48 VDC		5-1393766-5
R10-E1Y4-V700				24 VDC		5-1393766-7
R10-E1Y6-V430	6 form C, 6 CO					6-1393766-1
R10-E1Y6-V1.5K				48 VDC		6-1393766-0
R10-E1Z2-V185	2 form C, 2 CO		Bifurcated / 100mA typical	12 VDC		7-1393766-2
R10-E1Z2-V700				24 VDC		7-1393766-4
R10-E1Z4-V185	4 form C, 4 CO			12 VDC		7-1393766-9
R10-E1Z4-V700				24 VDC		8-1393766-1
R10-E1Z4-V2.5K				48 VDC		8-1393766-0
R10-E1Z6-V430	6 form C, 6 CO			24 VDC		8-1393766-6
R10-E1Z6-V1.5K				48 VDC		8-1393766-5
R10-T1P2-115V	2 form C, 2 CO	Au overlay Ag	Bif crossbar / dry circuit	115 VAC		2-1393769-8
R10S-E1Y1-J1.0K	1 form C, 1 CO	Ag	Single contact / 2A typical	Not applicable		7-1393769-0
R10S-E1Y2-J5.0K	2 form C, 2 CO					7-1393769-5
R10-E2P4-V185	4 form C, 4 CO	Au overlay Ag	Bif crossbar / dry circuit	12 VDC	PCB, .064" clearance, 1.25" seated ht.	1393767-3
R10-E2P4-V700				24 VDC		1393767-4
R10-E2W2-V185	2 form C, 2 CO	AgCdO	Single contact / 5A	12 VDC		1393767-7
R10-E2X2-V185						1-1393767-1
R10-E2X2-V700				24 VDC		1-1393767-5
R10-E2X4-V185	4 form C, 4 CO			12 VDC		1-1393767-7
R10-E2X4-V700				24 VDC		1-1393767-8
R10-E2Y2-V185	2 form C, 2 CO	Ag	Single contact / 2A typical	12 VDC		2-1393767-6
R10-E2Y2-V700				24 VDC		2-1393767-9
R10-E2Y4-V185	4 form C, 4 CO			12 VDC		3-1393767-5
R10-E2Y4-V700				24 VDC		3-1393767-6
R10S-E2Y1-J1.0K	1 form C, 1 CO			Not applicable		8-1393769-1

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Cradle N Relay V23154/V23162

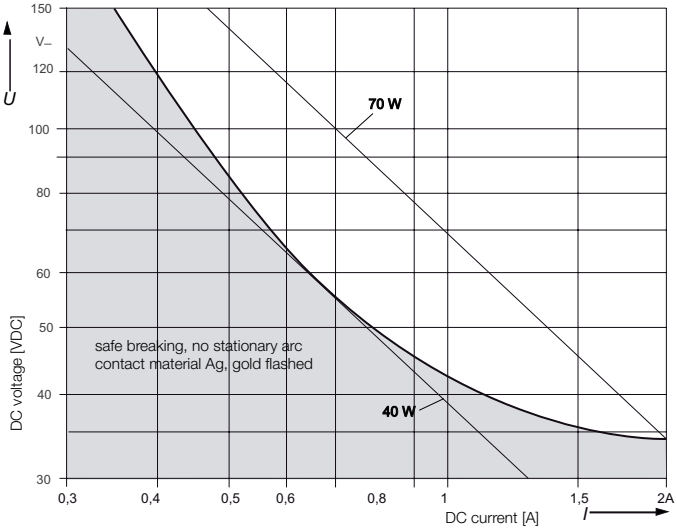
- **Multi purpose relay**
- **Highly reliable**
- **Great variety of contact arrangements and materials to meet specific applications**
- **Contacts for signal loads and currents up to 5 A**
- **DC coil, operating voltage 1.5VDC to 125VDC; AC, latching and non-latching coils on request**
- **Sockets for easy and quick mounting of relays**

Typical applications
Measurement and control equipment, control equipment in nuclear powerplant, press controls with high safety requirements (force-guided springs), telecommunications.

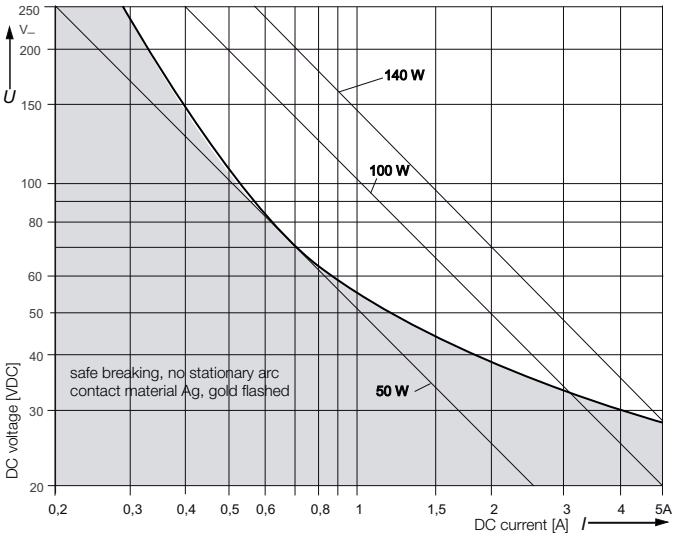
Contact Data

Product code block 3	B104/B110/B112	B604/B610/B612	C104/C110/C112	C404/C410	F104 to F107
Contact arrangement	max. 4 form A (4 CO)contacts, 2 form B (2 NC) contacts or 6 form A (6 NO) contacts (see product code table)				
Max. switching voltage	150VDC 125VAC	36VDC 30VAC	150VDC 125VAC	36VDC 30VAC	150VDC 125VAC
Rated current	2A	0.2A	2A	0.2A	5A
Limiting continuous current at max. ambient temperature	2A	2A	2A	2A	5A
Breaking capacity max. see DC load breaking capacity curve below	35 to 70W 50VA	5W, 5VA -	35 to 70W 50VA	5W, 5VA -	50 to 140W 500VA
Contact material Contact style	silver, gold-flashed single contact	gold F single contact	silver, gold-flashed bifurcated contacts	gold F bifurcated contacts	silver, gold-flashed single contact
Frequency of operation, without load, max.	50 ops./s	50 ops./s	50 ops./s	50 ops./s	10 ops./s
Operate / release time typ.	7.5/3ms	7.5/3ms	7.5/3ms	7.5/3ms	7.5/3ms
Mechanical endurance	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.

Max. DC breaking capacity, contact sets B1xx, C1xx



Max. DC breaking capacity, contact sets F1xx



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Cradle N Relay V23154/V23162 (Continued)

Coil Data

Magnetic system	neutral
Coil voltage range	1.1 to 125 VDC, typ. 800mW power consumption
Max. coil temperature	100 °C
Thermal resistance	< 50K/W

Coil versions, DC coil, monostable

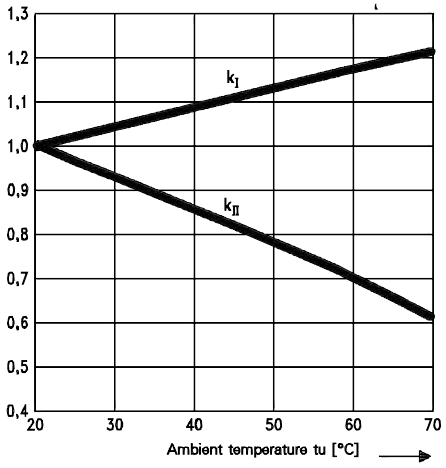
Coil code	Rated voltage VDC	Operate/Limiting voltage[1] VDC	Coil resistance Ω±15%	Rated coil power mW
702	1.1	-	2	807
711	5	-	28	893
712	7	-	58	845
715	9	-	110	736
716	10	-	150	667
717	12	-	220	655
719	15	-	325	692
720	20	-	550	727
721	24	-	890	647
722	32	-	1700	602
726	48	-	3200	720
734	60	-	4700	766
704	72	-	7600	682
735	110	-	15000	807
703	125	-	20900	748

All figures are given for coil without pre-energization, at ambient temperature +23°C.

Coil versions, DC coil, monostable

Coil code	Rated voltage VDC	Operate/Limiting voltage[1] VDC	Coil resistance Ω±15%	Rated coil power mW
430	10	-	140	714
418	12	-	230	626
471	12	-	220	655
479	16	-	390	656
421	24	-	700	823
472	24	-	890	647
496	25	-	730	856
473	60	-	4700	766
404	72	-	5800	894

All figures are given for coil without pre-energization, at ambient temperature +23°C.



1) Refer to 'Product code table'.

Coil data (continued)

Terminals:
coil with 1 winding: start 4, end 1
coil with 2 windings (upon request):
start 3, end 2 for winding I, start 4, end 1 for winding II

The minimum voltage U_I depends on the contact set and the ambient temperature, the maximum voltage U_{II} only depends on the ambient temperature.
Between minimum voltage $U_{I\ tamb}$ and operating voltage U a safety margin of approx. 20% is recommended.

$U_{I\ tamb}$ (1.2)	$< U_I \leq U_{II}$ tamb
$U_{I\ tamb}$	$U_I \cdot U20\ °C \cdot k_{I\ tamb}$
$U_{II\ tamb}$	$U_{II}\ 20\ °C \cdot k_{II\ tamb}$
tamb	Ambient temperature
U	Operating voltage
$U_{I\ tamb}$	Minimum voltage at ambient temperature, tamb
$U_{II\ tamb}$	Maximum voltage at ambient temperature, tamb
k_I and k_{II}	Factors

Insulation Data

Product code, block 3	B1xx, B6xx, C1xx, C4xx	F1xx
Initial dielectric strength		
between coil / frame	$500V_{rms}$	$500V_{rms}$
between contact / contact	$500V_{rms}$	$1000V_{rms}$
between contact / frame	$500V_{rms}$	$1000V_{rms}$
between contact / coil	$1000V_{rms}$	$1500V_{rms}$
Initial insulation resistance, at 500VDC	> 106Ω	

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content	refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter
Ambient temperature	-40 to +70°C
Category of environmental protection	
IEC 61810	RT - I dust protected, RT V - hermetically sealed
Degree of protection, IEC 60529	dust-protected IP 30, hermetically sealed IP 67
Terminal type	PCB, plug-in, solder terminals
Weight	
V23154-C0/-MO Size I	approx. 20g
V23154-D0/-NO Size II	approx. 25g
V23162-A0xxx Size I	approx. 30g
V23162-B0xxx Size II	approx. 35g
Washing	not recommended
Ultrasonic cleaning	not recommended
Packaging unit	5 pcs.

Accessories

For details see datasheet Cradle Relay, Accessories and Mounting

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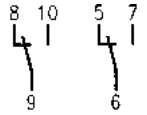
Cradle N Relay V23154/V23162 (Continued)

Terminal assignment

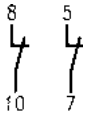
Size I

2 form C (2 CO)
V231xx-xxxxx-Bx04
V231xx-xxxxx-Cx04



2 form A (2 NO)
V231xx-xxxxx-F105

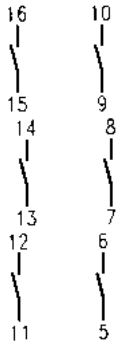
2 form B (2 NC)
V231xx-xxxxx-F107



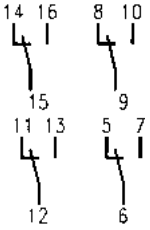
1 form A + 1 form B
(1 NO + 1 NC)
V231xx-xxxxx-F106

Size II

6 form A (6 NO)
V231xx-xxxxx-Bx12
V231xx-xxxxx-Cx12



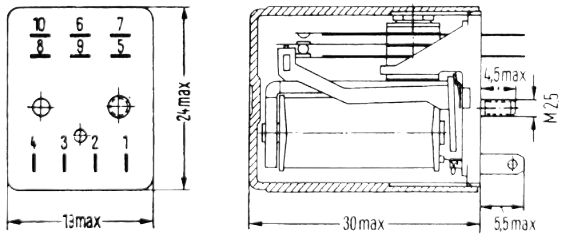
4 form C (4 CO)
V231xx-xxxxx-Bx10



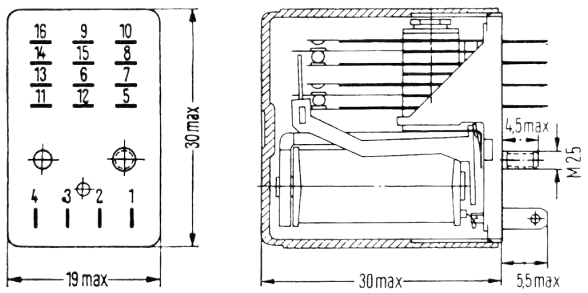
2 form C (2 CO)
V231xx-xxxxx-F104

Dimensions

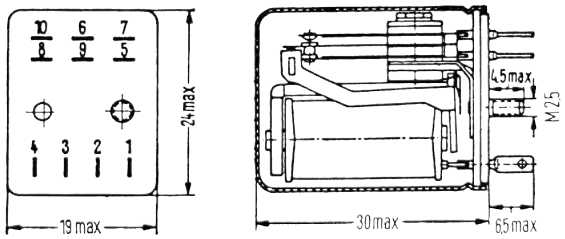
V23154-C0xx, size I type



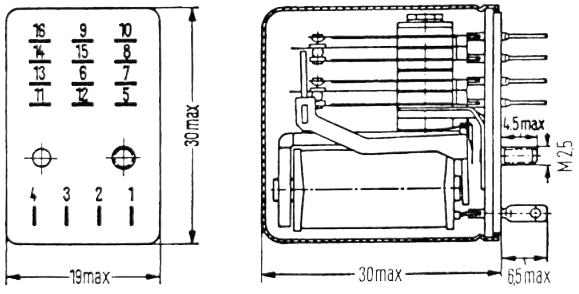
V23154-D0xx, size II type



V23162-A0xx, size I type



V23162-B0xx, size II type
V23162-H0xx, size II type



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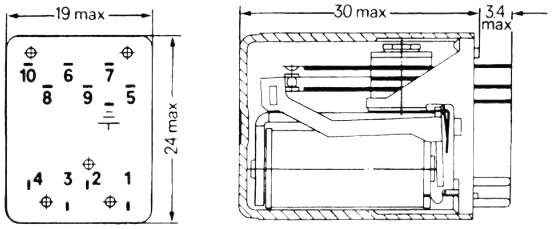
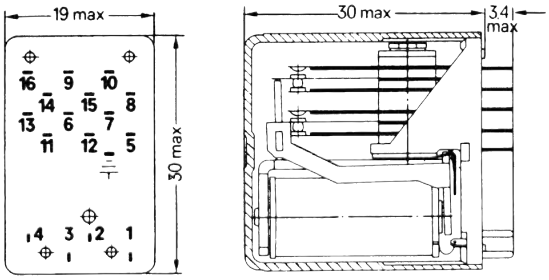
Cradle N Relay V23154/V23162 (Continued)

Dimensions

V23154-Mxxx, size I type



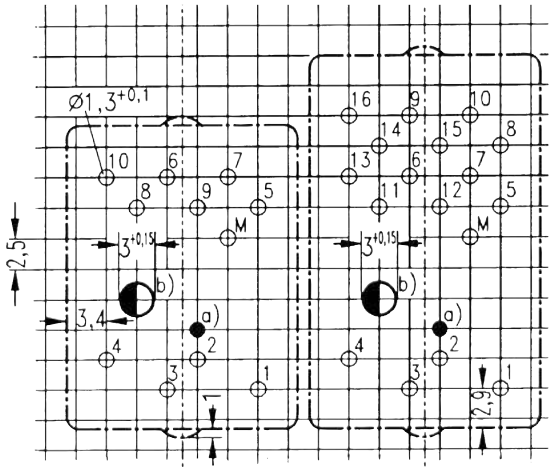
V23154-Nxxx, size II type



PCB layout

TOP view on component side of PCB

V23154-M/Nxx versions



M = Earth terminal
a) Hole for mechanical armature actuation, if required
b) Hole for socket mounting with screw M1.6.

Instructions for Impulse Operation

The maximum voltage stated in the part code table can be increased for impulse operation as follows:

$U_{II\ Impuls}$	$U_{II\ tamb} \times q$
$U_{II\ tamb}$	Maximum continuous voltage at ambient temperature t_{amb}
q	Factor

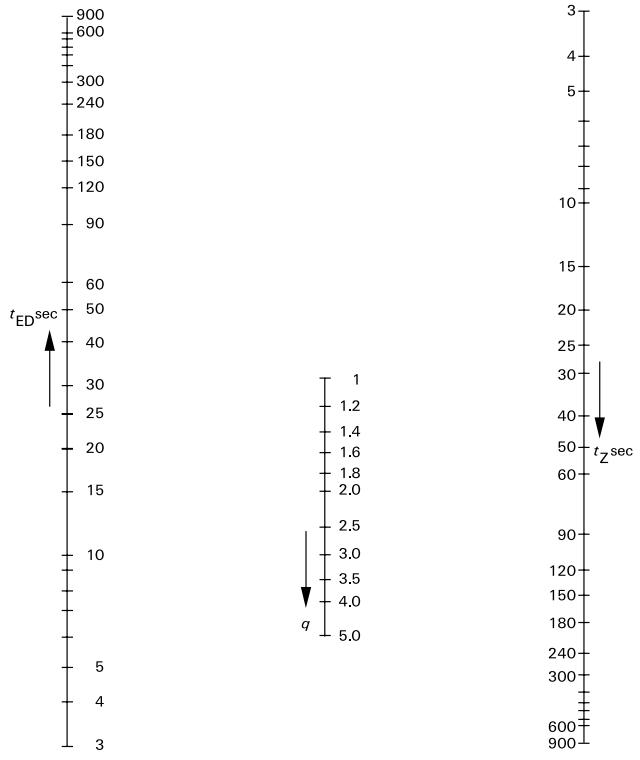
The impulse voltage must not exceed 80% of the test voltage (winding/frame or winding/winding) or 2.5 times the value of the maximum voltage listed in the part code table.

$lft_{ED} \leq 3s$ then $q = \sqrt{\frac{t_z}{t_{ED}}}$; lft_{ED} = Pulse width, t_2 = Cycle time. If $t_{ED} > 3s$ the value of q must be obtained from the nomograph.

Examples of various periodic pulse trains (energizing side)
1. Periodic recurrence of one energizing pulse
2. Periodic recurrence of two unequal energizing pulses

tED = tI + tII

tI + tII = Pulse widths within one cycle



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Cradle N Relay V23154/V23162 (Continued)

Product code structure

Typical product code	V23154	-D0	721	-B1	10

Type

V23154 Cradle N Relay, dust protected
V23162 Cradle N Relay, hermetically sealed

Version

V23154 types
C0 Size I, for plug-in and screw fixing, hand solder terminals silver-plated, with earth terminal, dust-protected (V23154)
D0 Size II, for plug-in and screw fixing, hand solder terminals silver-plated, with earth terminal, dust-protected (V23154)
M0 Size I, for printed circuit mounting, with earth terminal, dust-protected (V23154)
M4 Size I, for printed circuit mounting, without earth terminal, dust-protected (V23154)
N0 Size II, for printed circuit mounting, with earth terminal, dust-protected (V23154)
N4 Size II, for printed circuit mounting, without earth terminal, dust-protected (V23154)
V23162 types
A0 Size I, for plug-in and screw fixing, hand solder terminals tinned, hermetically sealed (V23162)
B0 Size II, for plug-in and screw fixing, hand solder terminals tinned, hermetically sealed (V23162)
H0 Size II, for plug-in and screw, fixing, hand solder terminals, gold-plated, hermetically sealed (V23162)

Coils

Coil code: please refer to coil versions table

Contact style

B1 Single contacts **B6** Single contacts **F1** Single contacts
C1 Bifurcated contacts **C4** Bifurcated contacts

Contact arrangement

04 2 form C, 2 CO **05** 2 form A, 1 NO **06** 1 form A+ 1 form B, 1 NO+ 1 NC
07 2 form B, 2 NC **10** 4 form C, 4 CO **12** 6 form A, 6 NO

Other types on request.

Product code	Version	Coil	Operate/Lim.	Arrangement	Contacts	Terminals	Enclosure	PartNumber
V23154-C0XX, standard, size I								
V23154-C0711-B104	Standard, size I	5VDC	1.8/7.2VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	5-1393806-3
V23154-C0711-B604	Standard, size I	5VDC	1.8/7.2VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	5-1393806-4
V23154-C0712-B104	Standard, size I	7VDC	2.7/10.5VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	5-1393806-5
V23154-C0712-B604	Standard, size I	7VDC	2.7/10.5VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	5-1393806-6
V23154-C0430-B104	Standard, size I	10VDC	7.1/16VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	2-1393806-0
V23154-C0418-B104	Standard, size I	12VDC	6.6/20.5VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	1393806-8
V23154-C0717-B104	Standard, size I	12VDC	5.3/20VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	6-1393806-7
V23154-C0717-C104	Standard, size I	12VDC	7.1/20VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	6-1393806-8
V23154-C0719-B104	Standard, size I	15VDC	6.8/24.5VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	7-1393806-1
V23154-C0719-B604	Standard, size I	15VDC	6.8/24.5VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	7-1393806-2
V23154-C0719-C104	Standard, size I	15VDC	9.1/24.5VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	7-1393806-3
V23154-C0719-C404	Standard, size I	15VDC	9.1/24.5VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	7-1393806-4
V23154-C0720-B104	Standard, size I	20VDC	8.9/32VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	7-1393806-8
V23154-C0720-B604	Standard, size I	20VDC	8.9/32VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	7-1393806-9
V23154-C0720-C104	Standard, size I	20VDC	11.9/32VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	8-1393806-1
V23154-C0421-B104	Standard, size I	24VDC	11.2/36VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	1-1393806-1
V23154-C0721-B104	Standard, size I	24VDC	11/40VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	8-1393806-6
V23154-C0721-B604	Standard, size I	24VDC	11/40VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	8-1393806-7
V23154-C0721-C104	Standard, size I	24VDC	14.5/40VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	8-1393806-8
V23154-C0721-C404	Standard, size I	24VDC	14.5/40VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	8-1393806-9
V23154-C0496-C104	Standard, size I	25VDC	20.8/36.3VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	2-1393806-5
V23154-C0722-B104	Standard, size I	32VDC	16.9/54VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	9-1393806-4
V23154-C0722-B604	Standard, size I	32VDC	16.9/54VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	9-1393806-5
V23154-C0722-C104	Standard, size I	32VDC	22.6/54VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	9-1393806-7
V23154-C0722-C404	Standard, size I	32VDC	22.6/54VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	9-1393806-8
V23154-C0726-B104	Standard, size I	48VDC	23/75VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	1393807-6
V23154-C0726-B604	Standard, size I	48VDC	23/75VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	1393807-7
V23154-C0726-C104	Standard, size I	48VDC	30/75VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	1393807-8
V23154-C0726-C404	Standard, size I	48VDC	30/75VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	1393807-9
V23154-C0734-B104	Standard, size I	60VDC	27/92VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	1-1393807-4
V23154-C0404-B104	Standard, size I	72VDC	36/100VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	1393806-2
V23154-C0704-B104	Standard, size I	72VDC	36.2/114VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	4-1393806-3
V23154-C0704-B604	Standard, size I	72VDC	36.2/114VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	4-1393806-5
V23154-C0704-C104	Standard, size I	72VDC	48.4/114VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	4-1393806-6
V23154-C0704-C404	Standard, size I	72VDC	48.4/114VDC	2 form C (2 CO)	Bifurcated	Plug-in/solder	Dust protected	4-1393806-7
V23154-C0735-B104	Standard, size I	110VDC	49/164VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	1-1393807-6
V23154-C0703-B104	Standard, size I	125VDC	61/190VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	3-1393806-6

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Cradle N Relay V23154/V23162 (Continued)

Product code	Version	Coil	Operate/Lim.	Arrangement	Contacts	Terminals	Enclosure	PartNumber
V23154-C0XX, 5A, size I								
V23154-C0702-F106	5A, size I	1.1VDC	0.4/1.7VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	3-1393806-4
V23154-C0712-F105	5A, size I	7VDC	2.7/10.5VDC	2 form A (2 NO)	Single	Plug-in/solder	Dust protected	5-1393806-7
V23154-C0712-F106	5A, size I	7VDC	2.7/10.5VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	5-1393806-8
V23154-C0XX, 5A, size I								
V23154-C0715-F105	5A, size I	9VDC	3.9/14VDC	2 form A (2 NO)	Single	Plug-in/solder	Dust protected	6-1393806-3
V23154-C0717-F105	5A, size I	12VDC	7.1/20VDC	2 form A (2 NO)	Single	Plug-in/solder	Dust protected	6-1393806-9
V23154-C0717-F106	5A, size I	12VDC	7.1/20VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	7-1393806-0
V23154-C0719-F105	5A, size I	14.5VDC	6.6/24VDC	2 form A (2 NO)	Single	Plug-in/solder	Dust protected	7-1393806-5
V23154-C0720-F105	5A, size I	19VDC	8.2/31VDC	2 form A (2 NO)	Single	Plug-in/solder	Dust protected	8-1393806-2
V23154-C0720-F106	5A, size I	19VDC	8.2/31VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	8-1393806-3
V23154-C0421-F105	5A, size I	24VDC	15/36VDC	2 form A (2 NO)	Single	Plug-in/solder	Dust protected	1-1393806-3
V23154-C0721-F105	5A, size I	24VDC	11/40VDC	2 form A (2 NO)	Single	Plug-in/solder	Dust protected	9-1393806-1
V23154-C0721-F106	5A, size I	24VDC	11/40VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	9-1393806-2
V23154-C0722-F105	5A, size I	33VDC	16/54VDC	2 form A (2 NO)	Single	Plug-in/solder	Dust protected	1393807-2
V23154-C0722-F106	5A, size I	33VDC	16/54VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	1393807-3
V23154-C0726-F105	5A, size I	48VDC	23/75VDC	2 form A (2 NO)	Single	Plug-in/solder	Dust protected	1-1393807-1
V23154-C0726-F106	5A, size I	48VDC	30/75VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	1-1393807-2
V23154-C0734-F106	5A, size I	60VDC	27/92VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	1-1393807-5
V23154-C0704-F105	5A, size I	72VDC	36.2/114VDC	2 form A (2 NO)	Single	Plug-in/solder	Dust protected	4-1393806-8
V23154-C0704-F106	5A, size I	72VDC	36.2/114VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	1413000-2
V23154-C0735-F106	5A, size I	110VDC	49/164VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	1-1393807-7
V23154-C0703-F106	5A, size I	125VDC	61/190VDC	1A+1B (1NO+1NC)	Single	Plug-in/solder	Dust protected	4-1393806-0
V23154-D0XX, standard, size II								
V23154-D0711-B110	Standard, size II	5VDC	2.5/7.2VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	2-1393808-8
V23154-D0711-C110	Standard, size II	5VDC	3/7.2VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	3-1393808-0
V23154-D0711-C410	Standard, size II	5VDC	3/7.2VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	3-1393808-1
V23154-D0712-B110	Standard, size II	7VDC	3.6/10.5VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	3-1393808-3
V23154-D0712-B610	Standard, size II	7VDC	3.6/10.5VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	3-1393808-4
V23154-D0712-C110	Standard, size II	7VDC	4.4/10.5VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	3-1393808-5
V23154-D0715-B110	Standard, size II	8.5VDC	4.8/14VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	3-1393808-8
V23154-D0715-B610	Standard, size II	8.5VDC	4.8/14VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	3-1393808-9
V23154-D0715-C110	Standard, size II	8.5VDC	5.8/14VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	4-1393808-0
V23154-D0716-B110	Standard, size II	10VDC	5.8/16.5VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	4-1393808-3
V23154-D0716-B610	Standard, size II	10VDC	5.8/16.5VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	4-1393808-5
V23154-D0716-C110	Standard, size II	10VDC	7.1/16.5VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	4-1393808-6
V23154-D0418-B110	Standard, size II	12VDC	8.8/20.5VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	3-1393807-0
V23154-D0717-B110	Standard, size II	12VDC	7.1/20VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	4-1393808-9
V23154-D0717-B112	Standard, size II	12VDC	7.1/20VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	5-1393808-0
V23154-D0717-B610	Standard, size II	12VDC	7.1/20VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	8-1422029-2
V23154-D0717-C110	Standard, size II	12VDC	10.5/20VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	5-1393808-3
V23154-D0719-B110	Standard, size II	15VDC	9.1/24.5VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	5-1393808-6
V23154-D0719-B112	Standard, size II	15VDC	9.1/24.5VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	5-1393808-7
V23154-D0719-B610	Standard, size II	15VDC	9.1/24.5VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	6-1393808-1
V23154-D0719-C110	Standard, size II	15VDC	11/24.5VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	1413000-3
V23154-D0479-B110	Standard, size II	16VDC	15.2/27VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	7-1393807-5
V23154-D0XX, standard, size II								
V23154-D0479-C110	Standard, size II	16VDC	18.9/27VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	7-1393807-8
V23154-D0720-B110	Standard, size II	20VDC	11.9/32VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	6-1393808-5
V23154-D0720-B112	Standard, size II	20VDC	11.9/32VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	6-1393808-6
V23154-D0720-B610	Standard, size II	20VDC	11.9/32VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	6-1393808-9
V23154-D0720-C110	Standard, size II	20VDC	14.4/32VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	7-1393808-0
V23154-D0720-C112	Standard, size II	20VDC	14.4/32VDC	6 form A (6 NO)	Bifurcated	Plug-in/solder	Dust protected	7-1393808-1
V23154-D0720-C410	Standard, size II	20VDC	14.4/32VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	7-1393808-3
V23154-D0421-B110	Standard, size II	24VDC	15/36VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	3-1393807-7
V23154-D0421-B612	Standard, size II	24VDC	15/36VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	4-1393807-1
V23154-D0421-C110	Standard, size II	24VDC	18.2/36VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	4-1393807-2
V23154-D0421-C410	Standard, size II	24VDC	18.2/36VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	4-1393807-3
V23154-D0721-B110	Standard, size II	24VDC	14.5/40VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	8-1393808-3
V23154-D0721-B112	Standard, size II	24VDC	14.5/40VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	8-1393808-4
V23154-D0721-B610	Standard, size II	24VDC	14.5/40VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	9-1393808-2
V23154-D0721-B612	Standard, size II	24VDC	14.5/40VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	9-1393808-3
V23154-D0721-C110	Standard, size II	24VDC	22/40VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	9-1393808-5
V23154-D0721-C112	Standard, size II	24VDC	18/40VDC	6 form A (6 NO)	Bifurcated	Plug-in/solder	Dust protected	9-1393808-6
V23154-D0721-C410	Standard, size II	24VDC	18/40VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	9-1393808-9
V23154-D0496-B110	Standard, size II	25VDC	20.8/36.3VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	8-1393807-2
V23154-D0496-B112	Standard, size II	25VDC	20.8/36.3VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	8-1393807-3
V23154-D0722-B110	Standard, size II	32VDC	22.6/54VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	1-1393809-4
V23154-D0722-B112	Standard, size II	32VDC	22.6/54VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	1-1393809-5
V23154-D0722-B610	Standard, size II	32VDC	22.6/54VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	2-1393809-1
V23154-D0722-C110	Standard, size II	32VDC	33.8/54VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	2-1393809-2
V23154-D0722-C410	Standard, size II	32VDC	33.8/54VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	2-1393809-3
V23154-D0726-B110	Standard, size II	48VDC	30/75VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	3-1393809-2
V23154-D0726-B112	Standard, size II	48VDC	30/75VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	3-1393809-4
V23154-D0726-B610	Standard, size II	48VDC	30/75VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	3-1393809-8

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Catalog product data, 'Definitions' section, application notes and all specifications are subject to change.

Cradle N Relay V23154/V23162 (Continued)

Product code	Version	Coil	Operate/Lim.	Arrangement	Contacts	Terminals	Enclosure	PartNumber
V23154-D0XX, standard, size II								
V23154-D0726-C110	Standard, size II	48VDC	45/75VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	3-1393809-9
V23154-D0726-C112	Standard, size II	48VDC	37/75VDC	6 form A (6 NO)	Bifurcated	Plug-in/solder	Dust protected	4-1393809-0
V23154-D0726-C410	Standard, size II	48VDC	37/75VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	4-1393809-2
V23154-D0734-B110	Standard, size II	60VDC	36/92VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	5-1393809-6
V23154-D0734-B610	Standard, size II	60VDC	36/92VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	5-1393809-7
V23154-D0734-C410	Standard, size II	60VDC	43/92VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	5-1393809-8
V23154-D0404-B110	Standard, size II	72VDC	48/100VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	1-1393807-8
V23154-D0404-B112	Standard, size II	72VDC	48/100VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	1-1393807-9
V23154-D0404-B610	Standard, size II	72VDC	48/100VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	2-1393807-1
V23154-D0704-B110	Standard, size II	72VDC	48.4/114VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	1393808-6
V23154-D0704-B112	Standard, size II	72VDC	48.4/114VDC	6 form A (6 NO)	Single	Plug-in/solder	Dust protected	1393808-8
V23154-D0704-C110	Standard, size II	72VDC	58.7/114VDC	4 form C (4 CO)	Bifurcated	Plug-in/solder	Dust protected	1-1393808-6
V23154-D0704-C112	Standard, size II	72VDC	58.7/114VDC	6 form A (6 NO)	Bifurcated	Plug-in/solder	Dust protected	1-1393808-7
V23154-D0735-B110	Standard, size II	110VDC	65/164VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	6-1393809-2
V23154-D0735-B610	Standard, size II	110VDC	65/164VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	6-1393809-4
V23154-D0703-B110	Standard, size II	125VDC	81/190VDC	4 form C (4 CO)	Single	Plug-in/solder	Dust protected	1393808-1
V23154-D0XX, 5A , size								
V23154-D0711-F104	5A, size II	5VDC	1.8/7.2VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	3-1393808-2
V23154-C0712-B104	5A, size II	7VDC	3.6/10.5VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	3-1393808-6
V23154-D0418-F104	5A, size II	12VDC	6.6/20.5VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	3-1393807-1
V23154-D0717-F104	5A, size II	12VDC	7.1/20VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	5-1393808-4
V23154-D0719-F104	5A, size II	15VDC	6.8/24.5VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	6-1393808-2
V23154-D0720-F104	5A, size II	20VDC	11.9/32VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	7-1393808-6
V23154-D0421-F104	5A, size II	24VDC	15/36VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	4-1393807-4
V23154-D0721-F104	5A, size II	24VDC	11/40VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	1393809-1
V23154-D0722-F104	5A, size II	32VDC	22.6/54VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	2-1393809-4
V23154-D0726-F104	5A, size II	48VDC	30/75VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	4-1393809-4
V23154-D0734-F104	5A, size II	60VDC	27/92VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	6-1393809-0
V23154-D0404-F104	5A, size II	72VDC	36/100VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	2-1393807-2
V23154-D0704-F104	5A, size II	72VDC	48.4/114VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	1-1393808-9
V23154-D0735-F104	5A, size II	110VDC	65/164VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	6-1393809-5
V23154-D0703-F104	5A, size II	125VDC	81/190VDC	2 form C (2 CO)	Single	Plug-in/solder	Dust protected	1393808-4
V23154-M0XX, standard, size I								
V23154-M0712-B104	Standard, size I	7VDC	2.7/10.5VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	1-1393810-8
V23154-M0717-B104	Standard, size I	12VDC	5.3/20VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	2-1393810-1
V23154-M0717-C104	Standard, size I	12VDC	7.1/20VDC	2 form C (2 CO)	Bifurcated	PCB, earth t.	Dust protected	2-1393810-2
V23154-M0719-B104	Standard, size I	15VDC	6.8/24.5VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	2-1393810-3
V23154-M0719-C104	Standard, size I	15VDC	9.1/24.5VDC	2 form C (2 CO)	Bifurcated	PCB, earth t.	Dust protected	2-1393810-4
V23154-M0XX, standard, size I								
V23154-M0720-B104	Standard, size I	20VDC	8.9/32VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	2-1393810-5
V23154-M0720-B604	Standard, size I	20VDC	8.9/32VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	2-1393810-6
V23154-M0721-B104	Standard, size I	24VDC	11/40VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	2-1393810-7
V23154-M0721-B604	Standard, size I	24VDC	11/40VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	2-1393810-9
V23154-M0721-C104	Standard, size I	24VDC	14.5/40VDC	2 form C (2 CO)	Bifurcated	PCB, earth t.	Dust protected	3-1393810-0
V23154-M0722-B104	Standard, size I	32VDC	16.9/54VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	3-1393810-4
V23154-M0722-B604	Standard, size I	32VDC	16.9/54VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	3-1393810-5
V23154-M0722-C104	Standard, size I	33VDC	22.6/54VDC	2 form C (2 CO)	Bifurcated	PCB, earth t.	Dust protected	2-1419172-5
V23154-M0722-C404	Standard, size I	33VDC	22.6/54VDC	2 form C (2 CO)	Bifurcated	PCB, earth t.	Dust protected	3-1393810-6
V23154-M0726-B104	Standard, size I	48VDC	23/75VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	3-1393810-8
V23154-M0726-C104	Standard, size I	48VDC	30/75VDC	2 form C (2 CO)	Bifurcated	PCB, earth t.	Dust protected	4-1393810-0
V23154-M0704-B104	Standard, size I	72VDC	36.2/114VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	1-1393810-5
V23154-M0703-B104	Standard, size I	125VDC	61/190VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	1-1393810-4
V23154-M0XX, 5A, size I								
V23154-M0720-F105	5A, size I	19VDC	8.2/31VDC	2 form A (2 NO)	Single	PCB, earth t.	Dust protected	2-1422030-5
V23154-M0721-F105	5A, size I	24VDC	11/40VDC	2 form A (2 NO)	Single	PCB, earth t.	Dust protected	3-1393810-2
V23154-M0721-F106	5A, size I	24VDC	11/40VDC	1A+1B	Single	PCB, earth t.	Dust protected	3-1393810-3
V23154-M0722-F106	5A, size I	33VDC	16/54VDC	1A+1B	Single	PCB, earth t.	Dust protected	3-1393810-7
V23154-M0726-F106	5A, size I	48VDC	23/75VDC	1A+1B	Single	PCB, earth t.	Dust protected	4-1393810-1
V23154-M4XX, standard, size I								
V23154-M4717-C104	Standard, size I	12VDC	7.1/20VDC	2 form C (2 CO)	Bifurcated	PCB	Dust protected	4-1393810-5
V23154-M4719-C104	Standard, size I	15VDC	9.1/24.5VDC	2 form C (2 CO)	Bifurcated	PCB	Dust protected	4-1393810-6
V23154-M4721-C104	Standard, size I	24VDC	14.5/40VDC	2 form C (2 CO)	Bifurcated	PCB	Dust protected	4-1393810-7
V23154-M4XX, 5A, size I								
V23154-M4721-F106	5A, size I	24VDC	11/40VDC	1A+1B	Single	PCB	Dust protected	2-1422030-4

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Cradle N Relay V23154/V23162 (Continued)

Product code	Version	Coil	Operate/Lim.	Arrangement	Contacts	Terminals	Enclosure	PartNumber
V23154-N0XX, standard, size II								
V23154-N0712-B110	Standard, size II	7VDC	3.6/10.5VDC	4 form C (4 CO)	Single	PCB, earth t.	Dust protected	5-1393810-4
V23154-N0716-C110	Standard, size II	10VDC	7.1/16.5VDC	4 form C (4 CO)	Bifurcated	PCB, earth t.	Dust protected	5-1393810-8
V23154-N0717-B110	Standard, size II	12VDC	7.1/20VDC	4 form C (4 CO)	Single	PCB, earth t.	Dust protected	5-1393810-9
V23154-N0719-B110	Standard, size II	15VDC	9.1/24.5VDC	4 form C (4 CO)	Single	PCB, earth t.	Dust protected	6-1393810-3
V23154-N0720-B110	Standard, size II	20VDC	11.9/32VDC	4 form C (4 CO)	Single	PCB, earth t.	Dust protected	6-1393810-4
V23154-N0720-B610	Standard, size II	20VDC	11.9/32VDC	4 form C (4 CO)	Single	PCB, earth t.	Dust protected	6-1393810-5
V23154-N0720-C110	Standard, size II	20VDC	17.7/32VDC	4 form C (4 CO)	Bifurcated	PCB, earth t.	Dust protected	6-1393810-6
V23154-N0720-C112	Standard, size II	20VDC	14.4/32VDC	6 form A (6 NO)	Bifurcated	PCB, earth t.	Dust protected	6-1393810-7
V23154-N0720-C410	Standard, size II	20VDC	17.7/32VDC	4 form C (4 CO)	Bifurcated	PCB, earth t.	Dust protected	6-1393810-8
V23154-N0721-B110	Standard, size II	24VDC	14.5/40VDC	4 form C (4 CO)	Single	PCB, earth t.	Dust protected	7-1393810-0
V23154-N0721-B112	Standard, size II	24VDC	14.5/40VDC	6 form A (6 NO)	Single	PCB, earth t.	Dust protected	7-1393810-1
V23154-N0721-B610	Standard, size II	24VDC	14.5/40VDC	4 form C (4 CO)	Single	PCB, earth t.	Dust protected	7-1393810-2
V23154-N0721-C110	Standard, size II	24VDC	22/40VDC	4 form C (4 CO)	Bifurcated	PCB, earth t.	Dust protected	7-1393810-3
V23154-N0722-B110	Standard, size II	32VDC	22.6/54VDC	4 form C (4 CO)	Single	PCB, earth t.	Dust protected	7-1393810-6
V23154-N0722-C110	Standard, size II	32VDC	33.8/54VDC	4 form C (4 CO)	Bifurcated	PCB, earth t.	Dust protected	7-1393810-7
V23154-N0722-C112	Standard, size II	32VDC	27.4/54VDC	6 form A (6 NO)	Bifurcated	PCB, earth t.	Dust protected	7-1393810-8
V23154-N0726-B110	Standard, size II	48VDC	30/75VDC	4 form C (4 CO)	Single	PCB, earth t.	Dust protected	8-1393810-0
V23154-N0726-C110	Standard, size II	48VDC	45/75VDC	4 form C (4 CO)	Bifurcated	PCB, earth t.	Dust protected	8-1393810-2
V23154-N0734-B110	Standard, size II	60VDC	36/92VDC	4 form C (4 CO)	Single	PCB, earth t.	Dust protected	8-1393810-9
V23154-N0404-B110	Standard, size II	72VDC	48/100VDC	4 form C (4 CO)	Single	PCB	Dust protected	4-1393810-8
V23154-N0XX, 5A, size II								
V23154-N0717-F104	5A, size II	12VDC	5.3/20VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	6-1393810-1
V23154-N0720-F104	5A, size II	20VDC	8.9/32VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	6-1393810-9
V23154-N0721-F104	5A, size II	24VDC	11/40VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	7-1393810-5
V23154-N0722-F104	5A, size II	32VDC	16.9/54VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	7-1393810-9
V23154-N0726-F104	5A, size II	48VDC	23/75VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	8-1393810-7
V23154-N0734-F104	5A, size II	60VDC	27/92VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	9-1393810-0
V23154-N0704-F104	5A, size II	72VDC	36.2/114VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	1422030-1
V23154-N0703-F104	5A, size II	125VDC	61/190VDC	2 form C (2 CO)	Single	PCB, earth t.	Dust protected	5-1393810-1
V23154-N4XX, standard, size II								
V23154-N4716-C110	Standard, size II	10VDC	9/16.5VDC	4 form C (4 CO)	Bifurcated	PCB	Dust protected	1393811-1
V23154-N4720-B110	Standard, size II	20VDC	11.9/32VDC	4 form C (4 CO)	Single	PCB	Dust protected	1393811-2
V23154-N4721-C110	Standard, size II	24VDC	22/40VDC	4 form C (4 CO)	Bifurcated	PCB	Dust protected	1393811-7
V23154-N4726-B110	Standard, size II	48VDC	30/75VDC	4 form C (4 CO)	Single	PCB	Dust protected	1-1393811-0
V23154-N4734-B110	Standard, size II	60VDC	36/92VDC	4 form C (4 CO)	Single	PCB	Dust protected	1-1393811-1
V23154-N4XX, 5A, size II								
V23154-N4721-F104	5A, size II	24VDC	11/40VDC	2 form C (2 CO)	Single	PCB	Dust protected	1393811-8
V23154-N4734-F104	5A, size II	60VDC	27/92VDC	2 form C (2 CO)	Single	PCB	Dust protected	1-1393811-2
V23154-N4735-F104	5A, size II	110VDC	49/164VDC	2 form C (2 CO)	Single	PCB	Dust protected	1-1393811-3
V23162-A0XX, standard, size I								
V23162-A0711-B104	Standard, size I	5VDC	1.8/7.2VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	2-1393818-5
V23162-A0717-B104	Standard, size I	12VDC	5.3/20VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	2-1393818-8
V23162-A0717-B604	Standard, size I	12VDC	5.3/20VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	2-1393818-9
V23162-A0719-B104	Standard, size I	15VDC	6.8/24.5VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	3-1393818-2
V23162-A0720-B104	Standard, size I	20VDC	8.9/32VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	3-1393818-3
V23162-A0720-B604	Standard, size I	20VDC	8.9/32VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	3-1393818-4
V23162-A0720-C104	Standard, size I	20VDC	11.9/32VDC	2 form C (2 CO)	Bifurcated	Solder	Hermet. sealed	3-1393818-5
V23162-A0720-C404	Standard, size I	20VDC	11.9/32VDC	2 form C (2 CO)	Bifurcated	Solder	Hermet. sealed	3-1393818-6
V23162-A0421-B104	Standard, size I	24VDC	11.2/36VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	1393818-6
V23162-A0421-B604	Standard, size I	24VDC	11.2/36VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	1393818-7
V23162-A0721-B104	Standard, size I	24VDC	11/40VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	3-1393818-7
V23162-A0721-B604	Standard, size I	24VDC	11/40VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	3-1393818-8
V23162-A0721-C104	Standard, size I	24VDC	14.5/40VDC	2 form C (2 CO)	Bifurcated	Solder	Hermet. sealed	4-1393818-0
V23162-A0721-C404	Standard, size I	24VDC	14.5/40VDC	2 form C (2 CO)	Bifurcated	Solder	Hermet. sealed	4-1393818-1
V23162-A0722-B104	Standard, size I	32VDC	16.9/54VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	4-1393818-6
V23162-A0722-B604	Standard, size I	32VDC	16.9/54VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	4-1393818-7
V23162-A0722-C104	Standard, size I	32VDC	22.6/54VDC	2 form C (2 CO)	Bifurcated	Solder	Hermet. sealed	4-1393818-8
V23162-A0726-B104	Standard, size I	48VDC	23/75VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	5-1393818-1
V23162-A0726-B604	Standard, size I	48VDC	23/75VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	5-1393818-2
V23162-A0726-C404	Standard, size I	48VDC	30/75VDC	2 form C (2 CO)	Bifurcated	Solder	Hermet. sealed	5-1393818-3
V23162-A0735-C104	Standard, size I	48VDC	30/75VDC	2 form C (2 CO)	Bifurcated	Solder	Hermet. sealed	5-1393818-5
V23162-A0404-B104	Standard, size I	72VDC	36/100VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	1393818-1
V23162-A0XX, standard, size I								
V23162-A0404-B604	Standard, size I	72VDC	36/100VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	1419147-6
V23162-A0704-B104	Standard, size I	72VDC	36.2/114VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	1-1393818-9
V23162-A0704-B604	Standard, size I	72VDC	36.2/114VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	2-1393818-0
V23162-A0704-C404	Standard, size I	72VDC	48.4/114VDC	2 form C (2 CO)	Bifurcated	Solder	Hermet. sealed	2-1393818-2
V23162-A0735-C404	Standard, size I	110VDC	65/164VDC	2 form C (2 CO)	Bifurcated	Solder	Hermet. sealed	5-1393818-6
V23162-A0703-B104	Standard, size I	125VDC	61/190VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	1-1393818-6
V23162-A0703-C404	Standard, size I	125VDC	81/190VDC	2 form C (2 CO)	Bifurcated	Solder	Hermet. sealed	1-1393818-7

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Catalog product data, 'Definitions' section, application notes and all specifications are subject to change.

Cradle N Relay V23154/V23162 (Continued)

Product code	Version	Coil	Operate/Lim.	Arrangement	Contacts	Terminals	Enclosure	PartNumber
V23162-A0XX, 5A, size I								
V23162-A0702-F106	5A, size I	1.1VDC	0.5/1.7VDC	1A+1B	Single	Solder	Hermet. sealed	1-1393818-5
V23162-A0717-F105	5A, size I	12VDC	5.3/20VDC	2 form A (2 NO)	Single	Solder	Hermet. sealed	3-1393818-0
V23162-A0717-F106	5A, size I	12VDC	7.1/20VDC	1A+1B	Single	Solder	Hermet. sealed	3-1393818-1
V23162-A0721-F105	5A, size I	24VDC	11/40VDC	2 form A (2 NO)	Single	Solder	Hermet. sealed	4-1393818-3
V23162-A0721-F106	5A, size I	24VDC	14.5/40VDC	1A+1B	Single	Solder	Hermet. sealed	4-1393818-4
V23162-A0722-F105	5A, size I	33VDC	16/54VDC	2 form A (2 NO)	Single	Solder	Hermet. sealed	5-1393818-0
V23162-A0726-F106	5A, size I	48VDC	30/75VDC	1A+1B	Single	Solder	Hermet. sealed	5-1393818-4
V23162-A0404-F106	5A, size I	72VDC	48/100VDC	1A+1B	Single	Solder	Hermet. sealed	1393818-2
V23162-A0704-F105	5A, size I	72VDC	36.2/114VDC	2 form A (2 NO)	Single	Solder	Hermet. sealed	2-1393818-3
V23162-A0704-F106	5A, size I	72VDC	48.4/114VDC	1A+1B	Single	Solder	Hermet. sealed	2-1393818-4
V23162-A0703-F106	5A, size I	125VDC	81/190VDC	1A+1B	Single	Solder	Hermet. sealed	1-1393818-8
V23162-B0XX, standard, size II								
V23162-B0712-B110	Standard, size II	7VDC	3.6/10.5VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	8-1393818-1
V23162-B0715-C110	Standard, size II	8.5VDC	7.6/14VDC	4 form C (4 CO)	Bifurcated	Solder	Hermet. sealed	8-1393818-4
V23162-B0716-B110	Standard, size II	10VDC	5.8/16.5VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	8-1393818-5
V23162-B0717-B110	Standard, size II	12VDC	7.1/20VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	8-1393818-7
V23162-B0717-B610	Standard, size II	12VDC	7.1/20VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	8-1393818-8
V23162-B0717-C112	Standard, size II	12VDC	8.7/20VDC	6 form A (6 NO)	Bifurcated	Solder	Hermet. sealed	8-1393818-9
V23162-B0719-B110	Standard, size II	15VDC	9.1/24.5VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	9-1393818-1
V23162-B0720-B110	Standard, size II	20VDC	11.9/32VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	9-1393818-4
V23162-B0720-B112	Standard, size II	20VDC	11.9/32VDC	6 form A (6 NO)	Single	Solder	Hermet. sealed	9-1393818-5
V23162-B0720-B610	Standard, size II	20VDC	11.9/32VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	9-1393818-7
V23162-B0720-C110	Standard, size II	20VDC	17.7/32VDC	4 form C (4 CO)	Bifurcated	Solder	Hermet. sealed	9-1393818-8
V23162-B0720-C112	Standard, size II	20VDC	14.4/32VDC	6 form A (6 NO)	Bifurcated	Solder	Hermet. sealed	9-1393818-9
V23162-B0720-C410	Standard, size II	20VDC	17.7/32VDC	4 form C (4 CO)	Bifurcated	Solder	Hermet. sealed	1393819-1
V23162-B0421-B110	Standard, size II	24VDC	15/36VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	6-1393818-1
V23162-B0421-B610	Standard, size II	24VDC	15/36VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	6-1393818-3
V23162-B0721-B110	Standard, size II	24VDC	14.5/40VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	1393819-4
V23162-B0721-B112	Standard, size II	24VDC	14.5/40VDC	6 form A (6 NO)	Single	Solder	Hermet. sealed	1393819-5
V23162-B0721-B610	Standard, size II	24VDC	14.5/40VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	1-1393819-0
V23162-B0721-C110	Standard, size II	24VDC	22/40VDC	4 form C (4 CO)	Bifurcated	Solder	Hermet. sealed	1-1393819-2
V23162-B0721-C410	Standard, size II	24VDC	22/40VDC	4 form C (4 CO)	Bifurcated	Solder	Hermet. sealed	1-1393819-3
V23162-B0722-B110	Standard, size II	32VDC	22.6/54VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	1-1393819-5
V23162-B0722-B112	Standard, size II	32VDC	22.6/54VDC	6 form A (6 NO)	Single	Solder	Hermet. sealed	1-1393819-6
V23162-B0722-B610	Standard, size II	32VDC	22.6/54VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	1-1393819-7
V23162-B0722-C410	Standard, size II	32VDC	33.8/54VDC	4 form C (4 CO)	Bifurcated	Solder	Hermet. sealed	1-1393819-8
V23162-B0726-B110	Standard, size II	48VDC	30/75VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	2-1393819-0
V23162-B0726-B112	Standard, size II	48VDC	30/75VDC	6 form A (6 NO)	Single	Solder	Hermet. sealed	2-1393819-1
V23162-B0726-B610	Standard, size II	48VDC	30/75VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	2-1393819-3
V23162-B0XX, standard, size II								
V23162-B0726-C110	Standard, size II	48VDC	45/75VDC	4 form C (4 CO)	Bifurcated	Solder	Hermet. sealed	2-1393819-6
V23162-B0734-B610	Standard, size II	60VDC	36/92VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	2-1393819-9
V23162-B0404-B110	Standard, size II	72VDC	48/100VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	5-1393818-7
V23162-B0704-B110	Standard, size II	72VDC	48.4/114VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	7-1393818-6
V23162-B0704-B112	Standard, size II	72VDC	48.4/114VDC	6 form A (6 NO)	Single	Solder	Hermet. sealed	7-1393818-7
V23162-B0704-B610	Standard, size II	72VDC	48.4/114VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	7-1393818-8
V23162-B0735-B110	Standard, size II	110VDC	65/164VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	3-1393819-0
V23162-B0735-B610	Standard, size II	110VDC	65/164VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	3-1393819-1
V23162-B0735-C110	Standard, size II	110VDC	98/164VDC	4 form C (4 CO)	Bifurcated	Solder	Hermet. sealed	3-1393819-2
V23162-B0735-C410	Standard, size II	110VDC	98/164VDC	4 form C (4 CO)	Bifurcated	Solder	Hermet. sealed	3-1393819-3
V23162-B0703-B110	Standard, size II	125VDC	81/190VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	7-1393818-3
V23162-B0703-B610	Standard, size II	125VDC	81/190VDC	4 form C (4 CO)	Single	Solder	Hermet. sealed	7-1393818-4
V23162-B0XX, 5A, size II								
V23162-B0712-F104	5A, size II	7VDC	3.6/10.5VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	8-1393818-2
V23162-B0717-F104	5A, size II	12VDC	7.1/20VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	9-1393818-0
V23162-B0719-F104	5A, size II	15VDC	9.1/24.5VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	9-1393818-3
V23162-B0720-F104	5A, size II	20VDC	11.9/32VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	1393819-2
V23162-B0421-F104	5A, size II	24VDC	15/36VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	6-1393818-4
V23162-B0721-F104	5A, size II	24VDC	14.5/40VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	1-1393819-4
V23162-B0722-F104	5A, size II	32VDC	22.6/54VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	1-1393819-9
V23162-B0726-F104	5A, size II	48VDC	30/75VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	2-1393819-7
V23162-B0704-F104	5A, size II	72VDC	48.4/114VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	8-1393818-0
V23162-B0735-F104	5A, size II	110VDC	65/164VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	3-1393819-4
V23162-B0703-F104	5A, size II	125VDC	81/190VDC	2 form C (2 CO)	Single	Solder	Hermet. sealed	7-1393818-5
V23162-H0XX, standard, size II								
V23162-H0715-B110	Standard, size II	8.5VDC	5.1/14VDC	4 form C (4 CO)	Single	Solder, Au pl.	Hermet. sealed	4-1393819-2
V23162-H0720-B110	Standard, size II	20VDC	11.9/32VDC	4 form C (4 CO)	Single	Solder, Au pl.	Hermet. sealed	4-1393819-4
V23162-H0720-B610	Standard, size II	20VDC	11.9/32VDC	4 form C (4 CO)	Single	Solder, Au pl.	Hermet. sealed	4-1393819-6
V23162-H0720-C410	Standard, size II	20VDC	17.7/32VDC	4 form C (4 CO)	Bifurcated	Solder, Au pl.	Hermet. sealed	4-1393819-7
V23162-H0421-B610	Standard, size II	24VDC	15/36VDC	4 form C (4 CO)	Single	Solder, Au pl.	Hermet. sealed	3-1393819-7
V23162-H0721-B110	Standard, size II	24VDC	14.5/40VDC	4 form C (4 CO)	Single	Solder, Au pl.	Hermet. sealed	4-1393819-9
V23162-H0721-B610	Standard, size II	24VDC	14.5/40VDC	4 form C (4 CO)	Single	Solder, Au pl.	Hermet. sealed	5-1393819-0
V23162-H0721-C410	Standard, size II	24VDC	22/40VDC	4 form C (4 CO)	Bifurcated	Solder, Au pl.	Hermet. sealed	5-1393819-1
V23162-H0722-C110	Standard, size II	32VDC	33.8/54VDC	4 form C (4 CO)	Bifurcated	Solder, Au pl.	Hermet. sealed	5-1393819-3
V23162-H0722-C410	Standard, size II	32VDC	33.8/54VDC	4 form C (4 CO)	Bifurcated	Solder, Au pl.	Hermet. sealed	5-1393819-4

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Cradle N Relay V23154/V23162 (Continued)

Product code	Version	Coil	Operate/Lim.	Arrangement	Contacts	Terminals	Enclosure	PartNumber
V23162-H0XX, 5A, size II								
V23162-H0712-F104	5A, size II	7VDC	3.6/10.5VDC	2 form C (2 CO)	Single	Solder, Au pl.	Hermet. sealed	4-1393819-1
V23162-H0719-F104	5A, size II	15VDC	9.1/24.5VDC	2 form C (2 CO)	Single	Solder, Au pl.	Hermet. sealed	4-1393819-3
V23162-H0721-F104	5A, size II	24VDC	14.5/40VDC	2 form C (2 CO)	Single	Solder, Au pl.	Hermet. sealed	5-1393819-2
V23162-H0721-F107	5A, size II	24VDC	14.5/40VDC	2 form B (2 NC)	Single	Solder, Au pl.	Hermet. sealed	1419147-7
V23162-H0722-F104	5A, size II	32VDC	22.6/54VDC	2 form C (2 CO)	Single	Solder, Au pl.	Hermet. sealed	5-1393819-5
V23162-H0704-F104	5A, size II	72VDC	48.4/114VDC	2 form C (2 CO)	Single	Solder, Au pl.	Hermet. sealed	4-1393819-0
V23162-H0703-F104	5A, size II	125VDC	81/190VDC	2 form C (2 CO)	Single	Solder, Au pl.	Hermet. sealed	3-1393819-9

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Cradle P Relay V23003

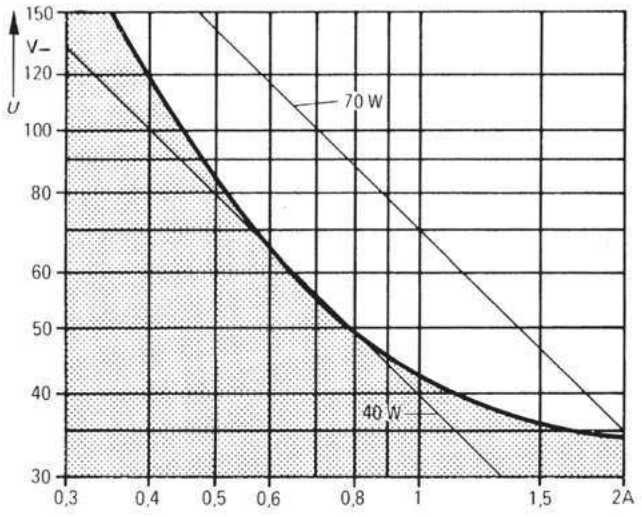
- **Highly reliable multi purpose relay**
- **Great variety of contact arrangements and materials to meet specific applications**
- **Contacts for signal loads and currents up to 5A**
- **Primarily intended for impulse operation**
- **Sockets for easy and quick mounting of relays (see datasheet Accessories)**

Typical applications
applications where the switching status must be maintained, measuring systems.

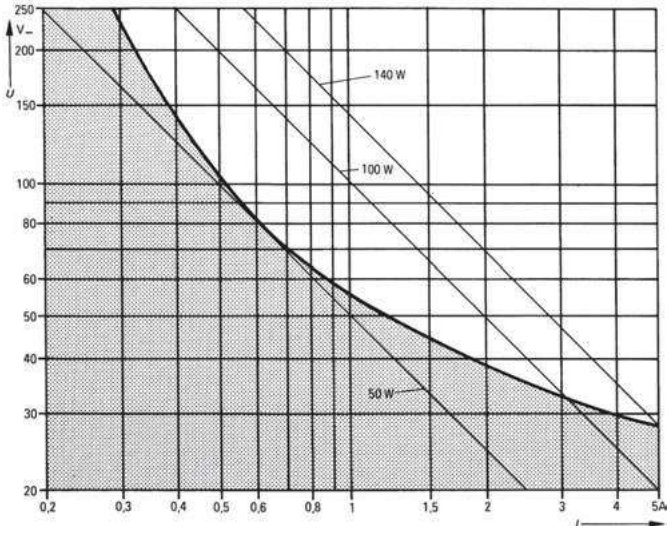
Contact Data

Product code block 3	B104/B110	B604/B610	C104/C110	C404/C410	F104 to F107
Contact arrangement	max. 4 form C (4 CO) contacts, 2 form C (2 CO), 2 form A (2 NO) or 2 form B (2 NC) contacts (see product code table)				
Max. switching voltage	150VDC 125VAC	36VDC 30VAC	150VDC 125VAC	36VDC 30VAC	250VDC 250VAC
Rated current	2A	0.2A	2A	0.2A	5A
Limiting continuous current at max. ambient temperature	2A	2A	2A	2A	5A
Breaking capacity see DC load breaking capacity curve below	35 to 70W 50VA	5W, 5VA -	35 to 70W 50VA	5W, 5VA -	50 to 140W 500VA
Contact material	silver, gold-flashed	gold F	silver, gold-flashed	gold F	silver, gold-flashed
Contact style	single contact	single contact	bifurcated contacts	bifurcated contacts	single contact
Frequency of operation, without load, max.	20 ops./s	20 ops./s	20 ops./s	20 ops./s	20 ops./s
Mechanical endurance	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.	app. 10^8 ops.

Max. DC breaking capacity, contact sets B1xx, C1xx



Max. DC breaking capacity, contact sets F1xx



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Cradle P Relay V23003 (Continued)

Coil Data

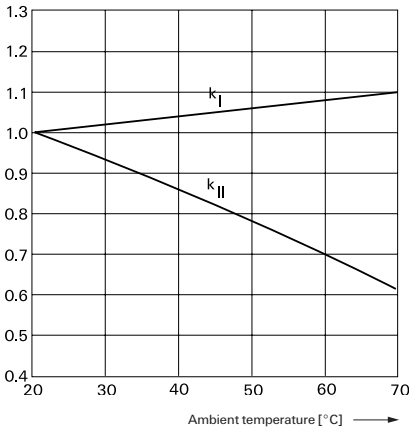
Magnetic system	polarized, bistable
Coil voltage range	6 to 60 VDC, typ. 1500 mW power consumption
Max. coil temperature	100°C
Thermal resistance	50K/W

Coil versions, bistable 2 coils

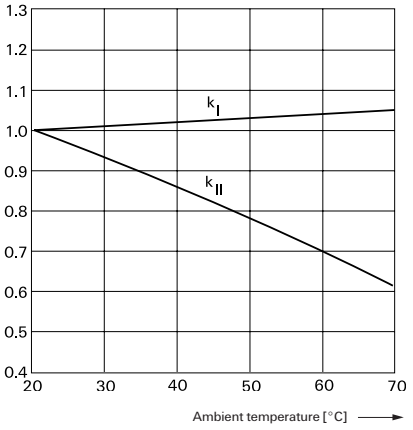
Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Limiting Set/Reset VDC	Coil resistance Ω±15%	Rated coil power W (set)
026	6	4.0	4.0	6.7/6.7	24.5/24.5	1.47
025	12	8.0	8.0	13.5/13.5	100/100	1.44
037	24	16.5	16.5	26.5/25.0	400/340	1.44
044	60	44.0	44.0	65.0/65.0	2400/2400	1.5
064	48	33.5	33.5	49.0/49.0	1400/1400	1.65

All figures are given for coil without pre-energization, at ambient temperature +23°C.

Set - negative potential at start of winding



Reset - plus potential at start of winding



Terminals:
coil with 2 windings:
winding I: start 3, end 2
winding II: start 4, end 1

Coil Data (continued)

Note: with continuous operation only one winding to be energized within the specified voltage range at a time!
The minimum voltage U_I and the maximum voltage U_{II} only depends on the ambient temperature.

$U_{I\ tamb}$	$U_I \cdot U20\ °C \cdot k_{I\ tamb}$
$U_{II\ tamb}$	$U_{II}\ 20\ °C \cdot k_{II\ tamb}$
tamb	Ambient temperature
$U_{I\ tamb}$	Minimum voltage at ambient temperature, tamb
$U_{II\ tamb}$	Maximum voltage at ambient temperature, tamb
k_I and k_{II}	Factors

Insulation Data

	B1xx,B6xx,C1xx,C4xx	F1xx
Initial dielectric strength		
between coil / frame	500 VAC_{rms}	500 VAC_{rms}
between contact / contact	500 VAC_{rms}	1000 VAC_{rms}
between contact / fame	500 VAC_{rms}	1000 VAC_{rms}
Initial insulation resistance, at 500 VDC	> 106Ω	

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-40 to + 70°C
Category of environmental protection, IEC 61810	RT I - dust-protected
Degree of protection, IEC 60529	IP 30
Terminal type	hand solder terminals, plug-in
Weight	
V23003-A0xxx Size I	approx. 25g
V23003-B0xxx Size II	approx. 30g
Packaging unit	5 pcs.

Accessories

For details see datasheet	Cradle Relay, Accessories and Mounting

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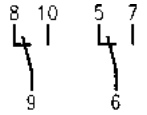
Cradle P Relay V23003 (Continued)

Terminal assignment

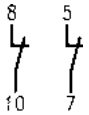
Size I

2 form C (2 CO)
V23003-xxxxx-Bx04
V23003-xxxxx-Cx04



2 form A (2 NO)
V23003-xxxxx-F105

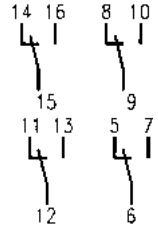
2 form B (2 NC)
V23003-xxxxx-F107



1 form A + 1 form B
(1 NO + 1 NC)
V23003-xxxxx-F106

Size II

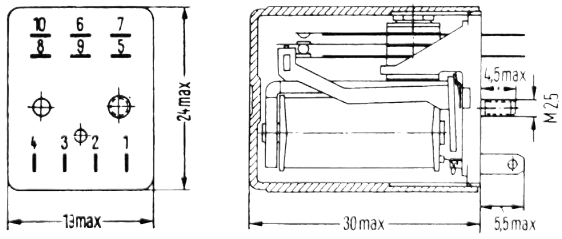
4 form C (4 CO)
V23003-xxxxx-Bx10



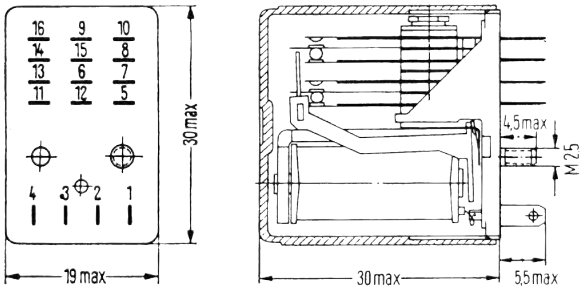
2 form C (2 CO)
V23003-xxxxx-F104

Dimensions

V23003-A0xx, size I type



V23003-B0xx, size II type



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Cradle P Relay V23003 (Continued)

Instructions for Impulse Operation
Cradle relay P is primarily intended for impulse operation. The maximum voltage stated in the coil table can be increased for impulse operation as follows:

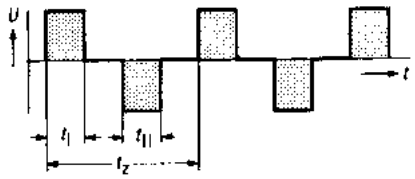
$U_{II\ Impuls}$ $U_{II\ tamb}$xq
$U_{II\ tamb}$ Maximum continuous voltage at ambient temperature t_{amb}
q Factor

The impulse voltage must not exceed 80% of the test voltage (winding/frame or winding/winding) or 3.3 times at ambient temperature 20°C and 2.3 times at ambient temperature <20°C the value of the maximum voltage listed in the coil table.

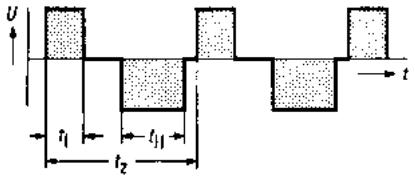
$Ift_{ED} \leq 3s$ then $q=\sqrt{\frac{t_z}{t_{ED}}}$; Ift_{ED} = Pulse width, t_2 = Cycle time.

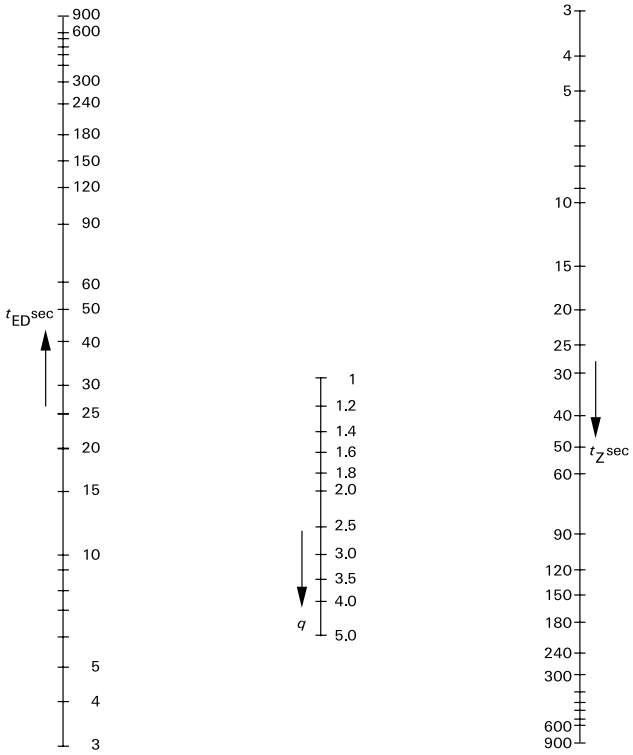
If $t_{ED} > 3s$ the value of q must be obtained from the nomograph.

Examples of various periodic pulse trains (energizing side)
1. Periodic recurrence of one energizing pulse



tED = tI + tII
tI = Pulse width of the positive pulse at the start of the winding
tII = Pulse width of the negative pulsee at the start of the winding
tI + tII = Pulse widths within one cycle
2. Periodic recurrence of two unequal energizing pulses





Product code structure

	Typical product code	V23003	-B0	037	-F1	04

Type
V23003 Cradle P Relay, dust protected

Size
A0 Size I, dust-protected
B0 Size II, dust-protected

Coils
Coil code: please refer to coil versions table

Contact style

B1	Single contacts	**B6**	Single contacts	**F1**	Single contacts
C1	Bifurcated contacts	**C4**	Bifurcated contacts		

Contact arrangement

04	2 form C, 2 CO	**05**	2 form A, 1 NO	**06**	1 form A+ 1 form B, 1 NO+ 1 NC
10	4 form C, 4 CO				

Other types on request.

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Cradle P Relay V23003 (Continued)

Product code	Version	Coil	Arrangement	Contacts	Enclosure	Part number
V23003-AXXXX, standard, size I						
V23003-A0025-B104	Standard, size I	12VDC	2 form C (2 CO)	Single	Dust protected	1393817-4
V23003-A0025-C104	Standard, size I	12VDC	2 form C (2 CO)	Bifurcated	Dust protected	1393817-5
V23003-A0037-B104	Standard, size I	24VDC	2 form C (2 CO)	Single	Dust protected	1393817-7
V23003-A0037-B604	Standard, size I	24VDC	2 form C (2 CO)	Single	Dust protected	1393817-8
V23003-A0037-C104	Standard, size I	24VDC	2 form C (2 CO)	Bifurcated	Dust protected	1393817-9
V23003-A0044-B104	Standard, size I	60VDC	2 form C (2 CO)	Single	Dust protected	1-1393817-8
V23003-A0064-B104	Standard, size I	48VDC	2 form C (2 CO)	Single	Dust protected	2-1393817-0
V23003-A0064-B604	Standard, size I	48VDC	2 form C (2 CO)	Single	Dust protected	2-1393817-1
V23003-A0064-C104	5A size I	48VDC	2 form C (2 CO)	Single	Dust protected	2-1393817-2
V23003-AXXXX, 5A, size I						
V23003-A0026-F106	5A size I	6VDC	1A+1B (1NO+1NC)	Single	Dust protected	1393817-6
V23003-A0037-F105	5A size I	24VDC	2 form A (2 NO)	Single	Dust protected	1-1393817-1
V23003-A0037-F106	5A size I	24VDC	1A+1B (1NO+1NC)	Single	Dust protected	1-1393817-2
V23003-BXXXX, standard, size II						
V23003-B0025-B110	Standard, size II	12VDC	4 form C (4 CO)	Single	Dust protected	3-1393817-1
V23003-B0025-C110	Standard, size II	12VDC	4 form C (4 CO)	Bifurcated	Dust protected	3-1393817-2
V23003-B0026-B110	Standard, size II	6VDC	4 form C (4 CO)	Single	Dust protected	3-1393817-4
V23003-B0026-C110	Standard, size II	6VDC	4 form C (4 CO)	Bifurcated	Dust protected	3-1393817-5
V23003-B0037-B110	Standard, size II	24VDC	4 form C (4 CO)	Single	Dust protected	3-1393817-9
V23003-B0037-B610	Standard, size II	24VDC	4 form C (4 CO)	Single	Dust protected	4-1393817-0
V23003-B0037-C110	Standard, size II	24VDC	4 form C (4 CO)	Bifurcated	Dust protected	4-1393817-1
V23003-B0037-C410	Standard, size II	24VDC	4 form C (4 CO)	Bifurcated	Dust protected	4-1393817-4
V23003-B0044-B110	Standard, size II	60VDC	4 form C (4 CO)	Single	Dust protected	5-1393817-4
V23003-B0044-B610	Standard, size II	60VDC	4 form C (4 CO)	Single	Dust protected	1413004-1
V23003-B0044-B610	Standard, size II	60VDC	4 form C (4 CO)	Single	Dust protected	1-1419137-0
V23003-B0044-C110	Standard, size II	60VDC	4 form C (4 CO)	Bifurcated	Dust protected	5-1393817-6
V23003-B0064-B110	Standard, size II	48VDC	4 form C (4 CO)	Single	Dust protected	6-1393817-3
V23003-B0064-C110	Standard, size II	48VDC	4 form C (4 CO)	Bifurcated	Dust protected	6-1393817-4
V23003-BXXXX, 5A, size II						
V23003-B0025-F104	5A size II	12VDC	2 form C (2 CO)	Single	Dust protected	3-1393817-3
V23003-B0026-F104	5A size II	6VDC	2 form C (2 CO)	Single	Dust protected	3-1393817-6
V23003-B0037-F104	5A size II	24VDC	2 form C (2 CO)	Single	Dust protected	4-1393817-5
V23003-B0044-F104	5A size II	60VDC	2 form C (2 CO)	Single	Dust protected	5-1393817-7
V23003-B0064-F104	5A size II	48VDC	2 form C (2 CO)	Single	Dust protected	6-1393817-5

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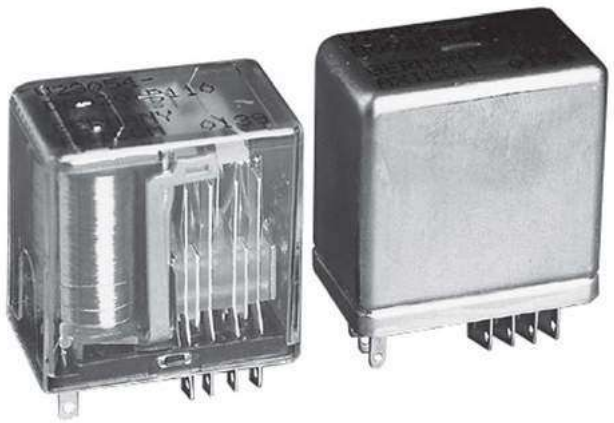
Cradle S Relay V23054/V23062

- **Strong magnet system and wide voltage range**
- **Highly reliable**
- **Contacts for signal loads and currents up to 5A**
- **DC coils operating voltage 6VDC to 220VDC; AC, latching and non-latching coils on request**
- **Multi purpose relay**
- **Great variety of contact arrangements and materials to meet specific applications**
- **Sockets for easy and quick mounting of relays**

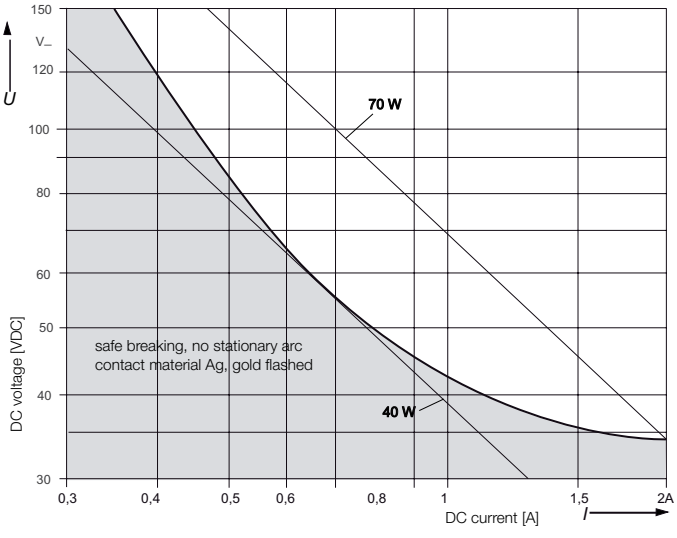


Typical applications
Press controls with high safety requirements (forcibly guided springs), traffic and railroad signalling, motor vehicle traffic controls, power plants and nuclear power plants controls.

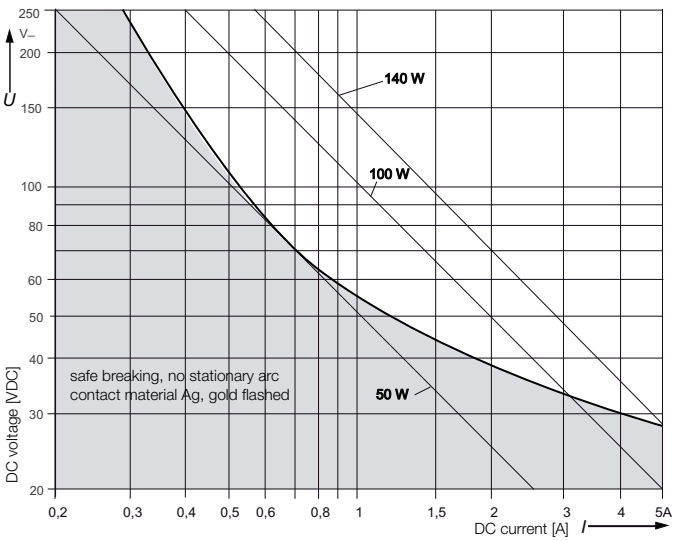
Contact Data

Product code block 3	B104/B110/ B112/B133	B604/B610/ B612/B633	C104/C110/ C112/C133	C404/C410/ C422/C433	F104/F105/ F110
Contact arrangement	max. 6 form C (6 CO) contacts or 6 form A (6 NO) contacts (see product code table)				
Max. switching voltage	150VDC 125VAC	36VDC 30VAC	150VDC 125VAC	36VDC 30VAC	260VDC 250VAC
Rated current	2A	0.2A	2A	0.2A	5A
Limiting continuous current at max. ambient temperature	2A	2A	2A	2A	5A
Breaking capacity max. see DC load breaking capacity curve below	35 to 70W 50VA	5W, 5VA -	35 to 70W 50VA	5W, 5VA -	50 to 140W 500VA
Contact material	silver, gold-flashed	gold F	silver, gold-flashed	gold F	silver, gold-flashed
Contact style	single contact	single contact	bifurcated contacts	bifurcated contacts	single contact
Frequency of operation, without load, max.	50 ops./s	max. 50 ops./s	max. 50 ops./s	max. 50 ops./s	max. 10 ops./s
Operate / release time typ.	16/2ms	16/2ms	16/2ms	16/2ms	16/2ms
Mechanical endurance	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.

Max. DC breaking capacity, contact sets B1xx, C1xx



Max. DC breaking capacity, contact sets F1xx



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Cradle S Relay V23054/V23062 (Continued)

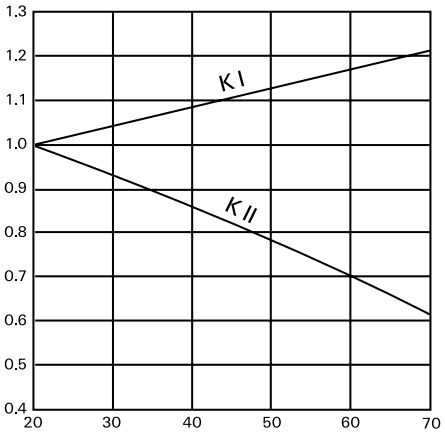
Coil Data	
Magnetic system	neutral
Coil voltage range	6 to 220 VDC, 1000 - 2000mW power consumption
Max. coil temperature	100 °C
Thermal resistance	< 40K/W

Coil versions, DC coil, monostable

Coil code	Rated voltage VDC	Operate/Limiting voltage[1)] VDC	Coil resistance Ω ± 10%	Rated coil power mW
011	6	-	33	1091
012	8.4	-	70	1008
015	12	-	130	1108
016	12.5	-	185	845
017	16	-	270	948
019	20	-	390	1026
020	24	-	630	914
002	1.2	-	1.75	823
025	28	-	800	980
046	29	-	890	945
021	32	-	1050	975
022	45	-	1900	1066
026	60	-	3800	947
014	76	-	5800	996
004	110	-	9200	1315
013	125	-	15500	1008
003	220	-	25000	1936

1) See part code table.

All figures are given for coil without pre-energization, at ambient temperature +23°C.



Terminals:
coil with 1 winding: start 4, end 1
coil with 2 windings (upon request):
start 3, end 2 for winding I, start 4, end 1 for winding II

The minimum voltage U_I depends on the contact set and the ambient temperature, the maximum voltage U_{II} only depends on the ambient temperature.
Between minimum voltage $U_{I\ tamb}$ and operating voltage U a safety margin of approx. 20% is recommended.

$U_{I\ tamb}$ (1.2)	$< U_I \leq U_{II}$ tamb
$U_{I\ tamb}$	$U_I \cdot$ U20 °C $\cdot k_{I\ tamb}$
$U_{II\ tamb}$	U_{II} 20 °C $\cdot k_{II\ tamb}$
tamb	Ambient temperature
U	Operating voltage
$U_{I\ tamb}$	Minimum voltage at ambient temperature, tamb
$U_{II\ tamb}$	Maximum voltage at ambient temperature, tamb
k_I and k_{II}	Factors

Insulation Data	B1xx,B6xx,C1xx,C4xx	F1xx
Initial surge withstand voltage		
between open contacts	$500V_{rms}$	$500V_{rms}$
between contact and coil	$500V_{rms}$	$1000V_{rms}$
between adjacent contacts	$500V_{rms}$	$1000V_{rms}$
Initial insulation resistance, at 500VDC	$> 10^6\Omega$	

Other Data	
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-40 to +70°C
Category of environmental protection	
IEC 61810	RT I - dust protected, RT V - hermetically sealed
Degree of protection, IEC 60529	dust-protected IP 30, or hermetically sealed IP 67
Terminal type	PCB, solder terminals
Weight	
V23054 Size I	approx. 20g
V23054 Size II	approx. 25g
V23054Size III	approx. 27g
V23062 Size I	approx. 30g
V23062 Size II	approx. 35g
Washing	not recommended
Ultrasonic cleaning	not recommended
Packaging unit	5 pcs.

Accessories	
For details see datasheet	Cradle Relay, Accessories and Mounting

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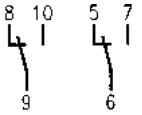
Cradle S Relay V23054/V23062 (Continued)

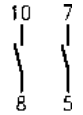
Terminal assignment

Size I

2 form C (2 CO)
V230xx-xxxxx-Bx04
V230xx-xxxxx-Cx04

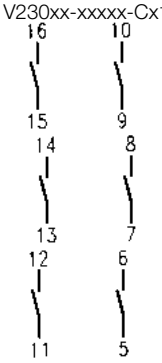


2 form A (2 NO)
V230xx-xxxxx-F105

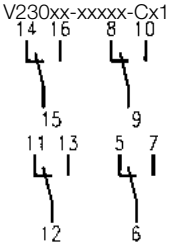


Size II

6 form A (6 NO)
V230xx-xxxxx-Bx12
V230xx-xxxxx-Cx12



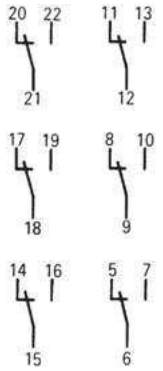
4 form C (4 CO)
V230xx-xxxxx-Bx10
V230xx-xxxxx-Cx10



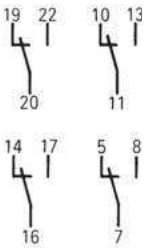
2 form C (2 CO)
V230xx-xxxxx-F104

Size III

6 form C (6 CO)
V230xx-xxxxx-Bx33
V230xx-xxxxx-Cx33

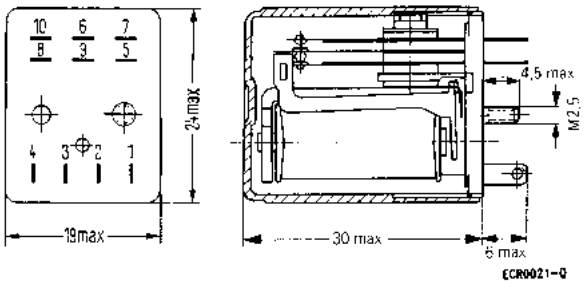


4 form C (4 CO)
V230xx-xxxxx-F110

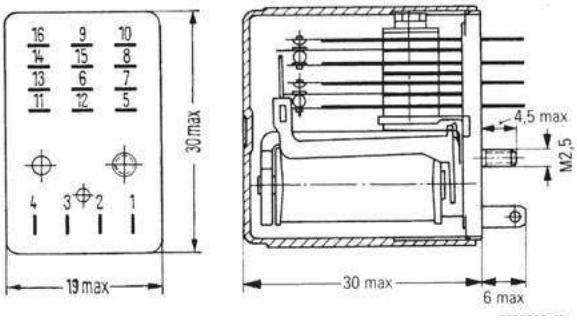


Dimensions

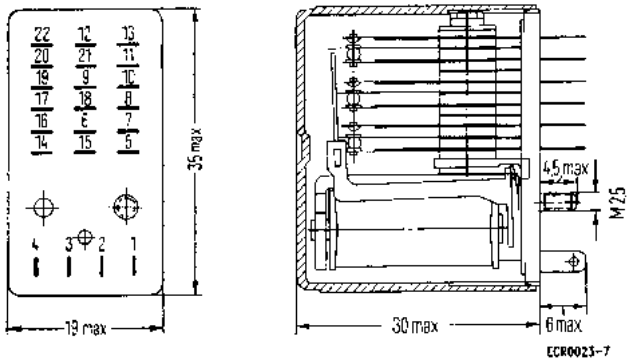
V23054-Cxxx, size I type



V23054-Dxxx, size II type



V23054-Exxx, size I type



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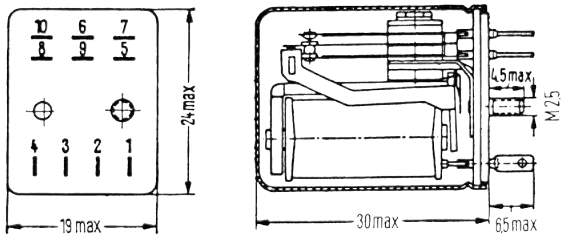
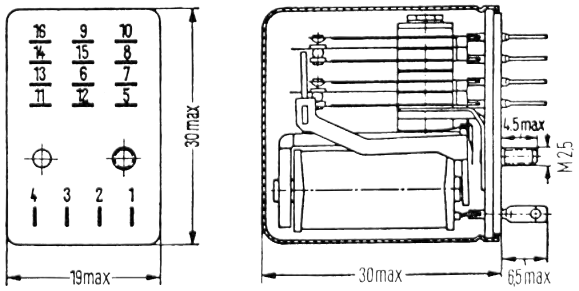
Cradle S Relay V23054/V23062 (Continued)

Dimensions

V23062-Axxx, size I type



V23062-Bxxx, size II type



Instructions for Impulse Operation

The maximum voltage stated in the part code table can be increased for impulse operation as follows:

$U_{II\ Impuls}$	$U_{II\ tamb} \times q$
$U_{II\ tamb}$	Maximum continuous voltage at ambient temperature t_{amb}
q	Factor

The impulse voltage must not exceed 80% of the test voltage (winding/frame or winding/winding) or 2.5 times the value of the maximum voltage listed in the part code table.

$lft_{ED} \leq 3s$ then $q = \sqrt{\frac{t_z}{t_{ED}}}$; lft_{ED} = Pulse width, t_2 = Cycle time. If $t_{ED} > 3s$ the value of q must be obtained from the nomograph.

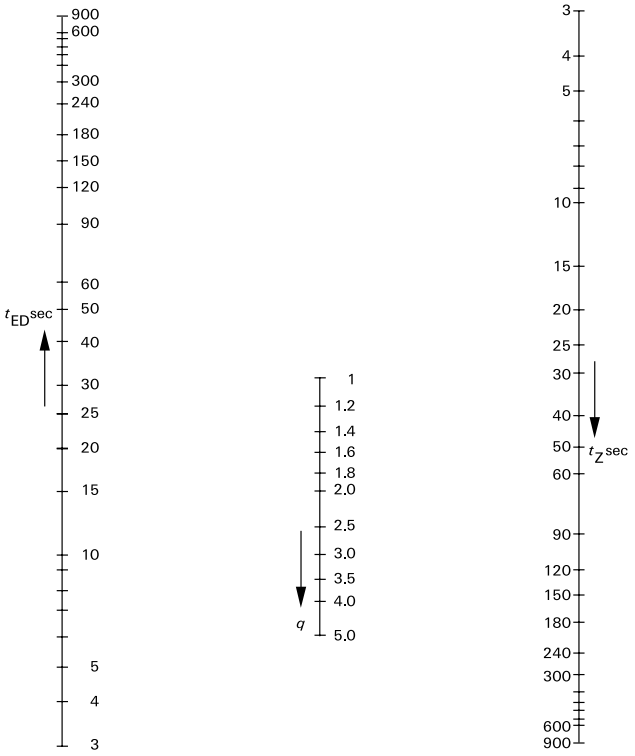
Examples of various periodic pulse trains (energizing side)

1. Periodic recurrence of one energizing pulse

2. Periodic recurrence of two unequal energizing pulses

tED = tI + tII

tI + tII = Pulse widths within one cycle



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Cradle S Relay V23054/V23062 (Continued)

Product code structure

Typical product code	V23054	-D	0	021	-B1	10

Type
- **V23054** Cradle S Relay, dust protected
- **V23062** Cradle S Relay, hermetically sealed

Size

V23054 types
- **C** Size I, dust-protected
- **D** Size II, dust-protected
- **E** Size III, dust-protected

V23062 types
- **A** Size I, hermetically sealed
- **B** Size II, hermetically sealed

Version
- **0** Standard version
- **1** Fitted with contact pile-ups F
- **2** For higher test voltage of 2kV coil/frame
- **3** Combination of 1 & 2 (contact pile-ups F and higher test voltage coil/frame)

Coils

Coil code: please refer to coil versions table

Contact style
- **B1** Single contacts
- **B6** Single contacts
- **F1** Single contacts
- **C1** Bifurcated contacts
- **C4** Bifurcated contacts

Contact arrangement
- **04** 2 form C, 2 CO
- **05** 2 form A, 1 NO
- **10** 4 form C, 4 CO
- **12** 6 form A, 6 NO
- **33** 6 form C, 6 CO

Other types on request.

Product code	Version	Coil	Operate/Lim.	Arrangement	Contacts	Enclosure	PartNumber
V23054-CXXXX, standard, size I							
V23054-C0013-B104	Standard, size I	125VDC	59/190VDC	2 form C, 2 CO	Single	Dust protected	2-1419172-8
V23054-C0015-B104	Standard, size I	12VDC	4.7/18VDC	2 form C, 2 CO	Single	Dust protected	1393812-6
V23054-C0016-B104	Standard, size I	12.5VDC	5.4/21.5VDC	2 form C, 2 CO	Single	Dust protected	1393812-7
V23054-C0019-C104	Standard, size I	20VDC	10.5/31VDC	2 form C, 2 CO	Bifurcated	Dust protected	1422019-3
V23054-C2003-C404	Standard, size I	220VDC	98/240VDC	2 form C, 2 CO	Bifurcated	Dust protected	3-1393812-2
V23054-C2004-B104	Standard, size I	110VDC	44/145VDC	2 form C, 2 CO	Single	Dust protected	3-1393812-3
V23054-C2013-B104	Standard, size I	125VDC	59/190VDC	2 form C, 2 CO	Single	Dust protected	3-1393812-4
V23054-C2020-B104	Standard, size I	24VDC	10.5/39VDC	2 form C, 2 CO	Single	Dust protected	3-1393812-5
V23054-C2026-C104	Standard, size I	60VDC	36/94VDC	2 form C, 2 CO	Bifurcated	Dust protected	3-1393812-6
V23054-C0020-B104	Standard, size I	24VDC	10.5/39VDC	2 form C, 2 CO	Single	Dust protected	1-1393812-0
V23054-C0020-C104	Standard, size I	24VDC	13/39VDC	2 form C, 2 CO	Bifurcated	Dust protected	1-1393812-1
V23054-C0021-B104	Standard, size I	32VDC	14.5/50VDC	2 form C, 2 CO	Single	Dust protected	1-1393812-2
V23054-C0021-C104	Standard, size I	32VDC	17.5/50VDC	2 form C, 2 CO	Bifurcated	Dust protected	1-1393812-3
V23054-C0021-C404	Standard, size I	32VDC	17.5/50VDC	2 form C, 2 CO	Bifurcated	Dust protected	1-1393812-4
V23054-C0022-B104	Standard, size I	45VDC	19/66VDC	2 form C, 2 CO	Single	Dust protected	1-1393812-5
V23054-C0022-C104	Standard, size I	45VDC	24/66VDC	2 form C, 2 CO	Bifurcated	Dust protected	1-1393812-6
V23054-C0026-B104	Standard, size I	60VDC	29/94VDC	2 form C, 2 CO	Single	Dust protected	2-1393812-0
V23054-C0026-C104	Standard, size I	60VDC	36/94VDC	2 form C, 2 CO	Bifurcated	Dust protected	2-1393812-3
V23054-C0026-C404	Standard, size I	60VDC	36/94VDC	2 form C, 2 CO	Bifurcated	Dust protected	2-1393812-4
V23054-C003-B104	Standard, size I	220VDC	79/240VDC	2 form C, 2 CO	Single	Dust protected	1393812-2
V23054-C003-C104	Standard, size I	220VDC	98/240VDC	2 form C, 2 CO	Bifurcated	Dust protected	1393812-3
V23054-C004-B104	Standard, size I	110VDC	44/145VDC	2 form C, 2 CO	Single	Dust protected	1393812-4
V23054-C004-C104	Standard, size I	110VDC	53.5/145VDC	2 form C, 2 CO	Bifurcated	Dust protected	1393812-5
V23054-CXXXX, 5A, size I							
V23054-C1022-F105	5A, size I	45VDC	19/66VDC	2 form A, 2 NO	Single	Dust protected	3-1393812-1
V23054-C3015-F105	5A, size I	12VDC	4.7/18VDC	2 form A, 2 NO	Single	Dust protected	1422019-5

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Cradle S Relay V23054/V23062 (Continued)

Product code	Version	Coil	Operate/Lim.	Arrangement	Contacts	Enclosure	PartNumber
V23054-DXXXX, standard, size II							
V23054-D0013-B110	Standard, size II	125VDC	59/190VDC	4 form C, 4 CO	Single	Dust protected	4-1419172-5
V23054-D0015-B112	Standard, size II	12VDC	4.7/18VDC	6 form A, 6 NO	Single	Dust protected	6-1422019-5
V23054-D0016-C110	Standard, size II	12.5VDC	5.4/21.5VDC	4 form C, 4 CO	Bifurcated	Dust protected	4-1393812-2
V23054-D0017-B110	Standard, size II	16VDC	7/25.5VDC	4 form C, 4 CO	Single	Dust protected	4-1393812-3
V23054-D0017-B110	Standard, size II	16VDC	7/25.5VDC	4 form C, 4 CO	Single	Dust protected	4-1393812-4
V23054-D0019-B110	Standard, size II	20VDC	10.5/31VDC	4 form C, 4 CO	Single	Dust protected	4-1393812-6
V23054-D0019-C110	Standard, size II	20VDC	10.5/31VDC	4 form C, 4 CO	Bifurcated	Dust protected	4-1393812-7
V23054-D0019-C410	Standard, size II	20VDC	10.5/31VDC	4 form C, 4 CO	Bifurcated	Dust protected	5-1393812-0
V23054-D2003-B110	Standard, size II	220VDC	79/240VDC	4 form C, 4 CO	Single	Dust protected	1393813-1
V23054-D2013-B110	Standard, size II	125VDC	59/190VDC	4 form C, 4 CO	Single	Dust protected	1393813-2
V23054-D2020-B110	Standard, size II	24VDC	10.5/39VDC	4 form C, 4 CO	Single	Dust protected	1393813-3
V23054-D2021-B110	Standard, size II	32VDC	14.5/50VDC	4 form C, 4 CO	Single	Dust protected	1393813-4
V23054-D2021-B112	Standard, size II	32VDC	14.5/50VDC	6 form A, 6 NO	Single	Dust protected	1393813-5
V23054-D2026-B110	Standard, size II	60VDC	29/94VDC	4 form C, 4 CO	Single	Dust protected	1393813-6
V23054-D2026-B112	Standard, size II	60VDC	29/94VDC	6 form A, 6 NO	Single	Dust protected	1393813-7
V23054-D0020-B110	Standard, size II	24VDC	10.5/39VDC	4 form C, 4 CO	Single	Dust protected	5-1393812-1
V23054-D0020-B112	Standard, size II	24VDC	10.5/39VDC	6 form A, 6 NO	Single	Dust protected	5-1393812-2
V23054-D0020-C110	Standard, size II	24VDC	13/39VDC	4 form C, 4 CO	Bifurcated	Dust protected	5-1393812-3
V23054-D0002-C410	Standard, size II	1,2VDC	0,75/2,1VDC	4 form C, 4 CO	Bifurcated	Dust protected	3-1419137-7
V23054-D0021-B110	Standard, size II	32VDC	14.5/50VDC	4 form C, 4 CO	Single	Dust protected	5-1393812-4
V23054-D0021-C112	Standard, size II	32VDC	17.5/50VDC	6 form A, 6 NO	Bifurcated	Dust protected	5-1393812-5
V23054-D0022-B110	Standard, size II	45VDC	19/66VDC	4 form C, 4 CO	Single	Dust protected	5-1393812-8
V23054-D0022-C110	Standard, size II	45VDC	24/66VDC	4 form C, 4 CO	Bifurcated	Dust protected	5-1393812-9
V23054-D0002-B110	Standard, size II	1,2VDC	0,54/2,1VDC	4 form C, 4 CO	Single	Dust protected	6-1393812-2
V23054-D0026-B112	Standard, size II	60VDC	29/94VDC	6 form A, 6 NO	Single	Dust protected	6-1393812-3
V23054-D0026-C110	Standard, size II	60VDC	43/94VDC	4 form C, 4 CO	Bifurcated	Dust protected	6-1393812-4
V23054-D0026-C112	Standard, size II	60VDC	36/94VDC	6 form A, 6 NO	Bifurcated	Dust protected	6-1393812-5
V23054-D0026-C114	Standard, size II	60VDC	29/94VDC	4 form A, 4 NO	Bifurcated	Dust protected	6-1393812-6
V23054-D003-B110	Standard, size II	220VDC	79/240VDC	4 form C, 4 CO	Single	Dust protected	3-1393812-8
V23054-D004-C110	Standard, size II	110VDC	44/145VDC	4 form C, 4 CO	Bifurcated	Dust protected	3-1393812-9
V23054-DXXXX, 5A, size II							
V23054-D1003-F104	5A, size II	220VDC	98/240VDC	2 form C, 2 CO	Single	Dust protected	8-1393812-6
V23054-D1004-F104	5A, size II	110VDC	53.5/145VDC	2 form C, 2 CO	Single	Dust protected	8-1393812-7
V23054-D1011-F104	5A, size II	6VDC	2.9/9VDC	2 form C, 2 CO	Single	Dust protected	8-1393812-8
V23054-D1012-F104	5A, size II	8.4VDC	4.4/13VDC	2 form C, 2 CO	Single	Dust protected	8-1393812-9
V23054-D1015-F104	5A, size II	12VDC	5.8/18VDC	2 form C, 2 CO	Single	Dust protected	9-1393812-0
V23054-D1017-F104	5A, size II	16VDC	8.7/25.5VDC	2 form C, 2 CO	Single	Dust protected	9-1393812-1
V23054-D1019-F104	5A, size II	20VDC	10.5/31VDC	2 form C, 2 CO	Single	Dust protected	9-1393812-2
V23054-D1020-F104	5A, size II	24VDC	13/39VDC	2 form C, 2 CO	Single	Dust protected	9-1393812-3
V23054-D1021-F104	5A, size II	32VDC	17.5/50VDC	2 form C, 2 CO	Single	Dust protected	9-1393812-4
V23054-D1022-F104	5A, size II	45VDC	24/66VDC	2 form C, 2 CO	Single	Dust protected	9-1393812-5
V23054-D1026-F104	5A, size II	60VDC	36/94VDC	2 form C, 2 CO	Single	Dust protected	9-1393812-8
V23054-D3003-F104	5A, size II	220VDC	98/240VDC	2 form C, 2 CO	Single	Dust protected	1393813-9
V23054-D0300-F104	5A, size II	110VDC	53.5/145VDC	2 form C, 2 CO	Single	Dust protected	1-1393813-1
V23054-D3020-F104	5A, size II	24VDC	13/39VDC	2 form C, 2 CO	Single	Dust protected	1-1393813-4
V23054-D3026-F104	5A, size II	60VDC	36/94VDC	2 form C, 2 CO	Single	Dust protected	1-1393813-6
V23054-EXXXX, standard, size III							
V23054-E0012-B133	Standard, size III	8.4VDC	4.4/13VDC	6 form C, 6 CO	Single	Dust protected	2-1393813-5
V23054-E0015-B133	Standard, size III	12VDC	5.8/18VDC	6 form C, 6 CO	Single	Dust protected	2-1393813-6
V23054-E0015-C133	Standard, size III	12VDC	8.8/18VDC	6 form C, 6 CO	Bifurcated	Dust protected	2-1393813-7
V23054-E0016-B133	Standard, size III	12.5VDC	6.9/21.5VDC	6 form C, 6 CO	Single	Dust protected	2-1393813-8
V23054-E0016-C133	Standard, size III	12.5VDC	10/21.5VDC	6 form C, 6 CO	Bifurcated	Dust protected	3-1393813-0
V23054-E0017-B133	Standard, size III	16VDC	8.7/25.5VDC	6 form C, 6 CO	Single	Dust protected	3-1393813-1
V23054-E0017-C133	Standard, size III	16VDC	13/25.5VDC	6 form C, 6 CO	Bifurcated	Dust protected	3-1393813-2
V23054-E0019-B133	Standard, size III	20VDC	10.5/31VDC	6 form C, 6 CO	Single	Dust protected	3-1393813-3
V23054-E0019-C133	Standard, size III	20VDC	15.5/31VDC	6 form C, 6 CO	Bifurcated	Dust protected	3-1393813-4
V23054-E0019-C433	Standard, size III	20VDC	15.5/31VDC	6 form C, 6 CO	Bifurcated	Dust protected	3-1393813-5
V23054-E2004-B133	Standard, size III	110VDC	53.5/145VDC	6 form C, 6 CO	Single	Dust protected	9-1393813-0
V23054-E2013-B133	Standard, size III	125VDC	73/190VDC	6 form C, 6 CO	Single	Dust protected	1422019-2
V23054-E2026-B133	Standard, size III	60VDC	36/94VDC	6 form C, 6 CO	Single	Dust protected	9-1393813-4
V23054-E0020-B133	Standard, size III	24VDC	13/39VDC	6 form C, 6 CO	Single	Dust protected	3-1393813-6
V23054-E0020-B533	Standard, size III	24VDC	13/39VDC	6 form C, 6 CO	Single	Dust protected	3-1393813-9
V23054-E0020-B633	Standard, size III	24VDC	13/39VDC	6 form C, 6 CO	Single	Dust protected	4-1393813-0
V23054-E0020-C133	Standard, size III	24VDC	20/39VDC	6 form C, 6 CO	Bifurcated	Dust protected	4-1393813-1
V23054-E0020-C433	Standard, size III	24VDC	20/39VDC	6 form C, 6 CO	Bifurcated	Dust protected	4-1393813-2
V23054-E0021-B133	Standard, size III	32VDC	17.5/50VDC	6 form C, 6 CO	Single	Dust protected	4-1393813-3
V23054-E0022-B133	Standard, size III	45VDC	24/66VDC	6 form C, 6 CO	Single	Dust protected	4-1393813-4
V23054-E0022-B633	Standard, size III	45VDC	24/66VDC	6 form C, 6 CO	Single	Dust protected	4-1393813-5
V23054-E0022-C133	Standard, size III	45VDC	35/66VDC	6 form C, 6 CO	Bifurcated	Dust protected	4-1393813-6
V23054-E0026-B133	Standard, size III	60VDC	36/94VDC	6 form C, 6 CO	Single	Dust protected	4-1393813-8
V23054-E0026-C133	Standard, size III	60VDC	55/94VDC	6 form C, 6 CO	Bifurcated	Dust protected	4-1393813-9

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Cradle S Relay V23054/V23062 (Continued)

Product code	Version	Coil	Operate/Lim.	Arrangement	Contacts	Enclosure	PartNumber
V23054-EXXXX, 5A, size III							
V23054-E1003-F110	5A, size III	220VDC	118/240VDC	4 form C, 4 CO	Single	Dust protected	5-1393813-9
V23054-E1004-F110	5A, size III	110VDC	66/145VDC	4 form C, 4 CO	Single	Dust protected	6-1393813-0
V23054-E1011-F110	5A, size III	6VDC	3.5/9VDC	4 form C, 4 CO	Single	Dust protected	6-1393813-1
V23054-E1015-F110	5A, size III	12VDC	7/18VDC	4 form C, 4 CO	Single	Dust protected	6-1393813-3
V23054-E1016-F110	5A, size III	12.5VDC	8.1/21.5VDC	4 form C, 4 CO	Single	Dust protected	6-1393813-6
V23054-E1017-F110	5A, size III	16VDC	10.5/25.5VDC	4 form C, 4 CO	Single	Dust protected	6-1393813-8
V23054-E1019-F110	5A, size III	20VDC	13/31VDC	4 form C, 4 CO	Single	Dust protected	7-1393813-2
V23054-E1020-F110	5A, size III	24VDC	15.5/39VDC	4 form C, 4 CO	Single	Dust protected	7-1393813-6
V23054-E1021-F110	5A, size III	32VDC	21/50VDC	4 form C, 4 CO	Single	Dust protected	8-1393813-1
V23054-E1022-F110	5A, size III	45VDC	29/66VDC	4 form C, 4 CO	Single	Dust protected	8-1393813-2
V23054-E1026-F110	5A, size III	60VDC	43/94VDC	4 form C, 4 CO	Single	Dust protected	8-1393813-5
V23054-E3020-F110	5A, size III	24VDC	15.5/39VDC	4 form C, 4 CO	Single	Dust protected	1-1393814-0
V23062-AXXXX, standard, size I							
V23062-A0014-C404	Standard, size I	76VDC	32/110VDC	2 form C, 2 CO	Bifurcated	Herm. sealed	1393815-1
V23062-A0025-C104	Standard, size I	28VDC	15/40VDC	2 form C, 2 CO	Bifurcated	Herm. sealed	1393815-2
V23062-A0046-C104	Standard, size I	29VDC	13/43VDC	2 form C, 2 CO	Bifurcated	Herm. sealed	1393815-3
V23062-BXXXX, standard, size II							
V23062-B0019-C410	Standard, size II	20VDC	13/31VDC	4 form C, 4 CO	Bifurcated	Herm. sealed	1393815-4
V23062-B0020-C110	Standard, size II	24VDC	15.5/39VDC	4 form C, 4 CO	Bifurcated	Herm. sealed	1393815-5
V23062-B0022-C110	Standard, size II	45VDC	29/66VDC	4 form C, 4 CO	Bifurcated	Herm. sealed	1393815-7
V23062-B0026-B610	Standard, size II	60VDC	29/94VDC	4 form C, 4 CO	Single	Herm. sealed	1393815-8
V23062-BXXXX, 5A, size II							
V23062-B1004-F104	5A, size II	110VDC	53.5/145VDC	2 form C, 2 CO	Single	Herm. sealed	1-1393815-1
V23062-B1026-F104	5A, size II	60VDC	36/94VDC	2 form C, 2 CO	Single	Herm. sealed	1-1393815-7

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Cradle W Relay V23005

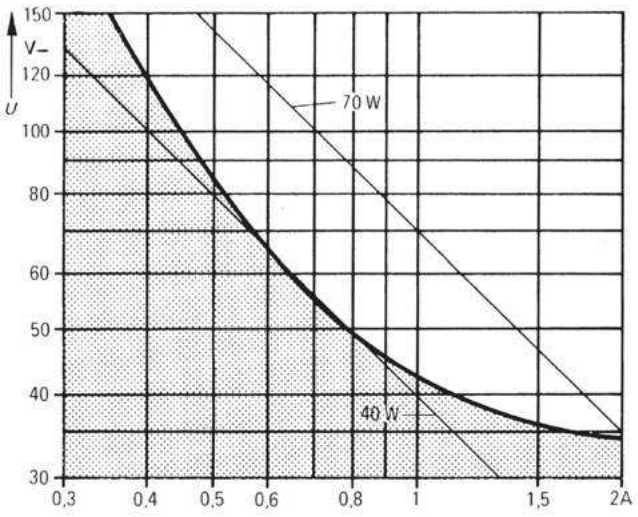
- **Highly reliable**
- **Great variety of contact arrangements and materials to meet specific applications**
- **Contacts for signal loads and currents up to 5A**
- **For AC operating only**
- **Neutral, monostable**

Typical applications
Operation of the coil with alternating voltage, machine controls.

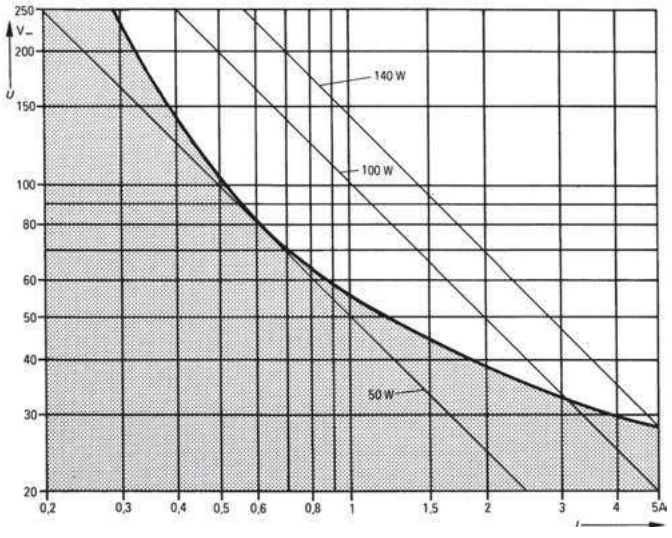
Contact Data

Product code block 3	B104/B110	B604/B610	C104/C110	C404/C410	F104 to F107
Contact arrangement	max. 4 form C (4CO) contacts, 2 form B (2 NC) contacts or 2 form A (2 NO) contacts (see product code table)				
Max. switching voltage	150VDC 125VAC	36VDC 30VAC	150VDC 125VAC	36VDC 30VAC	250VDC 250VAC
Rated current	2A	0.2A	2A	0.2A	5A
Limiting continuous current at max. ambient temperature	2A	2A	2A	2A	5A
Breaking capacity see DC load breaking capacity curve below	35 to 70W 50VA	5W, 5VA	35 to 70W 50VA	5W, 5VA	50 to 140W 500VA
Contact material	silver, gold-flashed	gold F	silver, gold-flashed	gold F	silver, gold-flashed
Contact style	single contact	single contact	bifurcated contacts	bifurcated contacts	single contact
Frequency of operation, without load, max.	20 ops./s	20 ops./s	20 ops./s	20 ops./s	20 ops./s
Mechanical endurance	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.	app. 10^7 ops.	app. 10^8 ops.

Max. DC breaking capacity, contact sets B1xx, C1xx



Max. DC breaking capacity, contact sets F1xx



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Cradle W Relay V23005 (Continued)

Coil Data	
Magnetic system	neutral
Coil voltage range	6 to 220 VAC (50Hz/ 60Hz)
Operative range, IEC 61810	1
Operating voltage	80% of rated coil voltage
Rated coil power, typ.	1.15VA
Max. coil temperature	100°C
Thermal resistance	35K/W

Coil versions, AC coil

Coil code	Rated voltage VAC	Operate voltage VAC	Coil resistance Ω±15%	Rated coil power VA [1)]
015	6	4.8	8	1.15
017	12	9.6	40	1.15
021	18	14.4	108	1.15
010	24	19.2	170	1.15
009	42	33.6	550	1.15
019	48	38.4	620	1.15
008	60	48	1000	1.15
007	110	88	3200	1.15
004	220	176	14000	1.15

1) Typical value.
All figures are given for coil without pre-energization, at ambient temperature +23°C.

Insulation Data	B1xx,B6xx,C1xx,C4xx	F1xx
Initial dielectric strength		
between coil and frame	500VAC$_{rms}$ at rated voltages ≤60V 2000VAC$_{rms}$ at rated voltages > 60V	
between contact and contact	500VAC$_{rms}$	1000VAC$_{rms}$
between contact and frame	500VAC$_{rms}$	1000VAC$_{rms}$
Initial insulation resistance, at 500 VDC	> 10^6Ω	

Other Data	
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-40 to + 70°C
Category of environmental protection IEC 61810	RT I - dust protected
Degree of protection, IEC 60529	IP 40
Terminal type	solder terminals, suitable for plug-in-and socket connection plus srew fixing
Weight	
V23003-A0xxx Size I	approx. 35g
V23003-B0xxx Size II	approx. 40g
Washing	not recommended
Ultrasonic cleaning	not recommended
Packaging unit	5 pcs.

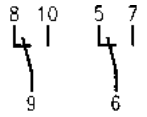
Accessories

For details see datasheet Cradle Relay, Accessories and Mounting

Terminal assignment

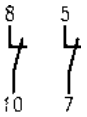
Size I

2 form C (2 CO)
V23005-xxxxx-Bx04
V23005-xxxxx-Cx04

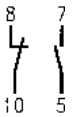


2 form A (2 NO)
V23005-xxxxx-F105

2 form B (2 NC)
V23005-xxxxx-F107

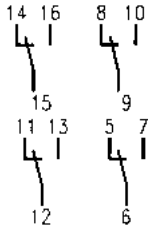


1 form A + 1 form B
(1 NO + 1 NC)
V231005-xxxxx-F106

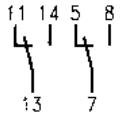


Size II

4 form C (4 CO)
V231005-xxxxx-Bx10
V231005-xxxxx-Cx10



2 form C (2 CO)
V231005-xxxxx-F104



Coil terminals: 1, 4

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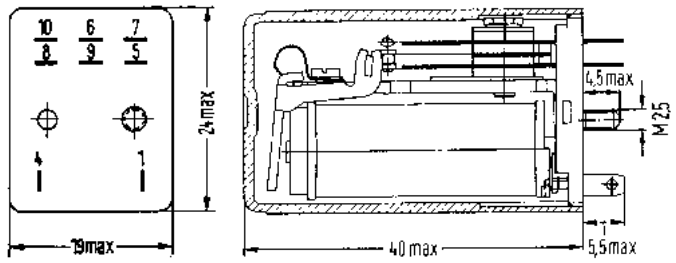
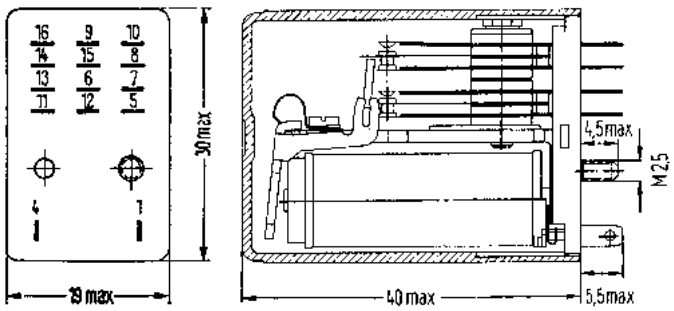
Cradle W Relay V23005 (Continued)

Dimensions

V23005-A0xx, size I type



V23005-B0xx, size II type



Product code structure

Typical product code: **V23005** **-B0** **004** **-F104**

Type
V23005 Cradle W Relay

Size
A0 Size I, dust protected
B0 Size II, dust protected

Coils
Coil code: please refer to coil versions table

Contact style

B1	Single contacts	**B6**	Single contacts	**F1**	Single contacts
C1	Bifurcated contacts	**C4**	Bifurcated contacts		

Contact arrangement

04	2 form C, 2 CO	**05**	2 form A, 1 NO	**06**	1 form A+ 1 form B, 1 NO+ 1 NC
10	4 form C, 4 CO	**12**	6 form A, 6 NO		

Other types on request.

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Cradle W Relay V23005 (Continued)

Product code	Version	Coil	Arrangement	Contacts	Enclosure	PartNumber
V23005-AXXXX, standard, size I						
V23005-A0017-B104	Standard, size I	12VAC	2 form C (2 CO)	Single	Dust protected	1-1393816-8
V23005-A0021-C104	Standard, size I	18VAC	2 form C (2 CO)	Bifurcated	Dust protected	2-1393816-0
V23005-A0010-B104	Standard, size I	24VAC	2 form C (2 CO)	Single	Dust protected	1-1393816-7
V23005-A0009-B104	Standard, size I	42VAC	2 form C (2 CO)	Single	Dust protected	1-1393816-5
V23005-A0019-B104	Standard, size I	48VAC	2 form C (2 CO)	Single	Dust protected	1-1393816-9
V23005-A0008-B104	Standard, size I	60VAC	2 form C (2 CO)	Single	Dust protected	1-1393816-4
V23005-A0007-B104	Standard, size I	110VAC	2 form C (2 CO)	Single	Dust protected	1393816-8
V23005-A0007-B604	Standard, size I	110VAC	2 form C (2 CO)	Single	Dust protected	1-1393816-0
V23005-A0007-C104	Standard, size I	110VAC	2 form C (2 CO)	Bifurcated	Dust protected	1-1393816-1
V23005-A0004-B104	Standard, size I	220VAC	2 form C (2 CO)	Single	Dust protected	1393816-1
V23005-A0004-B604	Standard, size I	220VAC	2 form C (2 CO)	Single	Dust protected	1393816-3
V23005-A0004-C104	Standard, size I	220VAC	2 form C (2 CO)	Bifurcated	Dust protected	1393816-4
V23005-AXXXX, 5A, size I						
V23005-A0009-F106	5A, size I	42VAC	1 A + 1 B (1 NO+1 NC)	Single	Dust protected	1-1393816-6
V23005-A0007-F105	5A, size I	110VAC	2 form A (2 NO)	Single	Dust protected	1-1393816-2
V23005-A0007-F106	5A, size I	110VAC	1 A + 1 B (1 NO+1 NC)	Single	Dust protected	1-1393816-3
V23005-A0004-F105	5A, size I	220VAC	2 form A (2 NO)	Single	Dust protected	1393816-6
V23005-A0004-F106	5A, size I	220VAC	1 A + 1 B (1 NO+1 NC)	Single	Dust protected	1393816-7
V23005-BXXXX, standard, size II						
V23005-B0017-B110	Standard, size II	12VAC	4 form C (4 CO)	Single	Dust protected	4-1393816-5
V23005-B0010-B110	Standard, size II	24VAC	4 form C (4 CO)	Single	Dust protected	4-1393816-0
V23005-B0010-C110	Standard, size II	24VAC	4 form C (4 CO)	Bifurcated	Dust protected	4-1393816-1
V23005-B0010-C410						
V23005-B0009-B110	Standard, size II	42VAC	4 form C (4 CO)	Single	Dust protected	3-1393816-7
V23005-B0009-C110	Standard, size II	42VAC	4 form C (4 CO)	Bifurcated	Dust protected	3-1393816-8
V23005-B0008-B110	Standard, size II	60VAC	4 form C (4 CO)	Single	Dust protected	3-1393816-5
V23005-B0007-B110	Standard, size II	110VAC	4 form C (4 CO)	Single	Dust protected	3-1393816-0
V23005-B0007-B610	Standard, size II	110VAC	4 form C (4 CO)	Single	Dust protected	3-1393816-1
V23005-B0007-C110	Standard, size II	110VAC	4 form C (4 CO)	Bifurcated	Dust protected	3-1393816-2
V23005-B0007-C410	Standard, size II	110VAC	4 form C (4 CO)	Bifurcated	Dust protected	3-1393816-3
V23005-B0004-B110	Standard, size II	220VAC	4 form C (4 CO)	Single	Dust protected	2-1393816-2
V23005-B0004-B610	Standard, size II	220VAC	4 form C (4 CO)	Single	Dust protected	2-1393816-4
V23005-B0004-C110	Standard, size II	220VAC	4 form C (4 CO)	Bifurcated	Dust protected	2-1393816-5
V23005-B0004-C410	Standard, size II	220VAC	4 form C (4 CO)	Bifurcated	Dust protected	2-1393816-6
V23005-BXXXX, 5A, size II						
V23005-B0015-F104	5A, size II	6VAC	2 form C (2 CO)	Single	Dust protected	4-1393816-4
V23005-B0017-F104	5A, size II	12VAC	2 form C (2 CO)	Single	Dust protected	4-1393816-6
V23005-B0010-F104	5A, size II	24VAC	2 form C (2 CO)	Single	Dust protected	4-1393816-3
V23005-B0009-F104	5A, size II	42VAC	2 form C (2 CO)	Single	Dust protected	3-1393816-9
V23005-B0008-F104	5A, size II	60VAC	2 form C (2 CO)	Single	Dust protected	3-1393816-6
V23005-B0007-F104	5A, size II	110VAC	2 form C (2 CO)	Single	Dust protected	3-1393816-4
V23005-B0004-F104	5A, size II	220VAC	2 form C (2 CO)	Single	Dust protected	2-1393816-8

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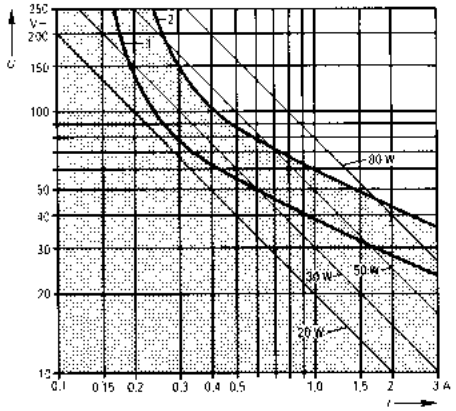
Card SN Relay V23030

- **Low profile, therefore particularly suited for flat pack components grouping**
- **For relays with 1 or 2 form C (CO) contacts:**
  - **creepage and clearance distances between contacts and frame >5mm or >10mm (depending on the relay version)**
  - **dielectric strength between contacts and frame 4kV$_{rms}$ or 6kV$_{rms}$**

Typical applications
measuring and control systems, alarm and security equipment, road traffic and railway signaling systems.

Contact Data	**A104**	**A106**	**A204**	**A206**
Contact arrangement	4 form C, (4 CO)	6 form C, (6 CO)	4 form C, (4 CO)	6 form C, (6 CO)
Max. switching voltage	250VDC 250VAC	250VDC 250VAC	30VDC 36VAC	30VDC 36VAC
Limiting continuous current				
≤50°C ambient	2A	2A	2A	2A
≤75°C ambient	1A	1A	1A	1A
Limiting making/breaking current	3A[1)]	3A[1)]	0.2A	0.2A
Contact material	Ag, Au-flashed	Ag, Au-flashed	Gold F[2)]	Gold F[2)]
Contact style	bifurcated contacts			
Frequency of operation, without load	max. 30 operations/s			
Operate / release time approx.	8/2ms			

Max. DC breaking capacity (contacts Ag, gold flashed)



I = Switching current
U = Switching voltage (dc)
Fig. 1

Curve 1: arc extinguished within contact transit period (limit curve I)
Curve 2: safe breaking, erc extinguished (limit curve II)

Electrical endurance

Type	Load	Operations
Ag, gold-flashed	2.4A, 24VDC, resistive	appr. 1x10^6
Ag, gold-flashed	3A, 24VDC, resistive	appr. 0.3x10^6
Ag, gold-flashed	1.35A, 30VDC, resistive	appr. 6x10^6
Ag, gold-flashed	0.85A, 40VDC, resistive	appr. 2x10^7
Ag, gold-flashed	0.36A, 60VDC, resistive	appr. 8x10^7
Ag, gold-flashed	0.21A, 110VDC, rersitive	appr. 10x10^7
Ag, gold-flashed	2.4A, 24VDC, resistive+100µH3)	appr. 1x10^6
Ag, gold-flashed	0.6A, 60VDC, resistive+100µH3)	appr. 10x10^6
Ag, gold-flashed	0.24A, 110VDC, resistive+100µH3)	40x10^6

Contact Data (continued)	
Mechanical endurance	aaprox. 10^8 operations

1) The current of 3 A for max 4s at 10% on-time.
2) Gold F on request only.
3) Self inductance in accordance with IEC 255-0-20.

Coil Data	
Magnetic system	neutral, monostable
Coil voltage range	5 to 60VDC
Max. coil temperature	110°C
Thermal resistance	35K/W

Coil versions, monostable

Coil code	Rated voltage	Operate voltage 4/6 pole	Limiting Voltage	Coil resistance	Rated coil power
	VDC	VDC	VDC	Ω±10%[4)]	mW
032	5	3.3/4.0	10.8	38	658
012	6	3.9/4.6	12.4	50	720
017	12	7.8/9.5	24.0	185	778
021	24	15.5/18.5	47.0	730	789
026	48	32/37	88.0	2700[4)]	853
014	60	38/45	109.0	4100[4)]	878

4) Coil resistance ±15%

All figures are given for coil without pre-energization, at ambient temperature +23°C

The operating voltage limits U_I and U_{II} depend on temperature according to the following formula:
$U_{I\ tamb} = k_I * U_I$ 20°C, $U_{II\ tu} = k_{II} * U_{II}$ 20°C; t_{amb} = ambient temperature,
$U_{I\ tamb}$ = minimum voltage at ambient temperature,
$U_{II\ tamb}$ = maximum voltage at ambient temperature, k_I and k_{II} are factors.

t_{amb}	20°C	30°C	40°C	50°C	60°C	70°C
k_I	1	1.04	1.085	1.13	1.17	1.21
k_{II}	1	0.93	0.86	0.79	0.7	0.6

Insulation Data	
Initial dielectric strength	
between coil and frame	500V$_{rms}$
between contact and contact	1000V$_{rms}$
between contact and frame	1000V$_{rms}$
between contact and coil	1000V$_{rms}$

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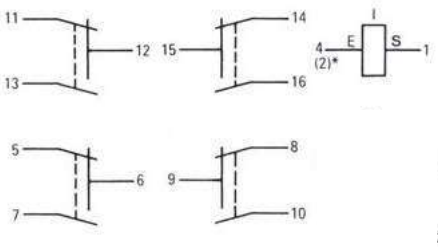
Card SN Relay V23030 (Continued)

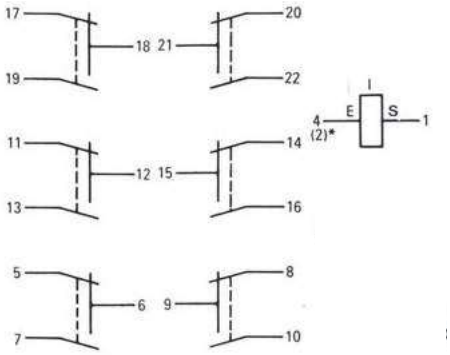
Other Data	
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-40 to +70°C
Category of environmental protection IEC 61810	RT I - dust protected, RT III - immersion cleanable
Degree of protection, IEC 60529	IP30, IP67
Terminal type	PCB-THT
Weight	
V23030-Axxx	approx. 12g
V23030-Cxxx	approx. 30g
V23030-Hxxx	approx. 25g
V23030-Jxxx	approx. 30g
Ultrasonic cleaning	not recommended
Packaging unit	5 pcs.

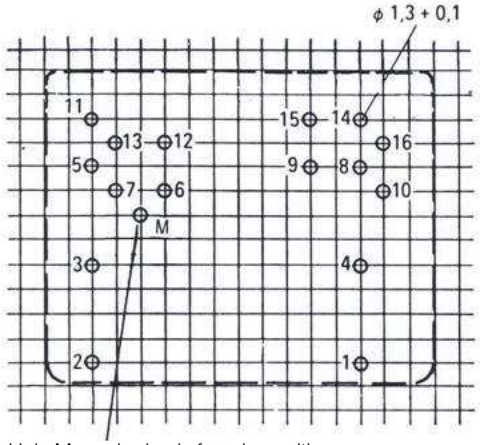
PCB layout / terminal assignment
Bottom view on solder pins

4 form C (4 CO) contacts
V23030-Axxxx-xx04
V23030-Hxxxx-xx04

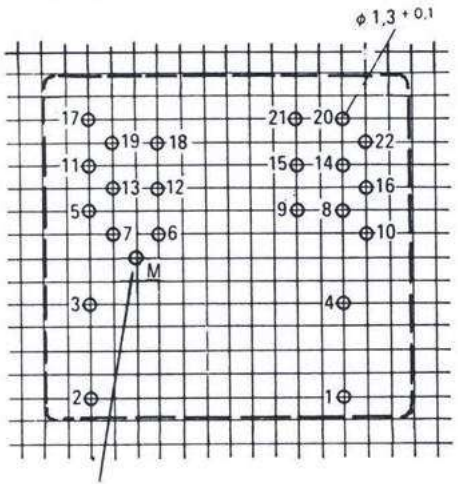


6 form C (6 CO) contacts
V23030-Axxxx-xx04
V23030-Hxxxx-xx04





Hole M required only for relays with earth connection.



Hole M required only for relays with earth connection.

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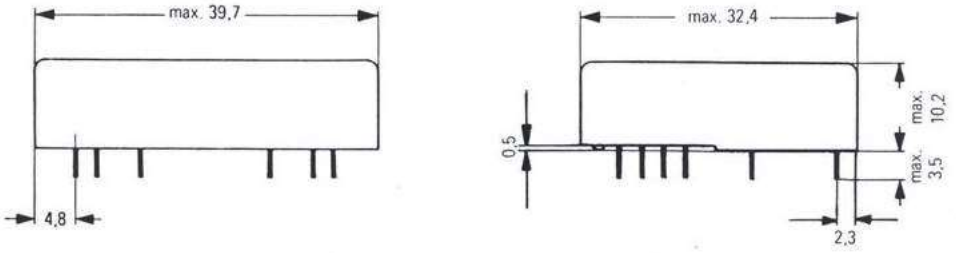
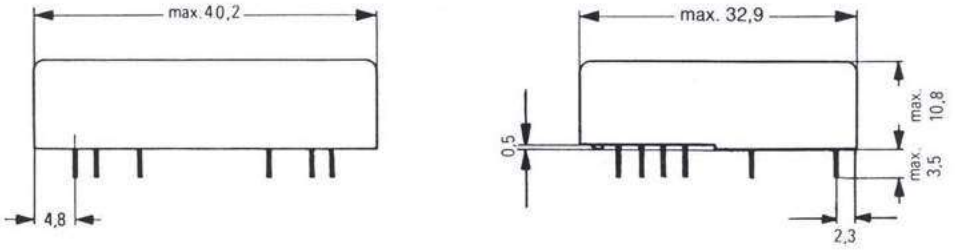
Card SN Relay V23030 (Continued)

Dimensions

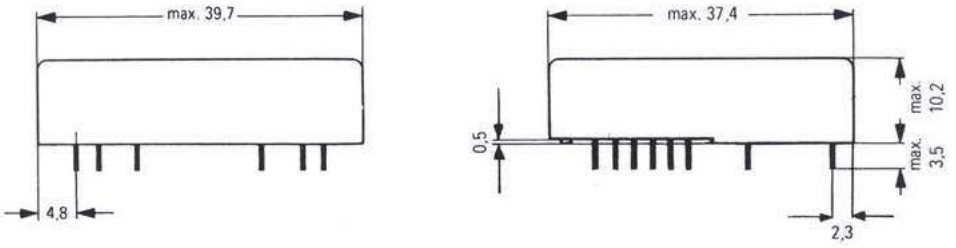
V23030-Axxx, 4 form C (4 CO) contacts, dust protected



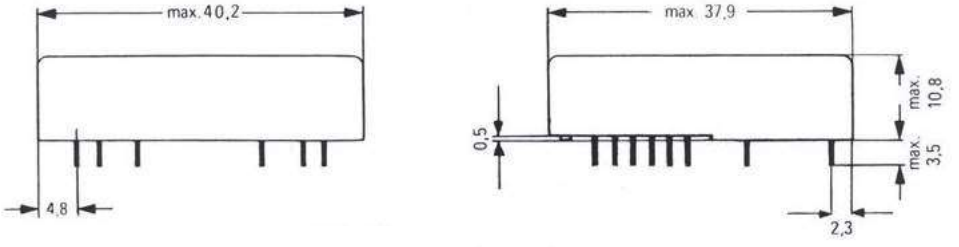
V23030-Hxxx, 4 form C (4 CO) contacts, immersion cleanable



V23030-Cxxx, 6 form C (6 CO) contacts, dust protected



V23030-Jxxx, 6 form C (6 CO) contacts, immersion cleanable



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Card SN Relay V23030 (Continued)

Product code structure

Typical product code	V23030	-A	1	021	-A1	04

Type
V23030 Card SN Relay

Contact arrangement
A 4 form C, 4 CO, dust proof
C 6 form C, 6 CO, dust proof
H 4 form C, 4 CO, immersion cleanable
J 6 form C, 6 CO, immersion cleanable

Earth connection
1 Without earth connection
2 With earth connection

Coils
Coil code: please refer to coil versions table

Contact material
A1 Silver, gold flashed **A2** Gold F

Contact arrangement
04 4 form C, 4 CO **06** 6 form C, 6 CO

Other types on request.

Product code	Version	Coil	Arrangement	Enclosure	Part number
V23030-A1xxx, 4 pole, without earth connection, dust protected					
V23030-A1017-A104	4 pole, without earth conn.	12VDC	4 form C (4 CO)	Dust protected	3-1393801-6
V23030-A1021-A104	4 pole, without earth conn.	24VDC	4 form C (4 CO)	Dust protected	3-1393801-8
V23030-A1026-A104	4 pole, without earth conn.	48VDC	4 form C (4 CO)	Dust protected	4-1393801-1
V23030-A2xxx, 4 pole, with earth connection, dust protected					
V23030-A2012-A104	4 pole, with earth conn.	6VDC	4 form C (4 CO)	Dust protected	4-1393801-4
V23030-A2017-A104	4 pole, with earth conn.	12VDC	4 form C (4 CO)	Dust protected	4-1393801-8
V23030-A2017-A204	4 pole, with earth conn.	12VDC	4 form C (4 CO)	Dust protected	4-1393801-9
V23030-A2021-A104	4 pole, with earth conn.	24VDC	4 form C (4 CO)	Dust protected	5-1393801-0
V23030-A2026-A104	4 pole, with earth conn.	48VDC	4 form C (4 CO)	Dust protected	5-1393801-2
V23030-A2014-A104	4 pole, with earth conn.	60VDC	4 form C (4 CO)	Dust protected	4-1393801-6
V23030-C1xxx, 6 pole, without earth connection, dust protected					
V23030-C1017-A104	6 pole, without earth conn.	12VDC	6 form C (6 CO)	Dust protected	6-1393801-2
V23030-C1021-A104	6 pole, without earth conn.	24VDC	6 form C (6 CO)	Dust protected	6-1393801-3
V23030-C1021-A204	6 pole, without earth conn.	24VDC	6 form C (6 CO)	Dust protected	6-1393801-4
V23030-C1026-A104	6 pole, without earth conn.	48VDC	6 form C (6 CO)	Dust protected	6-1393801-7
V23030-C2xxx, 6 pole, with earth connection, dust protected					
V23030-C2012-A104	6 pole, with earth conn.	6VDC	6 form C (6 CO)	Dust protected	6-1393801-9
V23030-C2017-A104	6 pole, with earth conn.	12VDC	6 form C (6 CO)	Dust protected	7-1393801-1
V23030-C2017-A204	6 pole, with earth conn.	12VDC	6 form C (6 CO)	Dust protected	7-1393801-2
V23030-C2021-A104	6 pole, with earth conn.	24VDC	6 form C (6 CO)	Dust protected	7-1393801-3
V23030-C2014-A104	6 pole, with earth conn.	60VDC	6 form C (6 CO)	Dust protected	7-1393801-0

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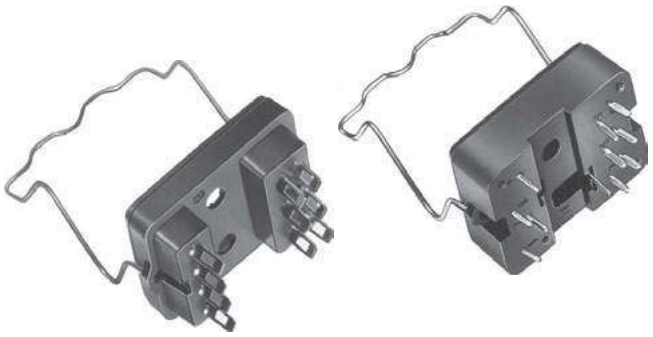
Cradle Relay Accessories and Mounting

Sockets for cradle relays in 2 different versions

- **Sockets with hand solder terminals**
- **Sockets with PCB terminals**
- **Available in 3 different sizes**

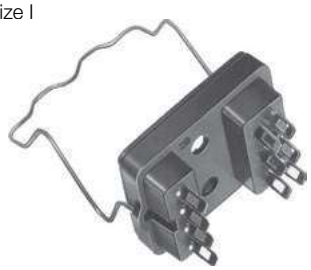


Technical Data	
ROHS compliant (Directive 2002/95/EC) as per product date code 050	
Sockets with hand solder terminals	
Weight: size I / II / III	approx. 3.5 / 4.5 / 5.5 g
Sockets with PCB terminals	
Weight: size I / II / III	approx. 4.5 /5.5 / 6.5 g
Terminal material	
	CuSn8 FB 390 plated with min. 3µrm silver or min. 1 µm gold

Technical Data (continued)	
Socket material hand solder terminals	
	Phenolformaldehyde type 31 (DIN 7708, part 2)
Socket material PCB terminals	
	Makrolom (polycarbonate)
Maximum continuous current at 70°C	5 A

Sizes Hand Solder Terminals

Size I



Size II

Size III

PCB Terminals

Size I

Size II

Size III

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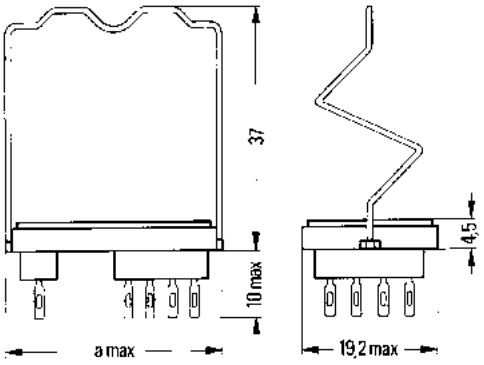
Cradle Relay Accessories and Mounting (Continued)

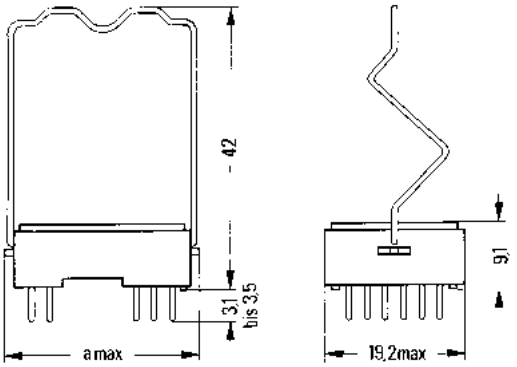
Dimensions

Socket	Size I	Size II	Size III
Dimension a	26.6mm	32.5mm	38mm

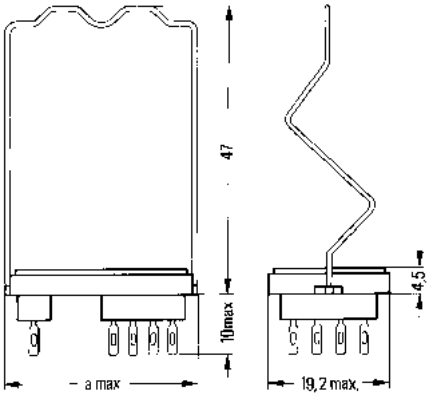
Sockets with hand solder terminals
with hold-down spring for cradle relays N, S and P

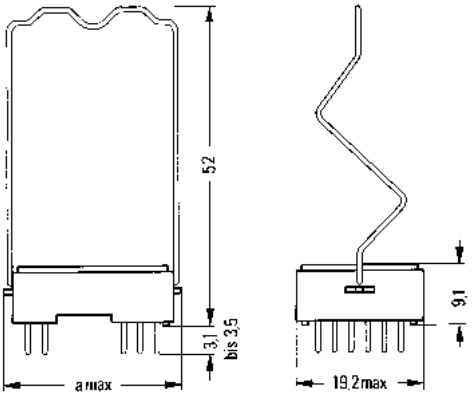


Sockets with PCB terminals



with hold-down spring for cradle relay W





Ordering Code*)

Version	Size	Ordering Code	Part Number
Sockets			
for printed circuit mounting, terminals silver-plated with earth terminal	I II III	V23154-Z1001 V23154-Z1002 V23154-Z1028	1393824-1 9-1393809-1 1-1393824-0
for solder terminals, hand solder terminals, silver-plated	I II III	V23154-Z1005 V23154-Z1006 V23154-Z1015	1393824-4 1393824-5 1393824-8
Hold-down springs			
for cradle relays N, S and P	I II III	V23154-Z1021 V23154-Z1022 V23154-Z1034	1393827-1 1393827-2 1393760-2
for cradle relay W	I II	V23154-Z1023 V23154-Z1024	1393827-3 1393760-1

*) Please note that hold down springs have to be ordered separately.

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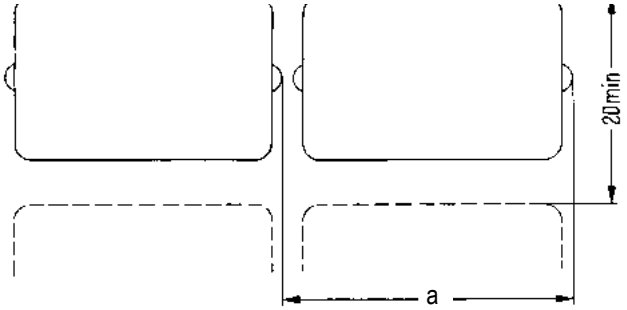
Cradle Relay Accessories and Mounting (Continued)

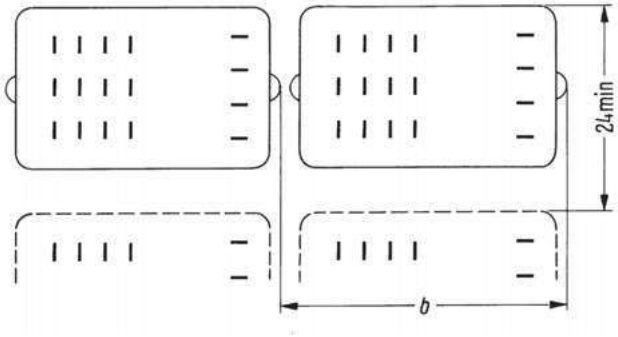
Dimensions
Minimum spacings between sockets

Socket	Size I	Size II	Size III
Dimension a and b	27mm	33mm	39mm
Dimension c	42mm	48mm	54mm

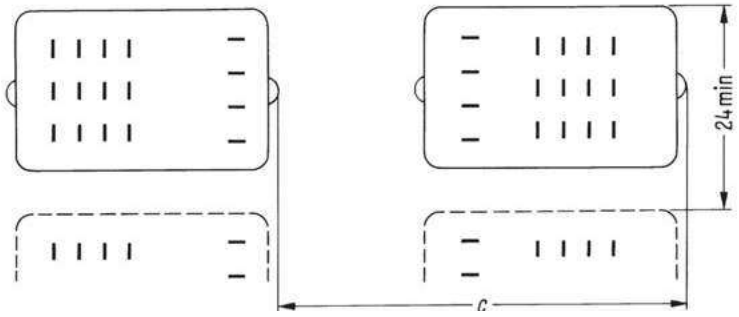
with hold-down spring for cradle relays N, S and P



for cradle relay P
Relays oriented in the same direction



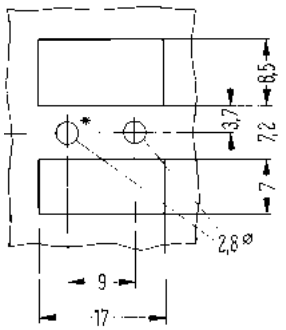
Relays oriented inversely to each other



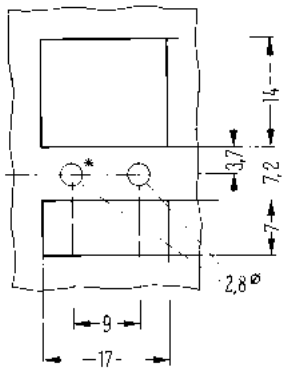
When mounting cradle relay P consideration should be given to magnetic fields. Strong DC magnetic fields, possibly caused by adjacent relays,and large iron masses are the most common causes of interference. Experience has shown that under normal operating conditions the minimum spacings specified for cradle relay P are sufficient to prevent cross interference.

Mounting hole layout for cradle relays and sockets with hand solder terminals
with hold-down spring for cradle relays N, S and P

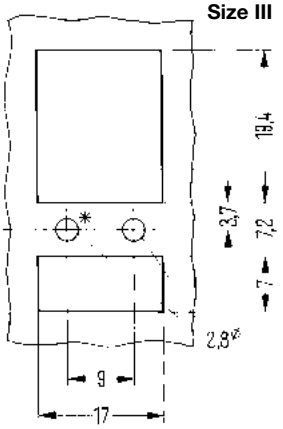
Size I



Size II



Size III



*) This hole is omitted when mounting hole layouts is intended for the socket.

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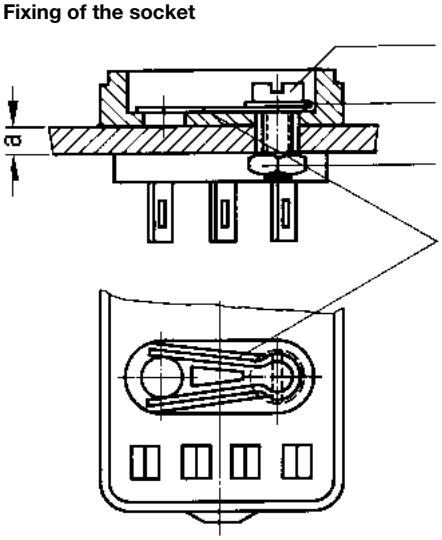
Cradle Relay Accessories and Mounting (Continued)

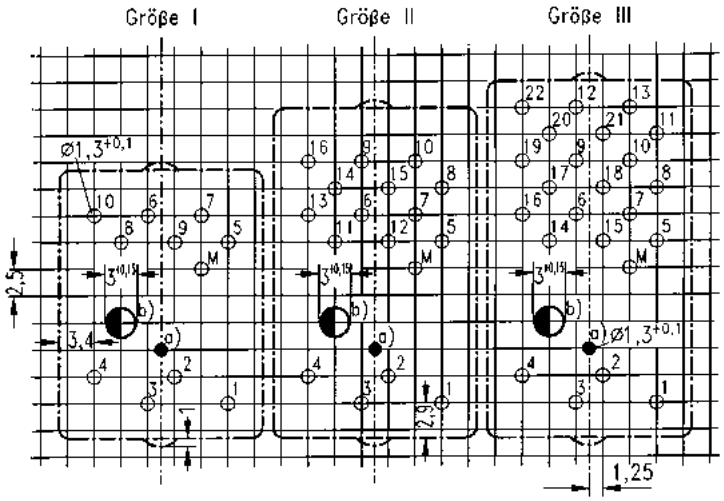
Fixing of the socket



Direct mounting of relays without socket requires a fixing nut M2.5 DIN 934-m6AU.
Ordering code: D00934-A0025-S001

Dimensions
Mounting hole layout for sockets with PCB terminals

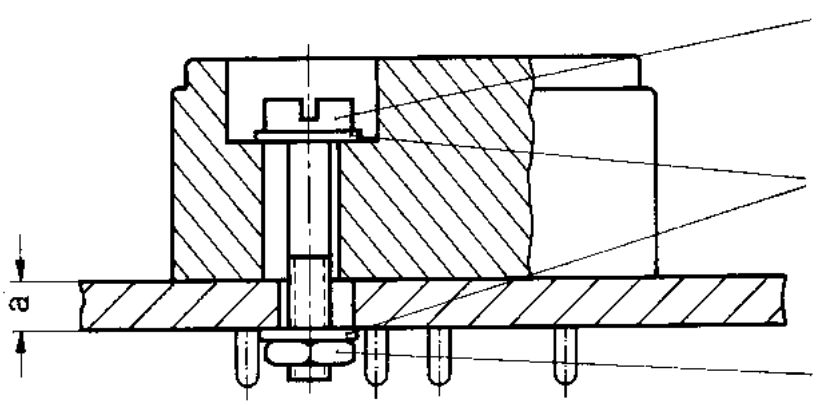
View on the terminals, basic grid 2.5mm according to EN 60097



M = Earth terminal

a) Hole for mechanical armature actuation, if required
b) Hole for the socket mounting with screw M1.6

Fixing of the socket



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Sockets & Accessories, R10 Relays

- **Sockets for 2 - 6 pole relays**
- **Solder, PCB or screw terminal sockets**
- **Choice of grounding provision on sockets**
- **Hold down springs**
- **Plates and brackets permit various mounting options**

Approvals

UL E59244, CSA LR15734

Technical data of approved types on request

Technical Data

Socket contact material	Spring brass, tin plated
Socket body material	
2 and 4 pole models	Polyester
6 and 8 pole models	Phenolic
Maximum current	10A
Voltage drop	30mV max. at 10A
Dielectric strength	1,000Vrms
Insulation resistance	10^9 megΩ

Solder and PC terminal sockets
Rugged, molded socket body retains floating terminals of either solder or printed circuit pin configuration. PC terminal sockets are offered with pins in either 0.1" (2.54mm) grid or in-line arrangement.

Grounding provisions
Pre-installed on sockets
Not for use at 5A AC and above.
Grounding Strip: Mounting stud of relay contacts grounding strip. Grounding strip is grounded with screw or rivet through round hole in socket.
Grounding Terminal (PC sockets only): Mounting stud of relay contacts ground terminal through square hole in socket.

Strip

Terminal

Ordering Code

Product Code	Poles	Terminal type	Grounding provision	Part number
27E125	2	solder terminals	strip	1393143-8
27E126	4			1393143-9
27E127	6			1-1393143-0
27E162	2		none	1-1393143-6
27E163	4			1-1393143-7
27E164	6			1-1393143-8
27E128	2	PCB terminals,.180"	strip	1-1393143-1
27E129	4	(4.57mm) long,		1-1393143-2
27E130	6	staggered layout		1-1393143-3
27E212	2		none	2-1393143-4
27E213	4			2-1393143-5
27E271	6			3-1393143-1
27E193	2		terminal	2-1393143-1
27E194	4			2-1393143-2
27E636	2	PCB terminals, 210"	strip	5-1393143-0
27E637	4	(5.33mm) long,		5-1393143-1
		staggered layout		
27E342	2	PCB terminals,.180"	none	3-1393143-6
27E629	4	(4.57mm) long,		4-1393143-8
27E630	6	in-line layout		4-1393143-9

All accessories must be ordered separately.

Caution:
Printed circuit sockets are manufactured with "floating" (loose) terminals. This permits them to align with holes in the circuit board and with the relay terminals. During the mounting and soldering of the socket, vertical float should be eliminated and the terminals seated on the board. (This may be accomplished by inserting a dummy relay in the socket.) Failure to eliminate float may cause fracture of the solder joint or separation of the copper conductor from the printed circuit board when a relay is inserted in the socket after soldering.

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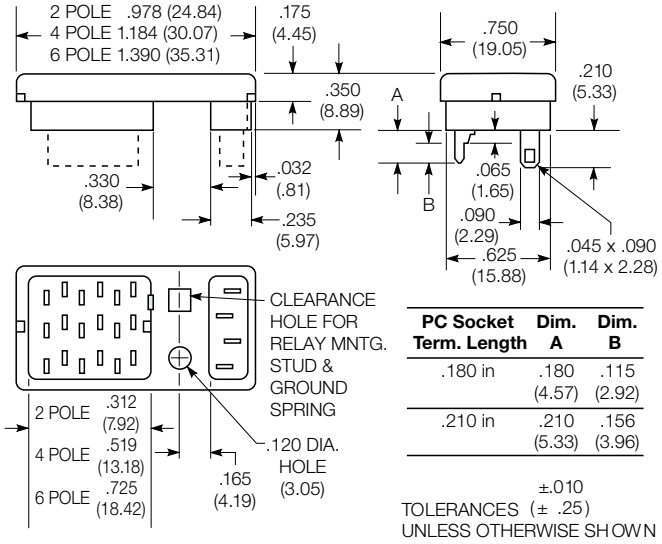
Sockets & Accessories, R10 Relays (Continued)

Dimensions

Solder and PC terminal sockets

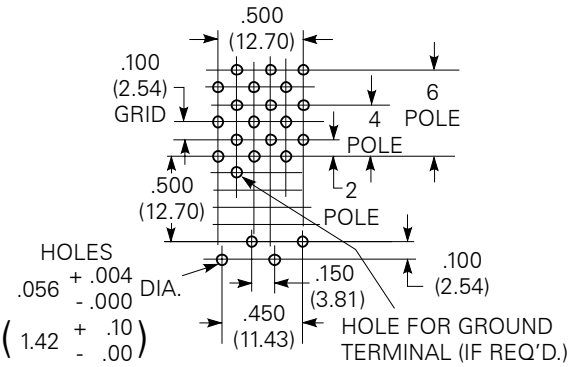


PC Socket Term. Length	Dim. A	Dim. B
.180 in	.180 (4.57)	.115 (2.92)
.210 in	.210 (5.33)	.156 (3.96)

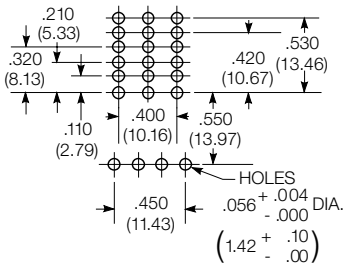
±.010
TOLERANCES (± .25)
UNLESS OTHERWISE SHOWN

PCB layout

Sockets with staggered PC terminals

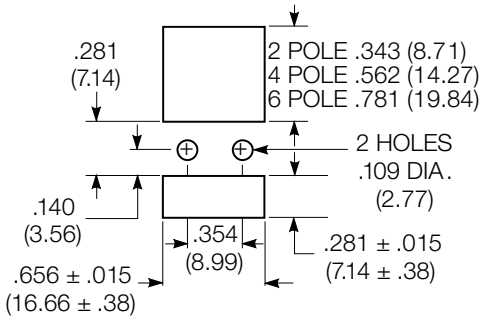


Sockets with inline PC terminals



PCB layout (top view)

Sockets with solder terminals



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Sockets & Accessories, R10 Relays (Continued)

Ordering Code

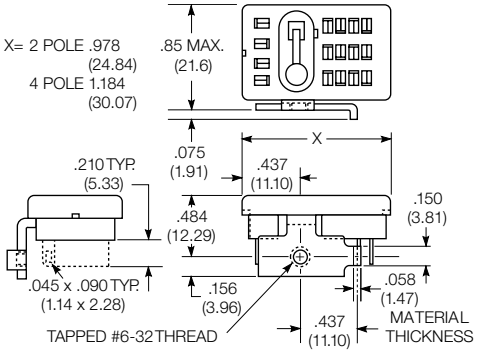
Product Code	Poles	Terminal type	Mount type	Grounding provision	Part number
27E317	2	solder	bracket	strip	3-1393143-4
27E152	4				1-1393143-5
27E446	2	solder	flange	strip	4-1393143-1
27E447	4				4-1393143-2
27E448	6				4-1393143-3
27E460	2	screw	track/	none	1393837-1
27E461	4		chassis		4-1393143-4
27E462	6				4-1393143-5

All accessories must be ordered separately.

Dimensions

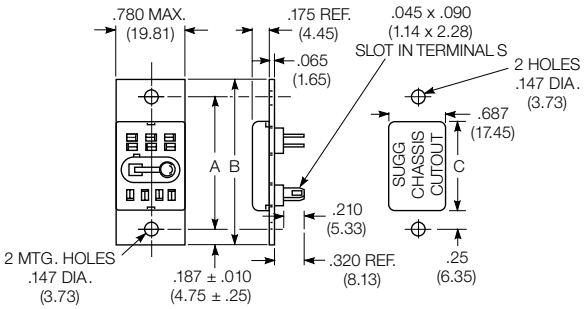
Bracket Mount socket 27E317 and 27E152

Allows solder terminal relay to mount flat on a chassis.



Flange mount socket 27E446, 27E447, 27E448

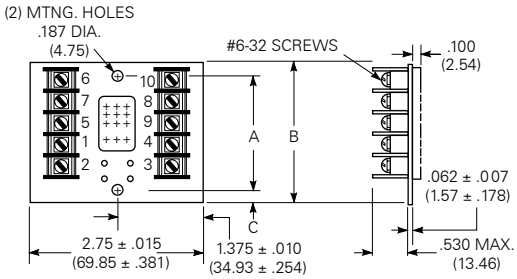
Solder terminal socket with tin-plated terminals and grounding strip pre-assembled on .065" (1.65mm) steel mounting plate. Requires only one chassis cutout.



Track mount sockets 27E460, 27E461, 27E462

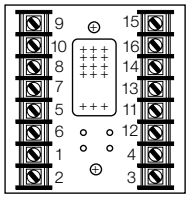
Provides front wiring, screw terminal connections for R10 family relays. No grounding provision.

2 pole terminal wiring code

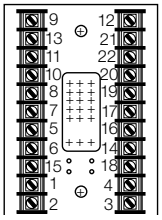


Socket	Poles	Dim A	Dim B	Dim C
27E446	2	1.437 (36.50)	1.822 (46.27)	.937 (23.80)
27E447	4	1.687 (42.85)	2.072 (52.63)	1.125 (28.58)
27E448	6	1.875 (47.63)	2.260 (57.40)	1.343 (34.11)

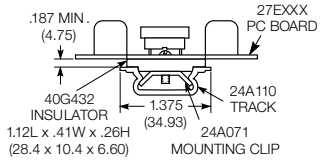
4 pole terminal wiring code



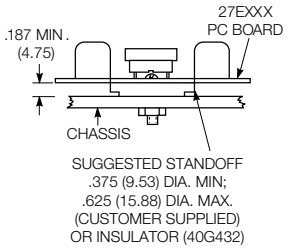
6 pole terminal wiring code



Suggested track mounting



Suggested chassis mounting



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Sockets & Accessories, R10 Relays (Continued)

Ordering Code

Product Code	Description	Part number
20C249	Hold down spring for 2 pole R10 relays	3-1393159-5
20C250	Hold down spring for 4 pole R10 relays	3-1393159-6
20C251	Hold down spring for 6 pole R10 relays	3-1393159-7
20C266	Hold down spring for 8 pole R10 relays	4-1393159-1
20C259	Hold down strap for R10 relays in PC sockets	4-1393159-0
20C300	Hold down spring for 2 pole R10S relays	4-1393159-4
20C301	Hold down spring for 4 pole R10S relays	4-1393159-5
37D645	Mounting strip - accepts 10 relays or sockets	7-1393143-3
24A110	Mounting track	1419111-6
24A071	Steel mounting clip with #6-32 screw - use with 27E46_ sockets on 24A110 track	1419111-5
40G432	Plastic insulator - use with use with 27E46_ sockets on chassis or with 24A071 clip on 24A110 track	9-1393159-5

All accessories must be ordered separately.

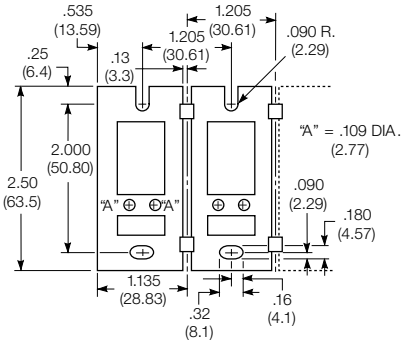
Hold down spring

Hold down strap
(PC sockets only)

Dimensions

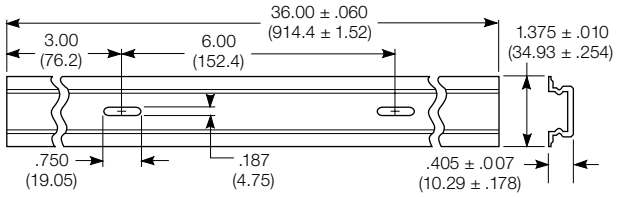
37D645 – Mounting Strip

Strip of .060" (1.52mm) aluminum contains ten pre-punched, breakaway mounting plates. Each plate accomodates a 2, 4, 6 or 8 pole solder terminal R10 relay or socket to facilitate chassis- or rack mounting.



24A110 – Mounting track

Mounting track is designed to accept snap-mount sockets, as well as other P&B screw terminal sockets. Track is made of lightweight, sturdy extruded aluminum and is shipped in three-foot (914cm) lengths with mounting holes on six-inch (152mm) centers. Track can be cut to shorter lengths or used end-to-end.



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HF3 Relay/Switch

- **Y-Design**
- **Frequency range DC to 3GHz**
- **Impedance 50Ω or 75Ω**
- **Small dimensions (14.6x7.2x10mm)**
- **1 form C contact (1 changeover contact)**
- **Immersion cleanable**
- **Low power consumption (≤140mW)**

Typical applications
Cable modems and linecards/ CATV, Tabs, measurement and test equipment ATE, satellite / audio / video tuners, wireless base stations and antennas, switching boards.

Contact Data

Contact arrangement	1 form C, 1 CO
Max. switching voltage	220VDC, 250VAC
Rated current	2A
Limiting continuous current, 23°C	2A
Switching power	60W, 62.5VA, 50W (2.5GHz)
Max. continuos RF-power, 23°C	50W (2.5GHz)
Contact material	Ag, Au covered
Minimum switching voltage	100µV
Initial contact resistance	<100mΩ at 10mA, 20mV
Operate time	typ. 3ms, max. 5ms
Release time	
without diode in parallel	typ. 2ms, max. 5ms
with diode in parallel	typ. 4ms, max. 6ms
Bounce time	typ. 1ms, max. 3ms
Mechanical endurance	10^7 operations

Coil Data

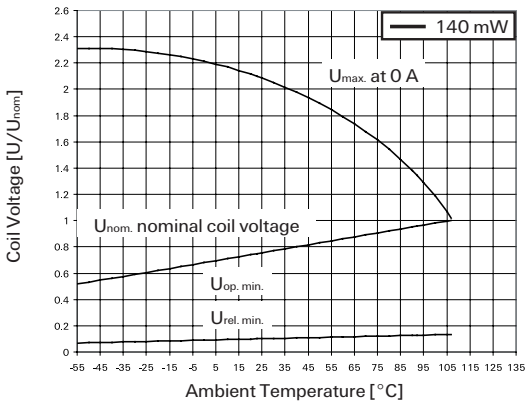
Coil voltage range	3 to 24VDC

Coil versions, monostable

Coil code	Rated voltage VDC	Operate voltage VDC	Limiting voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW
50Ω version, monostable, 1 coil						
51	3	2.25	6.50	0.30	64	140
52	4.5	3.38	9.80	0.45	145	140
53	5	3.75	10.90	0.50	178	140
54	6	4.50	13.00	0.60	257	140
55	9	6.75	19.60	0.90	574	140
56	12	9.00	26.10	1.20	1028	140
57	24	18.00	52.30	2.40	4114	140
75Ω version, monostable, 1 coil						
01	3	2.25	6.50	0.30	64	140
02	4.5	3.38	9.80	0.45	145	140
03	5	3.75	10.90	0.50	178	140
04	6	4.50	13.00	0.60	257	140
05	9	6.75	19.60	0.90	574	140
06	12	9.00	26.10	1.20	1028	140
07	24	18.00	52.30	2.40	4114	140

All figures are given for coil without pre-energization, at ambient temperature +23°C.

Coil Data (continued)



Coil versions, bistable

Coil code	Rated voltage VDC	Set voltage VDC	Limiting voltage VDC	Reset voltage VDC	Coil resistance Ω±10%	Rated coil power mW
50Ω version, bistable, 1 coil						
71	3	2.25	9.20	-2.25	128	70
72	4.5	3.38	13.85	-3.38	289	70
73	5	3.75	15.30	-3.75	357	70
74	6	4.50	18.50	-4.50	514	70
75	9	6.75	27.70	-6.75	1157	70
76	12	9.00	37.00	-9.00	2057	70
77	24	18.00	74.00	-18.00	8228	70
50Ω version, bistable, 2 coils						
91	3	2.25	6.50	2.25	64	140
92	4.5	3.38	9.80	3.38	145	140
93	5	3.75	10.90	3.75	178	140
94	6	4.50	13.00	4.50	257	140
95	9	6.75	19.60	6.75	574	140
96	12	9.00	26.10	9.00	1028	140
97	24	18.00	52.30	18.00	4114	140

All figures are given for coil without pre-energization, at ambient temperature +23°C.

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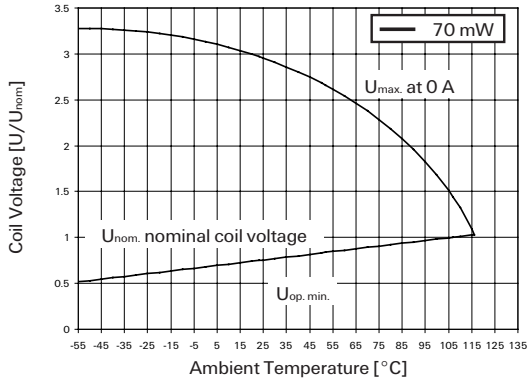
HF3 Relay/Switch (Continued)

Coil Data (continued)

Coil versions, bistable

Coil code	Rated voltage VDC	Set voltage VDC	Limiting voltage VDC	Reset voltage VDC	Coil resistance Ω±10%	Rated coil power mW
75Ω version, bistable, 1 coil						
21	3	2.25	9.20	-2.25	128	70
22	4.5	3.38	13.85	-3.38	289	70
23	5	3.75	15.30	-3.75	357	70
24	6	4.50	18.50	-4.50	514	70
25	9	6.75	27.70	-6.75	1157	70
26	12	9.00	37.00	-9.00	2057	70
27	24	18.00	74.00	-18.00	8228	70
75Ω version, bistable, 2 coils						
41	3	2.25	6.50	2.25	64	140
42	4.5	3.38	9.80	3.38	145	140
43	5	3.75	10.90	3.75	178	140
44	6	4.50	13.00	4.50	257	140
45	9	6.75	19.60	6.75	574	140
46	12	9.00	26.10	9.00	1028	140
47	24	18.00	52.30	18.00	4114	140

All figures are given for coil without pre-energization, at ambient temperature +23°C.



Insulation Data	50Ω version	75Ω version
Initial dielectric strength		
between open contacts	600V_{rms}	
between contact and coil	1000V_{rms}	
Initial surge withstand voltage		
between open contacts	1000V	
between contact and coil	1500V	

RF Data

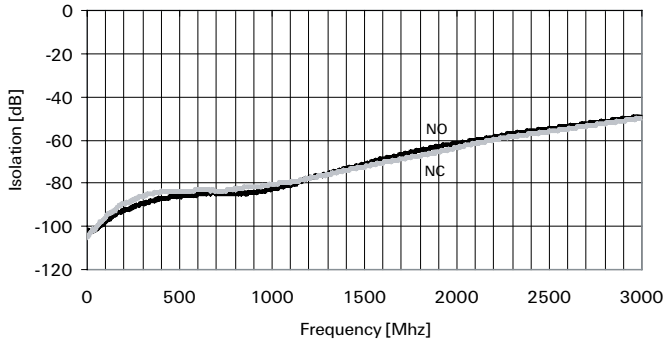
Isolation		
at 100MHz/900MHz	80dB/72dB	80dB/72dB
at 3GHz	45dB	40dB
Insertion loss		
at 100MHz/900MHz	0.03dB/0.12dB	0.03dB/0.12dB
at 3GHz	0.35dB	0.40dB
Voltage standing wave ratio (VSWR)		
at 100MHz/900MHz/3GHz	1.05/1.20/1.20	1.05/1.20/1.40

Other Data

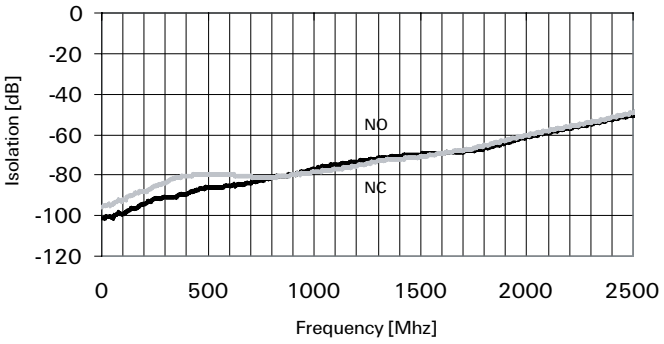
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter

Ambient temperature	-55°C to +85°C
Thermal resistance	<165K/W
Category of environmental protection	
IEC 61810	RT III - wash tight
Degree of protection, IEC 60529	IP 67, immersion cleanable
Vibration resistance (functional)	35g, 10 to 1000Hz
Shock resistance (functional), half sinus 11ms	50g
Shock resistance (destructive), half sinus 0.5ms	150g
Terminal type	SMT
Weight	max. 2.5g
Resistance to soldering heat SMT	
IEC 60068-2-58	265°C/10s
Moisture sensitive level, JEDEC J-Std-020D	MSL3
Ultrasonic cleaning	not recommended
Packaging/unit	reel/400 pcs., box/400 or 2000 pcs.

Typical RF performance, 50Ω version



Typical RF performance, 75Ω version



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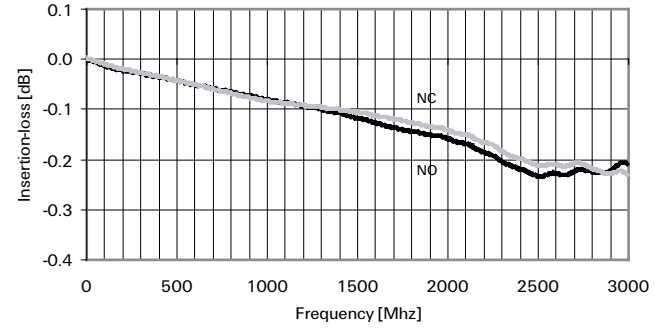
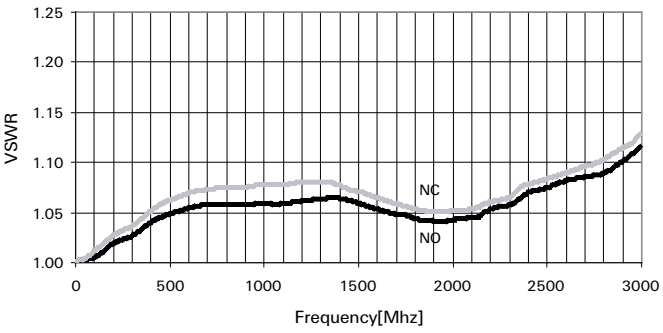
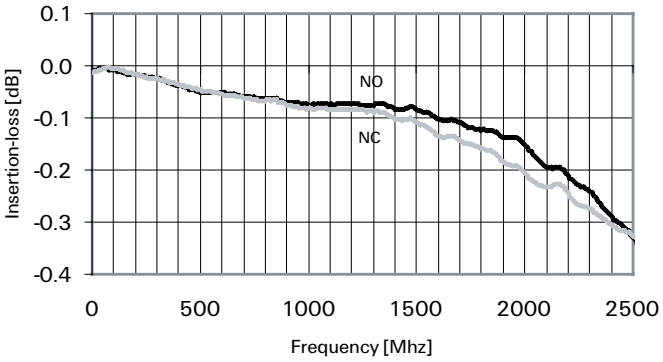
HF3 Relay/Switch (Continued)

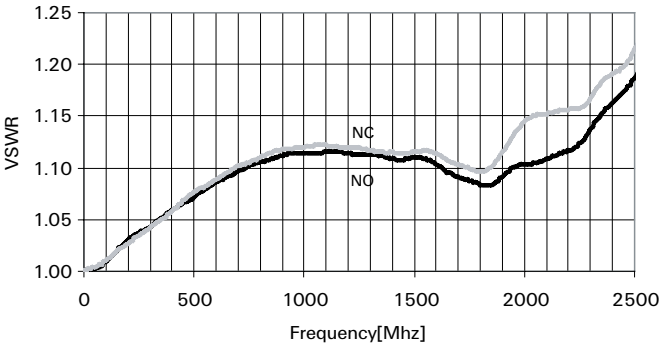
Typical RF performance, 50Ω version (continued)





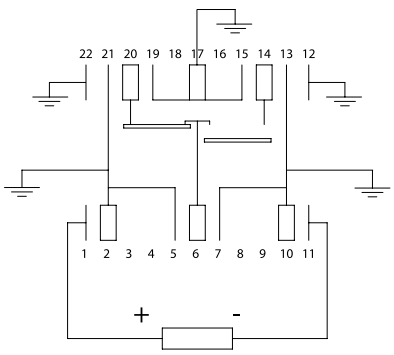
Typical RF performance, 75Ω version (continued)



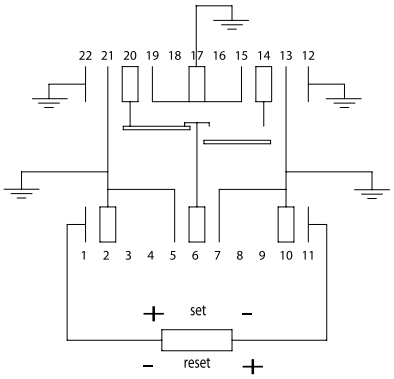


Terminal assignment
TOP view on component side of PCB

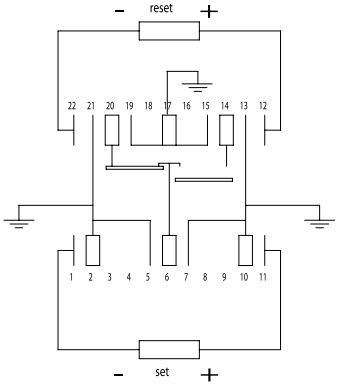
Monostable



Bistable, 1 coil



Bistable, 2 coils



Contacts are shown in reset condition.
Contact position might change during transportation and must be reset before use.

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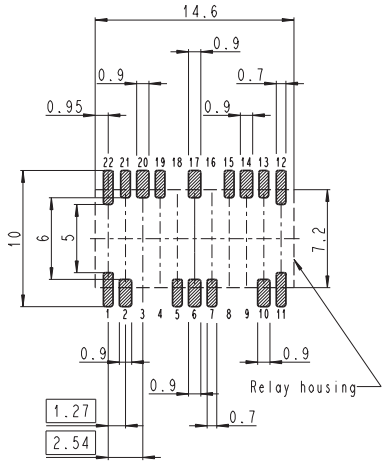
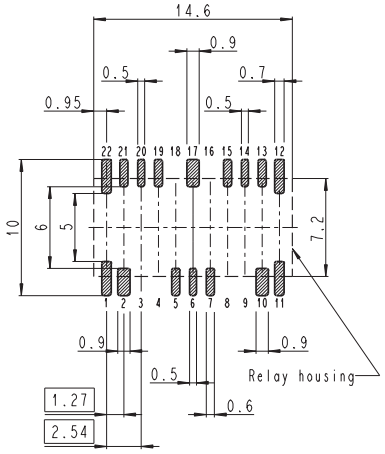
HF3 Relay/Switch (Continued)

PCB layout
TOP view on component side of PCB

50Ω version

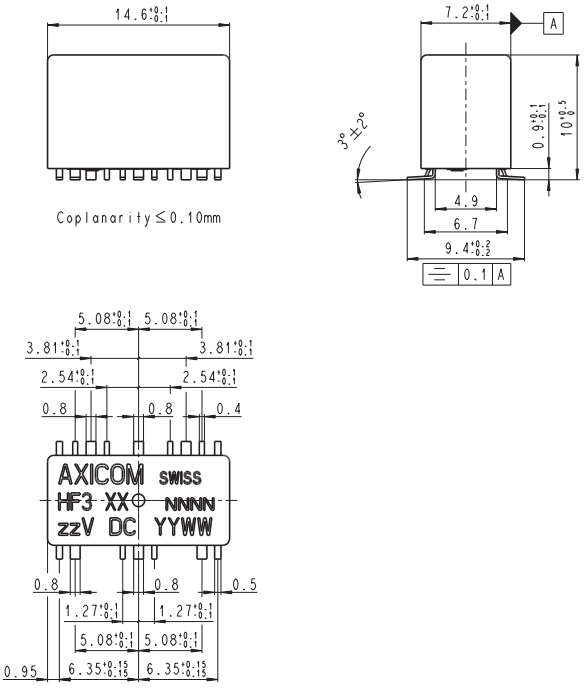


75Ω version

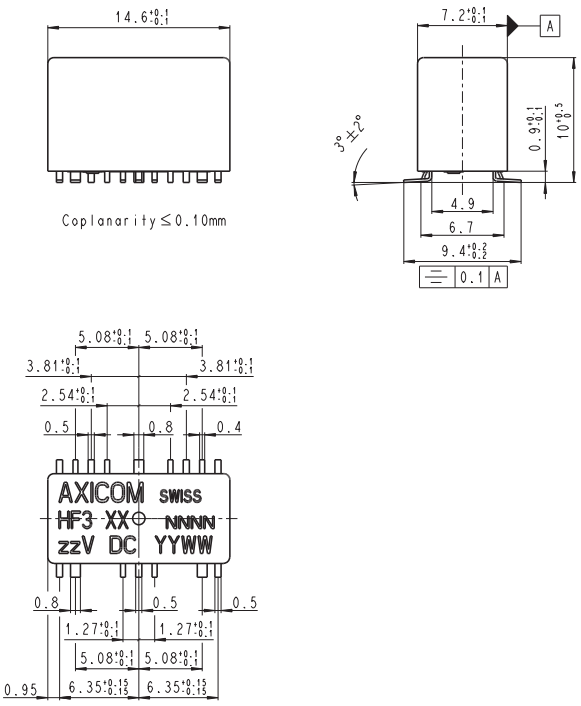


Dimensions

50Ω version



75Ω version



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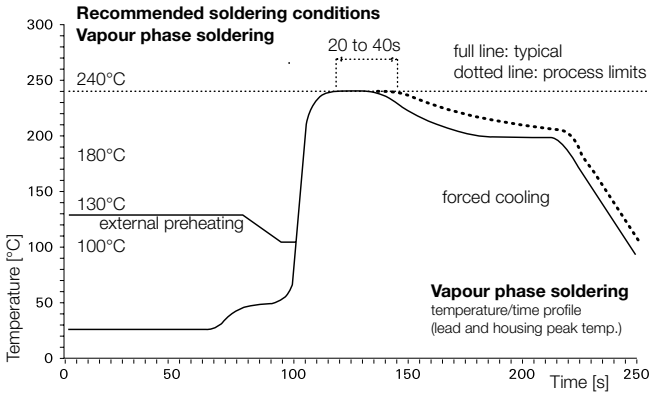
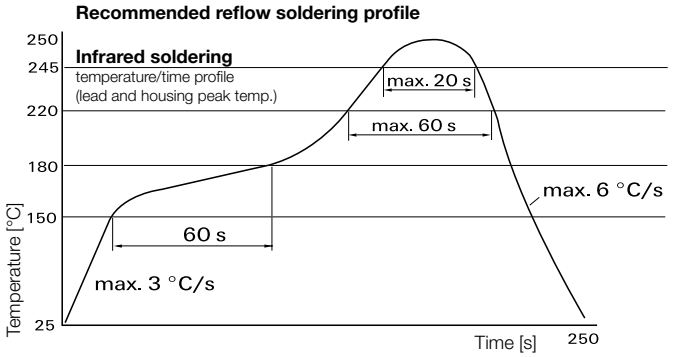
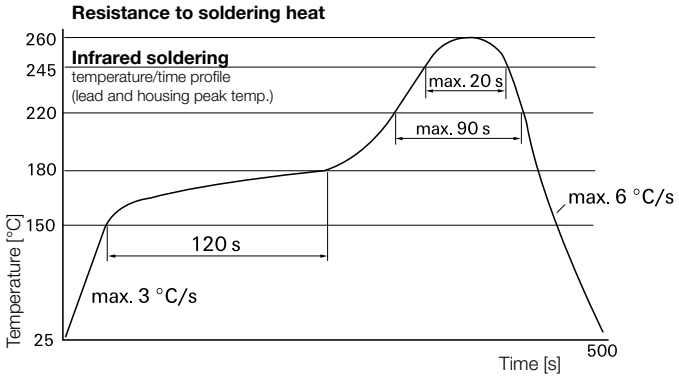
HF3 Relay/Switch (Continued)

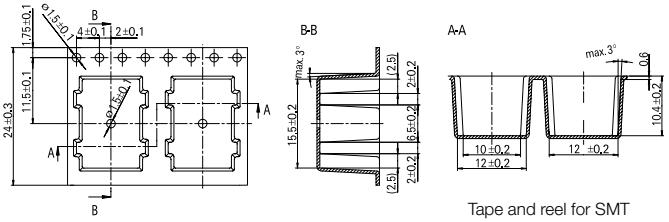
Processing



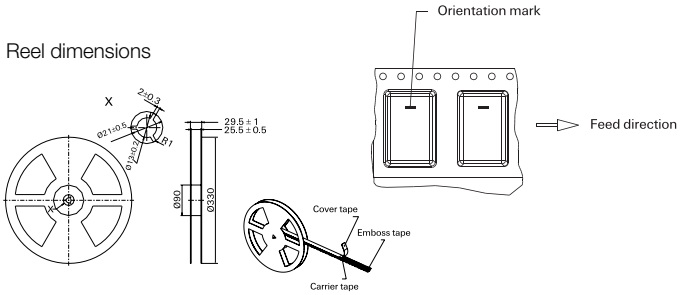




Packing



Reel dimensions



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HF3 Relay/Switch (Continued)

Product code structure Typical product code **HF3 53**

Type

HF3 Signal Relays HF3 Series
1 form C, 1 CO

Coil

Coil code: please refer to coil versions table
Performance type

5x	50Ω version, monostable 1coil	**0x**	75Ω version, monostable 1coil
7x	50Ω version, bistable 1coil	**2x**	75Ω version, bistable 1coil
9x	50Ω version, bistable 2coils	**4x**	75Ω version, bistable 2coils

Product code	Arrangement	Version	Coil	Coil type	Part number
HF3 51	1 form C (1 CO)	50ohm	3VDC	Monostable	1462051-1
HF3 52			4.5VDC		1-1462051-6
HF3 53			5VDC		1462051-2
HF3 54			6VDC		1-1462051-7
HF3 55			9VDC		1462051-3
HF3 56			12VDC		1462051-4
HF3 57			24VDC		1462051-5
HF3 71	1 form C (1 CO)	50ohm	3VDC	Bistable 1 coil	1462051-6
HF3 72			4.5VDC		1-1462051-8
HF3 73			5VDC		1462051-7
HF3 76			12VDC		1462051-9
HF3 91	1 form C (1 CO)	50ohm	3VDC	Bistable 2 coils	1-1462051-1
HF3 92			4.5VDC		2-1462051-0
HF3 93			5VDC		1-1462051-2
HF3 95			9VDC		1-1462051-3
HF3 96			12VDC		1-1462051-4
HF3 97			24VDC		1-1462051-5
HF3 01	1 form C (1 CO)	75ohm	3VDC	Monostable	1462050-1
HF3 02			4.5VDC		1-1462050-6
HF3 03			5VDC		1462050-2
HF3 06			12VDC		1462050-4
HF3 07			24VDC		1462050-5
HF3 21	1 form C (1 CO)	75ohm	3VDC	Bistable 1 coil	1462050-6
HF3 23			5VDC		1462050-7
HF3 26			12VDC		1462050-9
HF3 41	1 form C (1 CO)	75ohm	3VDC	Bistable 2 coils	1-1462050-1
HF3 43			5VDC		1-1462050-2
HF3 46			12VDC		1-1462050-4
HF3 47			24VDC		1-1462050-5

This list represents the most common types and does not show all variants covered by this datasheet.
Other types on request.

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HF3 S Relay/Switch

- **Y-Design**
- **Frequency range DC to 3GHz**
- **Impedance 50Ω / 75Ω**
- **Small dimensions (15x7.6x10.6mm)**
- **1 form C contact (1 changeover contact)**
- **Immersion cleanable**
- **Low power consumption (≤140mW)**

Typical applications
Cable modems and linecards/ CATV, Tabs, measurement and test equipment ATE, satellite / audio / video tuners, wireless base stations and antennas, power stages.

Contact Data

Contact arrangement	1 form C, 1 CO
Max. switching voltage	220VDC, 250VAC
Rated current	2A
Limiting continuous current, 23°C	2A
Switching power	60W, 62.5VA, 50W (2.5GHz)
Max. Continuos RF-Power, at 20°C., VSWR <1.2	100W @ 3GHz[1)] 150W @ 2GHz[1)]
Breaking capacity max.	300W[1)]
Contact material	Ag, Au covered
Minimum switching voltage	100µV
Initial contact resistance	<100mΩ at 10mA/20mV
Operate time	typ. 3ms, max. 5ms
Release time	
without diode in parallel	typ. 2ms, max. 5ms
with diode in parallel	typ. 4ms, max. 6ms
Bounce time max.	typ. 1ms, max. 3ms
Mechanical endurance	10^7 operations

1) with appropriat cooling only.

Coil Data

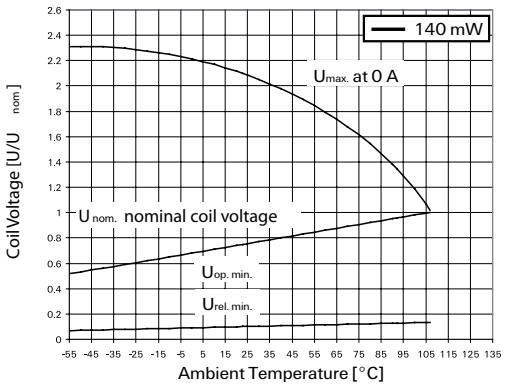
Coil voltage range	3 to 24VDC

Coil versions, monostable

Coil code	Rated voltage VDC	Operate voltage VDC	Limiting voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW
50Ω version, monostable, 1 coil						
51	3	2.25	6.50	0.30	64	140
52	4.5	3.38	9.80	0.45	145	140
53	5	3.75	10.90	0.50	178	140
56	12	9.00	26.10	1.20	1028	140
57	24	18.00	52.30	2.40	4114	140
75Ω version, monostable, 1 coil						
01	3	2.25	6.50	0.30	64	140
02	4.5	3.38	9.80	0.45	145	140
03	5	3.75	10.90	0.50	178	140
05	9	6.75	19.60	0.90	574	140
06	12	9.00	26.10	1.20	1028	140

All figures are given for coil without pre-energization, at ambient temperature +23°C.

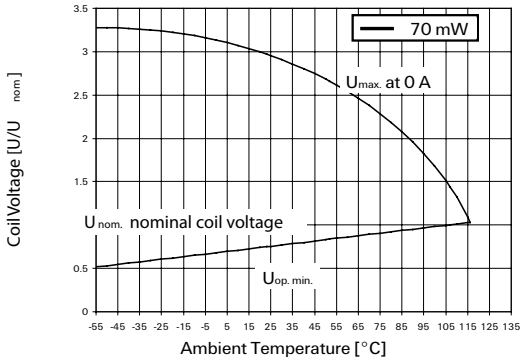
Coil Data (continued)



Coil versions, bistable

Coil code	Rated voltage VDC	Set voltage VDC	Limiting voltage VDC	Reset voltage VDC	Coil resistance Ω±10%	Rated coil power mW
50Ω version, bistable, 1 coil						
73S	5	3.75	15.30	-3.75	357	70
50Ω version, bistable, 2 coils						
91S	3	2.25	6.50	2.25	64	140
92S	4.5	3.38	9.80	3.38	145	140
93S	5	3.75	10.90	3.75	178	140
96S	12	9.00	26.10	9.00	1028	140
75Ω version, bistable, 2 coils						
41S	3	2.25	6.50	2.25	64	140
42S	4.5	3.38	9.80	3.38	145	140
43S	5	3.75	10.90	3.75	178	140
46S	12	9.00	26.10	9.00	1028	140

All figures are given for coil without pre-energization, at ambient temperature +23°C.



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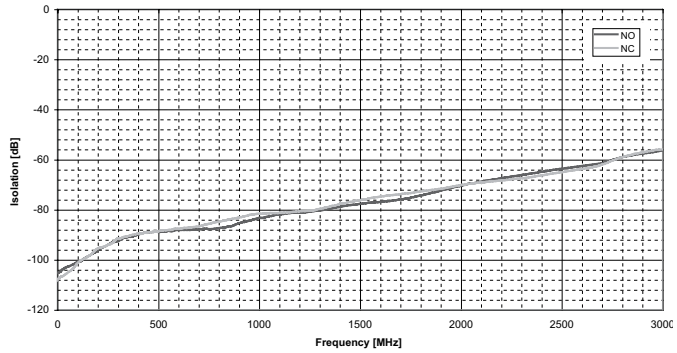
HF3 S Relay/Switch (Continued)

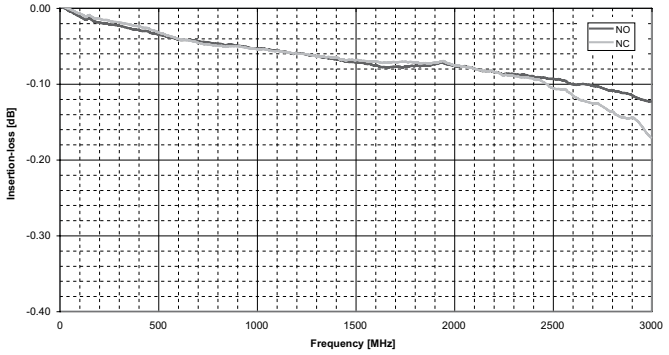
Insulation Data	50Ω version	75Ω version
Initial dielectric strength		
between open contacts	$600V_{rms}$	
between contact and coil	$1000V_{rms}$	
Initial surge withstand voltage		
between open contacts	1000V	
between contact and coil	1500V	

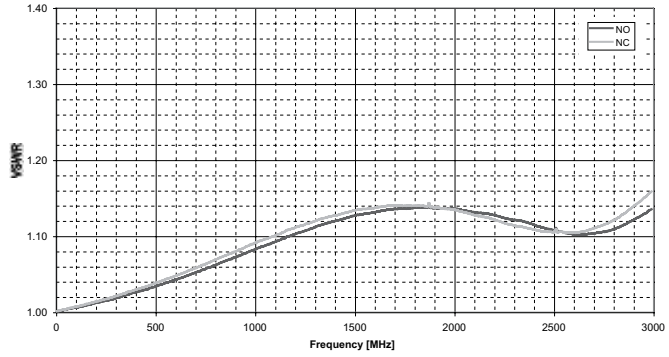
RF Data		
Isolation		
at 100MHz/900MHz	95dB/80dB	96dB/80dB
at 3GHz	55dB	50dB
Insertion loss		
at 100MHz/900MHz	0.03dB/0.12dB	0.03dB/0.12dB
at 3GHz	0.30dB	0.30dB
Voltage standing wave ratio (VSWR)		
at 100MHz/900MHz/3GHz	1.05/1.10/1.25	1.05/1.20/1.30

Other Data	
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter	
Ambient temperature	-55°C to +85°C
Thermal resistance	<165K/W
Category of environmental protection	
IEC 61810	RT III - wash tight
Degree of protection, IEC 60529	IP 67, immersion cleanable
Vibration resistance (functional)	35g, 10 to 1000Hz
Shock resistance (functional), half sinus 11ms	50g
Shock resistance (destructive), half sinus 0.5ms	150g
Terminal type	SMT
Weight	max. 3g
Resistance to soldering heat SMT	
IEC 60068-2-58	265°C/10s
Moisture sensitive level, JEDEC J-Std-020D	MSL3
Ultrasonic cleaning	not recommended
Packaging/unit, SMT	reel/250 pcs., box/250 pcs.

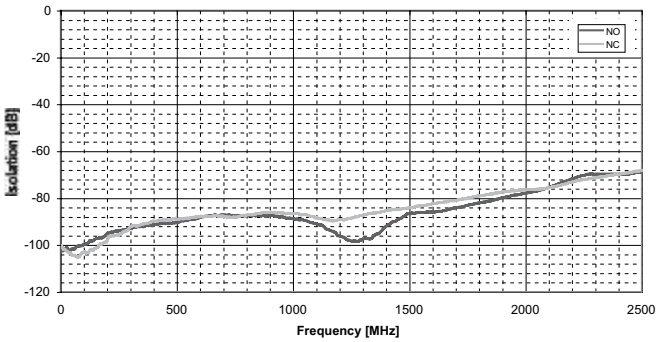
RF performance, 50Ω version

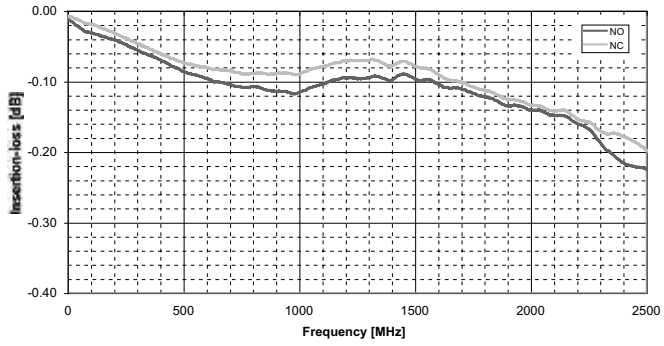


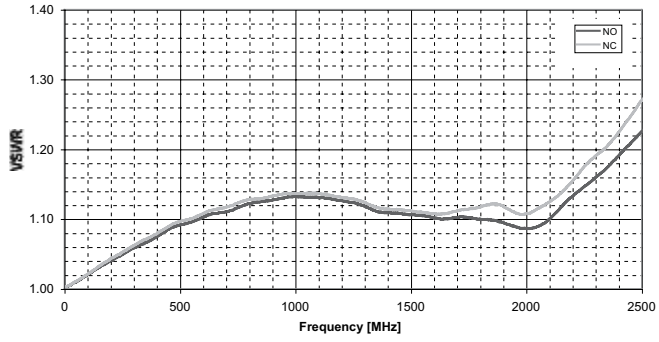




RF performance, 75Ω version







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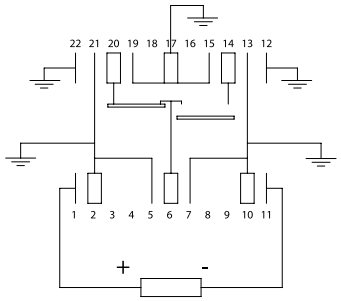
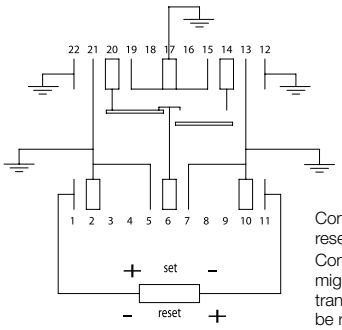
HF3 S Relay/Switch (Continued)

Terminal assignment
TOP view on component side of PCB

Monostable

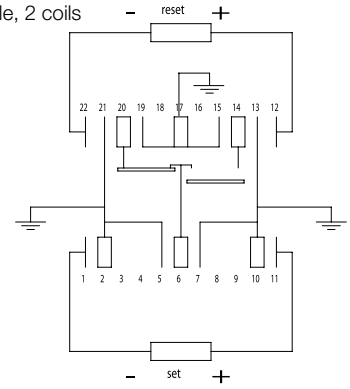


Bistable, 1 coil



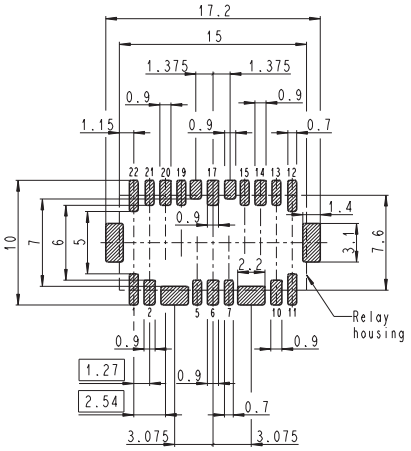
Contacts are shown in reset condition. Contact position might change during transportation and must be reset before use.

Bistable, 2 coils

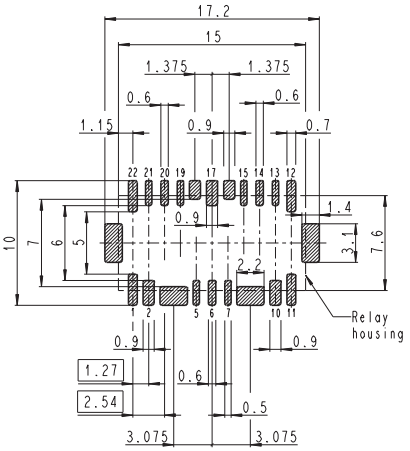


PCB layout
TOP view on component side of PCB

50Ω version

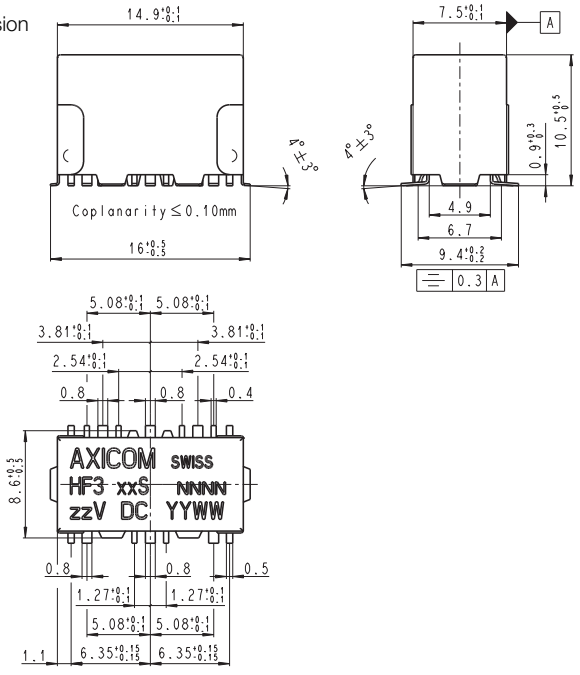


75Ω version

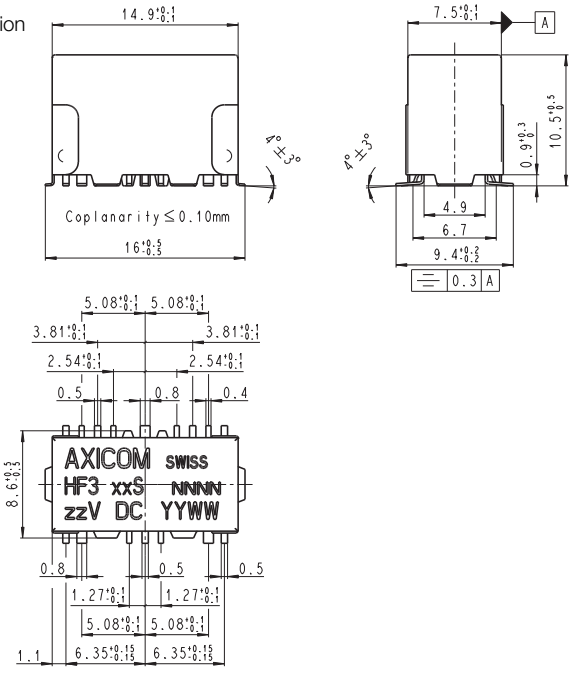


Dimensions

50Ω version



75Ω version



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