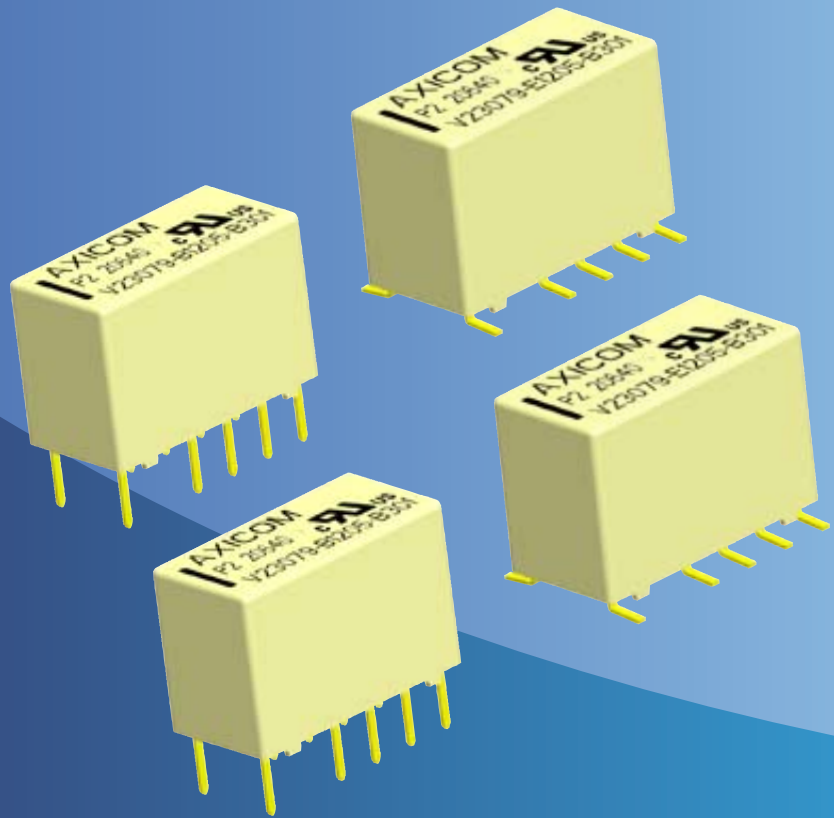


# P2 V23079 Relay



P2 V23079 Relay



UL 508 File No. E 111441  
UL 60950

IEC/EN60950

IEC Ref. Cert. No. 3271

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## P2 V23079 Relay

2 pole telecom relay, polarized,  
Through Hole Type (THT) or  
Surface Mount Technology (SMT),

Relay types: non-latching with 1 coil  
latching with 2 coils  
latching with 1 coil

ROHS compliant (Directive 2002/95/EC) as per  
product date code 0427.

### Features

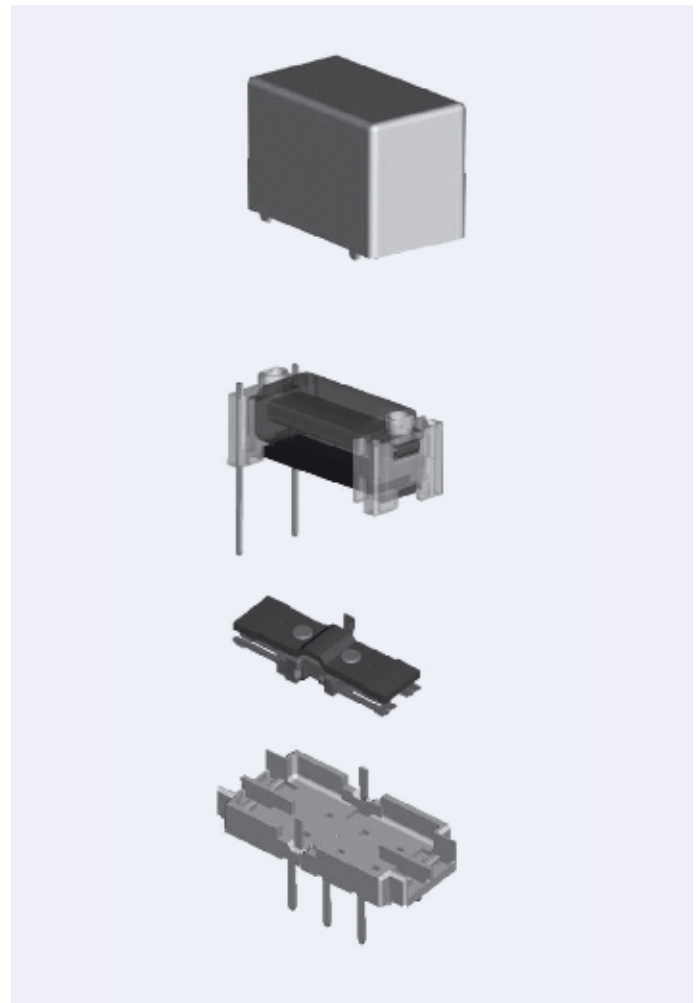
- Standard telecom relay (ringing and test access)
- Slim line 15 x 7.5 mm, 0.590 x 0.295 inch
- Switching current 5 A
- 2 changeover contacts (2 form C / DPDT)
- Bifurcated contacts
- Immersion cleanable
- High sensitivity results in low nominal power consumption 140 mW for non-latching and latching with 2 coils 70 mW for latching with 1 coil
- For single coil version:
  - Surge voltage resistance between contact and coil for single coil version:
    - 2.5 kV (2 / 10  $\mu$ s) meets the Telcordia Requirement GR-1089
    - 1.5 kV (10 / 160  $\mu$ s) meets FCC Part 68

### Typical applications

- Communications equipment linecard application (ringing and test access)  
PABX  
Voice over IP
- Office equipment
- Measurement and control equipment
- Automotive equipment  
CAN bus, keyless entry, speaker switch
- Medical equipment
- Consumer electronics  
Set Top Boxes, HiFi

### Options

- 1500 Vrms between open contacts



### Insulation category

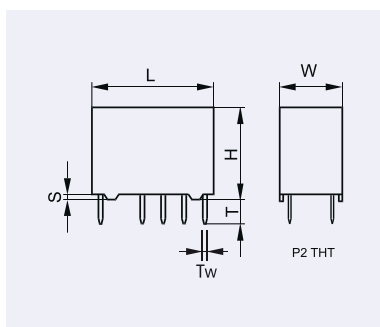
Basic insulation according	IEC / EN 60950
Working voltage	$\leq 300$ Vrms
Mains supply voltage	$\leq 250$ Vrms
Repetitive peak voltage	2500 V
Pollution degree	Internal: 1 External: 2
Flammability classification	V-0
Maximum operating temperature	85 °C

P2 V23079 Relay

**Dimensions** **Dimensions in mm**

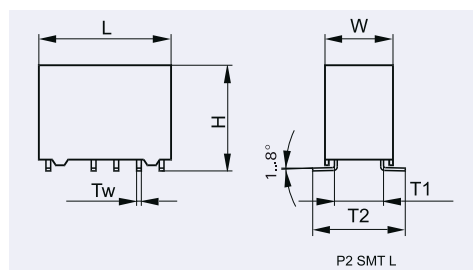
	THT V23079-x1xxx-B301 standard coil		THT V23079-x2xxx-B301 overmolded coil		SMT long terminals V23079-x1xxx-B301 standard coil		SMT long terminals V23079-x2xxx-B301 overmolded coil		SMT short terminals V23079-x1xxx-B301 standard coil		SMT short terminals V23079-x2xxx-B301 overmolded coil	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
L	14.5 ± 0.10	0.570 ± 0.004	14.6 ± 0.10	0.575 ± 0.004	14.5 ± 0.10	0.570 ± 0.004	14.6 ± 0.10	0.575 ± 0.004	14.5 ± 0.10	0.570 ± 0.004	14.6 ± 0.10	0.575 ± 0.004
W	7.2 ± 0.10	0.283 ± 0.004	7.2 ± 0.10	0.283 ± 0.004	7.2 ± 0.10	0.283 ± 0.004	7.2 ± 0.10	0.283 ± 0.004	7.2 ± 0.10	0.283 ± 0.004	7.2 ± 0.10	0.283 ± 0.004
H	9.8 ± 0.10	0.385 ± 0.004	9.5 ± 0.10	0.374 ± 0.004	10.4 ± 0.15	0.409 ± 0.006	9.9 ± 0.10	0.390 ± 0.004	10.4 ± 0.15	0.409 ± 0.006	9.9 ± 0.10	0.390 ± 0.004
T	3.25 - 0.25	0.128 - 0.010	3.25 - 0.25	0.128 - 0.010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T1	N/A	N/A	N/A	N/A	5.52 ± 0.15	0.217 ± 0.006	5.52	0.217 ± 0.006	5.52	0.217 ± 0.006	5.52	0.217 ± 0.006
T2	N/A	N/A	N/A	N/A	9.4 ± 0.15	0.370 ± 0.006	9.4 ± 0.15	0.370 ± 0.006	7.4 ± 0.15	0.291 ± 0.006	7.4 ± 0.15	0.291 ± 0.006
Tw	0.5 ± 0.05	0.020 ± 0.002	0.5 ± 0.05	0.020 ± 0.002	0.5 ± 0.05	0.020 ± 0.002	0.5 ± 0.05	0.020 ± 0.002	0.5 ± 0.05	0.020 ± 0.002	0.5 ± 0.05	0.020 ± 0.002
S	0.55 - 0.15	0.022 - 0.006	0.45	0.018 ± 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**THT Version**

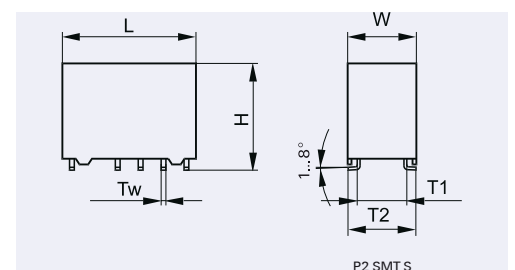


**SMT Version**

**Long terminals**

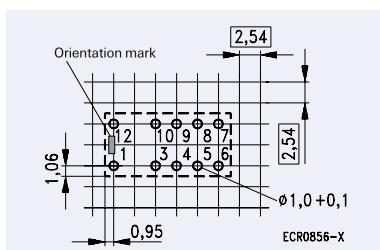


**Short terminals**



**Mounting hole layout**

View onto the component side of the PCB (top view)

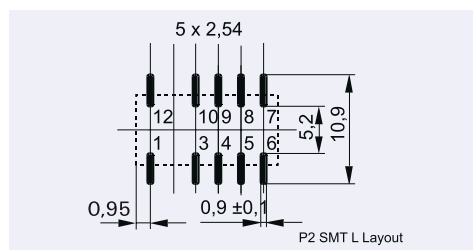


Note: Hole for pin 6 and 7 only for latching with 2 coils. Basic grid 2.54 mm

**Solder pad layout**

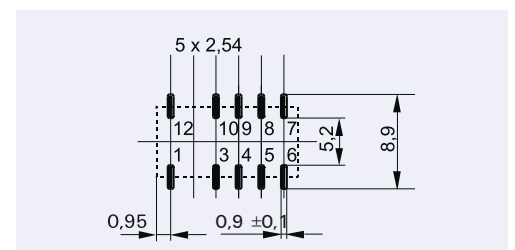
View onto the component side of the PCB (top view)

**Long terminals**



Note: Solder pad for pin 6 and 7 only for latching with 2 coils

**Short terminals**



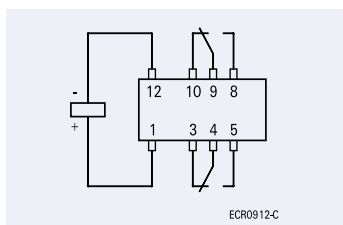
Note: Solder pad for pin 6 and 7 only for latching with 2 coils

**Terminal assignment**

Relay – top view

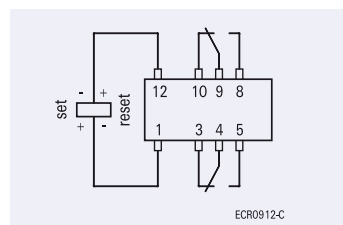
**Non-latching type**

not energized condition



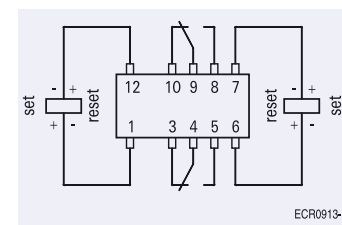
**Latching type,**

reset condition



**Latching, 2 coils**

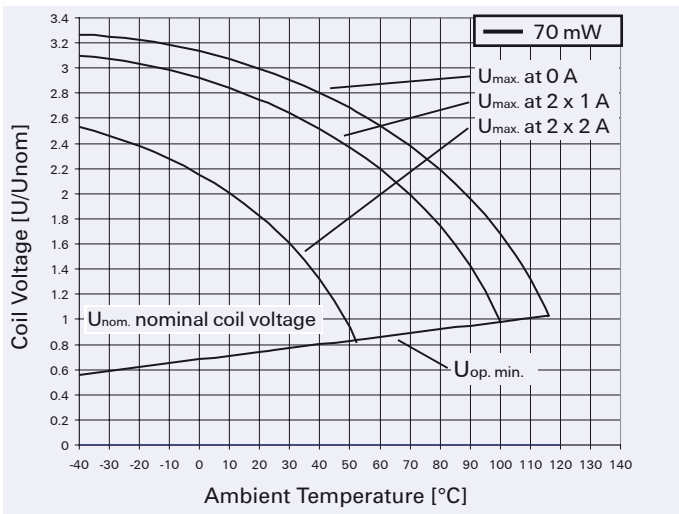
reset condition



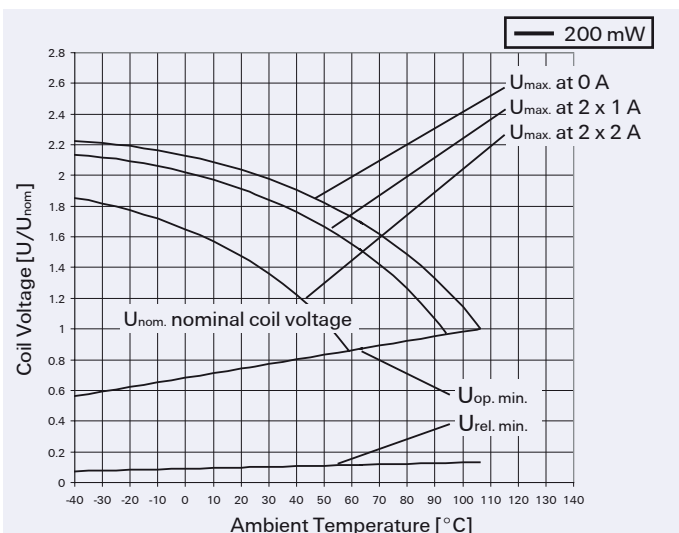
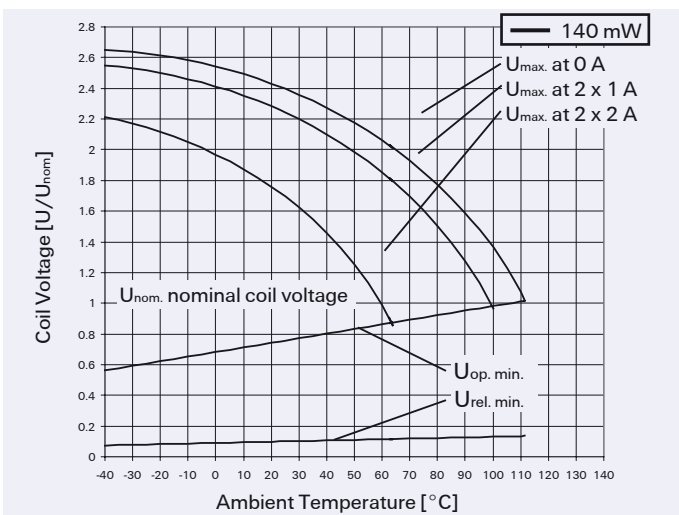
Contacts in reset position. Both coils can be used either as set or reset coils.

P2 V23079 Relay

**Coil Operating Range**



- U<sub>nom.</sub> = Nominal coil voltage
- U<sub>max.</sub> = Upper limit of the operative range of the coil voltage (limiting voltage) when coils are continuously energized
- U<sub>op. min.</sub> = Lower limit of the operative range of the coil voltage (reliable operate voltage)  
For latching relays U<sub>set min.</sub> resp. U<sub>reset min.</sub>
- U<sub>rel. min.</sub> = Lower limit of the operative range of the coil voltage (reliable release voltage)



P2 V23079 Relay

**Relay Code**

	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">V</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">7</td> <td style="padding: 2px;">9</td> </tr> </table> <table border="1" style="display: inline-table; border-collapse: collapse; margin-left: 20px;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table> <table border="1" style="display: inline-table; border-collapse: collapse; margin-left: 20px;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>	V	2	3	0	7	9								
V	2	3	0	7	9										
Identification of the Miniature Relay P2															
<b>Relay type</b>															
THT version	SMT version with long terminals														
A = non-latching, 1 coil	D = non-latching, 1 coil														
B = latching, 2 coils	E = latching, 2 coils														
C = latching, 1 coil	F = latching, 1 coil														
	SMT version with short terminals														
	G = non-latching, 1 coil														
	H = latching, 2 coils														
	J = latching, 1 coil														
<b>Coil type</b>															
1 = standard coil; B1, E1, F1, J1, H1															
2 = overmolded coil, A1*, A2, C1*, D1*, D2, E2, G1*, G2															
(only monostable versions, i.e. relay type A, D, G)															
*both standard and overmolded coil possible															
<b>Coil number</b>															
Monostable, 1 coil	Latching, 1 coil	Latching, 2 coils													
008 = 3 V nominal voltage	108 = 3 V nominal voltage	218 = 2.4 V nominal voltage													
011 = 4.5 V	111 = 4.5 V	208 = 3 V													
001 = 5 V	101 = 5 V	211 = 4.5 V													
002 = 6 V	102 = 6 V	201 = 5 V													
006 = 9 V	106 = 9 V	202 = 6 V													
003 = 12 V	103 = 12 V	206 = 9 V													
005 = 24 V	105 = 24 V	203 = 12 V													
		205 = 24 V													
<b>Contact arrangement / material</b>															
B301 = 2 changeover contacts; silver nickel, gold-plated, against silver nickel, gold-plated															
B201 = 2 changeover contacts; silver palladium, gold-plated, against silver palladium															
Ordering example: V23079-D2001-B301															
Miniature relay P2 SMT version with long terminals (overmolded coil), non-latching, 1 coil, 5 V nominal voltage, 2 changeover contacts, silver nickel contacts															

P2 V23079 Relay

**Coil Data (values at 23 °C)** **Ordering Information**

Nominal voltage $U_{nom}$	Operate/set voltage range		Release/ reset voltage Minimum	Coil power	Coil Resistance	Relay code	Tyco part number
	Minimum voltage $U_{min}$	Maximum voltage $U_{max}$					
Vdc	Vdc	Vdc	Vdc	mW	$\Omega / \pm 10\%$		

**THT Standard non-latching coil**

3	2.25	6.50	0.30	140	64	V23079-A1008-B301	2-1393788-2
4	3.00	8.70	0.40	140	114	V23079-A1016-B301	2-1393788-9
4.5	3.38	9.80	0.45	140	145	V23079-A1011-B301	2-1393788-4
5	3.75	10.90	0.50	140	178	V23079-A1001-B301	1393788-3
6	4.50	13.00	0.60	140	257	V23079-A1002-B301	1393788-8
9	6.75	19.60	0.90	140	578	V23079-A1006-B301	2-1393788-0
12	9.00	26.15	1.20	140	1029	V23079-A1003-B301	1-1393788-1
24	18.00	52.30	2.40	140	4114	V23079-A1005-B301	1-1393788-6

**THT non-latching, overmolded coil**

3	2.25	6.50	0.30	140	64	V23079-A2008-B301	6-1419120-6
4.5	3.38	9.80	0.45	140	145	V23079-A2011-B301	3-1393789-9
5	3.75	10.90	0.50	140	178	V23079-A2001-B301	3-1393789-5
6	4.50	13.00	0.60	140	257	V23079-A2002-B301	3-1393789-6
9	6.75	19.60	0.90	140	578	V23079-A2006-B301	3-1393789-8
12	9.00	26.15	1.20	140	1029	V23079-A2003-B301	3-1393789-7

**THT latching 2 standard coils**

3	2.25	6.50	2.25	140	64	V23079-B1208-B301	4-1393788-1
4.5	3.38	9.80	3.38	140	145	V23079-B1211-B301	4-1393788-2
5	3.75	10.90	3.75	140	178	V23079-B1201-B301	3-1393788-3
6	4.50	13.00	4.50	140	257	V23079-B1202-B301	3-1393788-5
9	6.75	19.60	6.75	140	578	V23079-B1206-B301	3-1393788-9
12	9.00	26.15	9.00	140	1029	V23079-B1203-B301	3-1393788-6
24	18.00	52.30	18.00	140	4114	V23079-B1205-B301	3-1393788-7

**THT latching 2 overmolded coils**

2	1.50	4.30	1.50	140	28	V23079-B2219-B301	1-1422002-2
2.4	1.80	5.20	1.80	140	41	V23079-B2218-B301	1-1422002-1
3	2.25	6.50	2.25	140	64	V23079-B2208-B301	1-1422002-0
5	3.75	10.90	3.75	140	178	V23079-B2201-B301	1422002-9

**THT latching 1 standard coil**

3	2.25	9.20	2.25	70	128	V23079-C1108-B301	5-1393788-3
4.5	3.38	13.85	3.38	70	289	V23079-C1111-B301	5-1393788-4
5	3.75	15.33	3.75	70	357	V23079-C1101-B301	4-1393788-5
6	4.50	18.50	4.50	70	514	V23079-C1102-B301	4-1393788-7
9	6.75	27.75	6.75	70	1157	V23079-C1106-B301	5-1393788-1
12	9.00	37.00	9.00	70	2057	V23079-C1103-B301	4-1393788-8
24	18.00	74.00	18.00	70	8228	V23079-C1105-B301	5-1393788-0

**SMT long pins, non-latching, standard coil**

3	2.25	6.50	0.30	140	64	V23079-D1008-B301	6-1393788-1
4.5	3.38	9.80	0.45	140	145	V23079-D1008-B301	6-1393788-2
5	3.75	10.90	0.50	140	178	V23079-D1008-B301	5-1393788-5
6	4.50	13.00	0.60	140	257	V23079-D1008-B301	5-1393788-6
9	6.75	19.60	0.90	140	578	V23079-D1008-B301	5-1393788-9
12	9.00	26.15	1.20	140	1029	V23079-D1008-B301	5-1393788-7
24	18.00	52.30	2.40	140	4114	V23079-D1008-B301	5-1393788-8

**SMT long pins, non-latching, overmolded coil**

3	2.25	6.50	0.30	140	64	V23079-D2008-B301	4-1393789-7
4.5	3.38	9.80	0.45	140	145	V23079-D2011-B301	4-1393789-8
5	3.75	10.90	0.50	140	178	V23079-D2001-B301	4-1393789-3
6	4.50	13.00	0.60	140	257	V23079-D2002-B301	4-1393789-4
9	6.75	19.60	0.90	140	578	V23079-D2006-B301	4-1393789-6
12	9.00	26.15	1.20	140	1029	V23079-D2003-B301	4-1393789-5

Further coil versions are available on request.

P2 V23079 Relay

**Coil Data (values at 23 °C) Ordering Information**

Nominal voltage $U_{nom}$	Operate/set voltage range		Release/ reset voltage Minimum	Coil power	Coil Resistance	Relay code	Tyco part number
	Minimum voltage $U_{min}$	Maximum voltage $U_{max}$					
Vdc	Vdc	Vdc	Vdc	mW	$\Omega / \pm 10\%$		

**SMT long pins, latching, 2 standard coils**

2	1.50	4.33	1.50	140	28	V23079-E1219-B301	1-1422007-0
2.4	1.80	5.20	1.80	140	41	V23079-E1218-B301	1422007-5
3	2.25	6.50	2.25	140	64	V23079-E1208-B301	7-1393788-1
4.5	3.38	9.80	3.38	140	145	V23079-E1211-B301	7-1393788-2
5	3.75	10.90	3.75	140	178	V23079-E1201-B301	6-1393788-8
6	4.50	13.00	4.50	140	257	V23079-E1202-B301	1393789-5
9	6.75	19.60	6.75	140	578	V23079-E1206-B301	1393789-9
12	9.00	26.15	9.00	140	1029	V23079-E1203-B301	6-1393788-9
24	18.00	52.30	18.00	140	4114	V23079-E1205-B301	7-1393788-0

**SMT long pins, latching, 2 overmolded coil**

2	1.50	4.33	1.50	140	28	V23079-E2219-B301	1422007-6
2.4	1.80	5.20	1.80	140	41	V23079-E2218-B301	1422007-9
3	2.25	6.50	2.25	140	64	V23079-E2208-B301	1422007-8
5	3.75	10.90	3.75	140	178	V23079-E2201-B301	1422007-7

**SMT long pins, latching, 1 standard coil**

3	2.25	9.20	2.25	70	128	V23079-F1108-B301	7-1393788-5
4.5	3.38	13.85	3.38	70	289	V23079-F1111-B301	1-1393788-4
5	3.75	15.33	3.75	70	357	V23079-F1101-B301	7-1393788-3
6	4.50	18.50	4.50	70	514	V23079-F1102-B301	1-1393789-0
9	6.75	27.75	6.75	70	1157	V23079-F1106-B301	1-1393789-2
12	9.00	37.00	9.00	70	2057	V23079-F1103-B301	7-1393788-9
24	18.00	74.00	18.00	70	8228	V23079-F1105-B301	1-1393789-1

**SMT short pins, non-latching, standard coil**

3	2.25	6.50	0.30	140	64	V23079-G1008-B301	8-1393788-0
4.5	3.38	9.80	0.45	140	145	V23079-G1011-B301	1-1393789-7
5	3.75	10.90	0.50	140	178	V23079-G1001-B301	7-1393788-6
6	4.50	13.00	0.60	140	257	V23079-G1002-B301	1-1393789-5
9	6.75	19.60	0.90	140	578	V23079-G1006-B301	1-1393789-6
12	9.00	26.15	1.20	140	1029	V23079-G1003-B301	7-1393788-7
24	18.00	52.30	2.40	140	4114	V23079-G1005-B301	7-1393788-8

**SMT short pins, non-latching, overmolded coil**

3	2.25	6.50	0.30	140	64	V23079-G208-B301	5-1393789-4
4.5	3.00	8.70	0.40	140	114	V23079-G2016-B301	1393790-5
5	3.38	9.80	0.45	140	145	V23079-G2011-B301	5-1393789-5
6	3.75	10.90	0.50	140	178	V23079-G2001-B301	4-1393789-9
9	4.50	13.00	0.60	140	257	V23079-G2002-B301	5-1393789-0
12	6.75	19.60	0.90	140	578	V23079-G2006-B301	5-1393789-3
24	9.00	26.15	1.20	140	1029	V23079-G2003-B301	5-1393789-1

**SMT long pins, latching, 2 standard coils**

3	2.25	6.50	2.25	140	64	V23079-H1208-B301	2-1393789-4
4.5	3.38	9.80	3.38	140	145	V23079-H1211-B301	8-1393788-4
5	3.75	10.90	3.75	140	178	V23079-H1201-B301	2-1393789-0
6	4.50	13.00	4.50	140	257	V23079-H1202-B301	2-1393789-1
9	6.75	19.60	6.75	140	578	V23079-H1206-B301	2-1393789-3
12	9.00	26.15	9.00	140	1029	V23079-H1203-B301	8-1393788-3
24	18.00	52.30	18.00	140	4114	V23079-H1205-B301	2-1393789-2

**SMT long pins, latching, 1 standard coils**

3	2.25	9.20	2.25	70	128	V23079-J1108-B301	2-1393789-9
4.5	3.38	13.85	3.38	70	289	V23079-J1111-B301	3-1393789-0
5	3.75	15.33	3.75	70	357	V23079-J1101-B301	2-1393789-5
6	4.50	18.50	4.50	70	514	V23079-J1102-B301	2-1393789-6
12	9.00	37.00	9.00	70	2057	V23079-J1103-B301	2-1393788-7
24	18.00	74.00	18.00	70	8228	V23079-J1105-B301	2-1393789-8

**SMT short pins, non-latching, 1 overmolded coil high dielectric**

3	2.25	6.10	0.30	200	45	V23079-G2008-X079	1422006-5
5	3.75	10.10	0.50	200	125	V23079-G2001-X071	1422006-1
6	4.50	12.10	0.60	200	180	V23079-G2002-X072	1422006-2
9	6.75	18.20	0.90	200	405	V23079-G2006-X073	1422006-3
12	9.00	24.20	1.20	200	720	V23079-G2003-X074	1422006-4

Further coil versions are available on request.

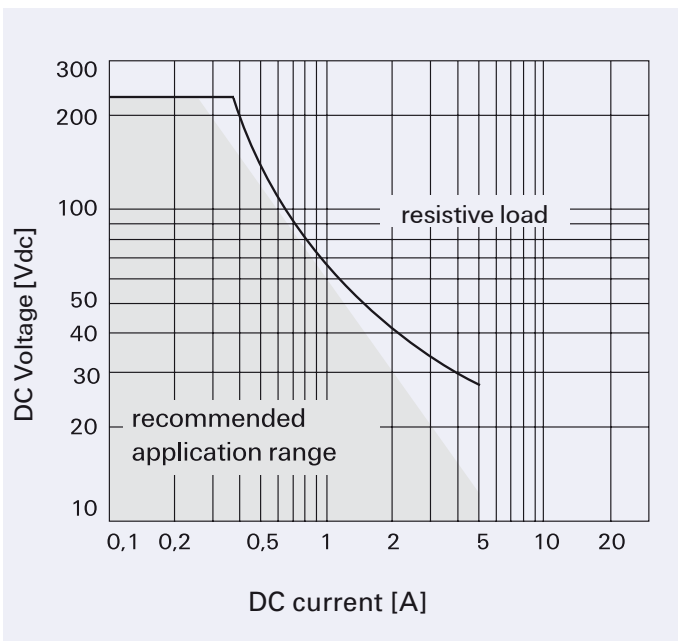


P2 V23079 Relay

**Contact Data**

Number of contacts and type	2 changeover contacts
Contact assembly	Bifurcated contacts
Contact material	Silver nickel, gold-covered
Limiting continuous current at max. ambient temperature	2 A
Maximum switching current	5 A
Maximum switching voltage	220 Vdc 250 Vac
Maximum switching capacity	60 W, 62.5 VA
Thermoelectric potential	< 10 $\mu$ V
Minimum switching voltage	100 $\mu$ V
Initial contact resistance / measuring condition: 10 mA / 20 mV	< 50 m $\Omega$
Electrical endurance at 12 V / 10 mA at 6 V / 100 mA at 60 V / 500 mA at 30 V / 1000 mA at 30 V / 2000 mA	typ. $5 \times 10^7$ operations typ. $1 \times 10^7$ operations typ. $5 \times 10^5$ operations typ. $1 \times 10^6$ operations typ. $2 \times 10^5$ operations
Mechanical endurance	typ. $10^8$ operations
UL contact ratings	220 Vdc / 0.24 A - 60 W 125 Vdc / 0.24 A - 30 W 250 Vac / 0.25 A - 62.5 VA 125 Vac / 0.5 A - 62.5 VA 30 Vdc / 2 A - 60 W

**Max. DC Load Breaking Capacity**



**P2 V23079 Relay**

**Insulation**

	Standard Version	High dielectric Version
Insulation resistance at 500 Vdc	> 10 <sup>9</sup> Ω	> 10 <sup>9</sup> Ω
Dielectric test voltage (1 min) between coil and contacts (Relay with 1 coil) between adjacent contact sets between open contacts	1500 Vrms 1000 Vrms 1000 Vrms	1500 Vrms 1500 Vrms 1500 Vrms
Surge voltage resistance according to Telcordia TR-NWT-001089 (2 / 10 μs) between coil and contacts (Relay with 1 coil) between adjacent contact sets between open contacts according to FCC 68 (10/160 μs) between coil and contacts (Relay with 1 coil) between adjacent contact sets between open contacts	2500 V 2500 V 2000 V  1500 V 1500 V 1500 V	2500 V 2500 V 2500 V
Insulation according to IEC / EN 60950 Clearance Creepage distance	Basic insulation 1.3 mm 2.5 mm	

**High Frequency Data**

Capacitance between coil and contacts between adjacent contact sets between open contacts	max. 2 pF max. 1.5 pF max. 1 pF
RF Characteristics Isolation at 100 MHz / 900 MHz Insertion loss at 100 MHz / 900 MHz V.S.W.R. at 100 MHz / 900 MHz	- 39.0 dB / - 20.7 dB - 0.02 dB / - 0.27 dB 1.04 / 1.40

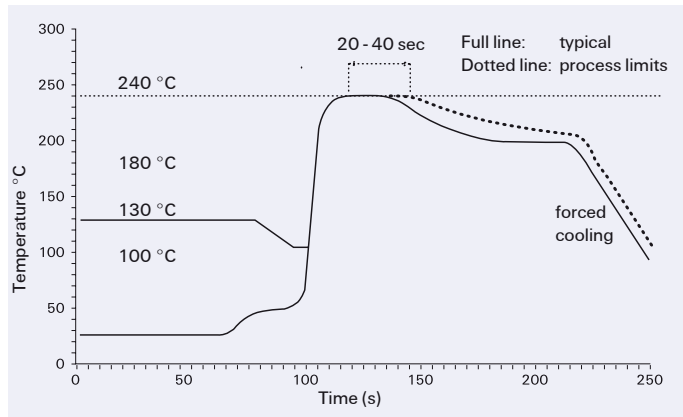
**General Data**

Operate time at U <sub>nom</sub> typ. / max.	3 ms / 4 ms
Reset time (latching) at U <sub>nom</sub> , typ. / max.	3 ms / 4 ms
Release time without diode in parallel (non-latching), typ. / max.	2 ms / 4 ms
Release time with diode in parallel (non-latching), typ. / max.	4 ms / 6 ms
Bounce time at closing contact, typ. / max.	1 ms / 3 ms
Maximum switching rate without load	50 operations/s
Ambient temperature	-40 °C ... +85 °C
Thermal resistance	< 125 K/W
Maximum permissible coil temperature	125 °C
Vibration resistance (function)	35 G 10 to 1000 Hz
Shock resistance, half sinus, 11 ms	50 G (function) 150 G (damage)
Degree of protection / Environmental protection	immersion cleanable, IP 67 / RT III
Needle flame test	application time 20 s, no burning < 15s
Mounting position	any
Processing information	Ultrasonic cleaning is not recommended
Weight (mass)	max. 2.8 g
Terminal surface	SnCu 0.7
Moisture sensitive level (JEDEC J-STD-020B) - SMD types	MSL 3
Resistance to soldering heat	265 °C / 10 s

All data refers to 23 °C unless otherwise specified.

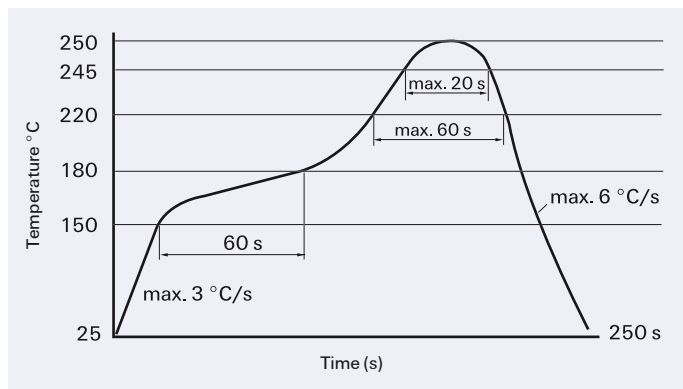
## Recommended Soldering Conditions

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



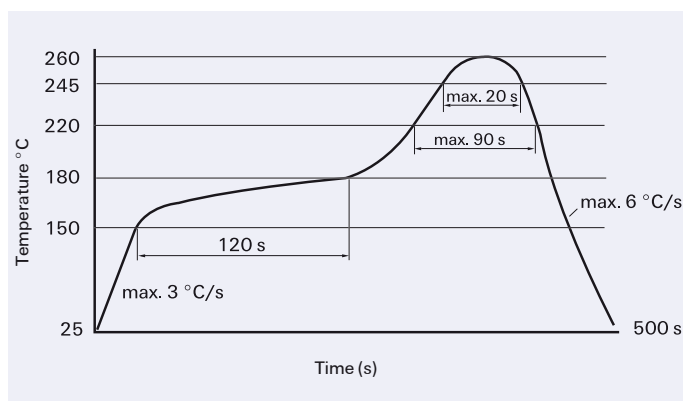
Vapor Phase Soldering: Temperature/Time Profile (Lead and Housing Peak Temperature)

## Recommended reflow soldering profile



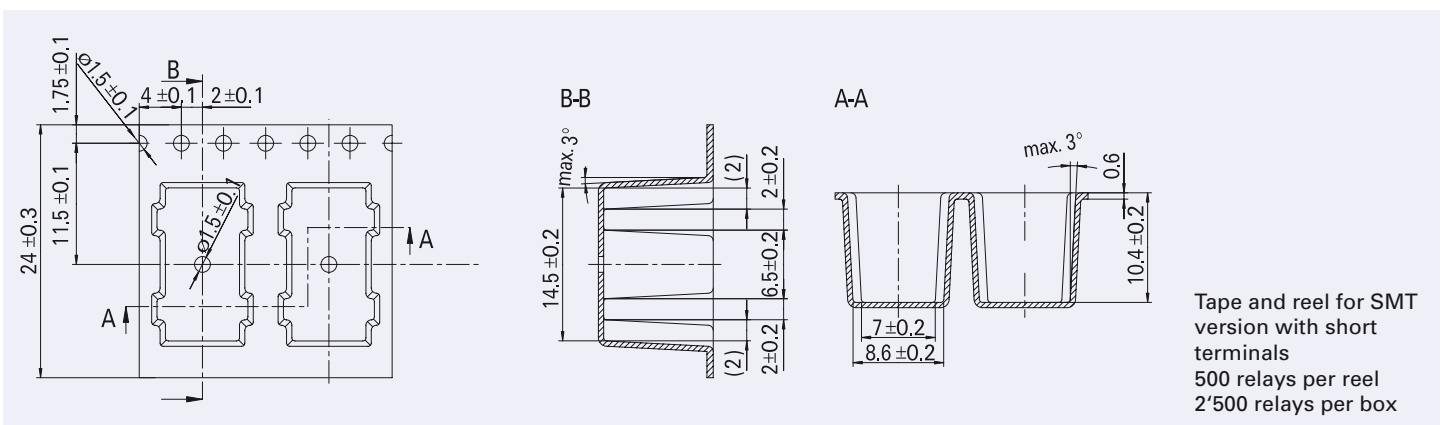
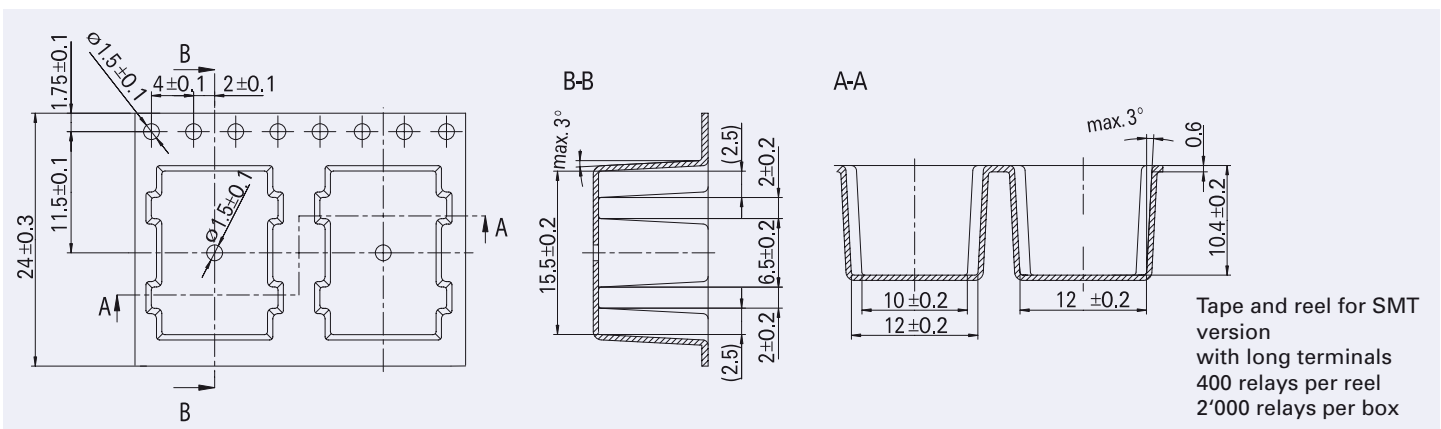
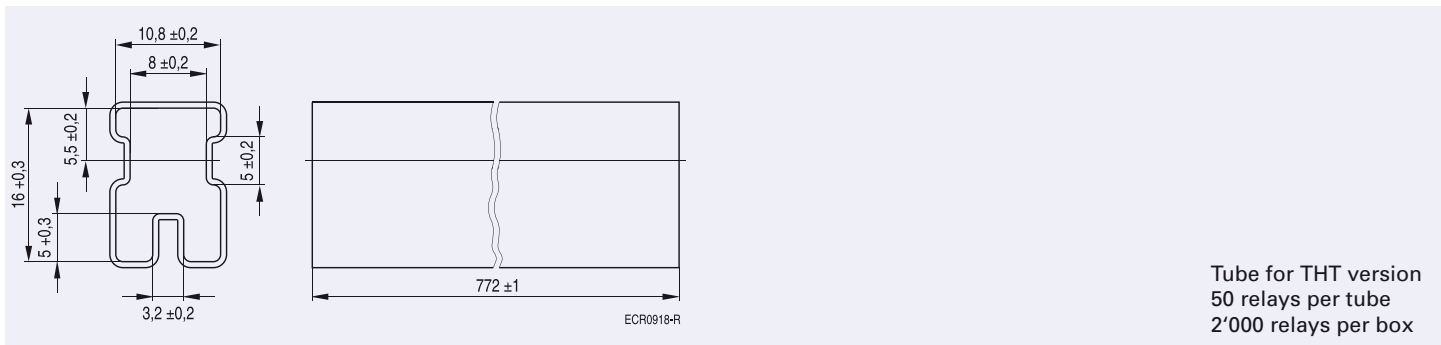
Infrared Soldering: Temperature/Time Profile (Lead and Housing Peak Temperature)

## Resistance to soldering heat - Reflow profile

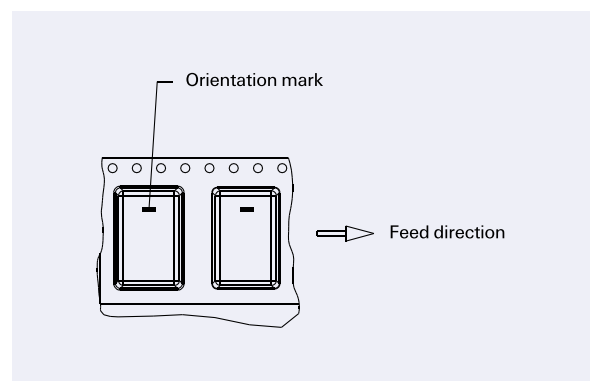
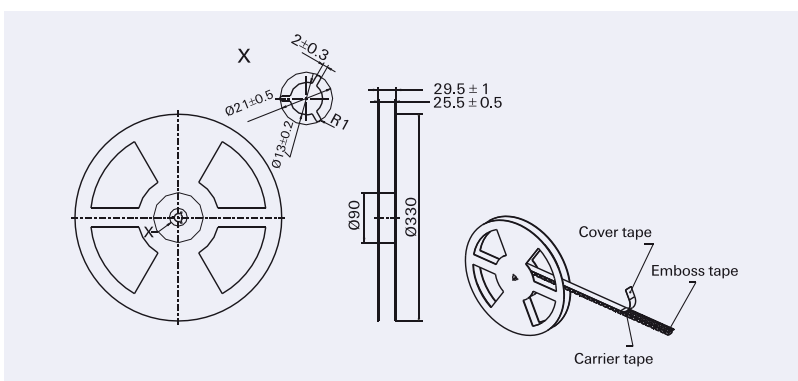


Infrared Soldering: Temperature/Time Profile (Lead and Housing Peak Temperature)

**Packing** **Dimensions in mm**



**Reel dimension**



## P2 V23079 Relay

### IM Relays

4th generation slim line – low profile polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 coil. Nominal voltage range from 1.5 ... 24 V, coil power consumption of 50 ... 200 mW, latching relays with 1 coil 100 mW. The IM relay is available as through hole and surface mount type (J-Legs and Gull Wings) and capable to switch loads up to 60 W/62,5 VA. It is currently the only 2 A rated 4G relay on the market. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV – 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The IM relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950. Dimensions approx. 10 x 6 mm board space and 5.65 mm height.

### P2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 24 V, coil power consumption 140 mW, latching relays with 1 coil 70 mW. The P2 Relay is available as through hole or surface mount type and capable to switch currents up to 5 A. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV – 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The P2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950. Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

### FX2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 coil. Nominal voltage range from 3 ... 48 V, coil power consumption of 80 ... 260 mW for the high sensitive version, 140... 300 mW for the standard version, latching relays with 1 coil 100 mW. The FX2 relay is available as through hole type and capable to switch loads up to 60 W/62,5 VA. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV – 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The FX2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950. Dimensions approx. 15 x 7,5 mm board space and 10,7 mm height.

### FT2 / FU2 Relays

3rd generation non polarized, non latching 2 c/o telecom relay with bifurcated contacts. Nominal voltage range from 3 ... 48 V, coil power consumption 200 ... 300 mW. Most sensitive 48 V relay. Available as through hole and surface mount type. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV – 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The FT2/FU2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950. Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

### FP2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 48 V, coil power consumption of 80 ... 260 mW for the high sensitive version, 140... 300 mW for the standard version, latching relays with 1 coil 100 mW. The FP2 Relay is available as through hole type and capable to switch loads up to 60 W/62,5 VA. Dielectric strength fulfills FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The FP2 is tested according CECC/IECQ approved. Dimensions approx. 14 x 9 mm board space and 5 mm height.

### MT2

2nd generation non polarized, non latching 2 c/o telecom and signal relay with bifurcated contacts. Nominal voltage range from 3 ... 48 V, coil power consumption 150/200/300/400 and 550 mW. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). Dimensions approx. 20 x 10 mm board space and 11 mm height.

### D2n Relays

2nd generation non polarized 2 c/o relay for telecom and various other applications. Nominal voltage range from 3 ... 48 V, coil power consumption from 150 ... 500 mW. The D2n relay is capable to switch currents up to 3 A. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). Dimensions approx. 20 x 10 mm board space and 11 mm height.

### P1 Relays

Extremely sensitive, polarized 1 c/o relay with bifurcated contacts for a wide range of applications, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 24 V, coil power consumption 65 mW, latching relays with 1 coil 30 mW. The P1 relay is available as through hole or surface mount type and capable to switch currents up to 1 A. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). Dimensions approx. 13 x 7,6 mm board space and 7 mm height for THT or 8 mm height for SMT version.

### W11 Relays

Low cost, non polarized 1 c/o relay for various applications. Nominal voltage range from 3 ... 24 V, coil power consumption 450 mW, sensitive versions 200 mW. The W11 relay is capable to switch currents up to 3 A. Dielectric strength 1000 Vrms. Dimensions approx. 15,6 x 10,6 mm board space and 11,5 mm height.

### Reed Relays

High sensitive, non polarized relay for telecom and various other applications, available with 1 n/o, 2 n/o or 1c/o contacts. Nominal voltage range from 5 ... 24 V, coil power consumption 50...280 mW for 1 n/o and 125 ... 280 mW for 2 n/o or 1 c/o versions. Reedrelays are available in DIP or SIL housing and capable to switch currents up to 0,5 A. Integrated diode and/or electrostatic shield optional. Dielectric strength 1500 Vdc. Dimensions approx. 19,3 x 7 mm board space and 5 ... 7,5 mm height for DIP or 19,8 x 5 mm board space and 7,8 mm height for SIL version.

### Cradle Relays

Extremely reliable and mature relay family of 1st generation for various signal switching applications. Available as non polarized, polarized / latching and relay with AC coil. The benefit is the possibility of combining various contact sets from 1 up to 6 poles, single and bifurcated contacts, different contact materials with a coil voltage range from 1,5 Vdc to 220 Vac. Cradle relays are available as dust protected and hermetically sealed versions, with plug in or solder terminals and are capable to switch currents up to 5 A. Forcibly guided (linked) contact sets optional. Dielectric strength 500 Vrms. Dimensions from approx. 19 x 24 to 19x35 mm board space and 30 mm height.

### Other Relays

We offer a variety of different relay families for maintenance and replacement purposes. These relays are up to 60 years old now, such as Card Relay SN (V23030 / V23031 series), Small General Purpose Relay (V23006 series), Small Polarized Relay (V23063 ... V23067 and V23163 ... V23167 series). Accessories like sockets, hold down springs, etc. optional.

### HF3 Relay

High performance low cost RF relay with excellent RF characteristics. Available with an impedance of 50 and 75 Ohm. Suitable for frequencies up to 3 GHz. Actually smallest RF relay available combining small size, excellent RF performance and SMD solderability. Available as non latching or latching relay with 1 or 2 coils and a nominal coil voltage range from 3 ... 24 V, coil power consumption 140 mW, latching relays with 1 coil 70 mW. Dimensions 14,6 x 7,3 x 10 mm.

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Electronics

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