

tyco
Electronics

AXICOM

The Best Relay



P1 Relay

ISO
9001



P1 Relay

V23026

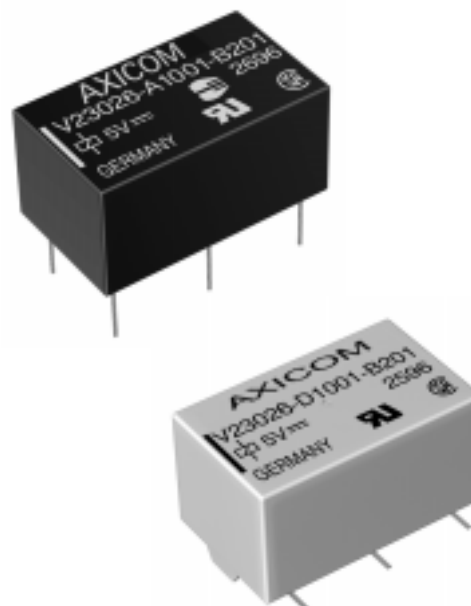


1 pole telecom and signal relay, polarized,
Through Hole Type (THT) or
Surface Mount Technology (SMT),

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

Features

- Directly triggerable with TTL standard modules such as ALS, HCT and ACT
- Slim line 13.5 x 7.85 mm, 0.531 x 0.309 inch
- Switching current 1 A
- 1 changeover contact (1 form C / SPDT)
- Bifurcated contacts
- Immersion cleanable
- High sensitivity results in low nominal power consumption
65 to 130 mW for non-latching
30 to 150 mW for latching
- Surge voltage resistance between contact and coil:
 - 2.5 kV (2 / 10 μ sec) meets the Bellcore Requirement GR-1089
 - 1.5 kV (10 / 160 μ sec) meets FCC Part 68

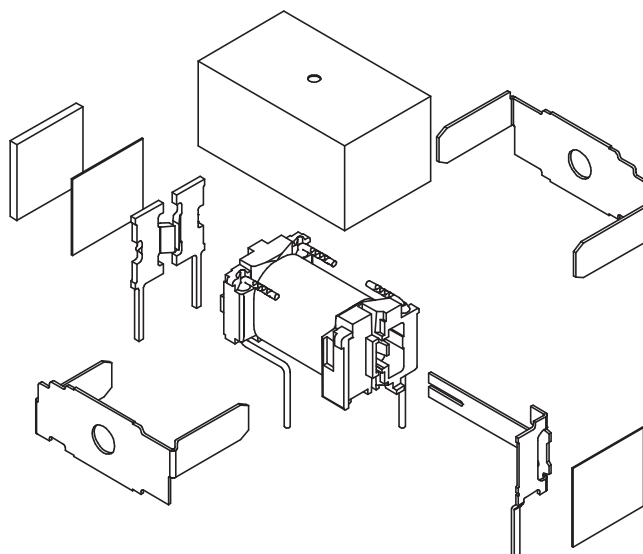


Typical applications

- Automotive equipment
CAN bus, immobilizer
- Office equipment
- Measurement and control equipment
- Medical equipment
- Safety equipment

Options

- FCC version on request. Testing of open contacts with surge voltage in accordance with FCC 68.302 (1.5 kV, 10/160 μ sec)



LR 45064-5



E 48393

Basic insulation coil/contacts according to IEC/EN 60950

Clearance > 0.75 mm

Creepage distance > 0.75 mm

P1 Relay

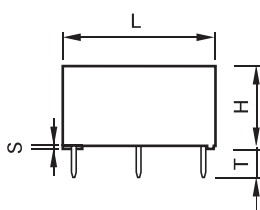
V23026



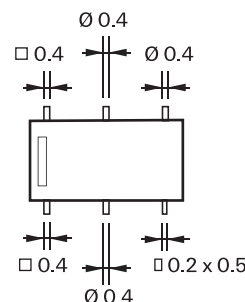
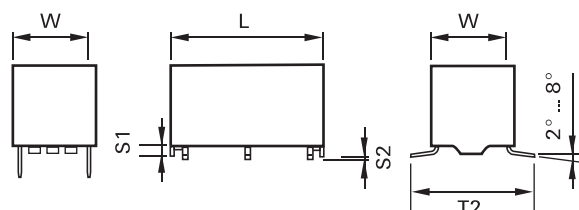
Dimensions

V23026-x1xxx-B201				
	THT		SMT	
	mm	inch	mm	inch
L	13.0±0.1	0.512±0.004	13.4±0.1	0.528±0.004
W	7.6±0.1	0.299±0.004	7.75±0.1	0.305±0.004
H	6.9-0.2	0.272-0.008	8.0-0.2	0.315-0.008
T	3.5-0.2	0.138-0.008	N/A	N/A
T1	N/A	N/A	2.0±0.1	0.079±0.004
T2	N/A	N/A	10.9-0.5	0.429-0.020
S	0.3±0.1	0.012±0.004	N/A	N/A
S1	N/A	N/A	0.85±0.1	0.033±0.004
S2	N/A	N/A	0.2-0.15	0.008±0.006

THT Version

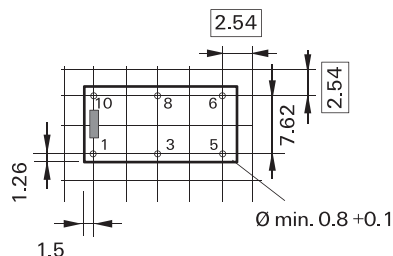


SMT Version



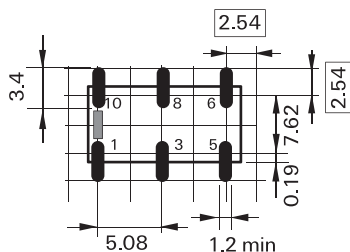
Mounting hole layout

View onto the component side of the PCB



Solder pad layout

View onto the component side of the PCB



Terminal assignment

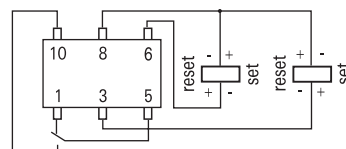
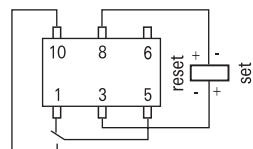
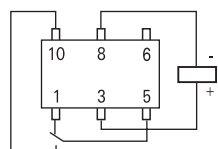
Relay - top view

Contact release or reset condition, coil polarity to set the relay

Non-latching type, not energized condition

Latching type, 1 coil reset condition

Latching type, 2 coils reset condition



P1 Relay

V23026



Coil Data (values at 23°C)

Nominal voltage U_{nom}	Operate/set voltage range		Release/ reset voltage Minimum	Nominal power consumption	Resistance	Coil number
	Minimum voltage U_I	Maximum voltage U_{II}				
Vdc	Vdc	Vdc	Vdc	mW	$\Omega / \pm 10\%$	

THT, non-latching, 1 coil						A1***
3	2.25	8.80	0.30	66	137	006
5	3.75	14.50	0.50	68	370	001
12	9.00	35.00	1.20	64	2250	002
24	18.00	50.00	2.40	128	4500	004

THT, latching, 2 coils (coils I and II are identical)						B1***
3	2.25	8.55	2.25	69	130	106
5	3.75	14.75	3.75	64	390	101
12	9.00	29.00	9.00	96	1500	102
24	A nominal voltage of 24 V is feasible with a 12 V coil with a series resistor (1500 Ω)					

THT, latching, 1 coil						C1***
3	2.25	13.00	2.25	30	300	056
5	3.75	20.00	3.75	34	740	051
12	9.00	50.00	9.00	32	4500	052
24	18.00	50.00	18.00	128	4500	054

SMT, non-latching, 1 coil						D1***
3	2.25	8.00	0.30	80	113	026
5	3.75	13.30	0.50	80	313	021
12	9.00	35.00	1.20	80	1800	022
24	18.00	50.00	2.40	128	4500	024

SMT, latching, 2 coils (coils I and II are identical)						E1***
3	2.25	8.55	2.25	69	130	106
5	3.75	14.75	3.75	64	390	101
12	9.00	29.00	9.00	96	1500	102
24	A nominal voltage of 24 V is feasible with a 12 V coil with a series resistor (1500 Ω)					

SMT, latching, 1coil						F1***
5	3.75	20.00	3.75	34	740	051
12	9.00	50.00	9.00	32	4500	052
24	A nominal voltage of 24 V is feasible with a 12 V coil with a series resistor (4500 Ω)					

Further coil versions e.g. 1.5 V, 9 V and 15 V are available on request.

U_I = Minimum voltage at 23° C after pre-energizing with nominal voltage without contact current

U_{II} = Maximum continuous voltage at 23°

The operating voltage limits U_I and U_{II} depend on the temperature according to the formula:

$$U_{I\text{tamb}} = K_I \cdot U_{I\ 23^\circ\text{C}}$$

and

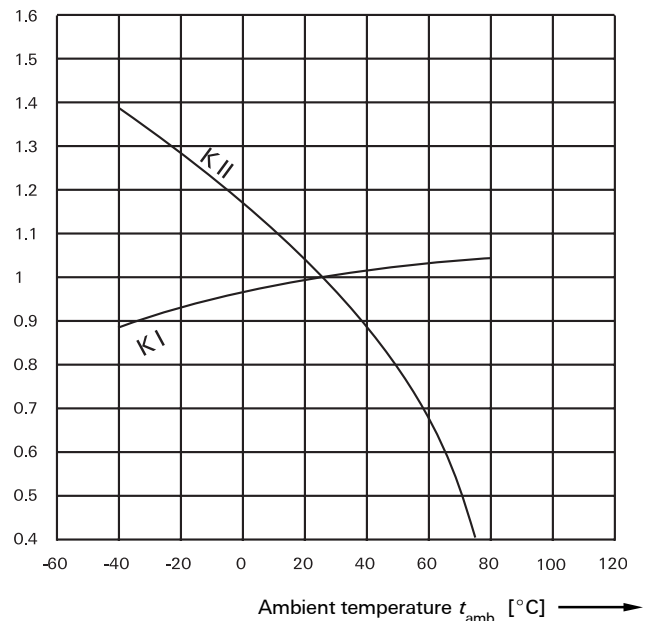
$$U_{II\text{tamb}} = K_{II} \cdot U_{II\ 23^\circ\text{C}}$$

t_{amb} = Ambient temperature

$U_{I\text{tamb}}$ = Minimum voltage at ambient temperature, t_{amb}

$U_{II\text{tamb}}$ = Maximum voltage at ambient temperature, t_{amb}

k_I, k_{II} = Factors (dependent on temperature), see diagram



P1 Relay

V23026

AXICOM**Contact Data**

Number of contacts and type	1 changeover contact	
Contact assembly	Bifurcated contact	
Contact material	Palladium nickel, gold-rhodium covered	
Limiting continuous current at max. ambient temperature	1 A	
Maximum switching current	1 A	
Maximum switching voltage	125 Vdc 150 Vac	
Maximum switching capacity	30 W, 60 VA	
Thermoelectric potential	< 100 μ V	
Initial contact resistance / measuring condition: 10 mA / 20 mV	< 50 m Ω	
Electrical endurance	at 12 V / 10 mA at 6 V / 100 mA at 30 V / 1000 mA	typ. 5 x 10 ⁷ operations typ. 1 x 10 ⁷ operations typ. 1 x 10 ⁵ operations
Mechanical endurance	typ. 10 ⁹ operations	
UL/CSA ratings	30 Vdc / 1 A 65 Vdc / 0.46 A 150 Vac / 0.46 A	

Insulation

Insulation resistance at 500 VDC	> 10 ⁹ Ω
Dielectric test voltage (1 min)	
between coil and contacts (Relay with 1 coil)	1500 Vrms
between open contacts	500 Vrms
Surge voltage resistance	
according to Bellcore TR-NWT-001089 (2 / 10 μ s)	
between coil and contacts (Relay with 1 coil)	2500 V
between open contacts	on request 2000 V
according to FCC 68 (10 / 160 μ s)	
between coil and contacts (Relay with 1 coil)	1500 V
between open contacts	on request 1500 V
Insulation according to IEC / EN 60950	
Clearance	Basic insulation 0.75 mm
Creepage distance	0.75 mm

High Frequency Data

Capacitance	
between coil and contacts	max. 6 pF
between open contacts	max. 5 pF
RF Characteristics	
Isolation at 100 / 900 MHz	- 30.0 dB / - 18.0 dB
Insertion loss at 100 / 900 MHz	- 0.12 dB / - 1.9 dB
V.S.W.R. at 100 / 900 MHz	1.06 / 1.75

General data

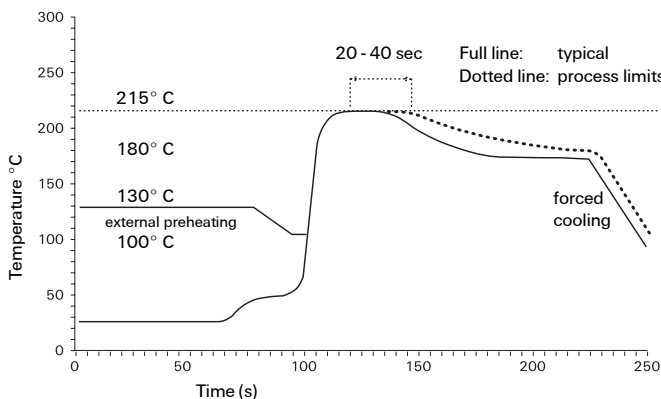
Operate time at U_{nom} typ. / max.	1 ms / 2 ms
Reset time (latching) at U_{nom} , typ. / max.	1 ms / 2 ms
Release time without diode in parallel (non-latching), typ. / max.	0.4 ms / 1 ms
Release time with diode in parallel (non-latching), typ. / max.	1.2 ms / 2 ms
Bounce time at closing contact, typ. / max.	1 ms / 3 ms
Maximum switching rate without load	200 operations/s
Ambient temperature	-40° C ... +70° C, +85° C on request
Thermal resistance	< 130 K/W
Maximum permissible coil temperature	85° C
Vibration resistance (function)	20 g, 200 to 2000 Hz 40 g, 10 to 200 Hz
Shock resistance, half sinus, 11 ms	50 g (function)
Degree of protection	immersion cleanable, IP 67
Needle flame test	application time 20 s, burning time < 15 s
Mounting position	any
Processing information	Ultrasonic cleaning possible
Weight (mass)	max. 2 g
Resistance to soldering heat	260° C / 10 s

All data refers to 23° C unless otherwise specified.

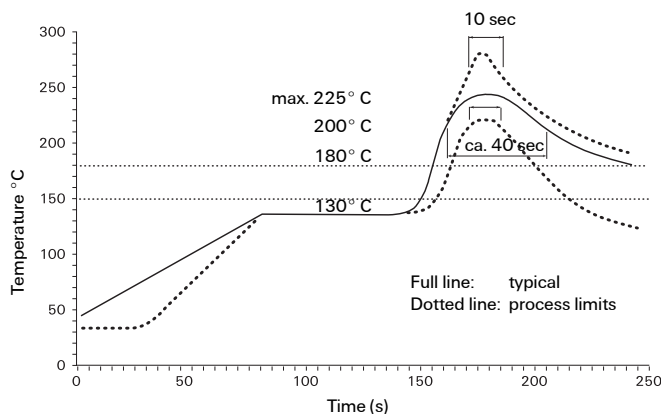
Recommended soldering conditions

Soldering conditions according CECC 00802

Note: Internal relay temperature should not exceed 210° C



Vapor Phase Soldering: Temperature/Time Profile (Lead Temperature)



Infrared Soldering: Temperature/Time Profile (Lead Temperature)

P1 Relay

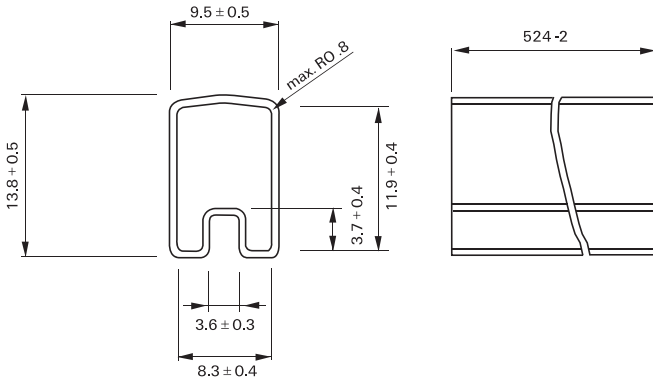
V23026



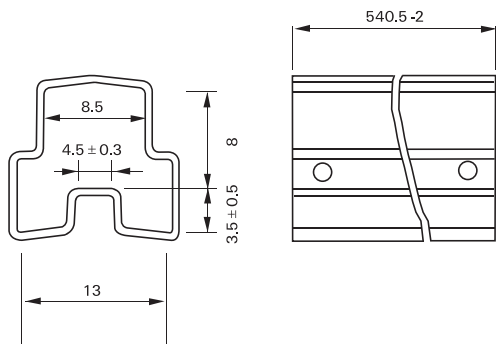
Packing

Dimensions in mm

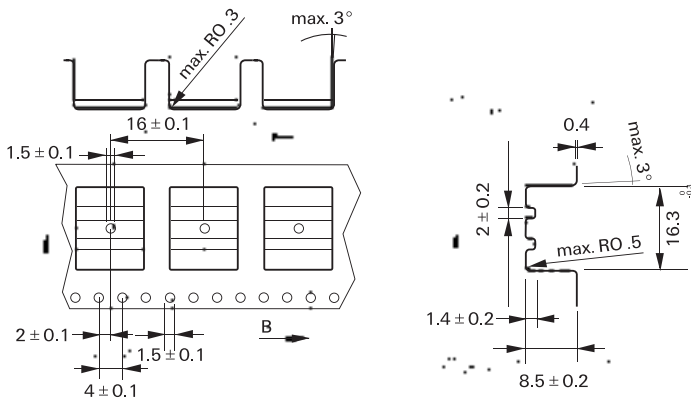
Tube for THT version - 40 relays per tube, 2000 relays per box



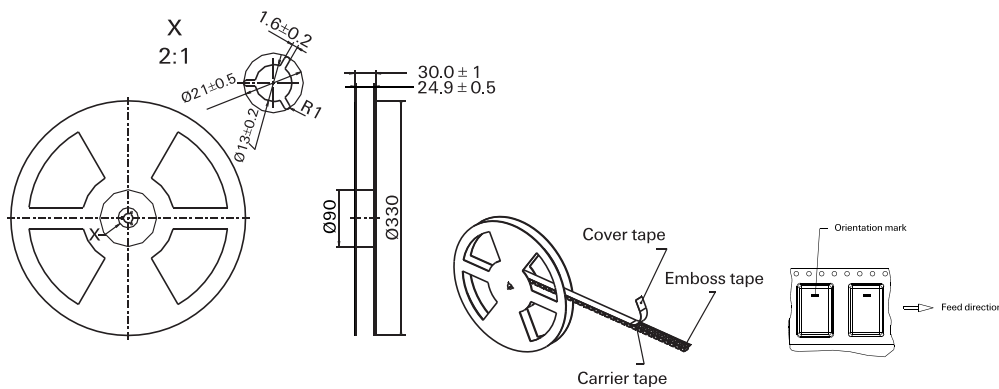
Tube for SMT version - 40 relays per tube 2000 relays per box



Tape and reel for SMT version - 480 relays per reel



Reel dimension



Ordering Information

Relay Code Tube packing	Tyco Part Number	Relay Code Tube packing	Tyco Part Number
V23026A1001B201	0-1393774-1	V23026D1021B201	3-1393774-7
V23026A1002B201	0-1393774-8	V23026D1022B201	3-1393774-8
V23026A1004B201	1-1393774-2	V23026D1024B201	3-1393774-9
V23026A1006B201	1-1393774-7	V23026D1026B201	2-1393774-9
V23026B1101B201	3-1393774-4	V23026E1101B201	4-1393774-1
V23026B1102B201	3-1393774-5	V23026E1102B201	4-1393774-2
V23026B1106B201	0-1393775-3	V23026E1106B201	0-1393777-3
V23026C1051B201	2-1393774-0	V23026F1051B201	1-1393776-0
V23026C1052B201	2-1393774-1	V23026F1052B201	4-1393774-3
V23026C1054B201	2-1393774-4		
V23026C1056B201	2-1393774-6		

Tape & reel packing

V23026D1021B201	0-1393776-3
V23026D1022B201	0-1393776-4
V23026D1024B201	0-1393776-7
V23026D1026B201	0-1393776-8
V23026E1101B201	0-1422015-6
V23026E1102B201	0-1393776-9

Middle block of relay code

V23026-xyyy-B301

xx: See table below

yyy: See coil table on page 4

xx	Description
A1	THT, non latching
B1	THT, latching, 2 coils
C1	THT, latching, 1 coil
D1	SMT, non latching
E1	SMT, latching, 2 coils
F1	SMT, latching, 1 coil

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 140... 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. Dielectric strength fulfills the Bellcore requirements according GR 1089 (2,5 kV – 2 / 10 μ s) and FCC part 68 (1,5 kV – 10 / 160 μ s). The IM relay is CECC/IECQ approved and certified in accordance with IEC/EN 60950 and UL1950. 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 Bellcore requirements according GR 1089 (2,5 kV – 2 / 10 μ s) and FCC part 68 (1,5 kV – 10 / 160 μ s). Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

FX 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 Bellcore requirements according GR 1089 (2,5 kV – 2 / 10 μ s) and FCC part 68 (1,5 kV – 10 / 160 μ s). The FX2 is CECC/IECQ approved and certified in accordance with IEC/EN 60950 and UL1950. 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 Bellcore requirements according GR 1089 (2,5 kV – 2 / 10 μ s) and FCC part 68 (1,5 kV – 10 / 160 μ s). The FT2/FU2 is CECC/IECQ approved and certified in accordance with IEC/EN 60950 and UL1950. Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

FP1 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 FP1 Relay is available as through hole type and capable to switch loads up to 30 W/62,5 VA. Dielectric strength fulfills FCC part 68 (1,5 kV – 10 / 160 μ s). The FP2 is CECC/IECQ approved. Dimensions approx. 14 x 9 mm board space and 5 mm height.

MT2 / MT4

2nd generation non polarized, non latching 2 c/o and 4 c/o telecom and signal relay with bifurcated contacts. Nominal voltage range from 4.5 ... 48 V, coil power consumption 150/200/300/400 and 550 mW, and 300 mW (MT4). Dielectric strength fulfills the

requirements according FCC part 68 (1,5 kV – 10 / 160 μ s) for both and the Bellcore requirements according GR 1089 (2,5 kV – 2 / 10 μ s) the MT4 only.

Dimensions MT2 approx. 20 x 10 mm board space and 11 mm height, MT4 approx. 20 x 15 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 μ s). Dimensions approx. 20 x 10 mm board space and 11,5 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 μ 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.

tyco

Electronics

AXICOM



Tyco Electronics AXICOM Ltd.
Seestrasse 295 - P.O. Box 220
CH-8804 Au-Wädenswil / Switzerland
Phone +41 1 782 9111
Fax +41 1 782 9080
E-mail: axicom@tycoelectronics.com



Tyco Electronics AMP GmbH
Paulsternstrasse 26
D-13629 Berlin / Germany
Phone +49 30 386 38260
Fax +49 30 386 38569
E-mail: axicom@tycoelectronics.com



Tyco Electronics EC Trutnov s.r.o.
Komenského 821
CZ-541 01 Trutnov / Czech Republic
E-mail: axicom@tycoelectronics.com

Tyco Electronics Corporation
POB 3608,
Harrisburg, PA 17105, USA
Phone +001 800-522-6752