

AXICOM

Telecom-, Signal and RF Relays

W11 Relay V23101

W11 Relay V23101

Disclaimer

While Tyco Electronics has made every reasonable effort to ensure the accuracy of the information in this datasheet, Tyco Electronics does not guarantee that it is error-free, nor does Tyco Electronics make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. Tyco Electronics reserves the right to make any adjustments to the information contained herein at any time without notice. Tyco Electronics expressly disclaims all implied warranties (and all express warranties, except as otherwise stated in this datasheet) regarding the information contained herein, including but not limited to any implied warranties or merchantability or fitness for a particular purpose. It is recommended that you test any new or replacement product before incorporating into a system.

The dimensions in this datasheet are for reference purpose only and are subject to change without notice. Specifications are subject to change without notice.

Index

Dimensions	4
Coil Data and operating range	6
Relay Code	9
Contact Data	10
Insulation / General Data	11

W11 Relay V23101

1 pole PCB relay, non-polarized,
Through Hole Type (THT)

ROHS compliant (Directive 2002/95/EC) as per
product date code 0401.

Features

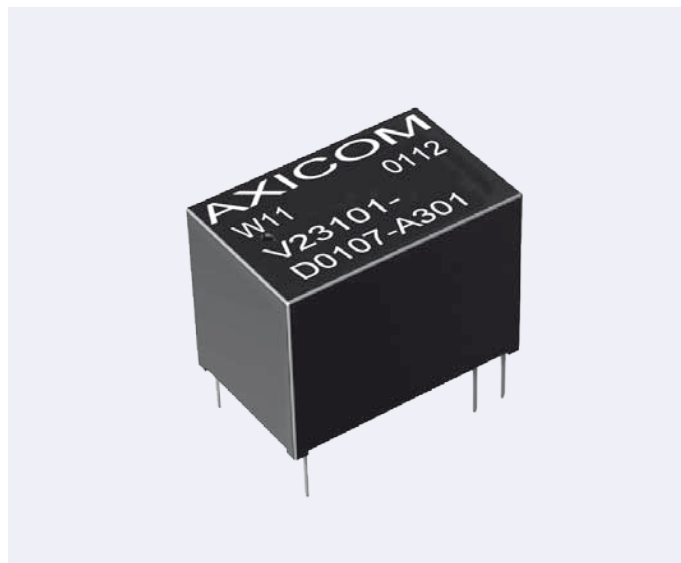
- Multi purpose relay
- Small size permitting high packing density
- 1 changeover contact (1 form C / SPDT)
- 200 mW and 450 mW coils
- 1 A and 3 A contacts
- High shock resistance of 30 g
- Ambient temperature for sensitive version up to 85 °C
- Immersion cleanable

Typical applications

- Security devices
- Electric door openers
- Duplex intercommunication systems
- Measurement and controls

Relay types

- Non-latching, 1 coil
- Terminal assignments
- symmetrical or asymmetrical
- 5- or 6-pin version



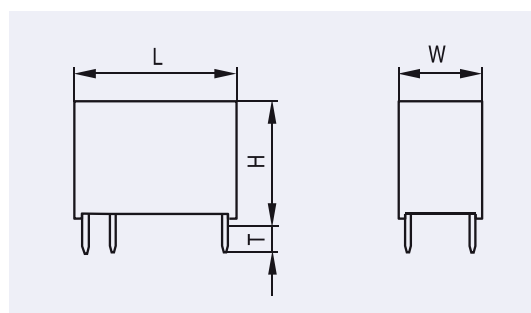
W11 Relay V23101

Dimensions

Dimensions in mm

THT V23101-Dxxx-Xxxx		
	mm	inch
L	15.5 ± 0.1	0.610 ± 0.004
W	10.5 ± 0.1	0.413 ± 0.004
H	$11.5 - 0.2$	$0.453 - 0.008$
T	$3.5 - 0.2$	$0.138 - 0.008$

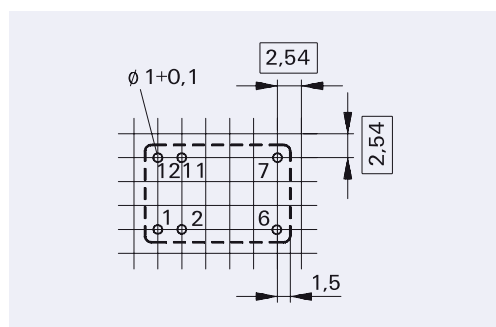
THT Version



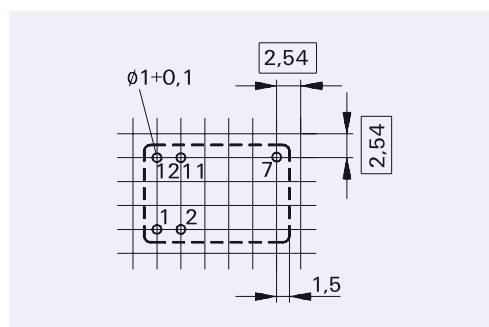
Mounting hole layout

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

Version: 6 pins



Version: 5 pins (without pin no. 6)



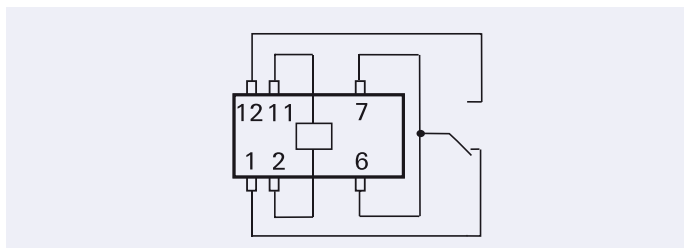
W11 Relay V23101

Terminal assignment

Relay – top view

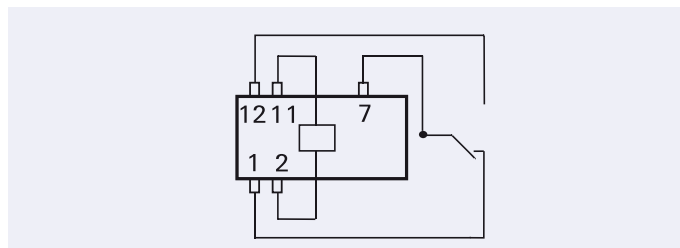
V23101-DO xxx-Axxx

6 pin version with symmetrical coil assignment



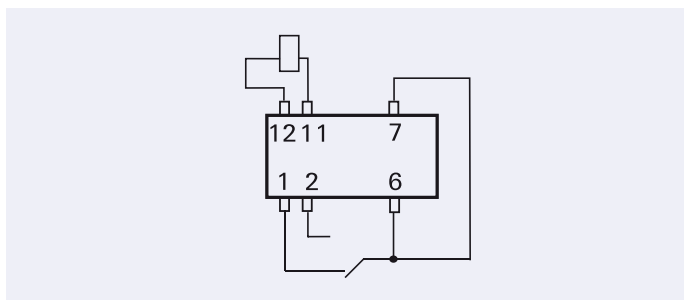
V23101-D1 xxx-Axxx

5 pin version with symmetrical coil assignment



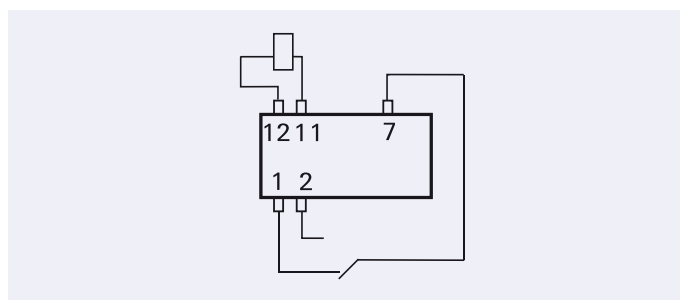
V23101-DO xxx-Bxxx

6 pin version with asymmetrical coil assignment



V23101-D1 xxx-Bxxx

5 pin version with asymmetrical coil assignment



W11 Relay V23101

Coil Data (values at 20 °C)

Ordering Information

Nominal Voltage Unom Vdc	Operating voltage range		Release/ reset voltage Minimum Vdc	Coil power mW	Coil Resistance $\Omega \pm 15\%$	Relay code	Tyco part number
	Minimum Voltage Umin Vdc	Maximum voltage Umax Vdc					

6 pin version with symmetrical coil assignment, 450 mW nom. Power consumption, AgPd+Au contacts

1.5	1.3	2.6	0.15	375	6	V23101-D0001-A201	1393779-1
3	2.1	4.7	0.30	450	20	V23101-D0002-A201	1393779-3
5	3.5	7.9	0.50	446	56	V23101-D0003-A201	1393779-5
6	4.2	9.5	0.60	450	80	V23101-D0004-A201	1393779-8
9	6.3	14.2	0.90	450	180	V23101-D0005-A201	1-1393779-1
12	8.4	19.0	1.20	450	320	V23101-D0006-A201	1-1393779-3
24	16.8	38.0	2.40	450	1280	V23101-D0007-A201	1-1393779-8

6 pin version with asymmetrical coil assignment, 450 mW nom. Power consumption, AgPd+Au contacts

1.5	1.3	2.6	0.15	375	6	V23101-D0001-B201	1393779-2
3	2.1	4.7	0.30	450	20	V23101-D0002-B201	1393779-4
5	3.5	7.9	0.50	446	56	V23101-D0003-B201	1393779-6
6	4.2	9.5	0.60	450	80	V23101-D0004-B201	1-1393779-0
9	6.3	14.2	0.90	450	180	V23101-D0005-B201	1-1393779-2
12	8.4	19.0	1.20	450	320	V23101-D0006-B201	1-1393779-6
24	16.8	38.0	2.40	450	1280	V23101-D0007-B201	2-1393779-2

6 pin version with symmetrical coil assignment, 450 mW nom. Power consumption, AgNi contacts

12	8.4	19.0	0.20	450	320	V23101-D0006-A301	4-1419172-4
----	-----	------	------	-----	-----	-------------------	-------------

6 pin version with asymmetrical coil assignment, 450 mW nom. Power consumption, AgNi contacts

5	3.5	7.9	0.50	446	56	V23101-D0003-B301	1393779-7
12	8.4	19.0	1.20	450	320	V23101-D0006-B301	1-1393779-7
24	16.8	38.0	2.40	450	1280	V23101-D0007-B301	2-1393779-1

6 pin version with symmetrical coil assignment, 450 mW nom. Power consumption, AgNi+Au contacts

5	3.5	7.9	0.50	446	56	V23101-D0003-A401	1422028-2
12	8.4	19.0	1.20	450	320	V23101-D0006-A401	1422028-3
24	16.8	38.0	2.40	450	1280	V23101-D0007-A401	1422028-5

6 pin version with asymmetrical coil assignment, 450 mW nom. Power consumption, AgNi+Au contacts

12	8.4	19.0	1.20	450	320	V23101-D0006-B401	1422028-4
24	16.8	38.0	2.40	450	1280	V23101-D0007-B401	1422028-6

5 pin version with symmetrical coil assignment, 450 mW nom. Power consumption, AgPd+Au contacts

12	8.4	19.0	1.20	450	320	V23101-D1006-A201	4-1393779-1
----	-----	------	------	-----	-----	-------------------	-------------

5 pin version with asymmetrical coil assignment, 450 mW nom. Power consumption, AgPd+Au contacts

5	3.5	7.9	0.50	446	56	V23101-D1003-B201	4-1393779-0
12	8.4	19.0	1.20	450	320	V23101-D1006-B201	4-1393779-2
24	16.8	38.0	2.40	450	1280	V23101-D1007-B201	1413012-1

5 pin version with symmetrical coil assignment, 450 mW nom. Power consumption, AgNi+Au contacts

12	8.4	19.0	1.20	450	320	V23101-D1006-A401	1-1422028-2
----	-----	------	------	-----	-----	-------------------	-------------

5 pin version with asymmetrical coil assignment, 450 mW nom. Power consumption, AgNi+Au contacts

12	8.4	19.0	1.20	450	320	V23101-D1006-B401	1-1422028-3
----	-----	------	------	-----	-----	-------------------	-------------

W11 Relay V23101

Coil Data (values at 20 °C)

Ordering Information

Nominal Voltage Unom Vdc	Operating voltage range		Release/ reset voltage Minimum Vdc	Coil power mW	Coil Resistance $\Omega \pm 15\%$	Relay code	Tyco part number
	Minimum Voltage Umin Vdc	Maximum voltage Umax Vdc					

6 pin version with symmetrical coil assignment, 200 mW nom. Power consumption, AgPd+Au contacts

1.5	1.1	3.6	0.15	188	12	V23101-D0101-A201	2-1393779-2
3	2.3	7.1	0.30	200	45	V23101-D0102-A201	2-1393779-4
5	3.8	11.6	0.50	208	120	V23101-D0103-A201	2-1393779-6
6	4.5	14.2	0.60	200	180	V23101-D0104-A201	2-1393779-8
9	6.8	21.2	0.90	203	400	V23101-D0105-A201	3-1393779-0
12	9.0	28.0	1.20	206	700	V23101-D0106-A201	3-1393779-2
24	18.0	56.0	2.40	206	2800	V23101-D0107-A201	3-1393779-5
18	13.5	33.0	1.80	200	1620	V23101-D0108-A201	3-1393779-9

6 pin version with asymmetrical coil assignment, 200 mW nom. Power consumption, AgPd+Au contacts

1.5	1.1	3.6	0.15	188	12	V23101-D0101-B201	2-1393779-3
3	2.3	7.1	0.30	200	45	V23101-D0102-B201	2-1393779-5
5	3.8	11.6	0.50	208	120	V23101-D0103-B201	2-1393779-7
6	4.5	14.2	0.60	200	180	V23101-D0104-B201	2-1393779-9
9	6.8	21.2	0.90	203	400	V23101-D0105-B201	3-1393779-1
12	9.0	28.0	1.20	206	700	V23101-D0106-B201	3-1393779-3
24	18.0	56.0	2.40	206	2800	V23101-D0107-B201	3-1393779-8

6 pin version with symmetrical coil assignment, 200 mW nom. Power consumption, AgNi contacts

12	9.0	28.0	1.20	206	700	V23101-D0106-A301	1422037-2
24	18.0	56.0	2.40	206	2800	V23101-D0107-A301	3-1393779-7

6 pin version with asymmetrical coil assignment, 200 mW nom. Power consumption, AgNi contacts

12	9.0	28.0	1.20	206	700	V23101-D0106-B301	3-1393779-4
----	-----	------	------	-----	-----	-------------------	-------------

6 pin version with symmetrical coil assignment, 200 mW nom. Power consumption, AgNi+Au contacts

5	3.8	11.6	0.50	208	120	V23101-D0103-A401	1422028-7
12	9.0	28.0	1.20	203	700	V23101-D0106-A401	1422028-8
24	18.0	56.0	2.40	206	2800	V23101-D0107-A401	1422028-9
18	13.5	33.0	1.80	200	1620	V23101-D0108-A401	1-1422028-1

6 pin version with asymmetrical coil assignment, 200 mW nom. Power consumption, AgNi+Au contacts

24	18.0	56.0	2.40	206	2800	V23101-D0107-B401	1-1422028-0
----	------	------	------	-----	------	-------------------	-------------

5 pin version with symmetrical coil assignment, 450 mW nom. Power consumption, AgPd+Au contacts

12	9.0	28.0	1.20	203	700	V23101-D1106-A201	4-1393779-3
24	18.0	56.0	2.40	206	2800	V23101-D1107-A201	4-1393779-6

5 pin version with asymmetrical coil assignment, 450 mW nom. Power consumption, AgPd+Au contactsw

12	9.0	28.0	1.20	203	700	V23101-D1106-B201	4-1393779-4
24	18.0	56.0	2.40	206	2800	V23101-D1107-B201	4-1393779-7

5 pin version with asymmetrical coil assignment, 200 mW nom. Power consumption, AgNi contacts

12	9.0	28.0	1.20	203	700	V23101-D1106-B301	4-1393779-5
----	-----	------	------	-----	-----	-------------------	-------------

5 pin version with symmetrical coil assignment, 200 mW nom. Power consumption, AgNi+Au contacts

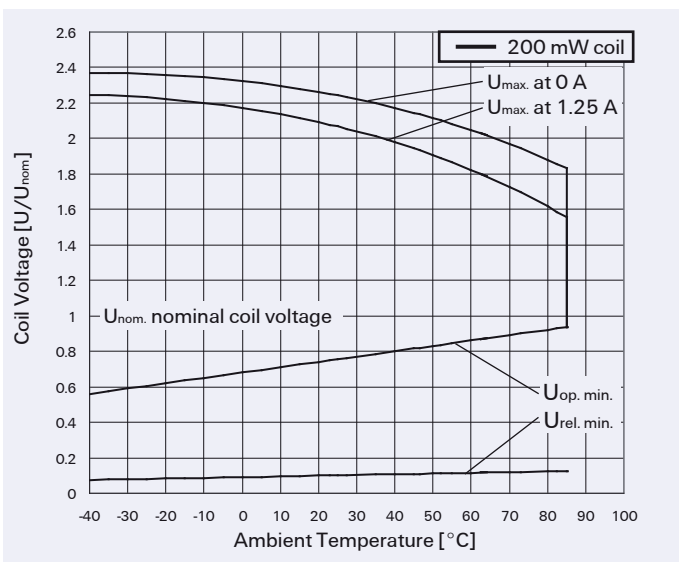
12	9.0	28.0	1.20	203	700	V23101-D1106-A401	1-1422028-4
----	-----	------	------	-----	-----	-------------------	-------------

5 pin version with asymmetrical coil assignment, 200 mW nom. Power consumption, AgNi+Au contacts

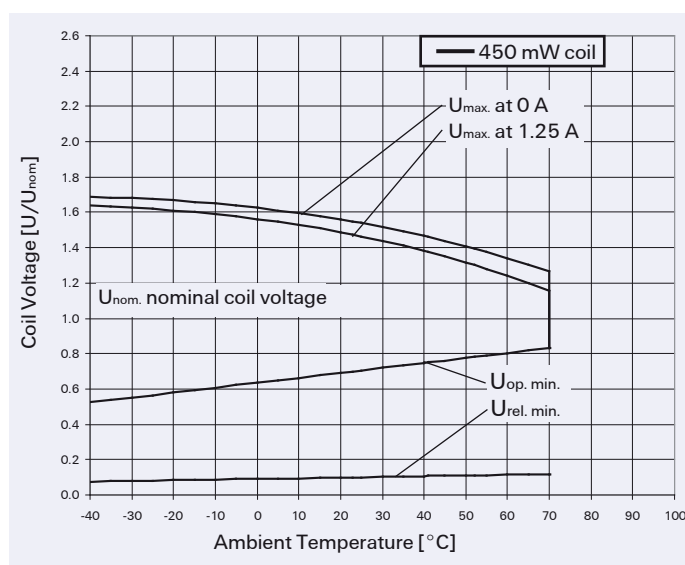
12	9.0	28.0	1.20	203	700	V23101-D1106-B401	1-1422028-5
----	-----	------	------	-----	-----	-------------------	-------------

W11 Relay V23101

Coil Operating Range



U_{nom} = Nominal coil voltage
 $U_{max.}$ = Upper limit of the operative range of the coil voltage (limiting voltage)
 $U_{op. min.}$ = Lower limit of the operative range of the coil voltage (reliable operate voltage)
 For latching relays $U_{set min.}$ resp. $U_{reset min.}$
 $U_{rel. min.}$ = Lower limit of the operative range of the coil voltage (reliable release voltage)



W11 Relay V23101

Relay Code

	V	2	3	1	0	1								
Identification of the Relay W11 - 1 changeover contact														
Pin version D0 = Standard 6 pins D1 = 5-pin version (without pin no. 6)														
Coil number Standard version 001 = 1.5 V nominal voltage 002 = 3 V 003 = 5 V 004 = 6 V 005 = 9 V 006 = 12 V 007 = 24 V Sensitive version 101 = 1.5 V nominal voltage 102 = 3 V 103 = 5 V 104 = 6 V 105 = 9 V 106 = 12 V 107 = 24 V														
Coil assignment A = Symmetrical B = Asymmetrical														
Contact / Material 201 = AgPd, gold plated 301 = AgNi 401 = AgNi, gold plated														

Ordering example: V23101-D0104-B401

Small relay W11 - 1 changeover contact, standard pin version (6 pins), sensitive version, coil 6 V nominal voltage, terminal assignment B, contact material AgNi, gold plated.

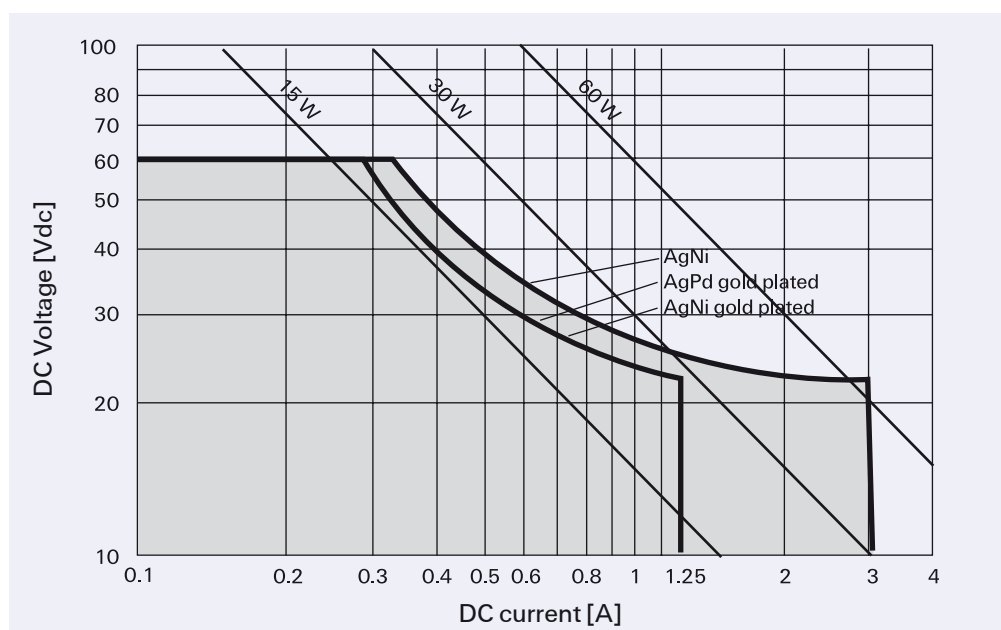
Note:
Special designs can be carried out to customer specifications. Please contact your local representative.

W11 Relay V23101

Contact Data

Number of contacts and type	1 changeover contacts	
Contact assembly	single contacts	
Contact material	AgPd, gold plated AgNi, gold plated	AgNi
Limiting continuous current at max. ambient temperature	1.25 A	3 A
Maximum switching current (see load limit diagram)	1.25 A	3 A
Maximum switching voltage	120 Vdc 125 Vac	120 Vdc 125 Vac
Maximum switching capacity	30 W / 62.5 VA	72 W / 360 VA
Thermoelectric potential	< 10 µV	< 10 µV
Initial contact resistance / measuring condition: 10 mA / 20 mV	100 mΩ	100 mΩ
Electrical endurance standard:	at 24 Vdc / 1.25 A at 24 Vdc / 3 A at 120 Vac / 1.25 A at 120 Vac / 3 A	min. 3 x 10 ⁵ operations min. 1.5 x 10 ⁵ operations min. 2 x 10 ⁵ operations min. 4 x 10 ⁵ operations
sensitive:	at 24 Vdc / 1.25 A at 24 Vdc / 3 A at 120 Vac / 1.25 A at 120 Vac / 3 A	min. 2 x 10 ⁵ operations min. 1 x 10 ⁵ operations min. 1 x 10 ⁵ operations min. 3 x 10 ⁵ operations
Mechanical endurance, typ	10 ⁷ operations	

Max. DC Load Breaking Capacity



W11 Relay V23101

Insulation

Insulation resistance at 500 Vdc	$> 10^9 \Omega$
Dielectric test voltage (1 min) between coil and contacts between open contacts	1000 Vrms 750 Vrms

High Frequency Data

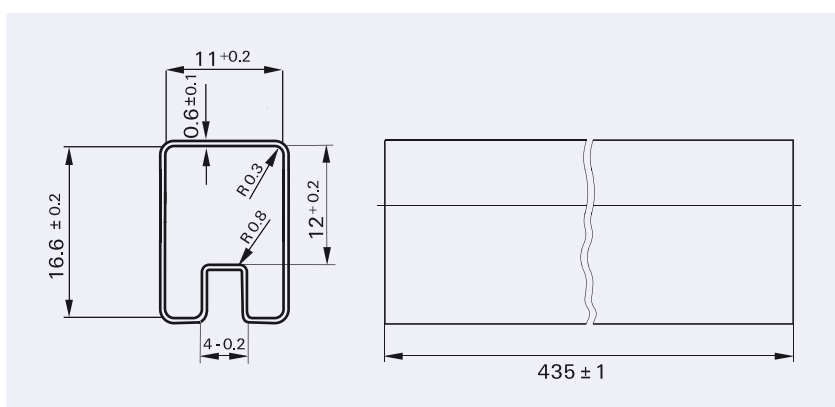
Capacitance between coil and contacts between open contacts	max. 10 pF max. 2 pF
---	-------------------------

General Data

Operate time at Unom typ. / max.	5 ms / 7 ms
Release time without diode in parallel, typ. / max.	3 ms / 5 ms
Release time with diode in parallel, typ. / max.	10 ms / 12 ms
Bounce time at closing contact, typ. / max.	1 ms / 2 ms NO contact 5 ms / 10 ms at NC contact
Maximum switching rate without load	20 operations/s
Ambient temperature	-40 °C ... +70 °C / 85 °C, standard / sensitive coil
Thermal resistance	$< 125 \text{ K/W}$
Maximum permissible coil temperature	130 °C
Vibration resistance (function)	10 G, 10 to 200 Hz
Shock resistance, half sinus, 11 ms	30 G (function) 100 G (damage)
Degree of protection	immersion cleanable, IP 67
Needle flame test	application time 20 s, burning time $< 15 \text{ s}$
Mounting position	any
Processing information	Ultrasonic cleaning is not recommended
Weight (mass)	max. 4 g
Terminal coating	SnCu 0,7
Resistance to soldering heat	265 °C / 10 s

Packing

Dimensions in mm



Tube dimensions
25 relays per tube
625 relays per box

W11 Relay V23101

IM Relays

4th generation slim line – low profile polarized 2 c/o telecom signal 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 µs) and FCC part 68 (1,5 kV – 10 / 160 µs). 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 µs) and FCC part 68 (1,5 kV – 10 / 160 µs). 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 µs) and FCC part 68 (1,5 kV – 10 / 160 µs). 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 µs) and FCC part 68 (1,5 kV – 10 / 160 µs). 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 µs). 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 µs).

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 µs). Dimensions approx. 20 x10 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 µs). 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 series), Small General Purpose Relay (V23006 series), Small Polarized Relay (V23063 ... V23067 and V23163 ... V23167 series). Accessories like sockets, hold down springs, etc. optional.

High Frequency Relays

HF3 / HF3S / HF6 series RF relays offering excellent RF characteristics in a small package. All HF series relays are suitable for SMD soldering processes. Available as non latching or latching versions with 1 or 2 coils and a nominal coil voltage range from 3 ... 24 V, a coil power consumption of 140 mW or 70 mW (single coil latching types).

HF3: Low cost RF relay suitable up to 3 GHz. Impedance 50 and 75 Ohm. 50 W hot switching and 50 W RF power carry capability. Dimensions 14.6 x 7.3 x 10.3 mm.

HF3S: High performance, high power RF relay suitable up to 3 GHz, 50 W hot switching and 150 W RF power carry capability. Dimensions 15 x 7.6 x 10.6 mm.

HF6: High performance, high power RF relay suitable up to 6 GHz, 50 W hot switching and 50 W RF power carry capability. Dimensions 15 x 7.6 x 10.6 mm.



Tyco Electronics Logistics AG
Werk Axicom Au
Seestrasse 295
CH-8804 Au-Wädenswil / Switzerland
Phone +41 44 782 91 11
Fax +41 44 782 90 00
E-mail: axicom@tycoelectronics.com



Tyco Electronics
Paulsternstrasse 26
D-13629 Berlin / Germany
Phone +49 30 386 38573
Fax +49 30 386 38575
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

AXICOM

Telecom-, Signal and RF Relays

Tyco Electronics Corporation
POB 3608,
Harrisburg, PA 17105, USA
Phone +1 800-522-6752

 **Tyco Electronics**
Our commitment. Your advantage.