

# PDF.Support

**AXICOM**

Telecom-, Signal and RF Relays

## P2 V23079 Relay

## P2 V23079 Relay

### 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.



UL 508      File No. E 111441  
UL 60950

IEC/EN60950    IEC Ref. Cert. No. 3271

### Index

|                                    |    |
|------------------------------------|----|
| Dimensions                         | 4  |
| Coil Operating Range               | 5  |
| Relay Code                         | 6  |
| Coil Data and Ordering Information | 7  |
| Contact Data                       | 10 |
| Insulation                         | 11 |
| General Data                       | 11 |
| Packing                            | 13 |

## P2 V23079 Relay

2 pole telecom / 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

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

### Features

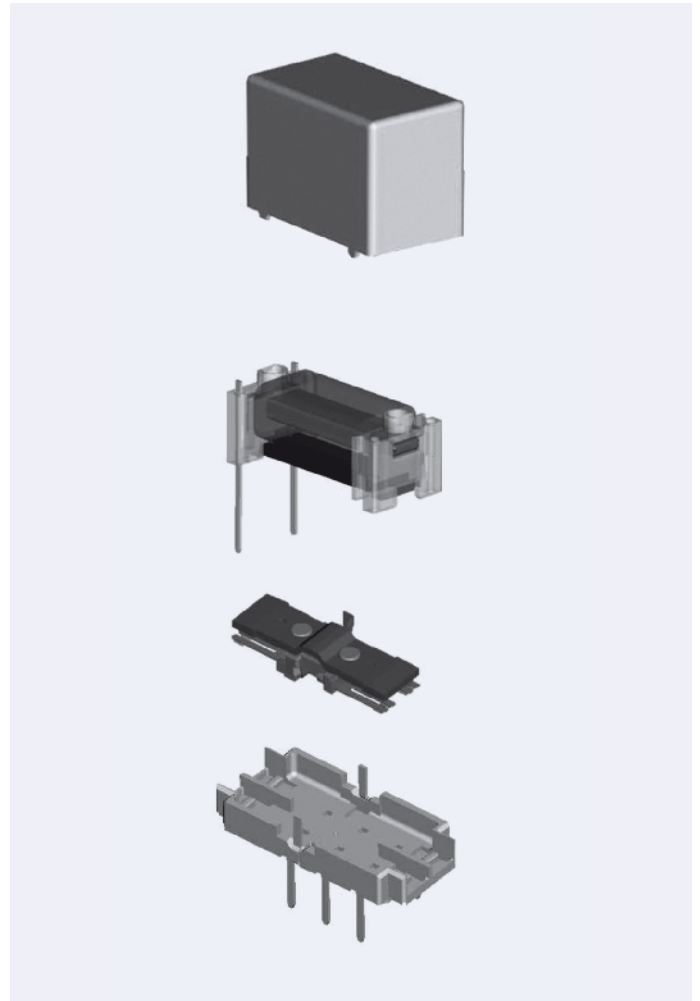
- Standard telecom relay (ringing and test access)
- Slim line 15 x 7.5 mm, 0.590 x 0.295 inch
- Switching current 5 A
- 2 changeover contacts (2 form C / DPDT)
- Bifurcated contacts
- Immersion cleanable
- High sensitivity results in low nominal power consumption 140 mW for non-latching and latching 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<br>External: 2 |
| Flammability classification   | V-0                        |
| Maximum operating temperature | 85 °C                      |

## P2 V23079 Relay

### Dimensions

Dimensions in mm

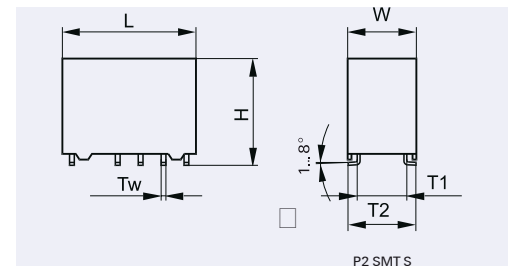
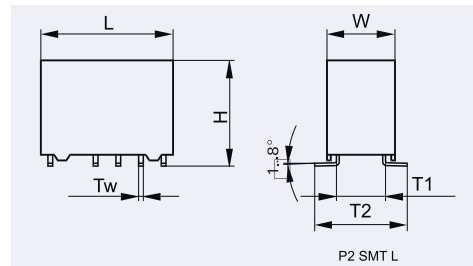
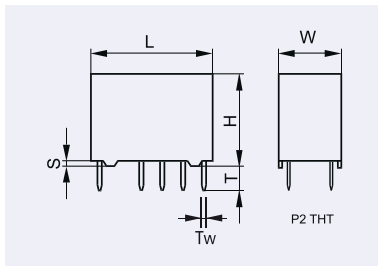
|    | THT<br>V23079-x1xxx-B301<br>standard coil |               | THT<br>V23079-x2xxx-B301<br>overmolded coil |               | SMT long terminals<br>V23079-x1xxx-B301<br>standard coil |               | SMT long terminals<br>V23079-x2xxx-B301<br>overmolded coil |               | SMT short terminals<br>V23079-x1xxx-B301<br>standard coil |               | SMT short terminals<br>V23079-x2xxx-B301<br>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   |
| 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



Coplanarity ≤ 0.1mm

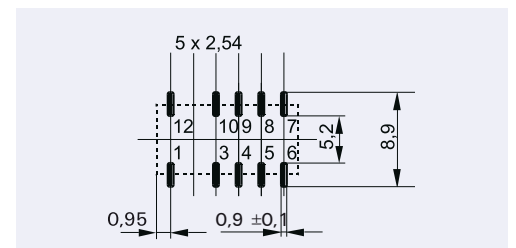
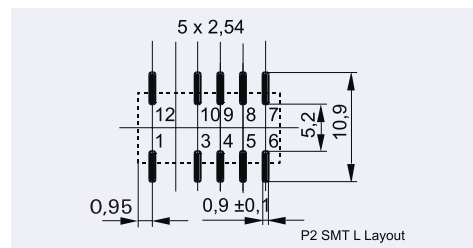
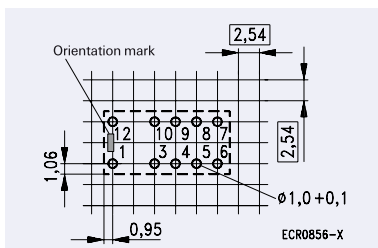
Coplanarity ≤ 0.1mm

### Mounting hole layout

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

### Solder pad 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

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

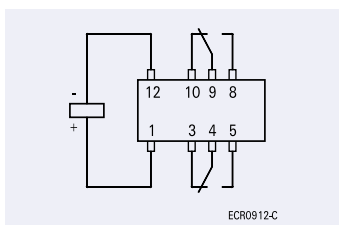
Note: Solder pad for pin 6 and 7 only for latching with 2 coils

### Terminal assignment

Relay – top view

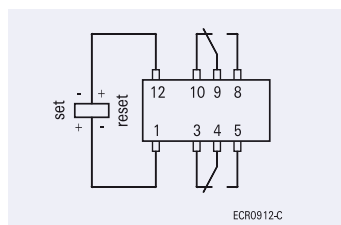
#### Non-latching type

not energized condition



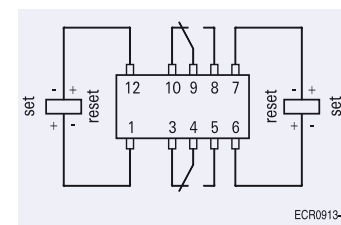
#### Latching type,

reset condition



#### Latching, 2 coils

reset condition

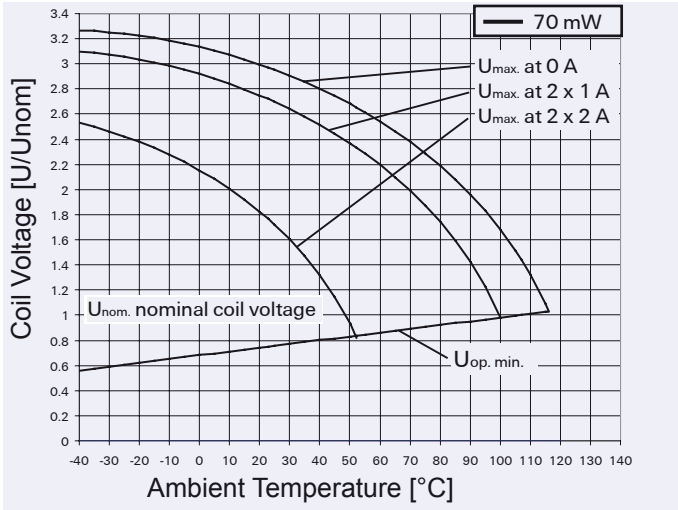


Contacts in reset position. Both coils can be used either as set or reset coils.

Latching type: Contacts in reset position. Contact position might change during transportation and must be reset before use.

## P2 V23079 Relay

### Coil Operating Range



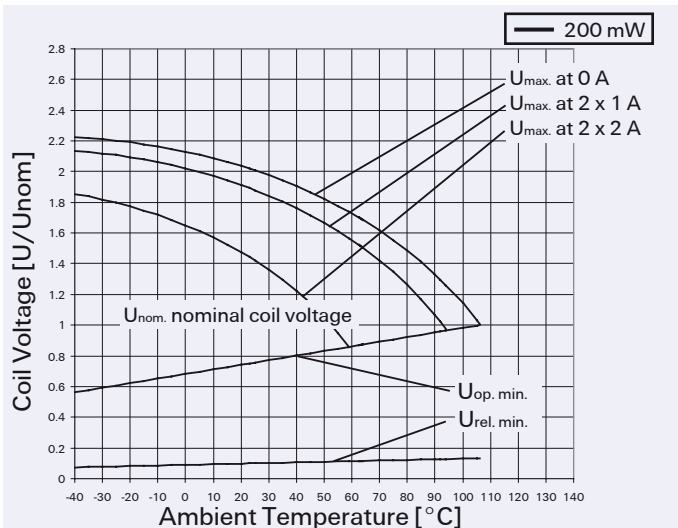
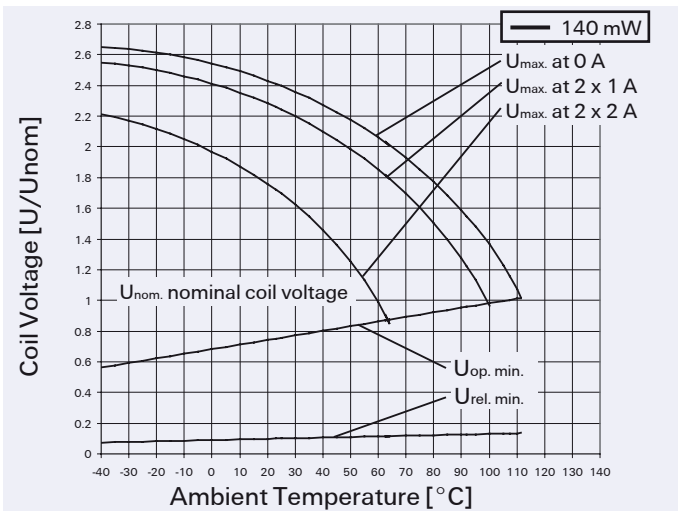
U<sub>nom</sub> = Nominal coil voltage

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

|   |  |                             |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
|---|--|-----------------------------|-------------------|---------------------------|---------------------------|-------------|-------------|-------------|-----------------------------|-----------|-----------|-----------|-----------|-----------|-------------|-----------|-----------|-----------|------------|------------|-----------|------------|------------|-----------|--|--|------------|--|--|------------|--|--|--|--|--|
| <p>Identification of the Miniature Relay P2</p>   | <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> | V                           | 2                 | 3                         | 0                         | 7           | 9           |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| V   | 2  | 3                           | 0                 | 7                         | 9                         |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| <p>Relay type</p> <p>THT version</p> <p>A = non-latching, 1 coil</p> <p>B = latching, 2 coils</p> <p>C = latching, 1 coil</p>   | <p>SMT version with long terminals</p> <p>D = non-latching, 1 coil</p> <p>E = latching, 2 coils</p> <p>F = latching, 1 coil</p>  |                             |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| <p>SMT version with short terminals</p> <p>G = non-latching, 1 coil</p> <p>H = latching, 2 coils</p> <p>J = latching, 1 coil</p>  |  |                             |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| <p>Coil type</p> <p>1 = standard coil; B1, E1, F1, J1, H1</p> <p>2 = overmolded coil, A1*, A2, C1*, D1*, D2, G1*, G2</p> <p>(only non latching versions, i.e. relay type A, D, G)</p> <p>*both standard and overmolded coil possible</p>  |  |                             |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| <p>Coil number</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Non Latching, 1 coil</td> <td style="width: 33%;">Latching, 1 coil</td> <td style="width: 33%;">Latching, 2 coils</td> </tr> <tr> <td>008 = 3 V nominal voltage</td> <td>108 = 3 V nominal voltage</td> <td>219 = 2.0 V</td> </tr> <tr> <td>011 = 4.5 V</td> <td>111 = 4.5 V</td> <td>218 = 2.4 V nominal voltage</td> </tr> <tr> <td>001 = 5 V</td> <td>101 = 5 V</td> <td>208 = 3 V</td> </tr> <tr> <td>002 = 6 V</td> <td>102 = 6 V</td> <td>211 = 4.5 V</td> </tr> <tr> <td>006 = 9 V</td> <td>106 = 9 V</td> <td>201 = 5 V</td> </tr> <tr> <td>003 = 12 V</td> <td>103 = 12 V</td> <td>202 = 6 V</td> </tr> <tr> <td>005 = 24 V</td> <td>105 = 24 V</td> <td>206 = 9 V</td> </tr> <tr> <td></td> <td></td> <td>203 = 12 V</td> </tr> <tr> <td></td> <td></td> <td>205 = 24 V</td> </tr> </table> | Non Latching, 1 coil   | Latching, 1 coil            | Latching, 2 coils | 008 = 3 V nominal voltage | 108 = 3 V nominal voltage | 219 = 2.0 V | 011 = 4.5 V | 111 = 4.5 V | 218 = 2.4 V nominal voltage | 001 = 5 V | 101 = 5 V | 208 = 3 V | 002 = 6 V | 102 = 6 V | 211 = 4.5 V | 006 = 9 V | 106 = 9 V | 201 = 5 V | 003 = 12 V | 103 = 12 V | 202 = 6 V | 005 = 24 V | 105 = 24 V | 206 = 9 V |  |  | 203 = 12 V |  |  | 205 = 24 V |  |  |  |  |  |
| Non Latching, 1 coil  | Latching, 1 coil   | Latching, 2 coils           |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| 008 = 3 V nominal voltage   | 108 = 3 V nominal voltage  | 219 = 2.0 V                 |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| 011 = 4.5 V   | 111 = 4.5 V  | 218 = 2.4 V nominal voltage |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| 001 = 5 V   | 101 = 5 V  | 208 = 3 V                   |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| 002 = 6 V   | 102 = 6 V  | 211 = 4.5 V                 |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| 006 = 9 V   | 106 = 9 V  | 201 = 5 V                   |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| 003 = 12 V  | 103 = 12 V   | 202 = 6 V                   |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| 005 = 24 V  | 105 = 24 V   | 206 = 9 V                   |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
|   |  | 203 = 12 V                  |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
|   |  | 205 = 24 V                  |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| <p>Contact arrangement / material</p> <p>B301 = 2 changeover contacts; silver nickel, gold-plated, against silver nickel, gold-plated</p> <p>B201 = 2 changeover contacts; silver palladium, gold-plated, against silver palladium</p>  |  |                             |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |
| <p>Ordering example: V23079-D2001-B301</p> <p>Miniature relay P2 SMT version with long terminals (overmolded coil), non-latching, 1 coil, 5 V nominal voltage, 2 changeover contacts, silver nickel gold-covered contacts</p>   |  |                             |                   |                           |                           |             |             |             |                             |           |           |           |           |           |             |           |           |           |            |            |           |            |            |           |  |  |            |  |  |            |  |  |  |  |  |

## P2 V23079 Relay

### Coil Data (values at 23 °C)

### Ordering Information

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

#### THT Standard, non-latching, standard 1 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 1 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, standard 2 coils

|     |       |       |       |     |      |                   |             |
|-----|-------|-------|-------|-----|------|-------------------|-------------|
| 2.4 | 1.80  | 5.20  | 1.80  | 140 | 41   | V23079-B1218-B301 | 1422002-8   |
| 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, overmolded 2 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, standard 1 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 1 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-D1011-B301 | 6-1393788-2 |
| 5   | 3.75  | 10.90 | 0.50 | 140 | 178  | V23079-D1001-B301 | 5-1393788-5 |
| 6   | 4.50  | 13.00 | 0.60 | 140 | 257  | V23079-D1002-B301 | 5-1393788-6 |
| 9   | 6.75  | 19.60 | 0.90 | 140 | 578  | V23079-D1006-B301 | 5-1393788-9 |
| 12  | 9.00  | 26.15 | 1.20 | 140 | 1029 | V23079-D1003-B301 | 5-1393788-7 |
| 24  | 18.00 | 52.30 | 2.40 | 140 | 4114 | V23079-D1005-B301 | 5-1393788-8 |

Further coil versions are available on request.

## P2 V23079 Relay

### Coil Data (values at 23 °C)

### Ordering Information

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

#### SMT long pins, non-latching, overmolded 1 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 |

#### SMT long pins, latching, standard 2 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, standard 1 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 | 1-1393789-4 |
| 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 | 7-1393788-4 |
| 24  | 18.00 | 74.00 | -18.00 | 70 | 8228 | V23079-F1105-B301 | 1-1393789-1 |

#### SMT short pins, non-latching, standard 1 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 |

Further coil versions are available on request.



## P2 V23079 Relay

### Coil Data (values at 23 °C)

### Ordering Information

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

#### SMT short pins, non-latching, overmolded 1 coil

|     |      |       |      |     |      |                   |             |
|-----|------|-------|------|-----|------|-------------------|-------------|
| 3   | 2.25 | 6.50  | 0.30 | 140 | 64   | V23079-G2008-B301 | 5-1393789-4 |
| 4   | 3.00 | 8.70  | 0.40 | 140 | 114  | V23079-G2016-B301 | 1393790-5   |
| 4.5 | 3.38 | 9.80  | 0.45 | 140 | 145  | V23079-G2011-B301 | 5-1393789-5 |
| 5   | 3.75 | 10.90 | 0.50 | 140 | 178  | V23079-G2001-B301 | 4-1393789-9 |
| 6   | 4.50 | 13.00 | 0.60 | 140 | 257  | V23079-G2002-B301 | 5-1393789-0 |
| 9   | 6.75 | 19.60 | 0.90 | 140 | 578  | V23079-G2006-B301 | 5-1393789-3 |
| 12  | 9.00 | 26.15 | 1.20 | 140 | 1029 | V23079-G2003-B301 | 5-1393789-1 |

#### SMT short pins, latching, standard 2 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 short pins, latching, standard 1 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 | 2-1393789-7 |
| 24  | 18.00 | 74.00 | -18.00 | 70 | 8228 | V23079-J1105-B301 | 2-1393789-8 |

### High Dielectric Version

#### SMT short pins, non-latching, overmolded 1 coil

|    |      |       |      |     |     |                   |           |
|----|------|-------|------|-----|-----|-------------------|-----------|
| 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 |

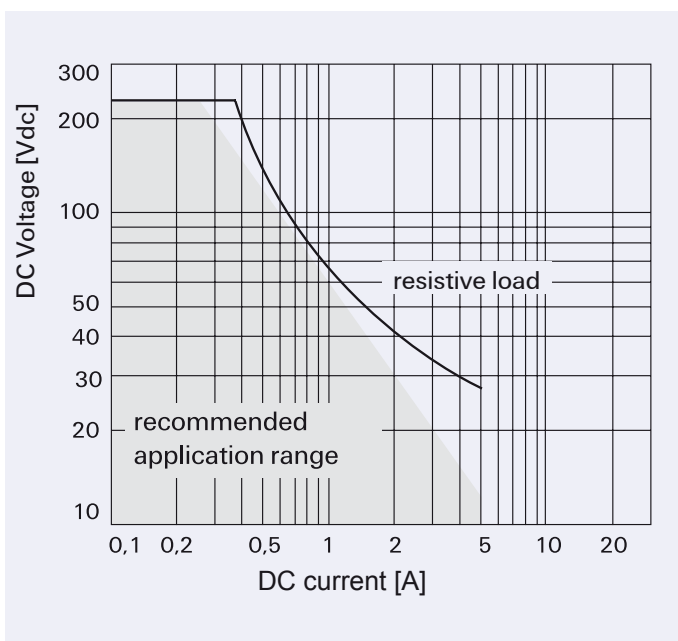
Further coil versions are available on request.

## 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<br>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<br>at 12 V / 10 mA<br>at 6 V / 100 mA<br>at 60 V / 500 mA<br>at 30 V / 1000 mA<br>at 30 V / 2000 mA | typ. $5 \times 10^7$ operations<br>typ. $1 \times 10^7$ operations<br>typ. $5 \times 10^5$ operations<br>typ. $1 \times 10^6$ operations<br>typ. $2 \times 10^5$ operations |
| Mechanical endurance   | typ. $10^8$ operations  |
| UL contact ratings   | 220 Vdc / 0.24 A - 60 W<br>125 Vdc / 0.24 A - 30 W<br>250 Vac / 0.25 A - 62.5 VA<br>125 Vac / 0.5 A - 62.5 VA<br>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)    | 1500 Vrms           | 1500 Vrms               |
| between adjacent contact sets                    | 1000 Vrms           | 1500 Vrms               |
| between open contacts                            | 1000 Vrms           | 1500 Vrms               |
| Surge voltage resistance                         |                     |                         |
| according to Telcordia TR-NWT-001089 (2 / 10 μs) |                     |                         |
| between coil and contacts (Relay with 1 coil)    | 2500 V              | 2500 V                  |
| between adjacent contact sets                    | 2500 V              | 2500 V                  |
| between open contacts                            | 2000 V              | 2500 V                  |
| according to (10/700 μs IEC 60950)               |                     |                         |
| between coil and contacts (Relay with 1 coil)    | 2500 V              | 2500 V                  |
| between adjacent contact sets                    | 2500 V              | 2500 V                  |
| between open contacts                            | 2000 V              | 2500 V                  |
| Insulation according to IEC / EN 60950           | Basic insulation    |                         |
| Clearance  | 1.3 mm              |                         |
| Creepage distance                                | 2.5 mm              |                         |

### High Frequency Data

|                                     |                       |
|-------------------------------------|-----------------------|
| Capacitance                         |                       |
| between coil and contacts           | max. 2 pF             |
| between adjacent contact sets       | max. 1.5 pF           |
| between open contacts               | max. 1 pF             |
| RF Characteristics                  |                       |
| Isolation at 100 MHz / 900 MHz      | - 39.0 dB / - 20.7 dB |
| Insertion loss at 100 MHz / 900 MHz | - 0.02 dB / - 0.27 dB |
| V.S.W.R. at 100 MHz / 900 MHz       | 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                             |
| Duration of set / reset pulse (latching) min.                      | 20ms*                                   |
| 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<br>10 to 1000 Hz                   |
| Shock resistance, half sinus, 11 ms                                | 50 G (function)<br>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                           |

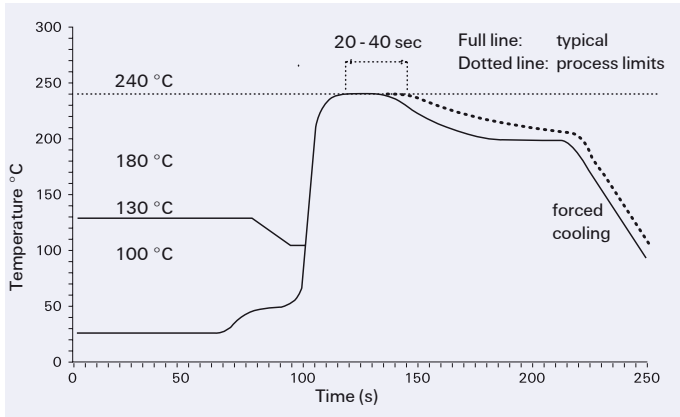
\* Duration may be shorter depending on pulse shape, voltage applied and ambiente temperature

All data refers to 23 °C unless otherwise specified.

## P2 V23079 Relay

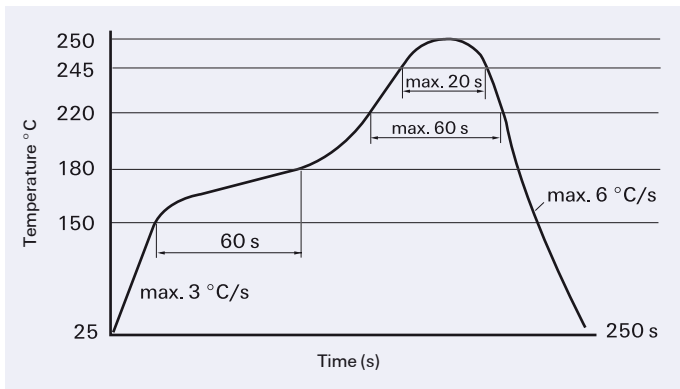
### Recommended Soldering Conditions

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



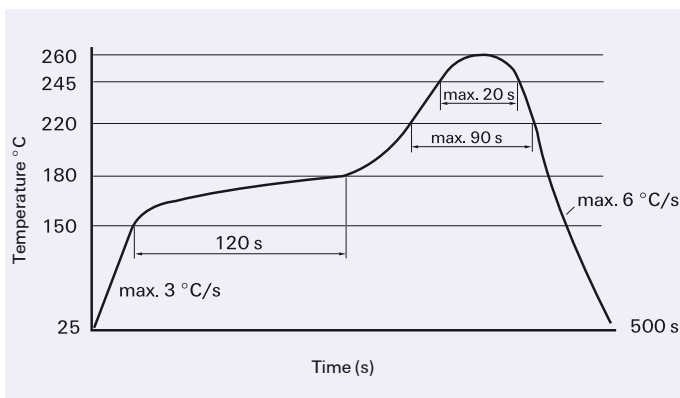
Vapor Phase Soldering: Temperature/Time Profile (Lead and Housing Peak Temperature)

### Recommended reflow soldering profile



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

### Resistance to soldering heat - Reflow profile

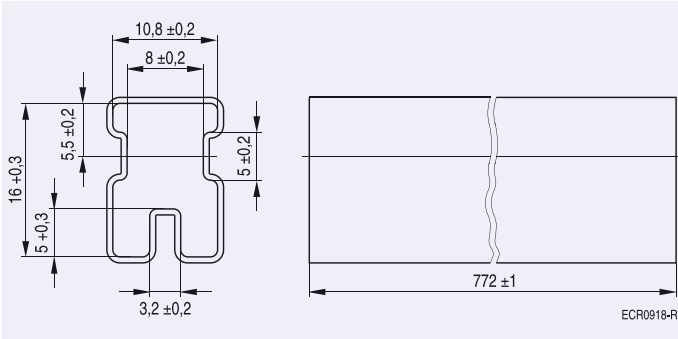


Infrared Soldering: Temperature/Time Profile (Lead and Housing Peak Temperature)

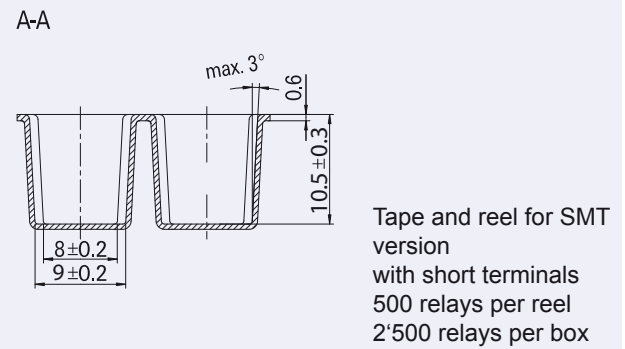
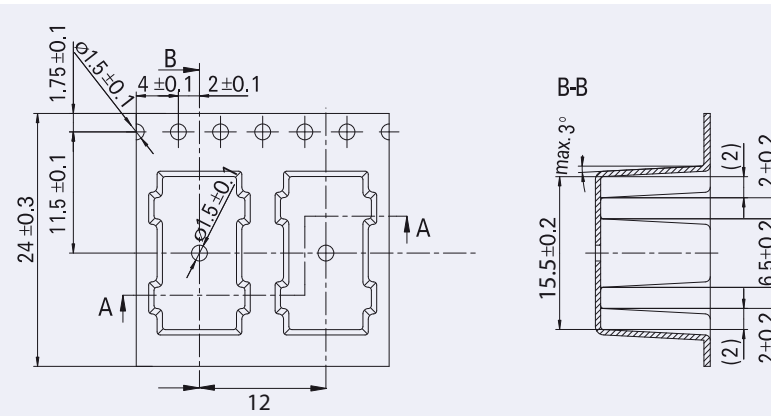
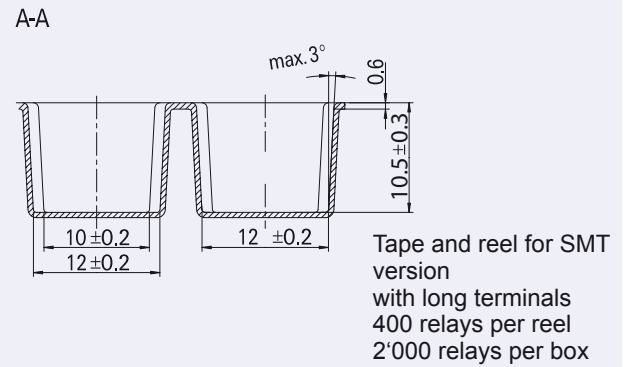
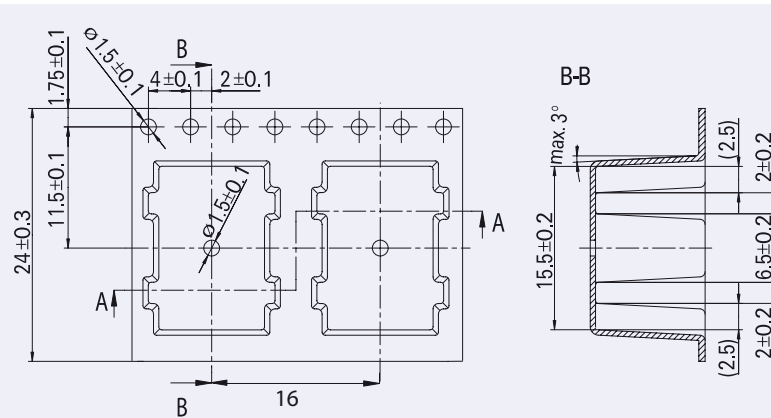
## P2 V23079 Relay

### Packing

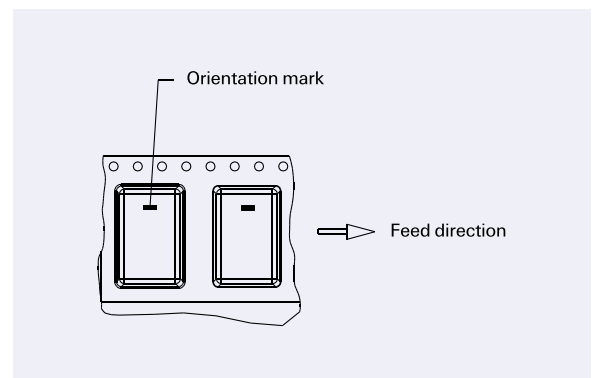
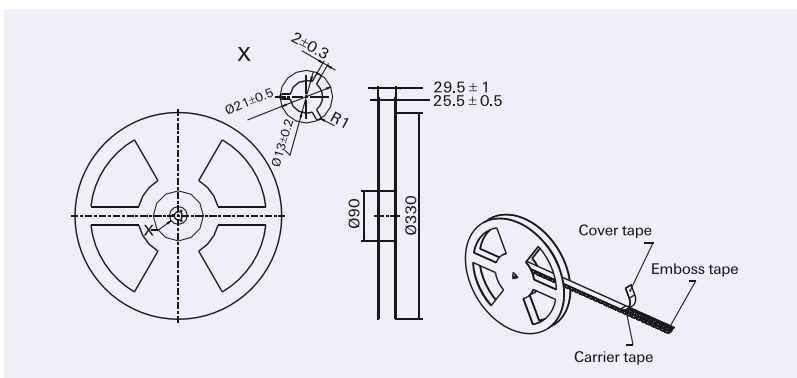
Dimensions in mm



Tube for THT version  
50 relays per tube  
2'000 relays per box



### Reel dimension



## P2 V23079 Relay

### 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](mailto: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](mailto:axicom@tycoelectronics.com)



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