

## P1 Relay V23026

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

### Typical applications

Automotive equipment, CAN bus, immobilizer, office equipment, measurement and control equipment, medical equipment, safety equipment

### Approvals

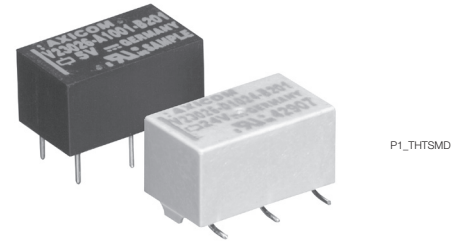
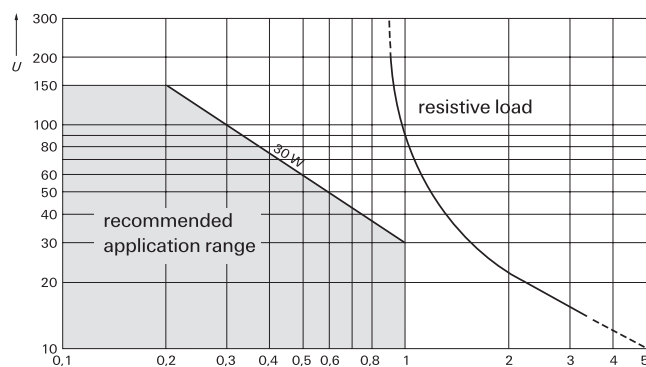
UL 508 File No. E 111441

Technical data of approved types on request

### Contact Data

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

### Max. DC load breaking capacity



P1\_THTSMD



### Coil Data

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

### Coil versions, THT, monostable

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

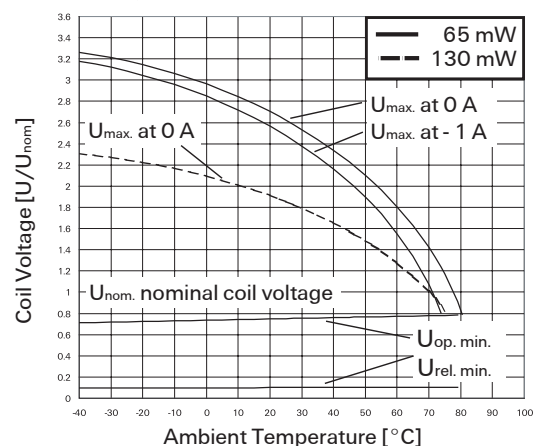
All figures are given for coil without pre-energization, at ambient temperature +23°C.

### Coil versions, SMT, monostable

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

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

### Coil operative range, monostable DC coil



**P1 Relay V23026** (Continued)

**Coil data** (continued)

**Coil versions, THT and SMT, bistable 2 coils**

| Coil code        | Rated voltage VDC | Set voltage VDC | Reset voltage VDC | Coil resistance $\Omega \pm 10\%$ | Rated coil power mW |
|------------------|-------------------|-----------------|-------------------|-----------------------------------|---------------------|
| 106              | 3                 | 2.25            | 2.25              | 130                               | 69                  |
| 101              | 5                 | 3.75            | 3.75              | 390                               | 64                  |
| 105              | 9                 | 6.75            | 6.75              | 1200                              | 68                  |
| 102              | 12                | 9.00            | 9.00              | 1500                              | 96                  |
| 24 <sup>1)</sup> |                   |                 |                   |                                   |                     |

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

Coils I and II are identical.

<sup>1)</sup> A nominal voltage of 24VDC is feasible with a 12VDC coil with a series resistor (1500 $\Omega$ )

**Coil data** (continued)

**Coil versions, THT, bistable 1 coil**

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

**Coil data** (continued)

**Coil versions, SMT, bistable 1 coil**

| Coil code | Rated voltage VDC | Set voltage VDC | Reset voltage VDC | Coil resistance $\Omega \pm 10\%$ | Rated coil power mW |
|-----------|-------------------|-----------------|-------------------|-----------------------------------|---------------------|
| 051       | 5                 | 3.75            | -3.75             | 740                               | 34                  |
| 052       | 12                | 9.00            | -9.00             | 4500                              | 32                  |

A nominal voltage of 24V is feasible with a 12V coil with a series resistor (4500 $\Omega$ )

Other coil voltages on request

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

Coils I and II are identical.

**Insulation Data**

|                                 |                      |
|---------------------------------|----------------------|
| Initial dielectric strength     |                      |
| between open contacts           | 500V <sub>rms</sub>  |
| between contact and coil        | 1500V <sub>rms</sub> |
| Initial surge withstand voltage |                      |
| between contact and coil        | 2500V                |
| Capacitance                     |                      |
| between open contacts           | max. 5pF             |
| between contact and coil        | max. 6pF             |
| Clearance/creepage              |                      |
| between contact and coil        | 0.75mm               |
| between adjacent contacts       | 0.75mm               |

**RF Data**

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

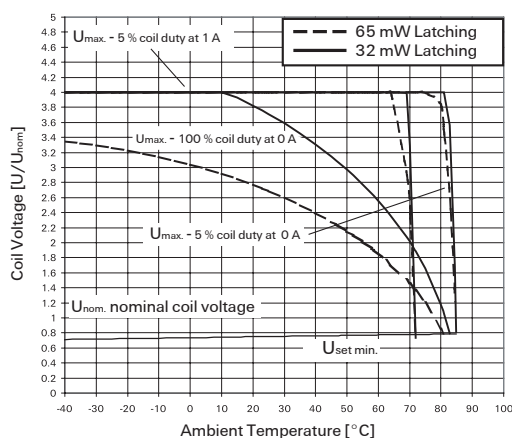
**Other Data**

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at [www.te.com/customer-support/rohssupportcenter](http://www.te.com/customer-support/rohssupportcenter)

|                                                 |                                        |
|-------------------------------------------------|----------------------------------------|
| Ambient temperature                             | -40 to +85°C                           |
| Category of environmental protection, IEC 61810 | RT III - washt tight                   |
| Vibration resistance (functional)               | 20g, 200 to 2000Hz<br>40g, 10 to 200Hz |
| Shock resistance (functional)                   |                                        |
| IEC 60068-2-27 (half sine)                      | 50 g                                   |
| Terminal type                                   | PCB terminals and SMT terminals        |
| Weight                                          | max. 2g                                |
| Resistance to soldering heat THT                |                                        |
| IEC 60068-2-20                                  | 265 °C/10s                             |
| Moisture sensitive level, JEDEC J-Std-020D      | MSL3                                   |
| Washing                                         | not recommended                        |
| Ultrasonic cleaning                             | possible                               |
| Packaging unit                                  |                                        |
| THT                                             | 2000 pcs.                              |
| SMT                                             | 2400 pcs.                              |

**Coil operative range, bistable**

$U_{max}$  upper limit of the operative range of the coil voltage (limiting voltage) when coils are



continuously energized.

$U_{op min}$  lower limit of the operative range of the coil voltage (reliable operate voltage).

$U_{rel min}$  lower limit of the operative range of the coil voltage (reliable release voltage).

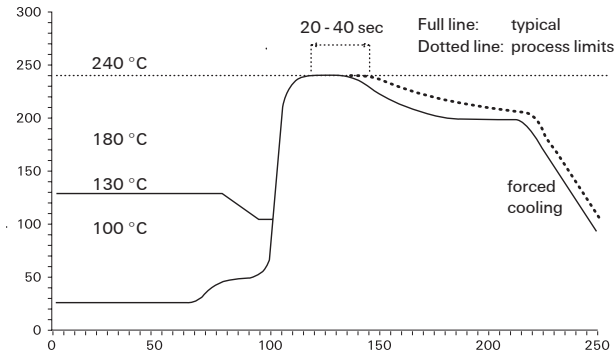


**P1 Relay V23026** (Continued)

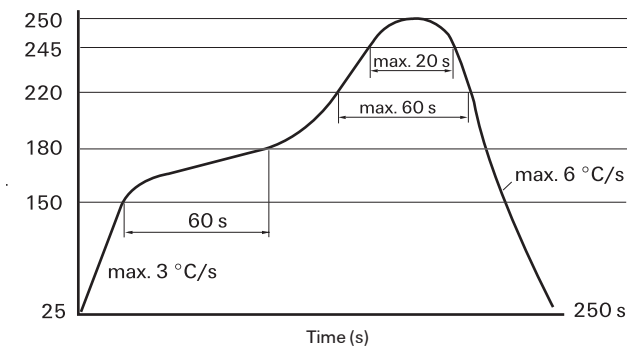
**Processing**

Recommended soldering conditions

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

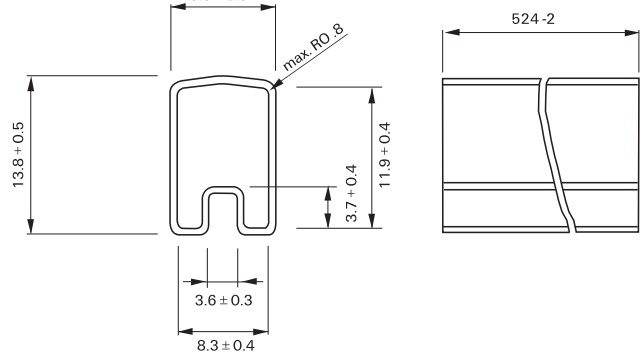


Recommended reflow soldering profile

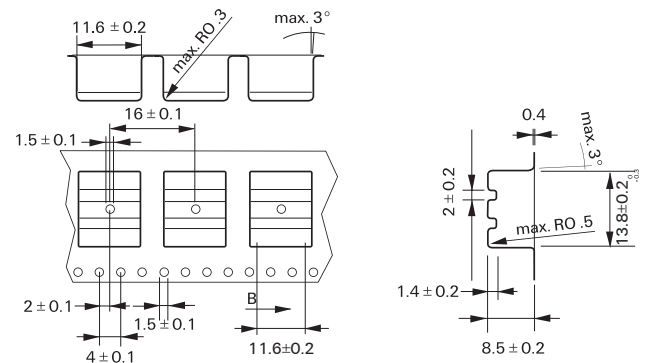


**Packing**

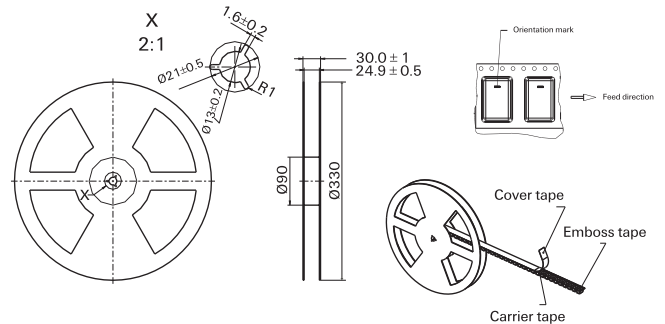
Tube for THT version  
40 relays per tube, 2000 relays per box



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



Reel dimensions



**P1 Relay V23026** (Continued)

**Product code structure**

Typical product code

**V23026**
**A1**
**002**
**B201**
**Type**
**V23026** P1 Series Signal Relay

**Version**
**A1** THT, monostable

**D1** SMT, monostable

**B1** THT, bistable (latching), 2 coils

**E1** SMT, bistable (latching), 2 coils

**C1** THT, bistable (latching), 1 coil

**F1** SMT, bistable (latching), 1 coil

**Coil**

Coil code: please refer to coil versions table

**Contacts**
**B201** 1 form C, 1 CO

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