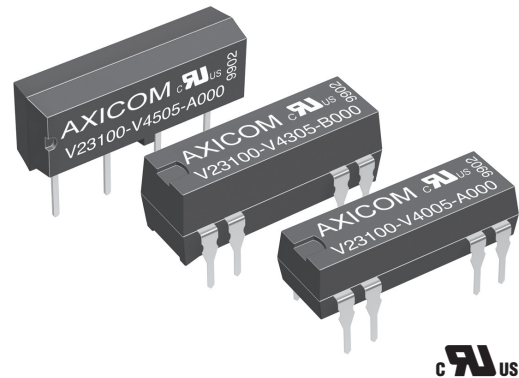


## Reed Relay V23100 -V4

- Direct coil control with TTL-signals possible
- Highly reliable switching
- High switching rates
- Ultrasonic cleanable
- High vibration and shock resistance

### Typical applications

In-circuit tester, measuring and control systems, telecom equipment, alarm and security equipment.



### Approvals

UL File No. 111441

Technical data of approved types on request.

| Contact Data                                         | form A                              | form C                 |
|------------------------------------------------------|-------------------------------------|------------------------|
| Contact arrangement                                  | 1 form A (1 NO),<br>2 form A (2 NO) | 1 form C (CO)          |
| Max. switching voltage<br>at rated coil voltage 5VDC | 200VDC/VAC <sub>peak</sub>          | 175VDC                 |
| at rated coil voltage 12 to 24VDC                    | 200VDC/VAC <sub>peak</sub>          | 175VDC <sub>peak</sub> |
| Limiting continuous current                          | 1A                                  | 1.2A                   |
| Switching power                                      | 10W, 10VA                           | 3W, 3VA                |
| Contact material                                     | Ruthenium                           |                        |
| Contact style                                        | reed contact                        |                        |
| Initial contact resistance                           | <150mΩ                              |                        |
| Operate / release time max.                          | 0.75/0.15ms                         | 1.1/1.6ms              |
| Electrical endurance<br>at 12V/10mA                  | 50x10 <sup>6</sup> operations       |                        |
| at 24V/400mA                                         | 5x10 <sup>6</sup> operations        |                        |

### Coil Data

|                       |            |
|-----------------------|------------|
| Magnetic system       | neutral    |
| Coil voltage range    | 5 to 24VDC |
| Max. coil temperature | 105°C      |
| Thermal resistance    | < 75K/W    |

### Coil versions, 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 |
|---------------------------------------------------|-------------------|-------------------------------------|-------------------------------------|-----------------------|---------------------|
| <b>1 form A (1 NO) contact</b>                    |                   |                                     |                                     |                       |                     |
| 05                                                | 5VDC              | 3.5                                 | 0.75                                | 500                   | 50                  |
| 12                                                | 12VDC             | 8.4                                 | 1.80                                | 1000                  | 144                 |
| 15                                                | 15VDC             | 10.5                                | 2.25                                | 2000                  | 112                 |
| 24                                                | 24VDC             | 16.8                                | 3.60                                | 2000                  | 288                 |
| <b>2 form A (2 NO) or 1 form C (1 CO) contact</b> |                   |                                     |                                     |                       |                     |
| 05                                                | 5VDC              | 3.5                                 | 0.75                                | 200                   | 125                 |
| 12                                                | 12VDC             | 8.4                                 | 1.80                                | 500                   | 288                 |
| 15                                                | 15VDC             | 10.5                                | 2.25                                | 2000                  | 112                 |
| 24                                                | 24VDC             | 16.8                                | 3.60                                | 2000                  | 288                 |

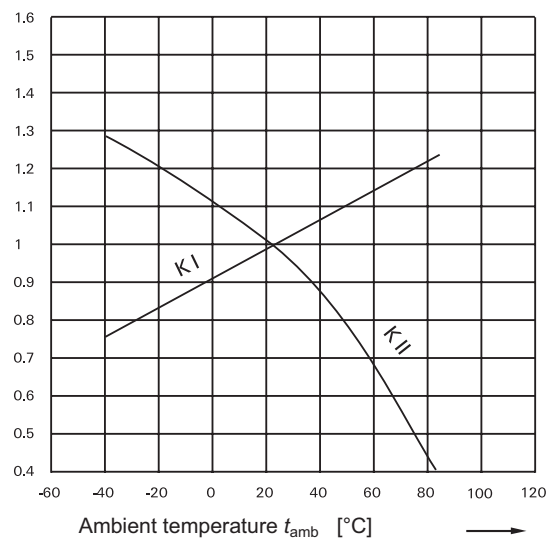
All figures are given for coil without pre-energization, at ambient temperature +23°C.

### Coil Data (continued)

#### Coil versions, limiting operate voltage

| Coil code | DIP flat, SIL, 1 form A | DIP flat, 1 form A with diode | DIP high 1 form C | DIP high 2 form A std, diode | DIP high 1 form C diode+ shield | Mini SIL 1 form A |
|-----------|-------------------------|-------------------------------|-------------------|------------------------------|---------------------------------|-------------------|
|           | VDC                     | VDC                           | VDC               | VDC                          | VDC                             | VDC               |
| 05        | 22.0                    | 14.0                          | 13.0              | 14.0                         | 14.5                            | 13.6              |
| 12        | 33.0                    | 25.0                          | 22.0              | 25.0                         | 23.5                            | 21.6              |
| 15        | 44.0                    | 47.0                          | 44.0              | 47.0                         | 14.5                            | -                 |
| 24        | 44.0                    | 47.0                          | 44.0              | 47.0                         | 49.0                            | -                 |

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



### Coil operative range

#### Coil operative range graphs

$U_I$  Minimum voltage at 23°C after pre-energizing with rated voltage without contact current

$U_{II}$  Maximum continuous voltage at 23°C

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

$U_{I \text{ t amb}}$   $K_I \times U_I$  23°C and

$U_{II \text{ t amb}}$   $K_{II} \times U_{II}$  23°C

t amb Ambient temperature

$U_{I \text{ t amb}}$  Minimum voltage at ambient temperature, t amb

$U_{II \text{ t amb}}$  Maximum voltage at ambient temperature, t amb

$K_I, K_{II}$  Factors (dependent on temperature), see diagram

## Reed Relay V23100 -V4 (Continued)

### Insulation Data

|                                             |                    |
|---------------------------------------------|--------------------|
| Initial dielectric strength                 |                    |
| between open contacts                       |                    |
| DIP and SIL, 1 form A (NO), 2 form A (2 NO) | 250VDC             |
| DIP, 1 form C (CO)                          | 200VDC             |
| Mini SIL, 1 form A (NO)                     | 225VDC             |
| between contact and coil                    | 1500VDC            |
| Initial insulation resistance at 500 VDC    | >10 <sup>9</sup> Ω |
| Capacitance                                 |                    |
| between open contacts                       | max. 1pF           |
| between contact and coil                    | max. 2pF           |
| between adjacent contacts                   | max. 1pF           |

### Other Data

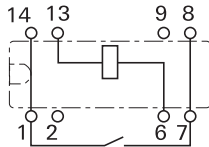
|                                                                                                                                                                                                                                         | form A            | form C            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|
| Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at <a href="http://www.te.com/customer-support/rohssupportcenter">www.te.com/customer-support/rohssupportcenter</a> |                   |                   |
| Ambient temperature                                                                                                                                                                                                                     | -40 to +85°C      |                   |
| Category of environmental protection                                                                                                                                                                                                    | IEC 61810         |                   |
| Vibration resistance (functional)                                                                                                                                                                                                       | 30g, 10 to 2000Hz | 30g, 50 to 2000Hz |
| Shock resistance (functional), IEC 60068-2-27 (half sine), DIP and SIL 150g                                                                                                                                                             | 50g               | -                 |
| Terminal type                                                                                                                                                                                                                           | PCB-THT           |                   |
| Resistance to soldering heat THT                                                                                                                                                                                                        | 265 °C / 10 s     |                   |

### Terminal assignment

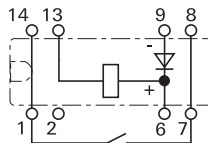
TOP view on component side of PCB

#### DIP, flat version

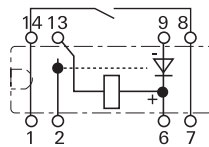
1 form A (NO)  
standard  
V23100-V4xxx-A000



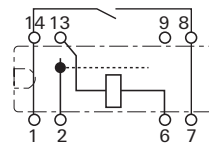
1 form A (NO)  
with diode  
V23100-V4xxx-A010



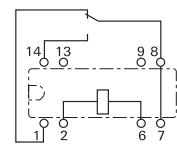
1 form A (NO)  
with electrostatic shield + diode  
V23100-V4xxx-A011



1 form A (NO)  
with electrostatic shield  
V23100-V4xxx-A001

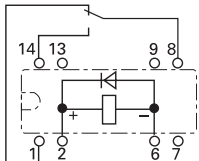


1 form C (CO)  
standard  
V23100-V4xxx-C000

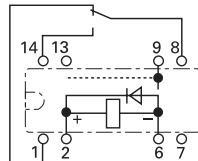


#### DIP, high version

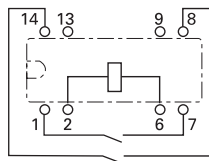
1 form C (CO)  
with diode  
V23100-V4xxx-C010



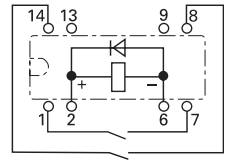
1 form C (CO)  
with electrostatic shield + diode  
V23100-V4xxx-C011



2 form A (NO)  
standard  
V23100-V43xx-B000

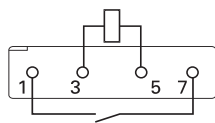


2 form A (NO)  
with diode  
V23100-V43xx-B010

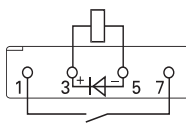


#### SIL version

1 form A (NO)  
standard  
V23100-V45xx-A000

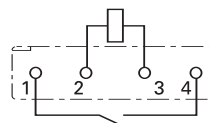


1 form A (NO)  
with diode  
V23100-V45xx-A010

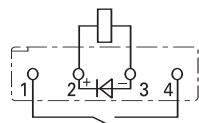


#### Mini SIL version

1 form A (NO)  
standard  
V23100-V46xx-A000



1 form A (NO)  
with diode  
V23100-V46xx-A010

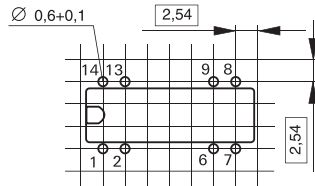


## Reed Relay V23100 -V4 (Continued)

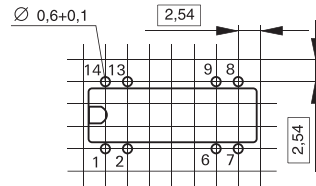
### PCB layout

TOP view on component side of PCB

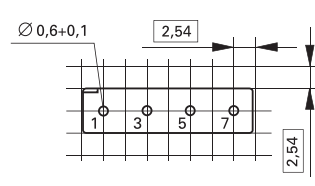
#### DIP, flat version



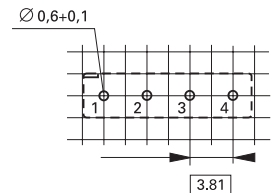
#### DIP, high version



#### SIL version

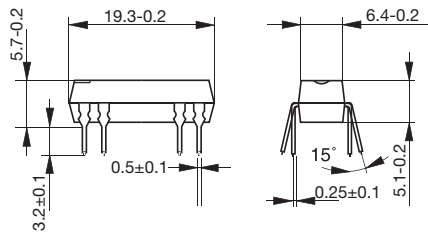


#### Mini SIL version

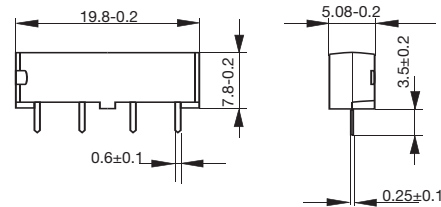


### Dimensions

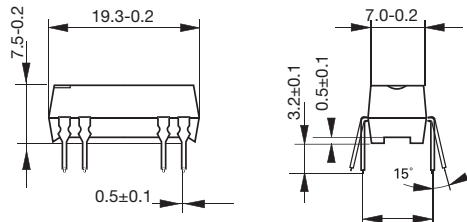
#### DIP, flat version



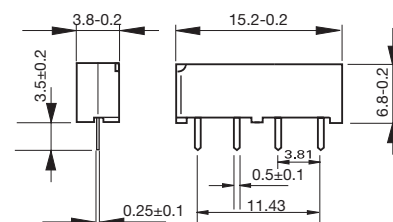
#### SIL version



#### DIP, high version



#### Mini SIL version



### Product code structure

Typical product code

**V23100-V4**

**0**

**05**

**A0**

**10**

#### Type

**V23100-V4** Reed Relay, V23100-V4 Series

#### Version

- 0** DIP flat, 1 form A (NO) contact or 1 form C (CO) contact without diode
- 3** DIP high, 2 form A (NO) or 1 form C (CO) contacts
- 5** SIL, 1 form A (NO) contact
- 6** Mini SIL, 1 form A (NO) contact

#### Coil

Coil code: please refer to coil versions table

- 05** 5VDC coil
- 12** 12VDC coil
- 15** 15VDC coil
- 24** 24VDC coil

#### Contact arrangement

- A0** 1 form A (NO) contact, DIP flat or SIL package
- B0** 2 form A (NO) contacts, DIP high package
- C0** 1 form C (CO) contact, DIP high package

#### Coil circuit

- 00** Standard
- 10** With diode
- 11** With diode and electrostatic shield

## Reed Relay V23100 -V4 (Continued)

| Product Code      | Version  | Coil        | Arrangement      | Diode/shield     | Part number |
|-------------------|----------|-------------|------------------|------------------|-------------|
| V23100-V4005-A000 | DIP flat | 5VDC        | 1 form A (NO)    | Standard         | 1393763-1   |
| V23100-V4012-A000 |          | 12VDC       |                  |                  | 1393763-6   |
| V23100-V4015-A000 |          | 15VDC       |                  |                  | 1-1393763-0 |
| V23100-V4024-A000 |          | 24VDC       |                  | 1-1393763-4      |             |
| V23100-V4005-A010 |          | 5VDC        |                  | Diode            | 1393763-4   |
| V23100-V4012-A010 |          | 12VDC       |                  |                  | 1393763-8   |
| V23100-V4015-A010 |          | 15VDC       | 1-1393763-2      |                  |             |
| V23100-V4024-A010 |          | 24VDC       |                  | 1-1393763-6      |             |
| V23100-V4305-C000 |          | 5VDC        | 1 form C (CO)    | Standard         | 2-1393763-0 |
| V23100-V4312-C000 |          | 12VDC       |                  |                  | 2-1393763-8 |
| V23100-V4315-C000 |          | 15VDC       |                  |                  | 3-1393763-4 |
| V23100-V4324-C000 |          | 24VDC       |                  |                  | 4-1393763-0 |
| V23100-V4005-A011 | DIP high | 5VDC        | 1 form A (NO)    | Diode and shield | 1393763-3   |
| V23100-V4012-A011 |          | 12VDC       |                  |                  | 1393763-9   |
| V23100-V4015-A011 |          | 15VDC       |                  |                  | 1-1393763-3 |
| V23100-V4024-A011 |          | 24VDC       |                  |                  | 1-1393763-7 |
| V23100-V4305-B000 |          | 5VDC        | 2 form A (NO)    | Standard         | 1-1393763-8 |
| V23100-V4312-B000 |          | 12VDC       |                  |                  | 2-1393763-6 |
| V23100-V4315-B000 |          | 15VDC       |                  |                  | 3-1393763-2 |
| V23100-V4324-B000 |          | 24VDC       |                  |                  | 3-1393763-8 |
| V23100-V4305-B010 |          | 5VDC        |                  | Diode            | 1-1393763-9 |
| V23100-V4312-B010 |          | 12VDC       |                  |                  | 2-1393763-7 |
| V23100-V4315-B010 |          | 15VDC       |                  |                  | 3-1393763-3 |
| V23100-V4324-B010 |          | 24VDC       |                  |                  | 3-1393763-9 |
| V23100-V4305-C010 |          | 5VDC        | 1 form C (CO)    |                  | 2-1393763-2 |
| V23100-V4312-C010 |          | 12VDC       |                  |                  | 3-1393763-0 |
| V23100-V4315-C010 |          | 15VDC       |                  |                  | 3-1393763-6 |
| V23100-V4324-C010 |          | 24VDC       |                  |                  | 4-1393763-2 |
| V23100-V4305-C011 | 5VDC     |             | Diode and shield | 2-1393763-3      |             |
| V23100-V4312-C011 | 12VDC    |             |                  | 3-1393763-1      |             |
| V23100-V4315-C011 | 15VDC    |             |                  | 3-1393763-7      |             |
| V23100-V4324-C011 | 24VDC    |             |                  | 4-1393763-3      |             |
| V23100-V4505-A000 | SIL      | 5VDC        | 1 form A (NO)    | Standard         | 4-1393763-4 |
| V23100-V4512-A000 |          | 12VDC       |                  |                  | 4-1393763-7 |
| V23100-V4515-A000 |          | 15VDC       |                  |                  | 4-1393763-9 |
| V23100-V4524-A000 |          | 24VDC       |                  | 5-1393763-1      |             |
| V23100-V4505-A010 |          | 5VDC        |                  | Diode            | 4-1393763-5 |
| V23100-V4512-A010 |          | 12VDC       |                  |                  | 4-1393763-8 |
| V23100-V4515-A010 | 15VDC    | 5-1393763-0 |                  |                  |             |
| V23100-V4524-A010 |          | 24VDC       |                  | 5-1393763-2      |             |
| V23100-V4605-A000 | Mini SIL | 5VDC        |                  | Standard         | 1422026-2   |
| V23100-V4612-A000 |          | 12VDC       |                  |                  | 1422026-3   |
| V23100-V4605-A010 |          | 5VDC        |                  | Diode            | 1422026-5   |
| V23100-V4612-A010 |          | 12VDC       |                  |                  | 1422026-6   |