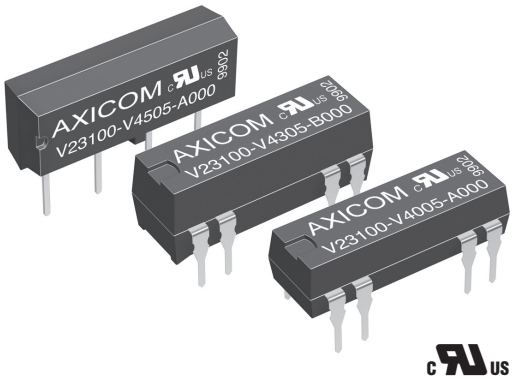
# Reed Relay V23100 -V4

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




Typical applications
Incircuit 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), 2 form A (2 NO) | 1 form C (CO) |
| Max. switching voltage | | |
| at rated coil voltage 5VDC | 200VDC/$VAC_{peak}$ | 175VDC |
| at rated coil voltage 12to 24VDC | 200VDC/$VAC_{peak}$ | 175$VDC_{peak}$ |
| 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 | | |
| at 12V/10mA | $50x10^6$ operations | |
| at 24V/400mA | $5x10^6$ 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 $VDC_{min.}$ | Release voltage $VDC_{min.}$ | Coil resistance Ω±10% | Rated coil power mW |
|---|---|---|---|---|---|
| **1 form A (1 NO) contact** | | | | | |
| 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 |
| **2 form A (2 NO) or 1 form C (1 CO) contact** | | | | | |
| 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 |

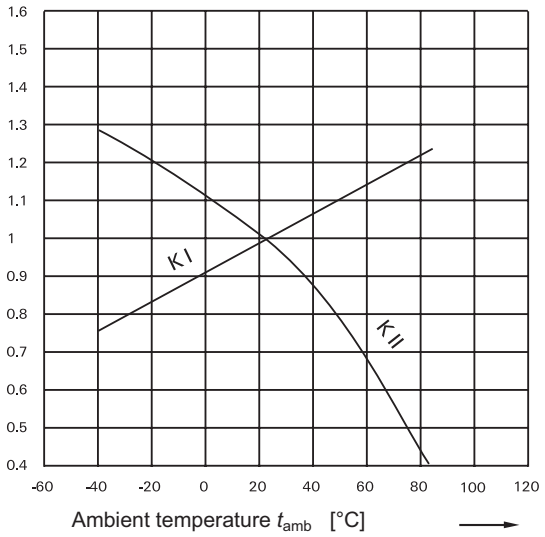
All figures are given for coil without pre-energization, at ambient temperature +23°C.

## 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 continous voltage at 23°C |
| | The operating voltage limits $U_I$ and $U_{II}$ depend on the temperature according to the formula: |
| $U_{I\ tamb}$ | $K_I x U_I$ 23°C and |
| $U_{II\ tamb}$ | $K_{II} x U_{II}$ 23°C |
| tamb | Ambient temperature |
| $U_{I\ tamb}$ | Minimum voltage at ambient temperature, tamb |
| $U_{II\ tamb}$ | Maximum voltage at ambient temperature, tamb |
| $K_I$ , $K_{II}$ | Factors (dependent on temperature), see diagram |



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## Reed Relay V23100 -V4 (Continued)

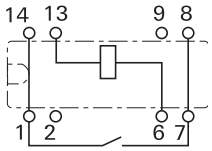
| Insulation Data | |
|---|---|
| Initial dielectric strength | |
| between open contacts | |
| DIP and SIL, 1 form A (NO), 2 form A (2 NO) | 250VDC |
| DIP, 1 form C (CO) | 200VDC |
| Mini SIL, 1 form A (NO) | 225VDC |
| between contact and coil | 1500VDC |
| Initial insulation resistance at 500 VDC | $>10^9\Omega$ |
| 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 www.te.com/customersupport/rohssupportcenter | | |
| Ambient temperature | -40 to +85°C | |
| Category of environmental protection | | |
| IEC 61810 | RT-III - wash tight | |
| 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 |
| Mini SIL | 50g | - |
| Terminal type | PCB-THT | |
| Resistance to soldering heat THT | | |
| IEC 60068-2-20 | 265 °C / 10 s | |

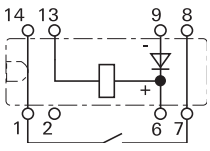
**Terminal assignment**
TOP view on component side of PCB

**DIP, flat version**

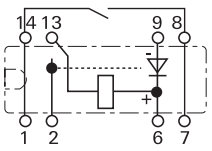
1 form A (NO)
standard
V23100-V4xxx-A000



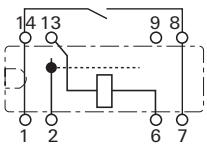

1 form A (NO)
with diode
V23100-V4xxx-A010



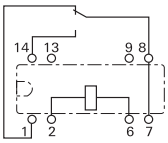

1 form A (NO)
with electrostatic shield + diode
V23100-V4xxx-A011




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

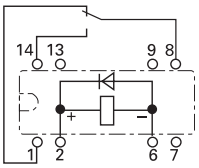



1 form C (CO)
standard
V23100-V4xxx-C000

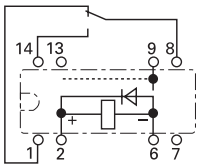



**DIP, high version**

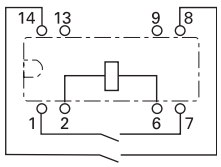
1 form C (CO)
with diode
V23100-V4xxx-C010



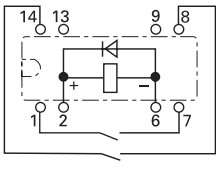

1 form C (CO)
with electrostatic shield + diode
V23100-V4xxx-C011




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

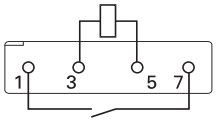



2 form A (NO)
with diode
V23100-V43xx-B010

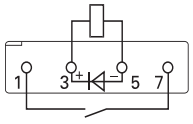



**SIL version**

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

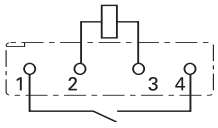



1 form A (NO)
with diode
V23100-V45xx-A010

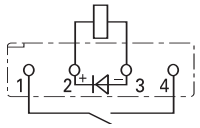



**Mini SIL version**

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




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



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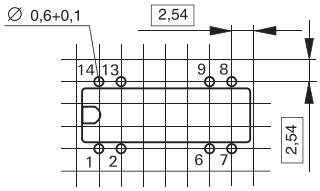
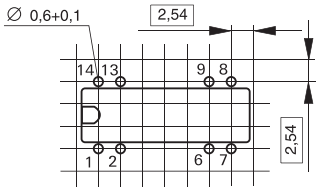
## Reed Relay V23100 -V4 (Continued)

**PCB layout**
TOP view on component side of PCB

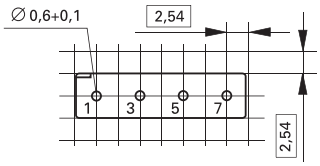
**DIP, flat version**



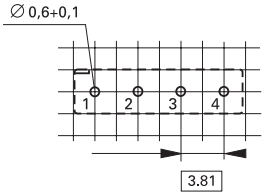

**DIP, high version**




**SIL version**

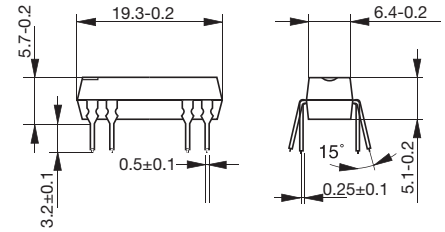



**Mini SIL version**

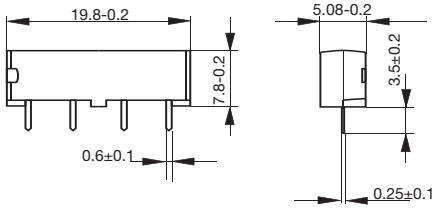



**Dimensions**

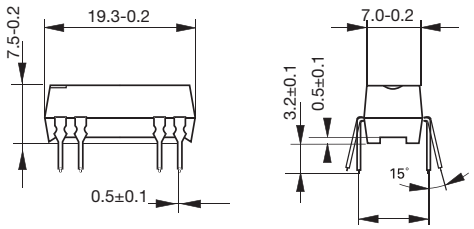
**DIP, flat version**



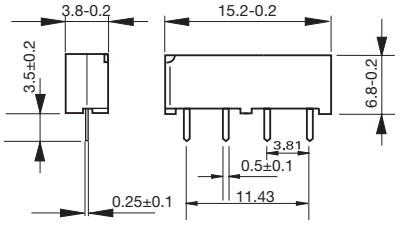

**SIL version**




**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 **15** 15VDC coil
**12** 12VDC 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



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## 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 | | 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 | DIP high | 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 |



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