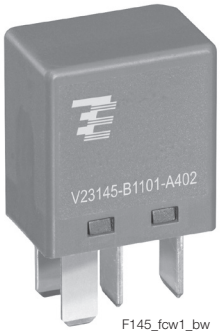
# Micro Relay Low Noise

- **Noise level below 50dBA**
- **Pin assignment according to ISO 7588 part 3**
- **Plug-in terminals**
- **Customized versions on request**
  - **– Special marking**
  - **– Special covers (e.g. notches, release features)**



F145_fcw1_bw

Typical applications
Cross carline up to 20A for example: front and rear wiper, air condition, interior fan.

## Contact Data

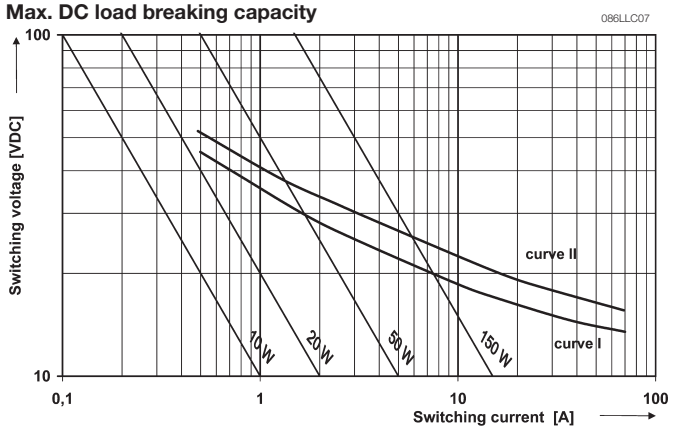
| | | |
|---|---|---|
| Contact arrangement | 1 form A, 1 NO | 1 form C, 1 CO |
| Rated voltage | 12VDC | 12VDC |
| Limiting continuous current | | NO/NC |
| 23°C | 20A | 20/15A |
| 85°C | 15A | 15/10A |
| 125°C | 8A | 8/5A |
| Limiting making current[1)] | 100A | 40A |
| Limiting breaking current[1)] | 30A | 30A |
| Limiting short-time current overload current, ISO 8820-3 [2)] | 1.35 x 20A, 1800s<br>2.00 x 20A, 5s<br>3.50 x 20A, 0.5s<br>6.00 x 20A, 0.1s | |
| Jump start test | 24VDC for 5min, conducting nominal current at 23°C | |
| Contact material | silver based | |
| Min. recommended contact load[3)] | 1A at 5VDC | |
| Initial voltage drop | | |
| NO contact at 10A, typ./max. | 15/300mV | 50/300mV |
| NC contact at 10A, typ./max. | - | 50/300mV |
| Frequency of operation | 6 ops./min (0.1Hz) | |
| Electrical endurance, resistive load at 14VDC | | |
| 15A | >1x10$^5$ ops. | |
| Mechanical endurance | typ. 10$^6$ ops. | |

1) The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5 VDC for 12VDC nominal voltages.
For a load current duration of maximum 3s for a make/break ratio of 1:10.

2) Current and time are compatible with circuit protection by a typical automotive fuse. Relay will make, carry and break the specified current.

3) See chapter Diagnostics of Relays in our Application Notes or consult the internet at http://relays.te.com/appnotes/

### Max. DC load breaking capacity




Load limit curve 1: arc extinguishes uring transit time.
Load limit curve 2: safe shutdown, no stationary arc.

## Coil Data

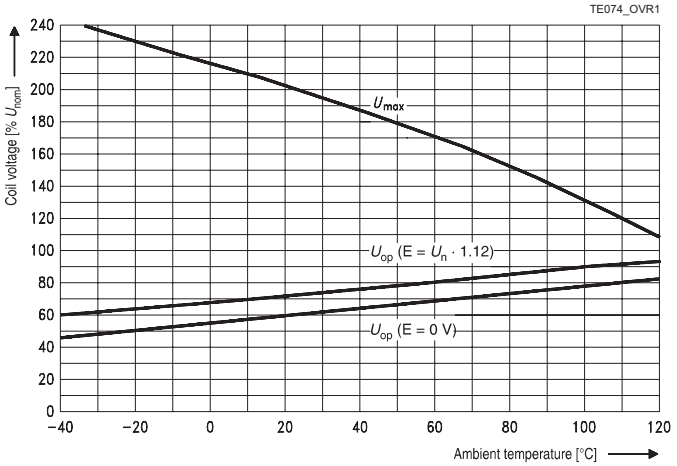
| | |
|---|---|
| Rated coil voltage | 12VDC |

**Coil versions, DC coil**

| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance[4)] Ω±10% | Rated coil power[4)] mW |
|---|---|---|---|---|---|
| *01-402 | 12 | 7.2 | 1.4 | 181 | 796 |
| *01-403 | 12 | 7.2 | 1.4 | 254 | 567 |

4) Without components in parallel.
All figures are given for coil without pre-energization, at ambient temperature +23°C.

### Coil operating range




Does not take into account the temperature rise due to the contact current
E = pre-energization.

## Insulation Data

| | |
|---|---|
| Initial dielectric strength | |
| between open contacts | 500VAC$_{rms}$ |
| between contact and coil | 500VAC$_{rms}$ |
| Load dump test | |
| ISO 7637-1 (12VDC), test pulse 5 | Vs=+86.5VDC |

## Micro Relay Low Noise (Continued)

| Other Data | |
|---|---|
| EU RoHS/ELV compliance | compliant |
| Ambient temperature | -40 to +125°C |
| Climatic cycling with condensation, | |
| EN ISO 6988 | 6 cycles, storage 8/16h |
| Temperature cycling, | |
| IEC 60068-2-14, Nb | 10 cycles, -40/+85°C (5°C/min) |
| Damp heat cyclic, | |
| IEC 60068-2-30, Db, Variant 1 | 6 cycles, upper air temp. 55°C |
| Damp heat constant, IEC 60068-2-3, Ca | 56 days |
| Category of environmental protection, | |
| IEC 61810 | RT I – dustproof |
| Degree of protection, IEC 60529 | IP54 |
| Corrosive gas | |
| IEC 60068-2-42 | 10±2cm³/m³ $SO_2$, 10 days |
| IEC 60068-2-43 | 1±0.3cm³/m³ $H_2S$, 10 days |
| Vibration resistance (functional) | |
| IEC 60068-2-6 (sine sweep) | 10 to 500Hz min.5g[5] |
| Shock resistance (functional) | |
| IEC 60068-2-27 (half sine) | min. 30g 6ms[5] |
| Drop test, free fall, IEC 60068-2-32 | 1m onto concrete |

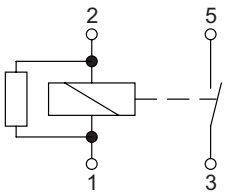
| Other Data (continued) | |
|---|---|
| Terminal type | plug-in, QC |
| Cover retention | |
| axial force | 150N |
| pull force | 150N |
| push force | 200N |
| Terminal retention | |
| pull force | 100N |
| push force | 100N |
| resistance to bending | 10N[6] |
| force applied to side | 10N[6] |
| torque | 0.3Nm |
| Weight | approx. 15g (0.5oz) |
| Packaging unit | 240 pcs. |

5) No change in the switching state >10µs. Valid for NC contacts, NO contact values significantly higher.
6) Values apply 2mm from the end of the terminal. When the force is removed, the terminal must not have moved by more than 0.3mm.

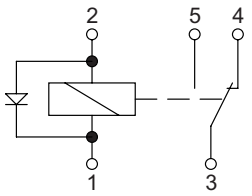
| Accessories | |
|---|---|
| For details see datasheet | Connectors for Micro ISO Relays |

### Terminal Assignment

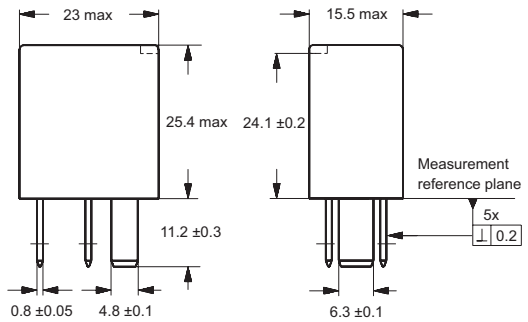
NOR
1 form A, NO with resistor




COD
1 form C, 1 CO with diode

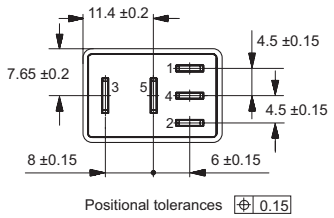



### Dimensions




Quick connect terminal similar to ISO 8092-1

View of the terminals (bottom view)




145_DD_2



09-2017, Rev. 0917
www.te.com

## Micro Relay Low Noise (Continued)

**Product code structure** Typical product code **V23145 -A 1 1 01 -A 4 02**

**Type**
**V23145** Micro Relay Low Noise

**Form**
**A** 1 form C, 1 CO **B** 1 form A, 1 NO

**Design**
**1** Standard

**Coil suppression**
**1** Standard suppression

**Coil**
**01** 12 VDC

**Version**
**A** Standard

**Contact material**
**4** Silver based

**Contact arrangement**
**02** 1 form A, 1 NO **03** 1 form C, 1 CO

| Product code | Arrangement | Coil suppr. | Circuit[1)] | Coil | Version | Cont. material | Terminals | Part number |
|---|---|---|---|---|---|---|---|---|
| V23145-B1101-A402 | 1 form A, 1 NO | Resistor | NOR | 12VDC | Standard | Silver based | Plug-in, QC | 3-1414773-5 |
| V23145-A1101-A403 | 1 form C, 1 CO | Diode | COD | | | | | on request |

1) See terminal assignment diagrams.
Other types on request.
This list represents the most common types and does not show all variants covered by this datasheet.