

Micro Relay K SMD (Standard – Open Vent Hole)

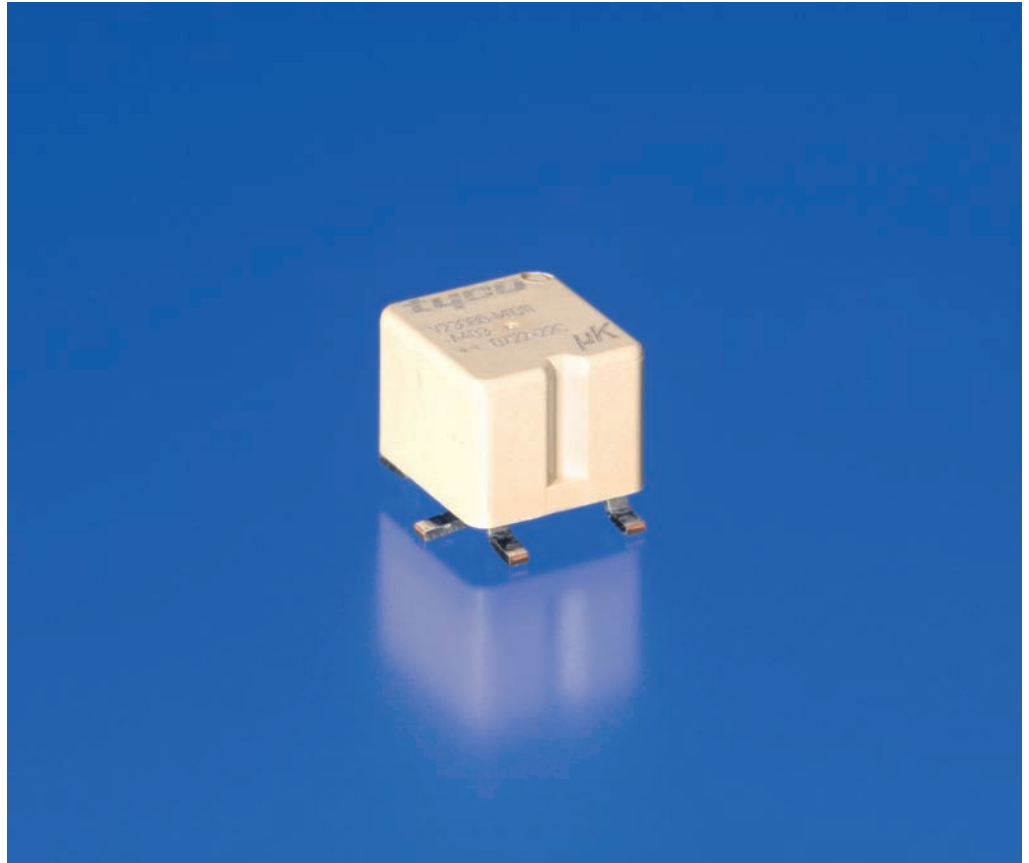


Features

- Small power relay for surface mounted technology
- Limiting continuous current 30 A
- Minimal weight
- Low noise operation
- Relay designed for convection and infrared reflow soldering
- Standard SMD and SMD with open vent hole versions
- For twin version refer to Double Micro Relay K SMD
- For latching (bistable) version refer to Micro Relay K Latching
- For through hole technology refer to Micro Relay K

Typical Applications

- Car alarm
- Door control
- Door lock
- Hazard warning signal
- Immobilizer
- Interior lights
- Seat control
- Sun roof
- Window lifter
- Wiper control



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Please contact Tyco Electronics for relay application support.

Design

- ELV/RoHS/WEEE compliant
- SMD (standard): sealed type washable
- SMD (open vent hole): sealed type open vent hole

Weight

Approx. 4 g (0.14 oz.)

Nominal Voltage

12 V

Terminals

SMD terminals for assembly on printed circuit boards

Conditions

All parametric, environmental and endurance tests are performed according to EIA Standard RS-407-A at standard test conditions unless otherwise noted:
23°C ambient temperature,
20 - 50% RH, 998.9 ±33.9 hPa.

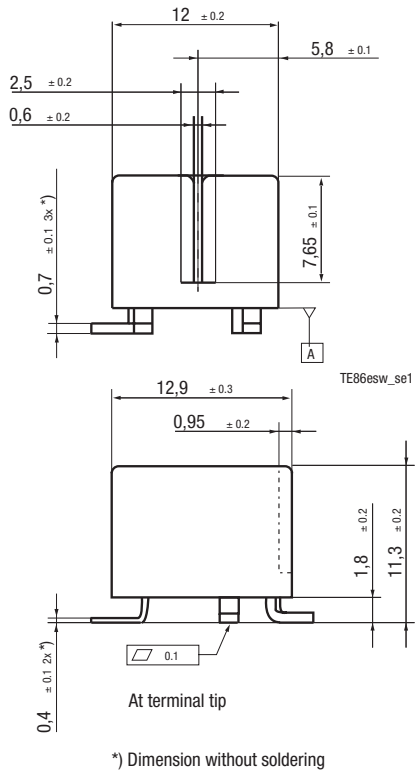
For general storage and processing recommendations please refer to our Application Notes and especially to *Storage* in the "Glossary" page 23 or at <http://relays.tycoelectronics.com/appnotes/>

Disclaimer

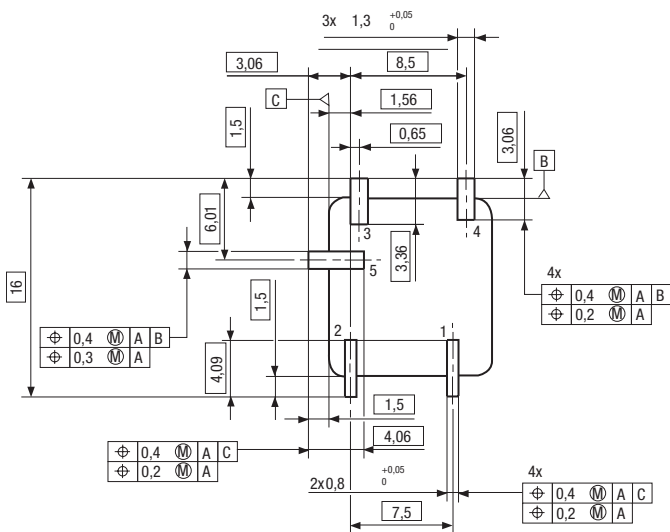
All technical performance data apply to the relay as such, specific conditions of the individual application are not considered. Please always check the suitability of the relay for your intended purpose. We do not assume any responsibility or liability for not complying herewith. We recommend to complete our questionnaire and to request our technical service. Any responsibility for the application of the product remains with the customer only. All specifications are subject to change without notification. All rights of Tyco Electronics are reserved.

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Dimensional Drawing



View of the Terminals (bottom view)

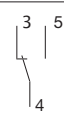


Remark: Positional tolerances according to DIN EN ISO 5458

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Micro Relay K SMD (Standard – Open Vent Hole)

Contact Data

Typical areas of application	Resistive/inductive load		
Contact configuration	1 Changeover contact/ 1 Form C		
Circuit symbol (see also Pin assignment)			
Rated voltage	12 V		
Rated current	NC/NO 15 A/20 A		
Limiting continuous current	23°C	25 A/30 A	
	85°C	15 A/20 A	
	105°C	5 A/10 A	
Contact material	Silver based		
Max. switching voltage/power	See load limit curve		
Max. switching current ¹⁾	NC/NO		
On ²⁾	40 A		
Off	30 A		
Min. recommended load ³⁾	1 A at 5 V		
Voltage drop at 10 A (initial) for NC/NO contacts	Typ. 30 mV, 300 mV max.		
Mechanical endurance (without load)	> 5 x 10 ⁶ operations		
Electrical endurance at cyclic temperature -40/+23/+85°C and 13.5 V	Resistive load: > 3 x 10 ⁵ operations 20 A on NO-contact	Wiper reverse ⁴⁾ : > 3 x 10 ⁵ operations 25 A make/5 A break; generator peak - 10 A L = 1.0 mH	Motor reverse blocked: > 1 x 10 ⁵ operations 25 A L = 0.77 mH inductive load

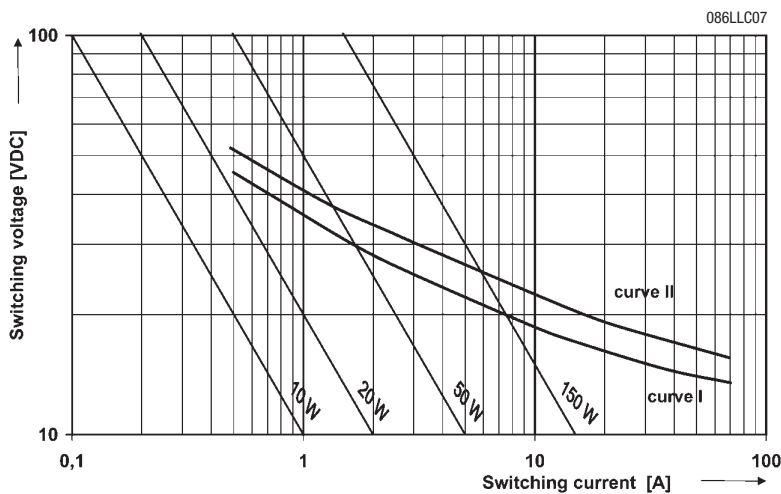
¹⁾ The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5 V for 12 V load voltages.

²⁾ For a load current duration of maximum 3 s for a make/break ratio of 1:10.

³⁾ See chapter Diagnostics of Relays in our Application Notes page 31 or consult the internet at <http://relays.tycoelectronics.com/appnotes/>

⁴⁾ Avoid using capacitive protection circuits. It will reduce lifetime.

Load Limit Curve



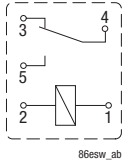
Load limit curve 1 ≙ arc extinguishes during transit time

Load limit curve 2 ≙ safe shutdown, no stationary arc

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Circuit Diagram

1 Changeover contact/1 Form C



Coil Data

Available for nominal voltages	10 V / 12 V
Nominal power consumption of the unsuppressed coil at nominal voltage	0.64 W
Test voltage winding/contact	500 VAC _{rms}
Maximum ambient temperature range ¹⁾	-40 to +105°C
Operate time at nominal voltage	Typ. 3 ms
Release time at nominal voltage ²⁾	Typ. 1.5 ms

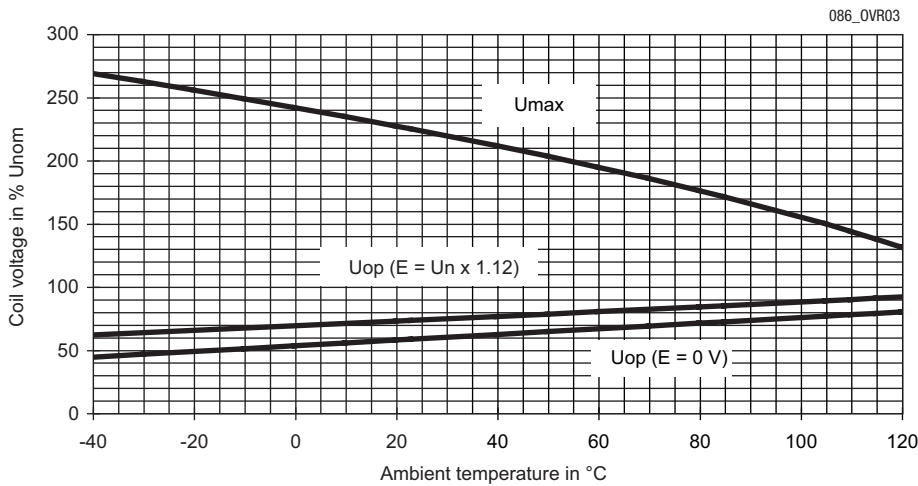
¹⁾ See also operating voltage range diagram.

²⁾ For unsuppressed relay coil.

Note:

A low resistive suppression device in parallel to the relay coil increases the release time and reduces the lifetime caused by increased erosion and/or higher risk of contact tack welding.

Operating Voltage Range



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

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Environmental Conditions				
Temperature range, storage	Refer to <i>Storage</i> in the “Glossary” catalog page 23 or http://relays.tycoelectronics.com/appnotes/			
Test	Relevant standard	Testing as per	Dimension	Comments
Cold storage	IEC 68-2-1		1000 h	-40°C
Dry heat	IEC 68-2-2	Ba	1000 h	125°C
Climatic cycling with condensation ¹⁾	EN ISO 6988		20 cycles	Storage 8/16 h
Thermal change	IEC 68-2-14	Nb	35 cycles	-40/+125°C
Thermal shock	IEC 68-2-14	Na	1000 cycles	-40/+125°C Dwell time 1 h
Damp heat cyclic	IEC 68-2-30	Db, Variant 2	6 cycles	40°C/55°C/93%
constant	IEC 68-2-3	Method Ca	56 days	40°C/93%
Corrosive gas ¹⁾	IEC 68-2-42		10 days	
	IEC 68-2-43		10 days	
Vibration resistance	IEC 68-2-6 (sine pulse form)		10 - 500 Hz	No change in the switching state > 10 μs, 6 g
Shock resistance	IEC 68-2-27 (half sine single form pulses)		6 ms	No change in the switching state > 10 μs up to 30 g
Solderability	IEC 68-2-58		Hot dip 5 s 245°C	Aging 3 (4 h/155°C) for leaded process (T _m = 183°C) for Pb-free process (T _m = 217°C)
Resistance to soldering heat	IEC 68-2-58		Hot dip 10 s 260°C	with thermal screen Preheating min 130°C
Sealing	IEC 68-2-17	Qc, Method 2		1 min/70°C

¹⁾ Not applicable for SMD with open vent hole.

Ordering Information

Part Numbers (see table below for coil data)		Contact Arrangement	Contact Material	Enclosure	Terminals/ Soldering Technology
Relay Description	Part Number				
V23086-M1011-A403	1393281-1	1 Form C	Silver based	Sealed	Printed circuit/SMD
V23086-M1012-A403	8-1416000-5	1 Form C	Silver based	Sealed	Printed circuit/SMD
V23086-U1011-A303	1416001-2	1 Form C	Silver based	Open vent hole	Printed circuit/SMD
V23086-U1012-A303	3-1414933-1	1 Form C	Silver based	Open vent hole	Printed circuit/SMD

Coil Versions

Coil Data for Micro K SMD (Standard – Open Vent Hole)	Rated Coil Voltage (V)	Coil Resistance ±10% (Ω)	Must Operate Voltage (V)	Must Release Voltage (V)	Allowable Overdrive¹⁾ Voltage (V)	
					at 23°C	at 105°C
V23086-M*011-****	12	225	6.9	1.5	27	18
V23086-M*012-****	10	156	5.7	1.25	22	15
V23086-U*011-****	12	225	6.9	1.5	27	18
V23086-U*012-****	10	156	5.7	1.25	22	15

¹⁾ Allowable overdrive is stated with no load applied and minimum coil resistance.

Standard Delivery Packs (in reels)

Micro Relay K SMD
(Standard – Open Vent Hole): 200 pieces

Note:
Transportation and storage of the reels: horizontally only.