Micro Relay K


Powertrain Systems


Chassis Systems


Safety


Security


Body


Driver Information


Convenience

Description

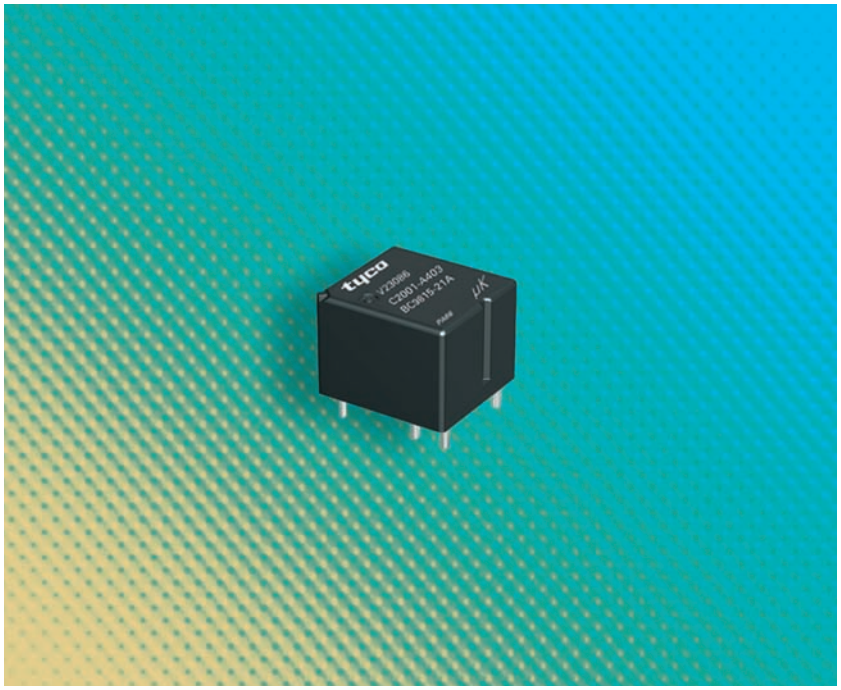
Features

- Smallest power relay
- Minimal weight (0.14 oz. / 4 g)
- Maximum continuous current 30 A

Typical applications

- Rear window and seat heating
- Wiper and indicator control
- Motor management

Please contact Tyco Electronics for relay application support.



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Car Industry


Truck Industry


Other Industry

Design

Sealed;
sealed version:
sealing in accordance with IEC 68;
immersion cleanable:
protection class IP67 to IEC 529 (EN 60 529)

Weight

Approx. 0.14 oz. (4 g)

Nominal voltage

10 V, 12 V
other nominal voltages on request

Terminals

PCB terminals, for assembling in 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, 29.5 ± 1.0" Hg
(998.9 ±33.9 hPa).
Please also refer to the Application Recommendations in this catalog for general precautions.

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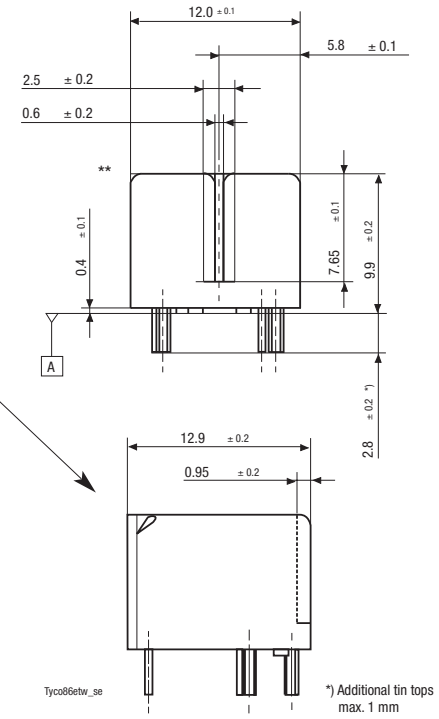
Dimensional drawing

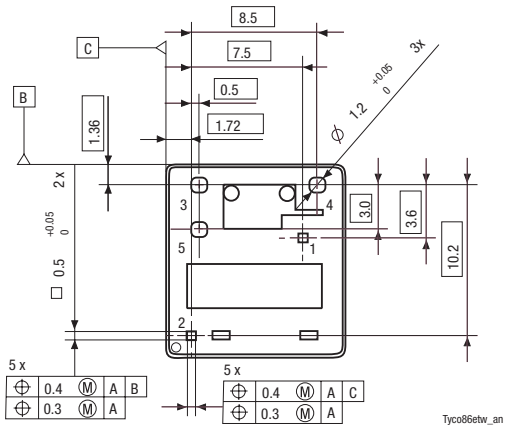
** Epoxy height at terminals max. 0.7 mm



Nipp-off-pin

The nipp-off-pin may be removed after soldering and washing (for ventilation)

View of the terminals (Bottom view)



Remark: Positional tolerances according to DIN EN ISO 5458

Micro Relay K

Contact data

Typical areas of application	Resistive/ inductive load			Flasher load V23086-C100*-A602	Lamp load V23086-C1021-A502
Contact configuration	Changeover contact/ Form C			Make contact/ Form A	Make contact/ Form A
Circuit symbol (see also Pin assignment)					
Rated voltage	12 V				
Rated current at 85 °C	NC/NO 15 A/20 A			20 A	20 A
Contact material	$AgSnO_2$				
Max. switching voltage/power	See load limit curve				
Max. switching current[1]					
On	40 A[2]			40 A[2]/70 A[3]	40 A[2]/100 A[3]
Off	30 A			30 A	30 A
Min. recommended load[4]	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: > 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	Flasher load: > 2 x 10^6 operations up to 3 x 21 W, turn and hazard signal in sequence	Lamp load: > 1 x 10^5 operations 100 A inrush/ 10 A steady state

[1] The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5 V for 12 V or 27 V for 24 V load voltages.
[2] For a load current duration of maximum 3 s for a make/break ratio of 1:10.
[3] Corresponds to the peak inrush current on initial actuation (cold filament).
[4] See chapter Diagnostics in our Application Recommendations on page 18 of this catalog or consult the internet at http://relays.tycoelectronics.com/application.asp

Load limit curve

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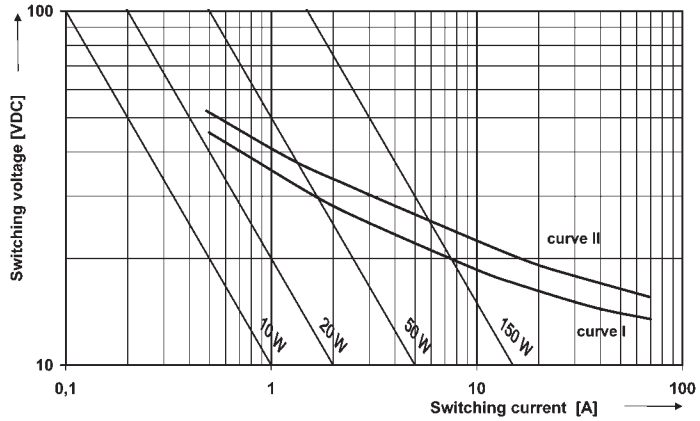
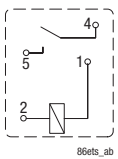


Pin assignment

1 make contact/
1 form A



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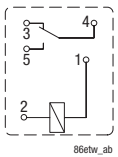
1 changeover contact/
1 form C



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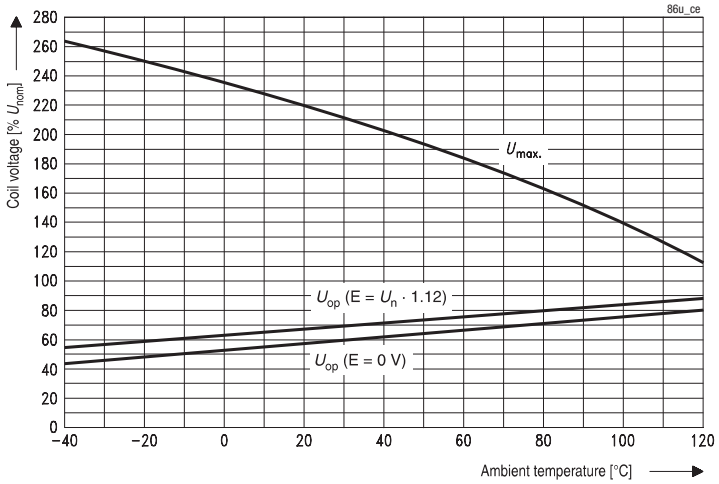
Coil data

Available for nominal voltages	10, 12 V (other coils on request)
Nominal power consumption of the unsuppressed coil at nominal voltage	0.55 W
Test voltage winding/contact	500 VAC_{rms}
Maximum ambient temperature range[1)]	– 40 to + 105 °C
Operate time at nominal voltage[2)]	Typ. 3 ms
Release time at nominal voltage[2)]	Typ. 1.5 ms

[1)] See also operating voltage range diagram
[2)] Measured at nominal voltage without coil suppression unit
N.B.
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

Mechanical data

Enclosures	Sealed relay is suitable for immersion cleaning of PCB assembly.
Sealed	Please refer to the Application Recommendations in this catalog.
	Relay may be vented after cleaning by cutting the vent protection from the corner of the relay after processing using a razor knife or equivalent.

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Operating conditions				
Temperature range, storage	Refer to *Storage* in the "Glossary"			
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	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	Ca	56 days	40 °C / 93%
Corrosive gas	IEC 68-2-42	–	10 days	
	IEC 68-2-43	–	10 days	
Vibration resistance	IEC 68-2-6 (sine pulse form)		10 … 500 Hz 6 g	No change in the switching state > 10 µs
Shock resistance	IEC 68-2-27 (half-sine pulse form)		6 ms up to 30 g	No change in the switching state > 10 µs
Solderability	IEC 68-2-20	Ta, Method 1		Aging 3 (4 h/155 °C) Dewetting
Resistance to soldering heat	IEC 68-2-20	Tb, Method 1A		10 s ± 1 s with thermal screen
Sealing	IEC 68-2-17	Qc, Method 2		1 min / 70 °C

Ordering information

Part numbers (see table below for coil data)		Contact arrangement	Contact material	Enclosure	Terminals
Relay part number	Tyco order number				
V23086-C1021-A502	8-1416000-7	Form A;lamp load	AgSnO2	Sealed, lamp load	Printed circuit
V23086-C1001-A602	9-1416000-6	Form A:flasher load	AgSnO2	Sealed	Printed circuit
V23086-C1001-A403	1393280-6	Form C	AgSnO2	Sealed	Printed circuit
V23086-C1002-A403	1-1393280-1	Form C	AgSnO2	Sealed	Printed circuit

Coil versions

Coil data for Micro Relay K(	Rated coil voltage V)	Coil resistance +/- 10% (Ω)	Must operate voltage (V)	Must release voltage (V)	Allowable overdrive [1] voltage (V)	
					at 23 °C	at 105 °C
V23086-**001-****	12	254	6.9	1.5	26	16
V23086-**002-****	10[2]	181	5.7	1.25	22	13
V23086-**021-****	12	181	6.9	1.5	22	13

[1] Allowable overdrive is stated with no load applied and minimum coil resistance.
[2] See operating voltage range

Standard delivery packs (orders in multiples of delivery pack)
Micro Relay K: 2000 pieces