Double micro power relay K


Powertrain Systems


Chassis Systems


Safety


Security


Body


Driver Information


Convenience

Description

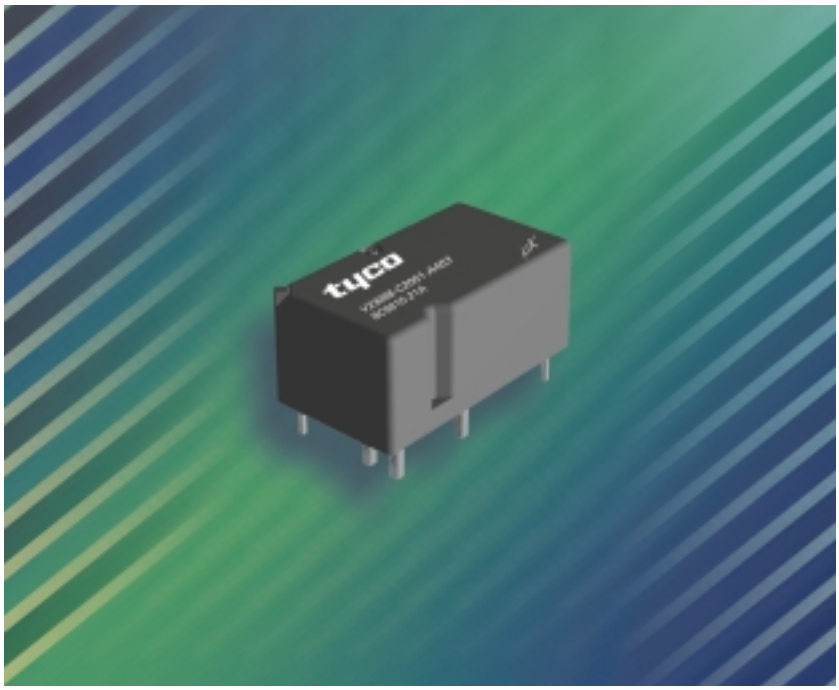
Features

- Smallest twin relay
- Minimal weight (0.28 oz. / 8 g)
- Maximum continuous current 30 A
- Two separate systems

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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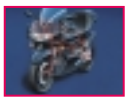
Car Industry


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. 0.28 oz. (8 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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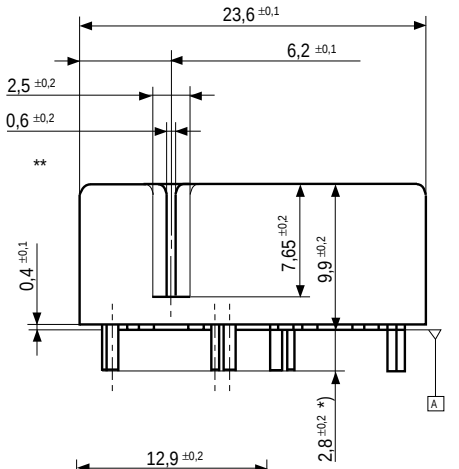
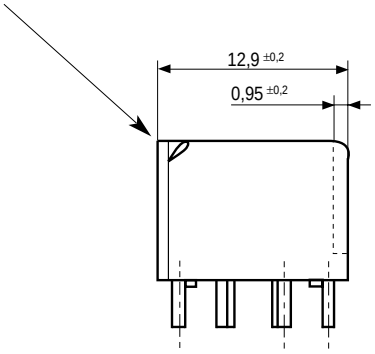
Dimensional drawing



** Epoxy height at terminals max. 0.7 mm

Nipp-off-pin

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



*) Additional tin tops max. 1 mm

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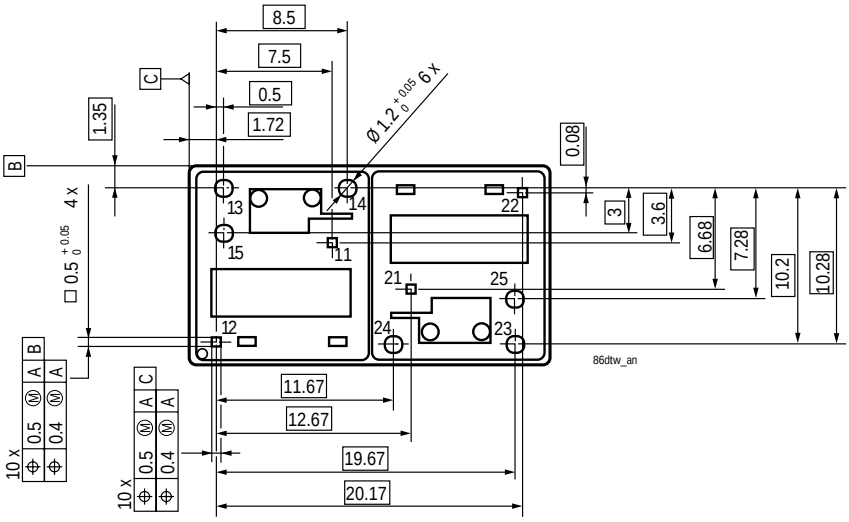
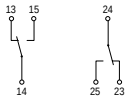
View of the terminals (Bottom view)



Remark: Positional tolerances according to DIN EN ISO 5458

Double micro power relay K

Contact data

Typical areas of application	Resistive/inductive load		
Contact configuration	2 changeover contacts/ 2 form C		
Circuit symbol (see also Pin assignment)			
Rated voltage	12 V		
Rated current at 85 °C	NC/NO 15 A/20 A		
Contact material	$AgSnO_2$		
Max. switching voltage/power	See load limit curve		
Max. switching current[1] On[2] Off	NC/NO 40 A 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: > 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

[1] The values apply to a resistive or inductive load with suitable spark suppression and a t 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.
[4] See chapter Diagnostics in our Application Recommendations on page 18.

Load limit curve

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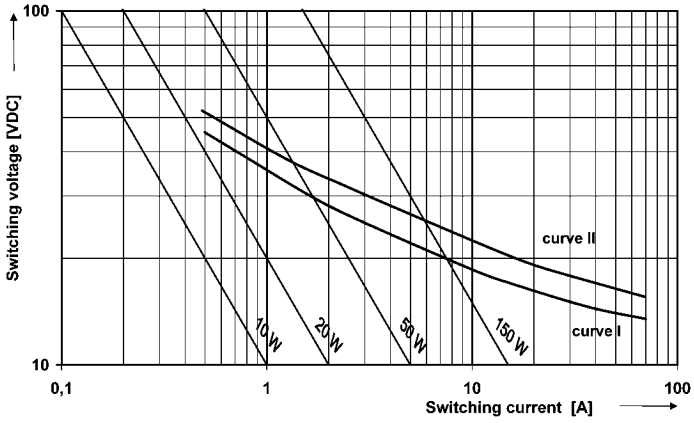
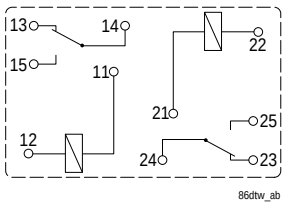


Pin assignment

2 changeover contacts/
2 form C



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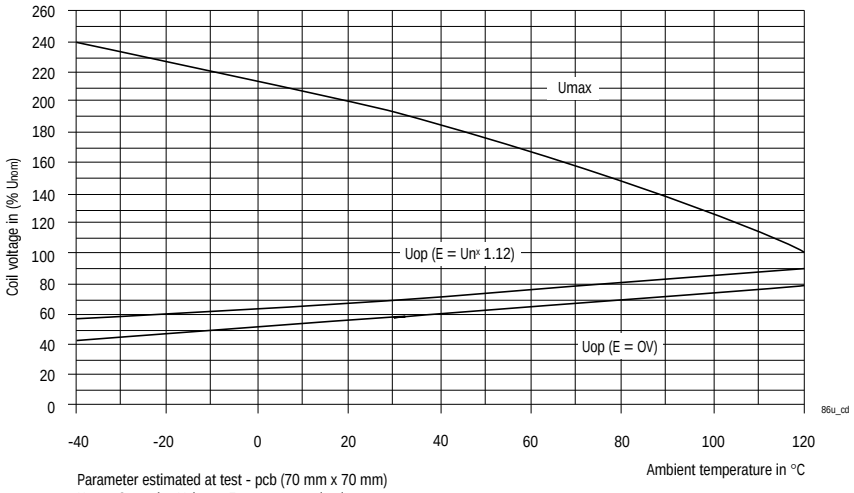
Coil data

Available for nominal voltages	10, 12 V
Nominal power consumption of the unsuppressed coil at nominal voltage	0.57 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
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



Parameter estimated at test - pcb (70 mm x 70 mm)
Uop = Operation Voltage, E = pre - energization

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

Operating conditions

Temperature range, storage	-40 °C to 130 °C			
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				
constant	IEC 68-2-3	Ca	56 days	40 °C / 93%
Corrosive gas	IEC 68-2-42 IEC 68-2-43	-	10 days 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

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Ordering information

Part numbers (see table below for coil data)		Contact arrangement	Contact material	Enclosure	Terminals
Relay part number	Tyco order number				
V23086-C2001-A403	1413009-9	2 x Form C	AgSnO2	Sealed	Printed circuit
V23086-C2002-A403	8-1419137-4	2 x Form C	AgSnO2	Sealed	Printed circuit

Coil versions

Coil data for Double micro power 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[1]
V23086-**001-****	12	254	6.9	1.5	24	15
V23086-**002-****	12	181	5.7	1.25	20	13

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

Standard delivery pack (orders in multiples of delivery pack)

Double micro power relay K: 990 pieces