

Double micro power relay K



Powertrain
Systems



~~Chassis
Systems~~



~~Safety~~



~~Security~~



~~Body~~



Driver
Information



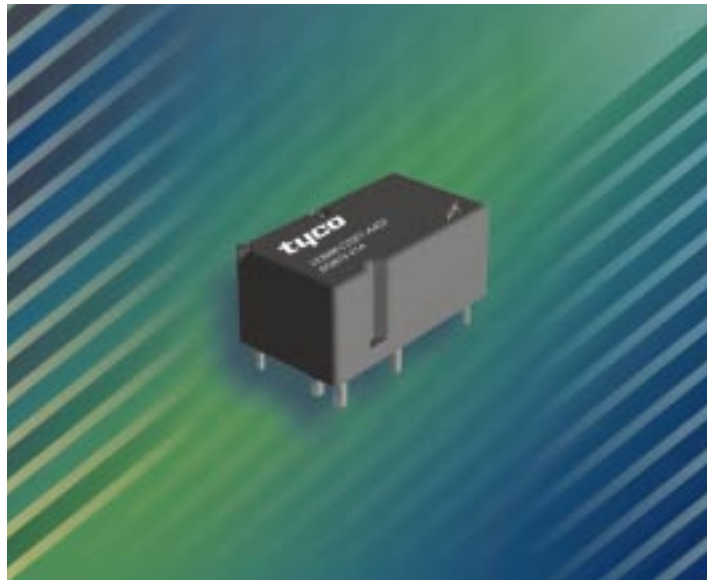
~~Convenience~~

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



~~Car Industry~~



~~Truck
Industry~~



~~Other
Industry~~

86_3d01

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

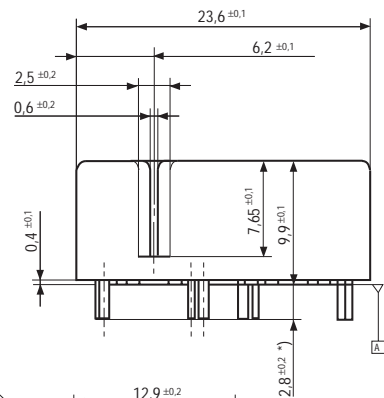
PCB terminals, for assembling in
printed circuit boards

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).

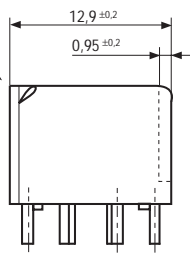
Double micro power relay K

Dimensional drawing



Nipp-off-pin

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

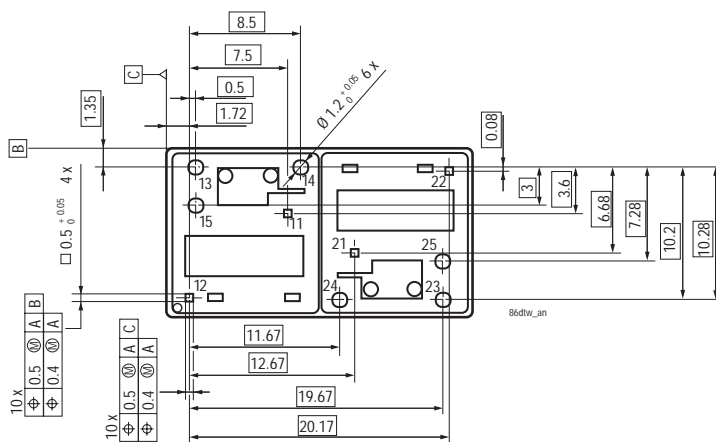


*) Additional tin tops
max. 1 mm

86dhw_se

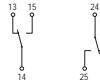

Mounting holes

View of the terminals (Bottom view)



Remark: Positional tolerances according to DIN EN ISO 5458

Double micro power relay K

Contact data					
Contact configuration	2 changeover / 2 Form C			2 make contacts Form A	2 make contacts Form A
Contact material	AgNi 0.15 (AgSnO ₂ available on request)			AgSnO ₂	AgSnO ₂
Circuit symbol (see also Pin assignment)					
Max. switching current ¹⁾				40 A ²⁾ /70 A ³⁾	40 A ²⁾ /100 A ³⁾
On	40 A ²⁾			30 A	30 A
Off	30 A			NO	NO
Limiting continuous current	NC/NO			30 A	30 A
at 23 °C	25 A/30 A			20 A	20 A
at 85 °C	15 A/20 A				
Voltage drop initial at 10 A	Typ. 30 mV				
Mechanical endurance (without load)	> 5 x 10 ⁶ operations				
Electrical endurance at cyclic temperature -40/+23/+85 °C and 13,5 VDC	Resistive load: > 3 x 10 ⁶ operations at 20 A on NO-contact	Wiper reverse: > 3 x 10 ⁶ operations 25 A make/5 A break; generator peak -10 A L=1.0 mH	Motor reverse blocked: > 1 x 10 ⁶ operations 20 A L=0.77 mH	Flasher load: > 2 x 10 ⁶ operations up to 3 x 21 W, 4 Turn and hazard signal in sequence	Lamp load: > 1 x 10 ⁶ operations 100 A inrush /10 A steady state

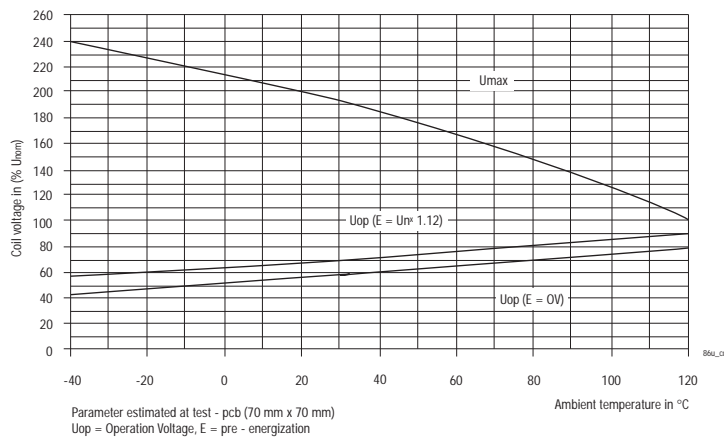
¹⁾ The values apply to a resistive load or inductive load with suitable spark suppression.

²⁾ This current may flow for a maximum of 3 sec for a make/break ratio of 1 : 10.

³⁾ Corresponds to the peak inrush current on initial actuation (cold filament).

4) With polarization + at terminals 14 and 25

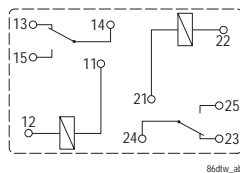
Operating voltage range



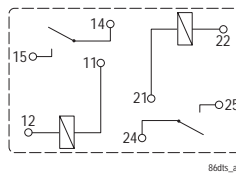
Does not take into account the temperature rise due to the contact current
E=pre-energization

Pin assignment

2 changeover contacts/
2 form C



2 make contacts/
2 form A



Double micro power relay K

Coil data

Available for nominal voltages	10, 12 VDC (other coils on request)
Nominal power consumption of the unsuppressed coil at nominal voltage	0.57 W
Test voltage winding/contact	500 VAC _{rms}
Upper limit temperature for the coil	155 °C
Maximum ambient temperature range ¹⁾	- 40 to + 105 °C
Max. switching rate without contact loading	50 Hz
Operate time ²⁾	Typ. 3 msec
Release time ²⁾	Typ. 1.5 msec

¹⁾ See also operating voltage range diagram

²⁾ Measured at nominal voltage without coil suppression unit

N.B.

A low resistive device in parallel to the relay coil slows down the armature movement and reduces the lifetime caused by increased erosion and/or higher risk of contact tack welding.

Mechanical data

Enclosure	
Sealed	Sealed relay is suitable for immersion cleaning of PCB assembly or conformal coating.

Operating conditions

-40 °C to 130 °C				
Temperature range, storage	Relevant standard	Testing as per	Dimension	Comments
Cold storage	IEC 68-2-1		72 h	-40 °C
Dry heat	IEC 68-2-2	Ba	1000 h	85 °C
Climatic cycling with condensation	EN ISO 6988		20 cycles	Storage 8/16 h
Thermal change	IEC 68-2-14	Nb	35 cycles	- 40/+ 105 °C
Thermal shock	IEC 68-2-14	Na	100 cycles	- 40/+ 105 °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 µsec
Shock resistance	IEC 68-2-27 (half-sine pulse form)		6 msec up to 30 g	No change in the switching state > 10 µsec
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 sec ± 1 sec with thermal screen
Sealing	IEC 68-2-17	Qc, Method 2		1 min / 70 °C

Double micro power relay K

Ordering information

Part number (Replace * with "Coil designator") Double micro power relay K	Contact arrangement	Contact material	Enclosure	Terminals
V23086-C2*-A303	Form C	AgNi0.15	Sealed	Printed circuit
V23086-C2*-A403	Form C	AgSnO ₂	Sealed	Printed circuit
V23086-C2021-A502	Form A; lamp load	AgSnO ₂	Sealed	Printed circuit
V23086-C2*-A602	Form A; flasher load	AgSnO ₂	Sealed	Printed circuit

Coil versions

Coil designator Double micro power relay K	Rated coil voltage (V)	Coil resistance +/- 10% (Ω)	Must operate voltage (VDC)	Must release voltage (VDC)	Allowable overdrive (VDC)	
					at 23 °C ¹⁾	at 105 °C ¹⁾
001	12	254	6.9	1.5	24	15
002	10	181	5.7	1.25	20	13
021	12	181	6.9	1.5	20	13

¹⁾ Allowable overdrive is stated with no load current flowing through the relay contacts and minimum coil resistance.

Standard delivery pack (orders in multiples of delivery pack)

Double micro power relay K: 990 pieces