V23086 series

20 Amp Micro K (Single & Dual) PC Board Relay for Automotive Applications

Features

- 30A, 16VDC switching rating.
- 40A inrush at 16VDC.
- 20A continuous contact rating @ 85°C.
- Immersion cleanable plastic case with knock-off nib for ventilation.
- 60% less volume than other comparable power relays.
- 1 Form A and 1 Form C arrangements in single and dual relay packages.
- Choice of AgNi 0.15 or AgSnO contacts.

Conditions

All parametric, environmental and life tests are performed according to EIA Standard RS-407-A at standard test conditions (23°C Ambient, 20-50% RH, 29.5 ± 1.0" Hg.) unless otherwise noted.

Contact Data

Arrangements: 1 Form A (SPST-NO) and 1 Form C (SPDT) in single relay and dual relay configurations.

Material: AgNi 0.15 - Recommended for inductive loads.
AgSnO - Recommended for high inrush, lamp and capacitive loads and applications prone to contact material transfer.

Max. Switching Rate: 20 operations per second with no contact load.
6 operations per minute for rated life at rated load.

Max. Load Current (@ 14VDC Load Voltage):

Load	Form A (NO)	Form C	
		NO	NC
Max. Continuous Current	**30A**	**30A**	**25A**
Max. Break Current	**30A**	**30A**	**25A**
Max. Make Current			
AgSnO	**100A**	**100A**	**15A**
AgNi 0.15	**40A**	**40A**	**10A**

Max. Switching Power: 35-320 watts DC (voltage dependent).
Min. Recommended Current: 0.5 amp @ 12VDC.
Initial Voltage Drop: 200 millivolts, maximum, for normally open contacts @ 10 amp contact load.
250 millivolts, maximum, for normally closed contacts @ 5 amp contact load.
Expected Life: 10 million operations, mechanical; 100,000 operations at 20 amps, 14VDC, resistive load on normally open contact.

Initial Dielectric Strength

Between Contacts and Coil: 500V rms.

Coil Data

Voltage: 12 VDC.
Resistance: See Coil Data table.
Nom. Power: 0.55 watts @ 23°C coil temp. and rated coil voltage.
Thermal Resistance: 50°C per actual coil watt in still air with no contact load current.

Operate Data

Must Operate and Must Release Voltage: See Coil Data table.
Initial Operate Time: 3 milliseconds, typical, with rated coil voltage applied.
Initial Release Time: 1.5 milliseconds, typical, with zero volts applied (for unsuppressed relays after having been energized at rated coil voltage.)

Environmental Data

Temperature Range: Storage: -40°C to +155°C.
Operating: -40°C to +105°C.
Shock: 20g, 11 milliseconds, half sine wave pulse.
Vibration: (For NC contacts, NO contacts are significantly higher.)
10-40 Hz., 1.27mm double amplitude.
40-70 Hz., 5g's constant.
70-100 Hz., 0.5mm double amplitude.
100-500 Hz., 10g's constant.

Mechanical Data

Termination: Printed circuit terminals.
Enclosure: Immersion cleanable, sealed plastic cover.
Weight: Sealed: 4 gm (0.14 oz.) approximately.

Abnormal Operation

Overload Current: 50A, 5 sec.(2)
87.5A, 0.5 sec.
150A, 0.1 sec.
24V Jump Start: 24VDC for 5 minutes conducting rated contact current @ 23°C.
Drop Test: Capable of meeting specifications after a 1.0 meter drop onto concrete in final enclosure.
Flammability: UL94-HB or better (meets FMVSS 302).

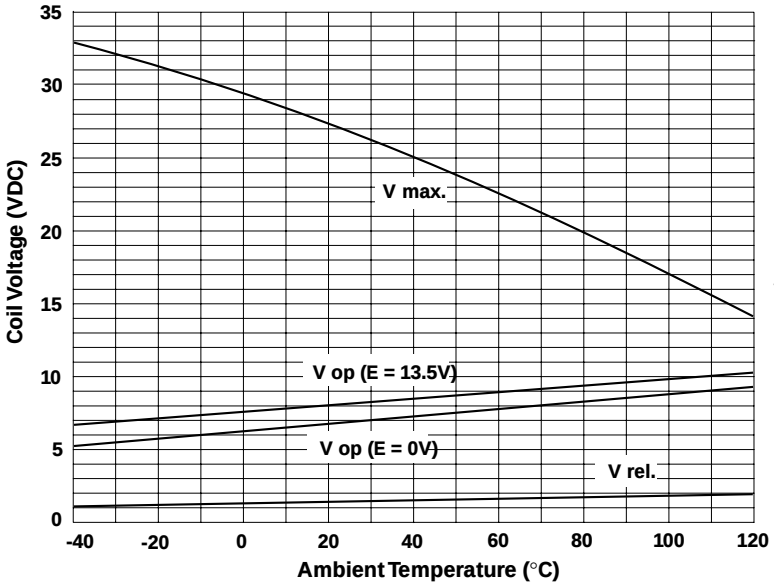
Notes

(1) Allowable overdrive is rated at ambient temperature of 23°C and 105°C as stated with no load current flowing through the relay contacts and minimum coil resistance with power applied for 30 sec. max. (20% max. duty cycle.)
(2) Current and times are compatible with circuit protection by a typical 25A fuse. Relay will make, carry and break the specified current.

Coil Data (@ 23°C Coil Temperature)

Coil Designator	Rated Coil Voltage (VDC)	Coil Resistance ±10% (Ohms)	Must-Operate Voltage (VDC)	Must-Release Voltage (VDC)	Allowable(1) Overdrive (VDC)	
					@ 23°C	@ 105°C
001	12	254	6.9	1.5	27.2	16.5

Figure 1 - Operating Voltage Range



Does not take into account the temperature rise due to the contact current.

V op = Operation Voltage

E = Pre-Generation

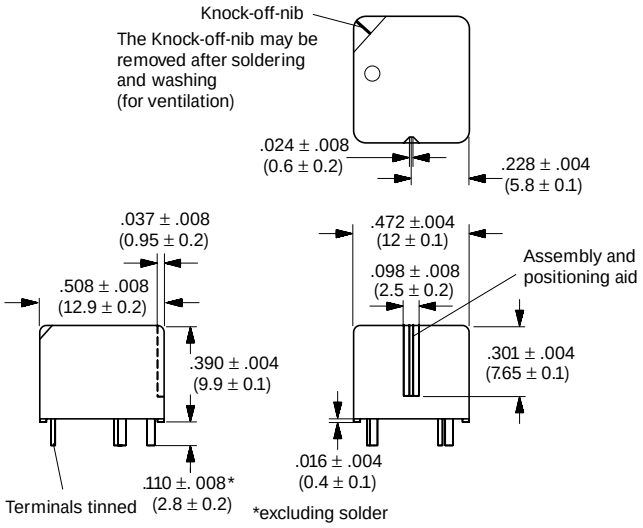
Ordering Information

Part Number	Contact Arrangement	Enclosure	Contact Materials
V23086-C1001-A303	1 Form C	Sealed, Plastic Cover	AgNi 0.15
V23086-C1001-A402	1 Form A	Sealed, Plastic Cover	AgSnO
V23086-C1001-A403	1 Form C	Sealed, Plastic Cover	AgSnO
V23086-C2001-A303	Dual Form C	Sealed, Plastic Cover	AgNi 0.15
V23086-C2001-A403	Dual Form C	Sealed, Plastic Cover	AgSnO

Stock Items - The following items are normally maintained in stock for immediate delivery.

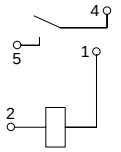
V23086-C1001-A303
V23086-C1001-A403

Outline Dimensions – Single Relay

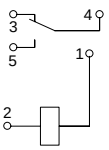


Wiring Diagrams – Single Relay (Bottom Views)

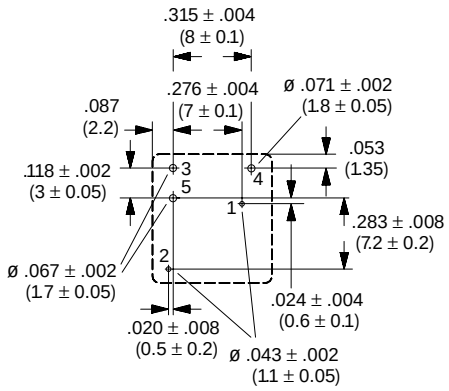
1 Form A



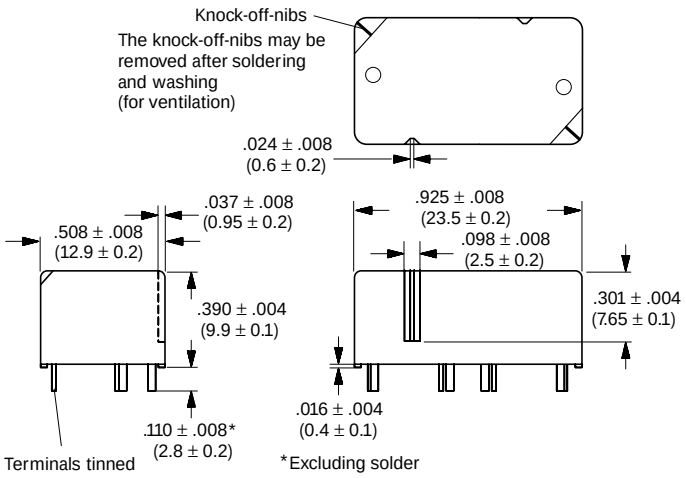
1 Form C

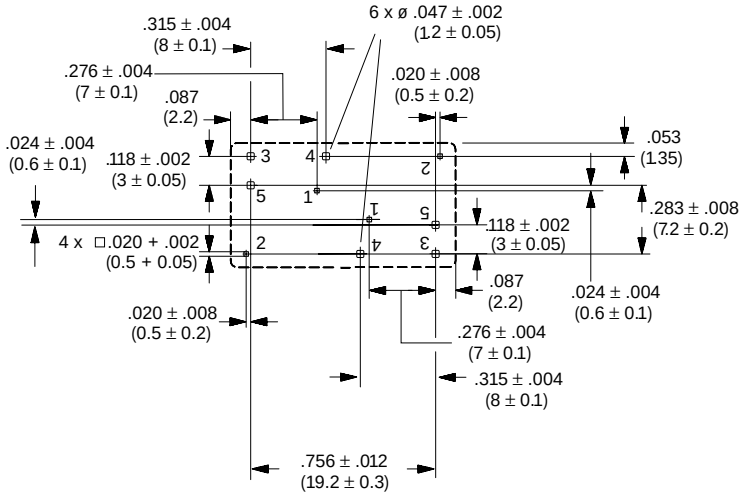


Suggested PC Board Layout – Single Relay (Bottom View)



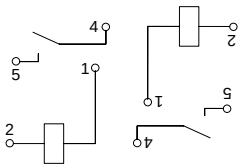
Outline Dimensions – Dual Relay



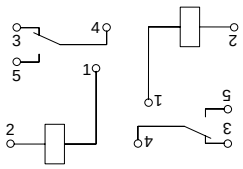


Wiring Diagrams - Dual Relay (Bottom Views)

1 Form A



1 Form C



Suggested PC Board Mtg. Holes – Dual Relay (Bottom View)

See bottom view of relay (above) for hole-to-hole spacing