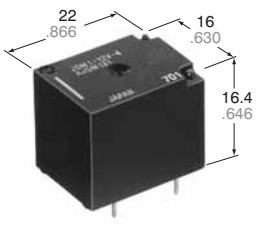
Not for new applications

Panasonic
ideas for life

Global standard terminal pitch automotive power relay

JS-M RELAYS



mm inch

FEATURES

- **Low pick-up voltage for high ambient use**
- **Sealed construction**
- **Global standard terminal pitch**
- **Usable at high temperature: 85°C 185°F**

TYPICAL APPLICATIONS

- Power-window
- Car antenna
- Door lock
- Intermittent wiper
- Interior lighting
- Power seat
- Power sunroof
- Car stereo
- Horn
- Lift gate, etc.

SPECIFICATIONS

Contact

			Standard type	High capacity type
Arrangement			1 Form A, 1 Form C	
Contact material			Ag alloy (Cadmium free)	
Initial contact resistance (By voltage drop 6 V DC 1 A)			*Max. 100 mΩ	*Max. 100 mΩ
Contact voltage drop			Max. 0.2 V DC (at 10 A 12 V DC)	
Rating	Nominal switching capacity		10 A 16 V DC (resistive)	15 A 16 V DC (resistive)
	Max. carrying current		25 A (at 20°C 68°F for 2 minutes) 15 A (at 20°C 68°F for 1 hour) 20 A (at 85°C 185°F for 2 minutes) 10 A (at 85°C 185°F for 1 hour)	
	Max. switching power		160 W	
	Max. switching voltage		16 V DC	
	Max. switching current		10 A	15 A (10 A max. at 85°C)
	Min. switching capacity#1		1 A 12 V DC	
Expected life (min. ope.)	Mechanical life (at 180 cpm)		10^7	
	Electrical (at 15 cpm)	Resistive	10^5	N.O.: 10^5 N.C.: 5×10^4

* Measured after operating 5 times at the rated load

Coil

Nominal operating power	640 mW

Contact rating

Load	Standard type			High capacity type		
	Form A	Form C		Form A	Form C	
		N.O.	N.C.		N.O.	N.C.
Max. carry current	15 A	15 A	15 A	15 A	15 A	15 A
Max. make current	25 A	25 A	10 A	50 A	50 A	15 A
Max. break current	10 A	10 A	10 A	15 A	15 A	15 A

Characteristics

Max. operating speed (at rated load)		15 cps.
Initial insulation resistance*1		Min. 100 MΩ (at 500 V DC)
Initial breakdown voltage*2	Between open contacts	750 Vrms for 1 min.
	Between contacts and coil	1,500 Vrms for 1 min.
Operate time*3 (at nominal voltage)		Max. 10 ms
Release time (without diode)*3 (at nominal voltage)		Max. 10 ms
Shock resistance	Functional*4	Min. 98 m/s² {10 G}
	Destructive*5	Min. 980 m/s² {100 G}
Vibration resistance	Functional*6	10 Hz to 55 Hz at double amplitude of 1.6 mm
	Destructive	10 Hz to 55 Hz at double amplitude of 2 mm
Conditions for operation, transport and storage*7 (Not freezing and condensing at low temperature)	Ambient temp.	–40°C to +85°C –40°F to +185°F
	Humidity	5% R.H. to 85% R.H.
Mass		Approx. 12 g .423 oz

#1 This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

Remarks

*1 Measurement at same location as “Initial breakdown voltage” section
*2 Detection current: 10mA
*3 Excluding contact bounce time
*4 Half-wave pulse of sine wave: 11ms; detection time: 10μs
*5 Half-wave pulse of sine wave: 6ms
*6 Detection time: 10μs
*7 Refer to “6. Usage, Storage and Transport Conditions“ in AMBIENT ENVIRONMENT section in Relay Technical Information.

ORDERING INFORMATION

Ex. JSM □ □ —— 12V —— □

Contact arrangement	Protective construction	Coil voltage (DC)	Contact material
1a: 1 Form A 1: 1 Form C	Nil: Sealed construction F: Flux-resistant type	12 V	4: Standard type (10 A) 5: High capacity type (15 A)

Note: Standard packing: Carton: 100 pcs. Case: 500 pcs.

Not for new applications

TYPES AND COIL DATA (at 20°C 68°F)

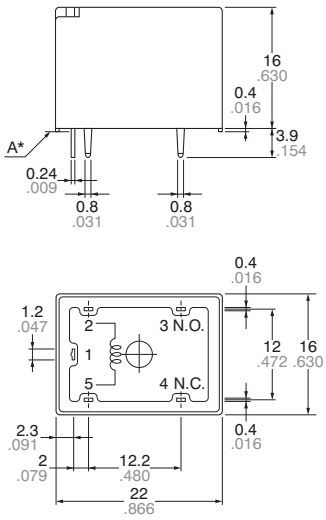
Contact arrangement	Coil voltage, V DC	Standard type (10 A)		High capacity type (15 A)		Nominal voltage, V DC	Pick-up voltage, V DC	Drop-out voltage, V DC	Coil resistance Ω	Nominal operating current, mA	Nominal operating power, mW	Max. allowable voltage, V DC (at 80°C 176°F)
		Sealed type	Flux-resistant type	Sealed type	Flux-resistant type							
1 Form A	12	JSM1a-12V-4	JSM1aF-12V-4	JSM1a-12V-5	JSM1aF-12V-5	12	Max. 6.3	Min. 0.9	225±10%	53.3±10%	640	10 to 16
1 Form C	12	JSM1-12V-4	JSM1F-12V-4	JSM1-12V-5	JSM1F-12V-5	12	Max. 6.3	Min. 0.9	225±10%	53.3±10%	640	10 to 16

* Other pick-up voltage types are also available. Please contact us for details.

DIMENSIONS (mm inch)

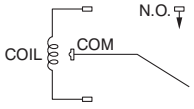
Download CAD Data from our Web site.

CAD Data

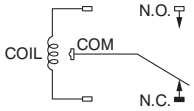


Schematic (Bottom view)

1a

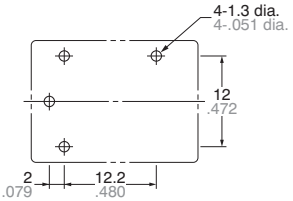


1c



PC board pattern (Bottom view)

1a



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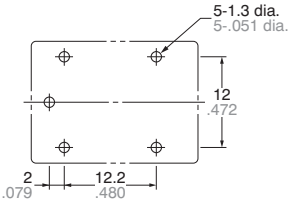


Dimension:	General tolerance
Max. 1mm .039 inch:	±0.1 ±.004
1 to 3mm .039 to .118 inch:	±0.2 ±.008
Min. 3mm .118 inch:	±0.3 ±.012

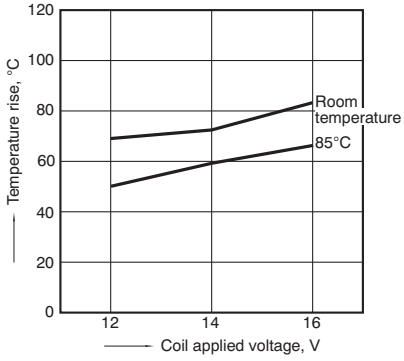
* Dimensions (thickness and width) of terminal specified in this catalog is measured before pre-soldering. Intervals between terminals is measured at A surface level.

Tolerance: ±0.1 ±.004

REFERENCE DATA

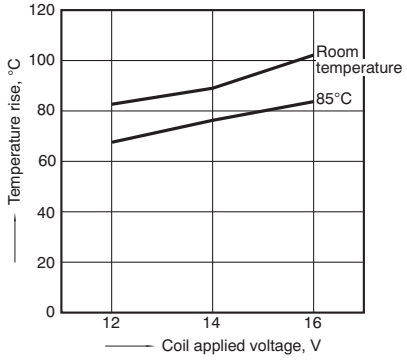
1-(1). Coil temperature rise (10A)

Measured portion: Inside the coil
Contact carrying current, 10A
Ambient temperature: Room temperature, 85°C 185°F

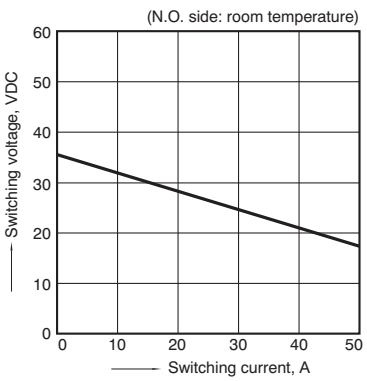


1-(2). Coil temperature rise (15A)

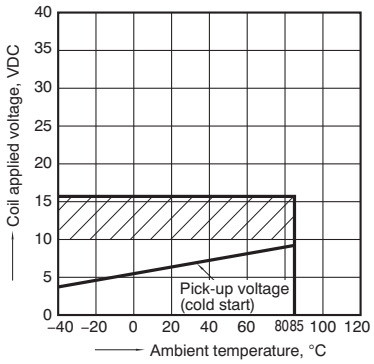
Measured portion: Inside the coil
Contact carrying current, 15A
Ambient temperature: Room temperature, 85°C 185°F



2. Max. switching capability (Resistive load, initial)

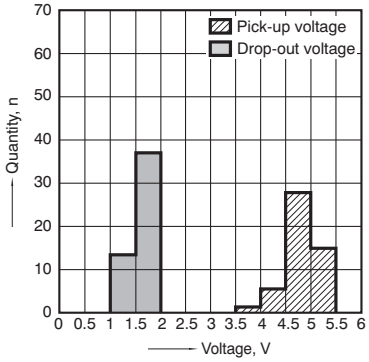


3. Ambient temperature and operating voltage range



4. Distribution of pick-up and drop-out voltage

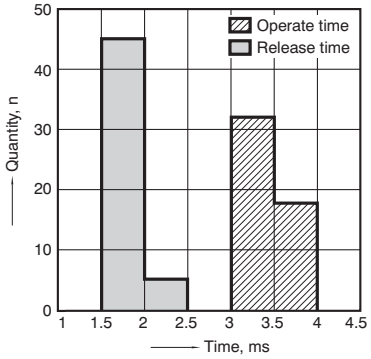
Sample: JSM1-12V-5, 50pcs.



5. Distribution of operate and release time

Sample: JSM1-12V-5, 50pcs.

Coil both side without diode



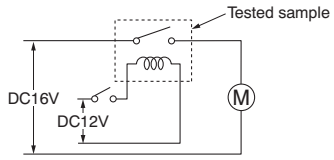
6-(1). Electrical life test (Motor load)

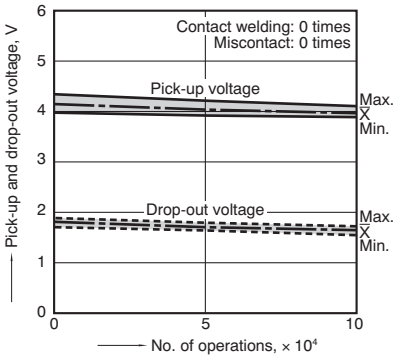
Sample: JSM1-12V-5, 3pcs.

Load: 50A (Inrush), 10A 16V DC (Steady)

Switching frequency: (ON : OFF = 1s : 9s)

Circuit :





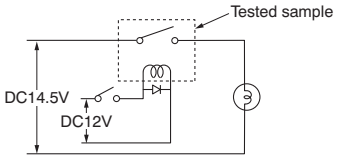
6-(2). Electrical life test (Lamp load)

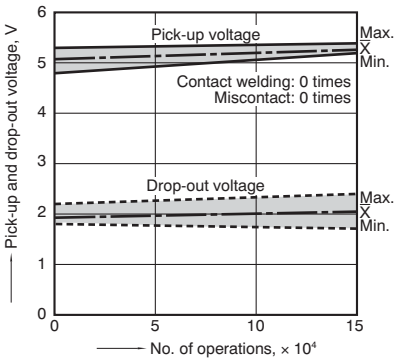
Sample: JSM1-12V-5, 4pcs.

Load: 55.2A (Inrush), 9.6A 14.5V DC (Steady)

Switching frequency: (ON : OFF = 1s : 3s)

Circuit :





For Cautions for Use, see Relay Technical Information.