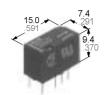




Compact & Slim 2 Form C Non-polarized Relay

HX-RELAYS



mm inch

FEATURES

- Compact size of (W) 7.4x (L) 15.x (H) 9.4 mm (W) .291x (L) .591x (H) .370
- Surge withstand voltage of 1,500 V (between contact and coil) Conforms to FCC Part 68.
- High-density mounting is possible
- High reliability

The use of a gold-clad bifurcated structure for the movable contacts, and a low gas material for the forming materials and coil wiring ensures high contact reliability.

SPECIFICATIONS

Contact

Arrangemen	t	2 Form C		
Initial contact (By voltage	et resistance drop 6 V DC 1 A)	Max. 100 mOhm		
Contact mat	erial	Gold-clad silver alloy		
Rating	Nominal switching capacity (resistive load)	1 A 30 V DC, 0.3 A 125 V AC		
	Max. switching power (resistive load)	30 W (DC), 37.5 VA (AC)		
	Max. switching voltage	110 V DC, 125 V AC		
	Max. switching current	1 A		
	Min. switching capability #1	1 mA 1 V DC		
Nominal ope	erating power	320 mW		
Expected life (min. operations)	Mechanical (at 180 cpm)	10 ⁷		
	Electrical (at 20 cpm)	10 ⁵ (1 A 30 V DC, 0.3 A 125 V AC resistive)		

Note:

 $\frak{1}\mbox{This}$ 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

- Specifications will vary with foreign standards certification ratings.
- *1 Measurement at same location as "Initial breakdown voltage" section.
 *2 By resistive method, nominal voltage applied to the coil; contact carrying current:
- *3 Nominal voltage applied to the coil, 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 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT (Page 61)

Characteristics

Initial insulat	ion*1 resis	stance	Min. 1,000 MOhm (at 500 V DC)		
	Between contacts		750 V rms for 1 min.		
Initial breakdown voltage	Between contact and coil		1,000 V rms for 1 min.		
	Betweer	contacts sets	1,000 V rms for 1 min.		
Temperature	rise*2		Max. 60°C		
Operate time (at 20°C 68°			Max. 6 ms (Approx. 4 ms)		
Release time (at 20°C 68°		diode)*3	Max. 5 ms (Approx. 3 ms)		
Shock resistance		Functional*4	Min. 100 m/s ² {10G}		
		Destructive*5	Min. 1,000 m/s ² {100G}		
Vibration resistance		Functional*6	10 to 55 Hz at double amplitude of 1.0 mm		
		Destructive	10 to 55 Hz at double amplitude of 1.5 mm		
Conditions for		Ambient temperature	-40 to +70°C -40 to +158°F		
opetation, tra		Humidity	5 to 85% R.H.		
and storage	* 7	Atmospheric pressure	86 to 106 kPa		
Unit weight			Approx. 2g .07 oz		

TYPICAL APPLICATIONS

- Telephone exchange, transmission equipment
- · Communications devices
- Measurement devices
- · Home appliances, and audio/visual equipment
- Office equipment

ORDERING INFORMATION



Note: 2,500V Surge (Bellcore) type is also available. Please consult us for details.

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TYPES AND COIL DATA

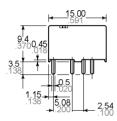
Contact arrangement	Coil rating, V DC	Part No.	Pick-up voltage, V DC (max.) (at 20∞C 68∞F)	Drop-out voltage, V DC (min.) (at 20∞C 68∞F)	Normal operating current, mA (±10%) (at 20∞C 68∞F)	Coil Resistance, ohm (±10%) (at 20∞C 68∞F)	Nominal operating power, mW	Max. allowable voltage, V DC (at 70∞C 158∞F)
		Standard PC board terminal arrangement						
2 Form C	1.5	HX2-1.5V	1.13	0.15	214	7.0	320	1.65
	3	HX2-3V	2.25	0.3	107	28.1	320	3.3
	4.5	HX2-4.5V	3.38	0.45	71.1	63.3	320	4.95
	5	HX2-5V	3.75	0.5	64.0	78.1	320	5.5
	6	HX2-6V	4.5	0.6	53.6	112	320	6.6
	9	HX2-9V	6.75	0.9	35.6	253	320	9.9
	12	HX2-12V	9	1.2	26.7	450	320	13.2
	24	HX2-24V	18	2.4	13.3	1,800	320	26.4

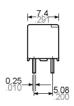
Standard packing: Tube; 40 pcs.; Case: 1,000 pcs.

DIMENSIONS mm inch

1. Standard PC board terminal type







Schematic (Bottom view)

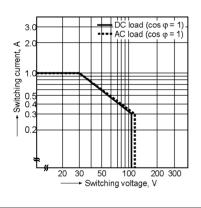
General tolerance: ±0.3 ±.012

Tolerance: ±0.1 ±.004

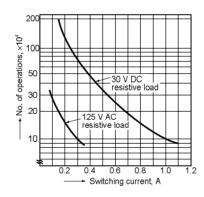
PC board pattern (Bottom view)

REFERENCE DATA

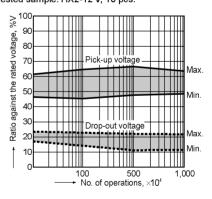
1. Maximum switching capacity



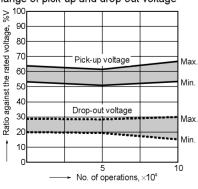
2. Life curve



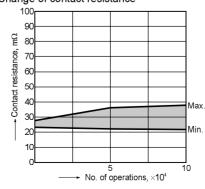
3. Mechanical life Tested sample: HX2-12 V, 10 pcs.



4. Electrical life (1 A 30 V DC resistive load) Tested sample: HX2-12 V, 6 pcs.
Operating frequency: 20 cpm
Change of pick-up and drop-out voltage

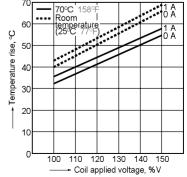


Change of contact resistance

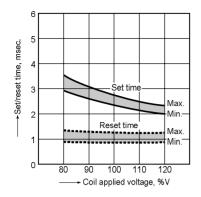


5. Coil temperature rise

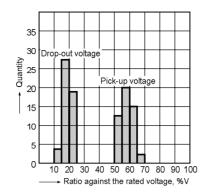
Tested sample: HX2-12 V Measured portion: Inside the coil Ambient temperature: 25°C 77°F, 70°C 158°F



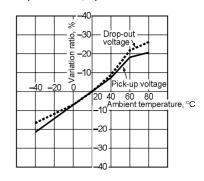
6. Operate/release time characteristics Tested sample: HX2-12V, 10 pcs.



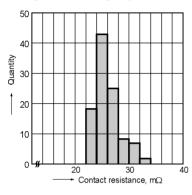
7. Distribution of pick-up and drop-out voltage Tested sample: HX2-12V, 50 pcs.



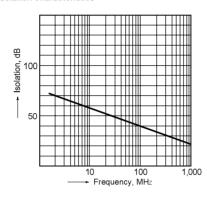
8. Ambient temperature characteristics Tested sample: HX2-12V, 5 pcs.



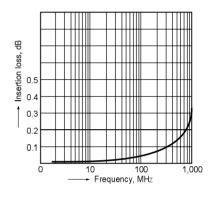
9. Distribution of contact resistance Tested sample: HX2-12V, 25 pcs. (25 ¥ 4 contacts)



10.-(1) High frequency characteristics Isolation characteristics



10.-(2) High frequency characteristics Insertion loss characteristics



NOTES

1. Coil operating power

Pure DC current should be applied to the coil. The wave form should be rectangular. If it includes ripple, the ripple factor should be less than 5%.

However, check it with the actual circuit since the characteristics may be slightly different. The nominal operating voltage should be applied to the coil for more than 10 ms to set/reset the latching type relay.

2. Cleaning

In automatic cleaning, cleaning with the boiling method is recommended. Avoid ultrasonic cleaning which subject the relay to high frequency vibrations. It may cause the contacts to stick.

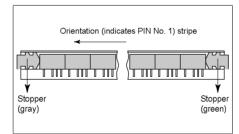
It is recommended that a fluorinated hydrocarbon or other alcoholic solvent be used.

3. Packing style

Packing direction

The relay is packed in a tube with the relay orientation mark on the left side, as shown in the figure below.

Take note of the relay orientation when mounting relays on the printed circuit board.



The temperature range is -40 to +70°C -40 to +158°F

4. Automatic insertion

To maintain the internal function of the relay, the chucking pressurre should not exceed the values below.

Chucking pressure in direction A:

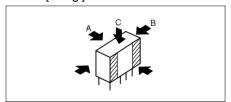
9.8 N {1 kgf} or less

Chucking pressure in direction B:

9.8 N {1 kgf} or less

Chucking pressure in direction C:

4.9 N {500 gf} or less



Please chuck the **"""** portion. Avoid chucking the center of the relay.