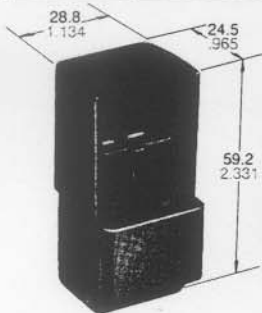


**NAIS**

**AUTOMOTIVE POWER RELAYS — SMALL SIZE, LIGHT WEIGHT AND COMPLETELY WATER TIGHT**

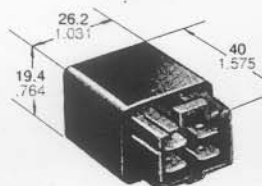
**CA-RELAYS**



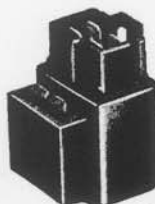
Rubber bracket B type



Screw-mounting type



Direct coupling type  
mm inch



Rubber bracket A type

**FEATURES**

**1. Small size and light weight**

For space saving, the outside dimensions of the main body are reduced to be 19.4 mm (length)×26.2 mm (width)×28 mm (height) (.764×1.031×1.102 inch). Moreover, the number of parts is also reduced and a resin casing is used, thus achieving a light weight design of 28 to 39 g (.99 to 1.88 oz).

**2. Complete water tightness**

Since the relays comply with the water tightness standards, JIS D 0203, water and dust will not enter the relay even if it is mounted in the engine area.

**3. Stable operation even at low or high temperatures**

**4. Since the terminal arrangement complies with JIS D5011 B4-M1, commercial connectors are available for these types of relays.**

**SPECIFICATIONS**

**Contact**

Arrangement	1 Form A (1 Form B and 1 Form C available as option)
Initial contact resistance, max. (by voltage drop 6 V DC 1 A)	50 mΩ
Contact material	Silver alloy
Initial contact pressure, min.	45 g
Rating (resistive or motor load)	
Maximum switching power	240 W
Maximum switching voltage	12 V DC
Maximum switching current	20 A
Inrush current	100 A (0.1 sec. or less)
Expected life (min. operation)	
Mechanical (120 cpm)	5×10 <sup>5</sup>
Electrical	10 <sup>5</sup>
	Ref. 240 W H4 Halogen lamp (ON 1 sec., OFF 14 sec.) 20 A steady current DC motor (ON 2 sec., OFF 2 sec.)

**Coil (at 20°C 68°F)**

Minimum operating power	0.8 W (0.826 W for 5 V type)
Nominal operating power	1.8 W

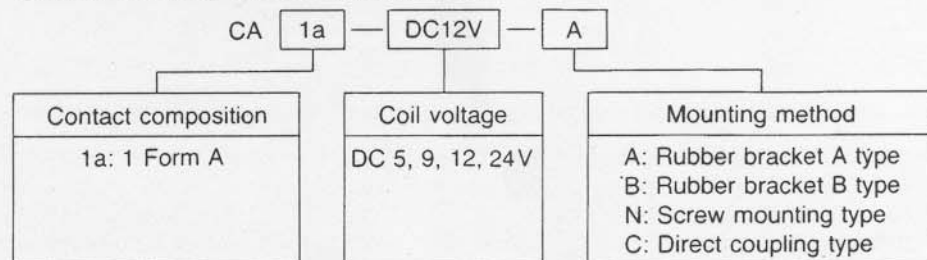
**Characteristics**

Operate time	Max. 10 msec.
Release time	Max. 5 msec. (1 Form B, 1 Form C: Max. 10 m sec.)
Initial insulation resistance	10 MΩ at 500 V DC
Breakdown voltage	
Between contacts	500 V rms
Between contacts and coil	500 V rms
Ambient temperature	-40°C to +85°C -40°F to +185°F (Not frozen under 0°C)
Shock resistance	
Functional	10 G
Destructive	100 G
Vibration resistance	
Rubber bracket type	10 G 50 to 500 Hz (2 hours X, Y, Z directions)
Direct coupling type or Screw-mounting type	4 G 2000 Hz (8 hours X, Y, Z directions)
Unit weight	
Rubber bracket A type	Approx. 32 g
Rubber bracket B type	Approx. 39 g
Direct coupling type	Approx. 28 g
Screw-mounting type	Approx. 28 g

**TYPICAL APPLICATIONS**

1. Motorcycles, mopeds
2. Compressor in automotive air conditioners
3. Halogen lamp
4. Power windows
5. Sun roof

**ORDERING INFORMATION**



Notes: 1) 1c only for screw mounting type.  
2) 1b or 1c: 1 Form B or 1 Form C available as option.

**COIL DATA** at 20°C 68°F

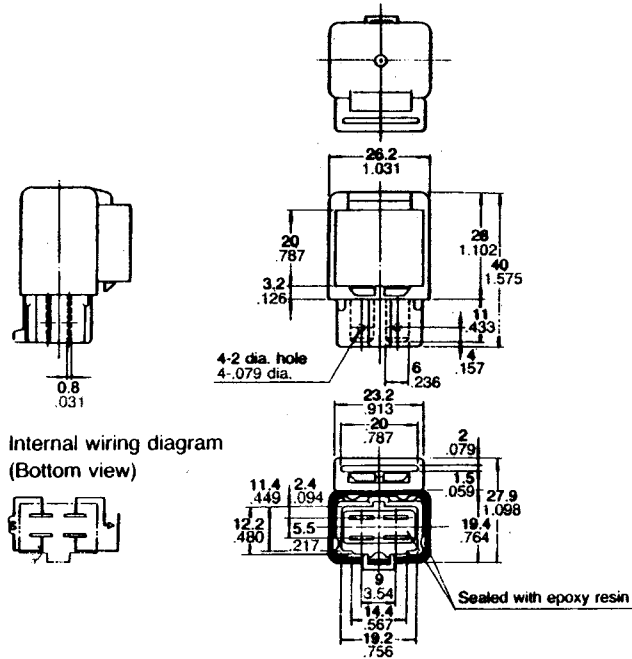
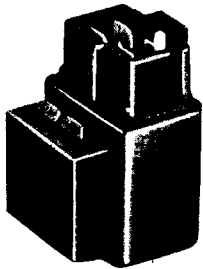
Nominal voltage V DC	Pick-up voltage V DC (max.)	Drop-out voltage V DC (min.)	Nominal current mA	Coil resistance Ω (±10%)	Nominal operating power, W	Maximum allowable voltage, V DC (at 85°C)
5	3.4	0.5	360	14	1.8	6.2
9	6	0.9	200	45	1.8	11.2
12	8	1.2	150	80	1.8	16
24	16	2.4	75	320	1.8	30

1 From B and 1 From C available as option; Drop-out voltage min. 5% of nominal voltage.

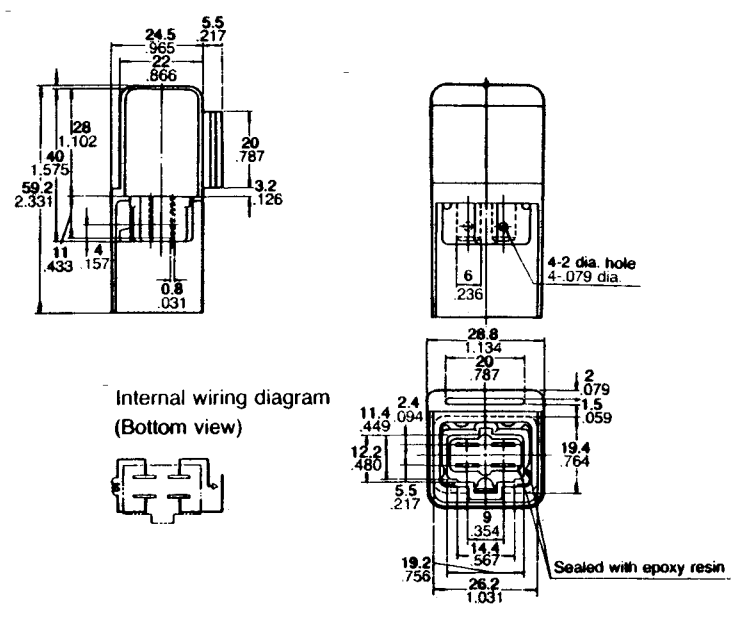
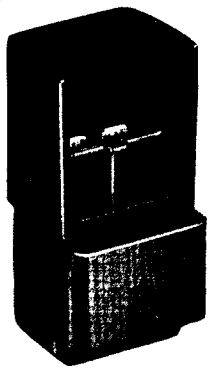
**DIMENSIONS**

mm inch

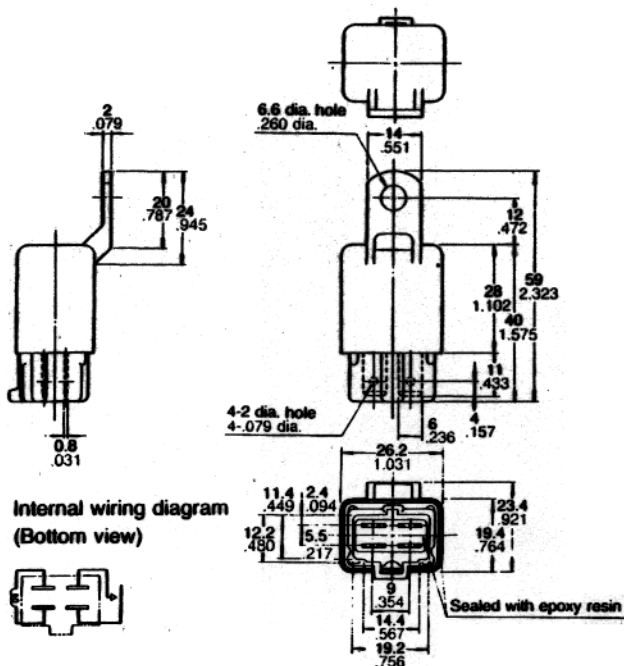
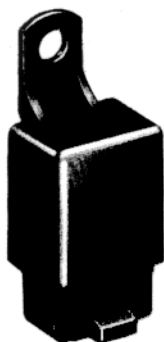
1. Rubber bracket A type



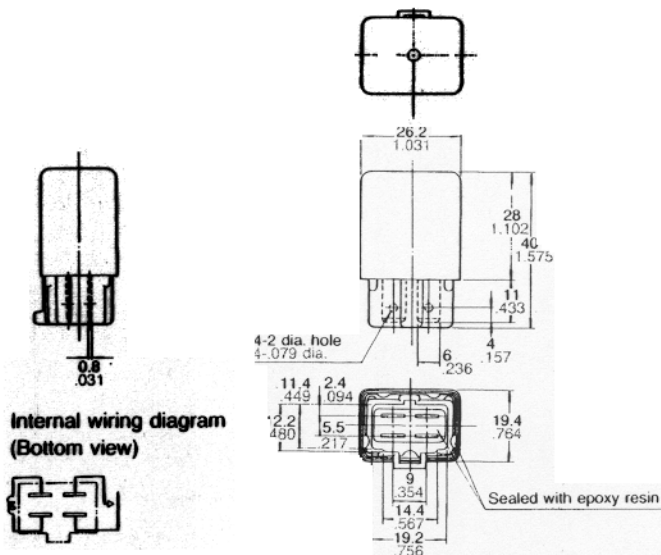
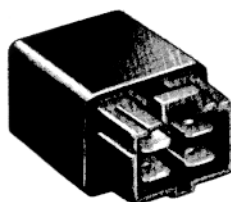
2. Rubber bracket B type



3. Screw mounting type



4. Direct coupling type

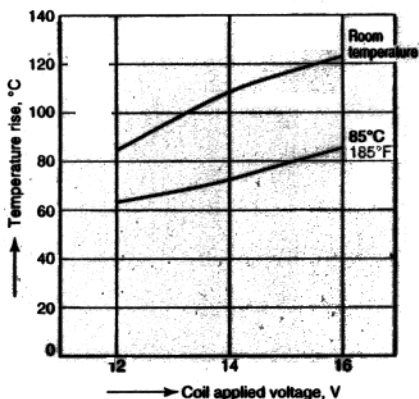


General tolerance:  $\pm 0.3 \pm .012$

REFERENCE DATA

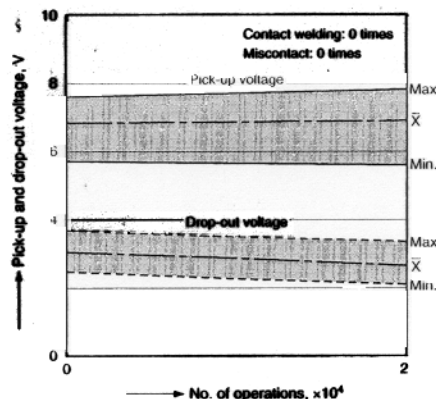
1. Coil temperature rise

Tested sample: CA1aS-12V-N-5, 5 pcs.  
 Point measured: Inside the coil  
 Contact carrying current: 20A  
 Ambient temperature: Room temperature,  
 85°C 185°F



2. Electrical life test (Motor load)

Tested sample: CA1a-12V-N-5, 5 pcs.  
 Load: Steady 30A, Inrush 150A, 12V DC  
 Operate frequency: ON 3s, OFF 15s  
 Ambient temperature: Room temperature



Cautions for use, please see chapter „Technical Information“.