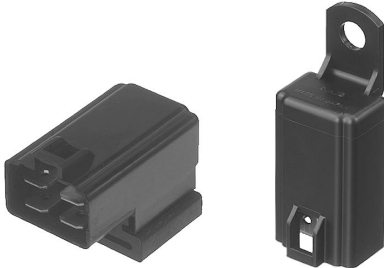


FEATURES



1. Small size and light weight

For space saving, the outside dimensions of the main body are reduced to be 21.5 mm (length) × 14.4 mm (width) × 37 mm (height) (.846 × .567 × 1.457 inch). and the weight is also reduced to be approx. 19 g .67 oz (Direct coupling 1 Form A, 1 Form B type)

2. 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. Low operating power (1.4W) type is available (1 Form A, 1 Form B)

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

SPECIFICATIONS

Contact

Type		12 V DC			24 V DC
Arrangement		1 Form A	1 Form B	1 Form C	1 Form C
Initial contact resistance, max. (By voltage drop 6 V DC 1A)		50 m ohm			
Contact material		silver alloy			
Contact voltage drop, max.		0.3 V After electrical life test, by voltage drop 12 V DC 20 A (1.4 W type), 12 V DC 30 A (1.8 W type)	0.3 V After electrical life test, by voltage drop 12 V DC 20 A	0.4 V After electrical life test, by voltage drop 12 V DC 20 A	0.4 V After electrical life test, by voltage drop 24 V DC 10 A
Rating	Nominal switching capacity (resistive load)	20 A 12 V DC (1.4 W type) 30 A 12 V DC (1.8 W type)	20 A 12 V DC		10 A 24 V DC (ON: 2s, OFF: 2s)
	Max. switching voltage	16 V		15 V	30 V
	Max. switching current	120 A (1.4 W type) 150 A (1.8 W type)	120 A	100 A	50 A (Inrush current)
	Max. carrying current	20 A continuous (1.4 W type) 30 A for 1 min (1.8 W type)	20 A continuous	20 A continuous	10 A continuous
Nominal operating power		1.4 W / 1.8 W			1.8 W
Expected life (min. operations)	Mechanical (at 120 cpm)	10 ⁶			5×10 ⁵
	Electrical	20 A (1.4 W, 1.8 W type)	10 ⁵ (ON: 2s, OFF: 2s)	10 ⁵ (ON 2s, OFF 2s)	
		30 A (1.8 W type)	2×10 ⁴ (ON: 3s, OFF: 15s)		

CA

Characteristics (at 20°C 68°F)

Type	12 V DC		24 V DC
Max. operating speed	15 cpm (1.4 W type: at nominal load) 1.8 W type: at 20 A		15 cpm (at nominal load)
Initial insulation resistance	Min. 10 Ω at 500 V DC		
Initial breakdown voltage*1	Between open contacts	500 V rms for 1 min.	
	Between contacts and coil	500 V rms for 1 min.	
Operate time*2 (at nominal voltage)	Max. 10 ms at 20°C		Max. 10 ms
Release time (without diode)*2 (at nominal voltage)	Max. 10 ms at 20°C		Max. 10 ms
Shock resistance	Functional	Min. 200 m/s ² {20 G}	Min. 100 m/s ² {10 G}
	Destructive*4	Min. 1,000 m/s ² {100 G}	
Vibration resistance	Functional*5	Rubber bracket A type: Min. 100 m/s ² {10 G}, 50 to 500Hz Direct coupling type or Screw-mounting type: Min. 44.1 m/s ² {4.5 G}, 10 to 100 Hz	Min. 44.1 m/s ² {4.5 G}, 10 to 100Hz
	Destructive	Rubber bracket A type: Min. 100m/s ² {10 G},50 to 500Hz Direct coupling type or Screw-mounting type: Min. 44.1 m/s ² {4.5 G}, 10 to 100 Hz	Min. 44.1 m/s ² {4.5 G}, 10 to 500Hz
Conditions for operation, transport and storage*6 (Not freezing and condensing low temperature)	Ambient temp.	-30°C to +80°C -22°F to +176°F	
	Humidity	5 to 85% R.H.	
Water-proof standard	Plastic sealed type: JIS DO203S2, Dust cover type: JIS DO203R2		JIS DO203S2
Unit weight	Rubber bracket A type : 23 g .81 oz		31 g 1.09 oz
	Direct coupling type or Screw-mounting type: 19 g .67 oz		

Electrical life (min. operation)

	Nominal coil voltage, V DC	Motor load (operating frequency ON: 2 s, OFF: 2 s)	Halogen lamp load (operating frequency ON: 1 s, OFF: 14 s)
1 Form A, 1 Form B	12	10 ⁵ , 20 A 12 V DC	10 ⁵ , 20 A 12 V DC
1 Form C	12	10 ⁵ , 20 A 12 V DC	10 ⁵ , 20 A 12 V DC
	24	10 ⁵ , 10 A 24 V DC	10 ⁵ , 6 A 24 V DC

Remarks

* Specifications will vary with foreign standards certification ratings.

*1 Detection current: 10 mA

*2 Excluding contact bounce time

*3 Half-wave pulse of sine wave: 11ms; detection time: 10μs

*4 Half-wave pulse of sine wave: 6ms

*5 Detection time: 10μs

*6 Refer to 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT (Page 61)

ORDERING INFORMATION

CA 1a F S — 12 V — A — 5

Contact arrangement	Protective construction	Nominal operating power	Coil voltage (DC)	Mounting method	Classification by type
1a: 1 Form A 1b: 1 Form B 1 : 1 Form C	Nil: Plastic sealed type F: Dust cover type	Nil: Standard type (1.8 W) S: Low operating power type (1.4 W) (1 Form A, 1 Form B)	12 V 24 V (1 Form C only)	A: Rubber bracket A type (1 Form A, 1 Form B) N: Screw mounting type C: Direct coupling type	Nil: 1 Form C 5: 1 Form A or 1 Form B

Notes: 1. Type with resistor/diode inside are available as options. Please consult our sales office.

2. Standard packing: Carton: 20 pcs. Case: 200 pcs.

COIL DATA

1) Standard type

Contact arrangement	Mounting type	Plastic sealed type	Dust cover type	Nominal voltage, V DC	Pick-up voltage, V DC (max.) (at 20°C 68°F)	Drop-out voltage, V DC (min.) (at 20°C 68°F)	Nominal operating current, mA (±10%) (at 20°C 68°F)	Coil resistance, Ω (±10%) (at 20°C 68°F)	Nominal operating power, mW (at 20°C 68°F)	Usable voltage range, V DC
1 Form A	Rubber bracket A	CA1a-12V-A-5	CA1aF-12V-A-5	12	8	0.6 to 6	150	80	1.8	10 to 16
	Screw-mounting	CA1a-12V-N-5	CA1aF-12V-N-5	12	8	0.6 to 6	150	80	1.8	10 to 16
	Direct coupling	CA1a-12V-C-5	CA1aF-12V-C-5	12	8	0.6 to 6	150	80	1.8	10 to 16
1 Form B	Rubber bracket A	CA1b-12V-A-5	CA1bF-12V-A-5	12	8	0.6 to 6	150	80	1.8	10 to 16
	Screw-mounting	CA1b-12V-N-5	CA1bF-12V-N-5	12	8	0.6 to 6	150	80	1.8	10 to 16
	Direct coupling	CA1b-12V-C-5	CA1bF-12V-C-5	12	8	0.6 to 6	150	80	1.8	10 to 16
1 Form C	Screw-mounting	CA1-DC12V-N	-	12	8	0.6	150	80	1.8	10 to 15
	Direct coupling	CA1-DC12V-C	-	12	8	0.6	150	80	1.8	10 to 15
	Screw-mounting	CA1-DC24V-N	-	24	16	1.2	75	320	1.8	20 to 30
	Direct coupling	CA1-DC24V-C	-	24	16	1.2	75	320	1.8	20 to 30

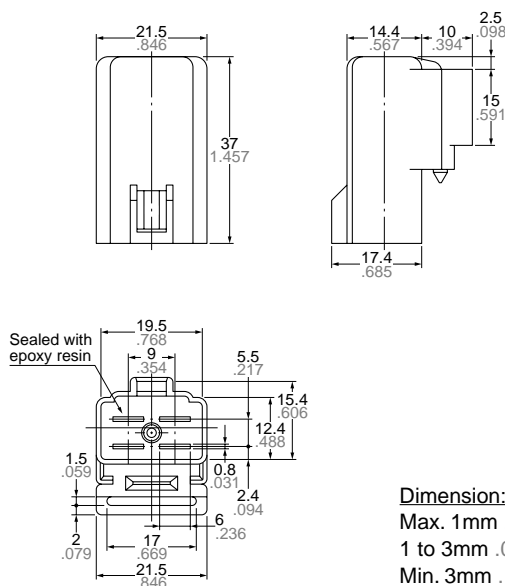
2) Low operating power type

Contact arrangement	Mounting type	Plastic sealed type	Dust cover type	Nominal voltage, V DC	Pick-up voltage, V DC (max.) (at 20°C 68°F)	Drop-out voltage, V DC (min.) (at 20°C 68°F)	Nominal operating current, mA (±10%) (at 20°C 68°F)	Coil resistance, Ω (±10%) (at 20°C 68°F)	Nominal operating power, mW (at 20°C 68°F)	Usable voltage range, V DC
1 Form A	Rubber bracket A	CA1aS-12V-A-5	CA1aFS-12V-A-5	12	8	0.6 to 6	120	100	1.4	10 to 16
	Screw-mounting	CA1aS-12V-N-5	CA1aFS-12V-N-5	12	8	0.6 to 6	120	100	1.4	10 to 16
	Direct coupling	CA1aS-12V-C-5	CA1aFS-12V-C-5	12	8	0.6 to 6	120	100	1.4	10 to 16
1 Form B	Rubber bracket A	CA1bS-12V-A-5	CA1bFS-12V-A-5	12	8	0.6 to 6	120	100	1.4	10 to 16
	Screw-mounting	CA1bS-12V-N-5	CA1bFS-12V-N-5	12	8	0.6 to 6	120	100	1.4	10 to 16
	Direct coupling	CA1bS-12V-C-5	CA1bFS-12V-C-5	12	8	0.6 to 6	120	100	1.4	10 to 16

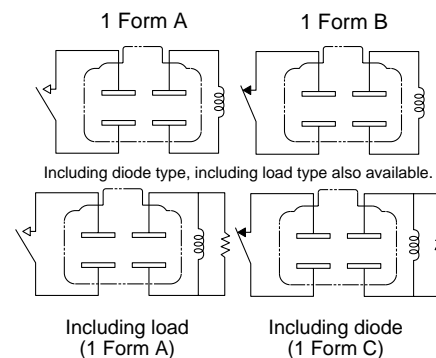
DIMENSIONS

mm inch

1. 1 Form A/1 Form B
Rubber bracket A type



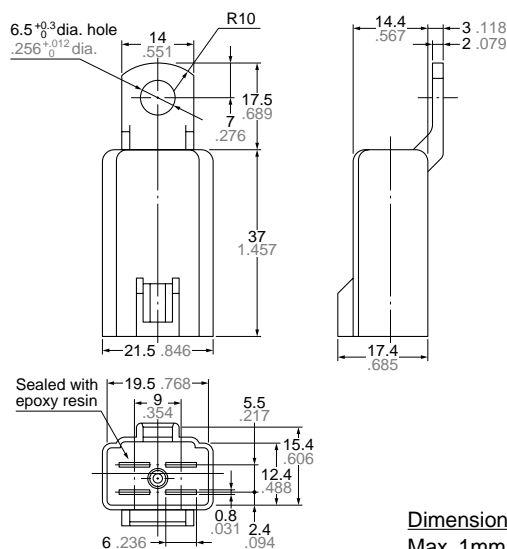
SCHMATIC (Bottom View)



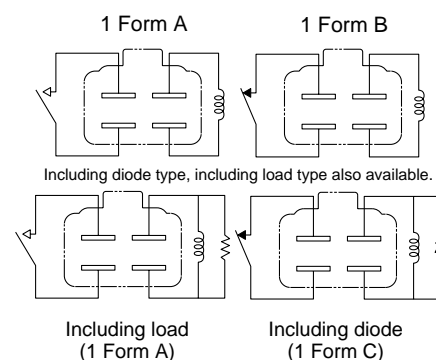
Dimension:
 Max. 1mm .039 inch:
 1 to 3mm .039 to .118 inch:
 Min. 3mm .118 inch:

General tolerance
 ±0.1 ±.004
 ±0.2 ±.008
 ±0.3 ±.012

2. 1 Form A/1 Form B
Screw-mounting type



SCHMATIC (Bottom View)



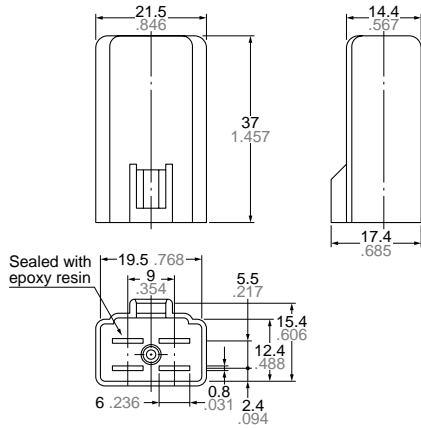
Dimension:
 Max. 1mm .039 inch:
 1 to 3mm .039 to .118 inch:
 Min. 3mm .118 inch:

General tolerance
 ±0.1 ±.004
 ±0.2 ±.008
 ±0.3 ±.012

CA

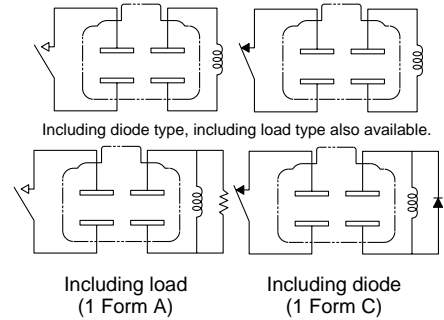
3. 1 Form A/1 Form B Direct coupling type

mm inch



SCHMATIC (Bottom View)

1 Form A 1 Form B



Dimension:

Max. 1mm .039 inch:

1 to 3mm .039 to .118 inch:

Min. 3mm .118 inch:

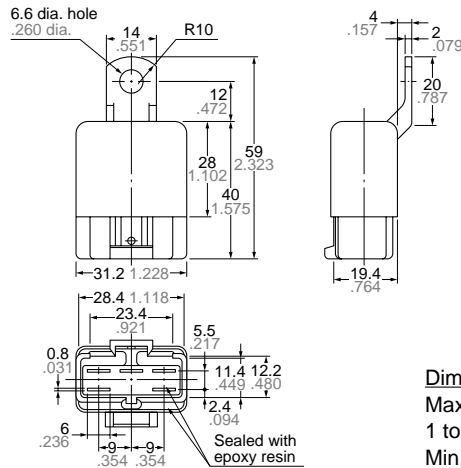
General tolerance

$\pm 0.1 \pm .004$

$\pm 0.2 \pm .008$

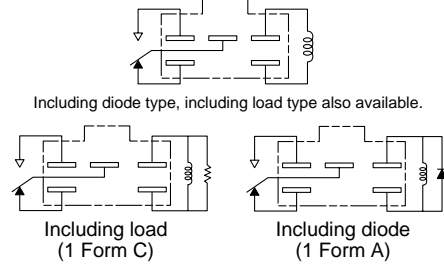
$\pm 0.3 \pm .012$

4. 1 Form C Screw-mounting type



SCHMATIC (Bottom View)

1 Form C



Dimension:

Max. 1mm .039 inch:

1 to 3mm .039 to .118 inch:

Min. 3mm .118 inch:

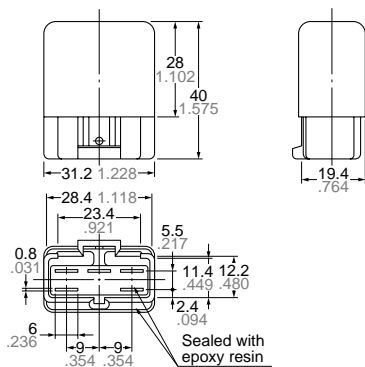
General tolerance

$\pm 0.1 \pm .004$

$\pm 0.2 \pm .008$

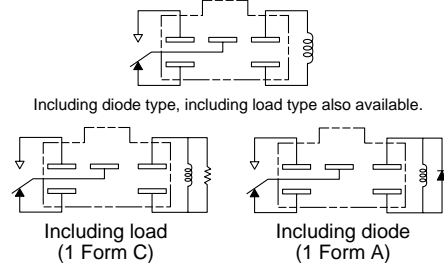
$\pm 0.3 \pm .012$

5. 1 Form C Direct coupling type



SCHMATIC (Bottom View)

1 Form C



Dimension:

Max. 1mm .039 inch:

1 to 3mm .039 to .118 inch:

Min. 3mm .118 inch:

General tolerance

$\pm 0.1 \pm .004$

$\pm 0.2 \pm .008$

$\pm 0.3 \pm .012$

REFERENCE DATA

1. Coil temperature rise

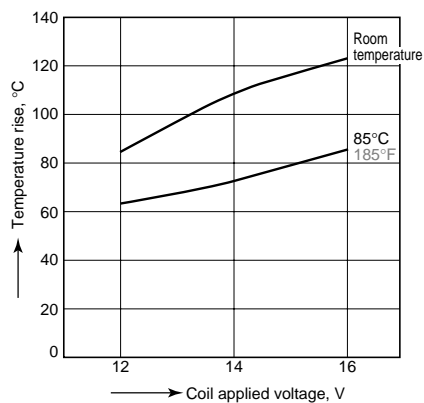
Tested sample: CA1aS-12V-N-5, 5 pcs.

Point measured: Inside the coil

Contact carrying current: 20A

Ambient temperature: Room temperature,

85°C 185°F



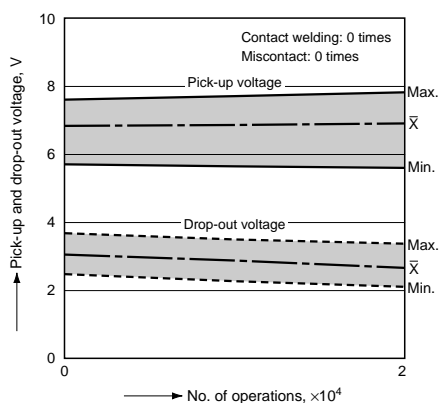
2. Electrical life test (Motor load)

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



For Cautions for use, see Relay Technical Information (Page 48 to 76).

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

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- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
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- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
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- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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JONHON

«JONHON» (основан в 1970 г.)

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(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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