

RATING

1. Coil data

1) DC coils

Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out voltage (at 20°C 68°F)	Nominal coil current [±20%]	Coil resistance (at 20°C 68°F)	Nominal operating power	Max. applied voltage (at 20°C 68°F)
5V DC	70%V or less of nominal voltage (Initial)	15%V or more of nominal voltage (Initial)	106.4mA	47Ω [±10%]	0.53W	170%V of nominal voltage
6V DC			88.2mA	68Ω [±10%]		
12V DC			44.4mA	270Ω [±10%]		
24V DC			22.0mA	1,090Ω [±10%]		
48V DC			11.0mA	4,350Ω [±10%]		
100V DC			5.3mA	18,870Ω [±10%]		
110V DC			4.8mA	22,830Ω [±10%]		

2) AC coils (50/60Hz)

Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out voltage (at 20°C 68°F)	Nominal coil current [±20%]		Nominal operating power		Max. applied voltage (at 20°C 68°F)
			50Hz	60Hz	50Hz	60Hz	
12V AC	80%V or less of nominal voltage (Initial)	30%V or more of nominal voltage (Initial)	93mA	75mA	Approx. 1.1 to 1.4 V A	Approx. 0.9 to 1.2 V A	140%V of nominal voltage
24V AC			46.5mA	37.5mA			
100/110V AC			11.0/13.0mA	9.0/10.6mA			
110/120V AC			10.0/11.8mA	8.2/9.7mA			
200/220V AC			5.5/6.5mA	4.5/5.3mA			
220/240V AC			5.0/5.9mA	4.1/4.8mA			

2. Specifications (Plug-in Standard type and TM type)

Characteristics	Item	Specifications			
		1 Form C	2 Form C	1 Form A (TM type)	
Contact	Arrangement				
	Contact resistance (Initial)	Max. 100 mΩ (By voltage drop 6 V DC 1A)	Max. 50 mΩ (By voltage drop 6 V DC 1A)	Max. 100 mΩ (By voltage drop 6 V DC 1A)	
	Contact material	AgSnO ₂ type	AgNi type	AgSnO ₂ type	
Rating	Nominal switching capacity (resistive load)	10A 250V AC, 10A 30V DC	5A 250V AC, 5A 30V DC	16A 250V AC, 16A 30V DC	
	Max. switching power (resistive load)	4,000VA, 300W	1,250VA, 150W	4,000VA, 480W	
	Max. switching voltage	250V AC, 30V DC			
	Max. switching current	16A (at AC load), 10A (at DC load)	5A	16A	
	Nominal operating power	0.53W, 0.9VA			
	Min. switching capacity (Reference value)*1	100mA 5V DC	1mA 1V DC	100mA 5V DC	
Electrical characteristics	Insulation resistance (Initial)	Min. 1,000MΩ (at 500V DC) Measurement at same location as "Breakdown voltage" section.			
	Breakdown voltage (Initial)	Between open contacts	1,000 Vrms for 1min. (Detection current: 10mA.)		
		Between contact sets	—	3,000 Vrms for 1min. (Detection current: 10mA.)	—
		Between contact and coil	5,000 Vrms for 1min. (Detection current: 10mA.)		
	Temperature rise (coil) (at 70°C 158°F)	Max. 60°C 140°F (By resistive method, nominal coil voltage)			
	Operate time (at 20°C 68°F)*2	Max. 15ms (Nominal coil voltage applied to the coil, excluding contact bounce time.)			
Release time (at 20°C 68°F)*2	Max. 5ms (Nominal coil voltage applied to the coil, excluding contact bounce time.) (without diode)/Max. 20ms (with diode)				
Mechanical characteristics	Shock resistance	Functional	Min. 100 m/s ² (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)		
		Destructive	Min. 1,000 m/s ² (Half-wave pulse of sine wave: 6 ms.)		
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 1.5 mm (Detection time: 10μs.)		
		Destructive	10 to 55 Hz at double amplitude of 1.5 mm		
Expected life	Mechanical	AC: Min. 10 ⁷ ; DC: Min. 2×10 ⁷ (at 300 times/min.)			
	Electrical (at nominal switching capacity)	Min. 10 ⁵ (at 20 times/min.)		Min. 10 ⁵ (at 10 times/min.)	
Conditions	Conditions for operation, transport and storage*3 (Not freezing and condensing at low temperature)	Ambient temperature: -40°C to +70°C -40°F to +158°F Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)			
	Max. Operating speed	20 times/min. (at nominal switching capacity)		10 times/min. (at nominal switching capacity)	
Unit weight		Approx. 19 g .67 oz	Approx. 17 g .60 oz	Approx. 19 g .67 oz	

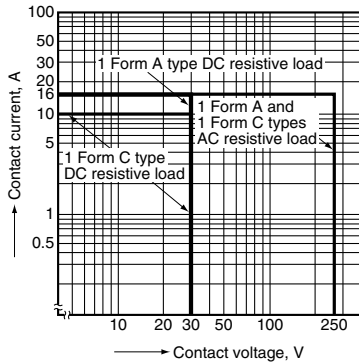
Notes: *1. This value can change due to the switching frequency, environmental conditions and desired reliability level, therefore it is recommended to check this with the actual load.

*2. For the AC coil types, the operate/release time will differ depending on the phase.

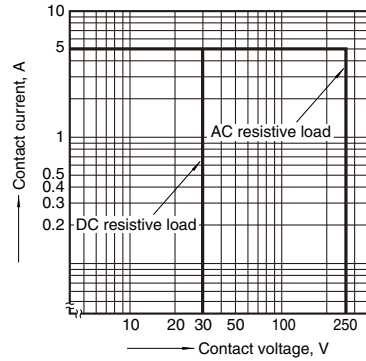
*3. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to Usage, transport and storage conditions in NOTES.

REFERENCE DATA

1-(1). Max. switching capacity
(1 Form C and 1 Form A)

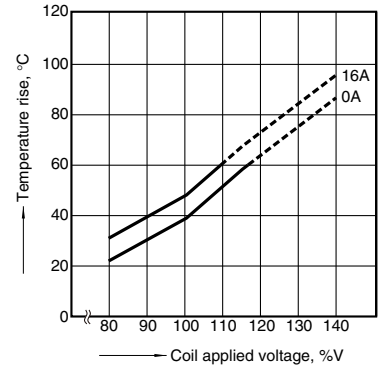


1-(2). Max. switching capacity (2 Form C)



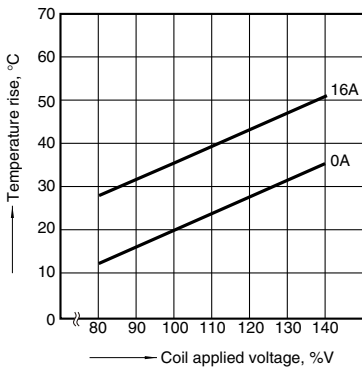
2-(1). Coil temperature rise (1 Form C/AC and 1 Form A/AC types)

Measured portion: Inside the coil
Ambient temperature: 70°C 158°F



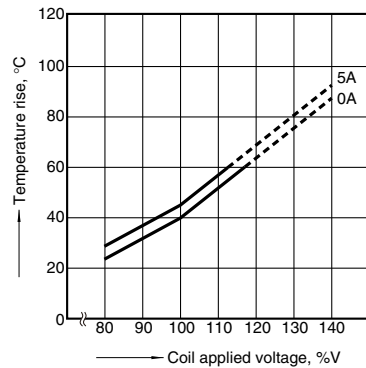
2-(2). Coil temperature rise (1 Form C/DC and 1 Form A/DC types)

Measured portion: Inside the coil
Ambient temperature: 70°C 158°F



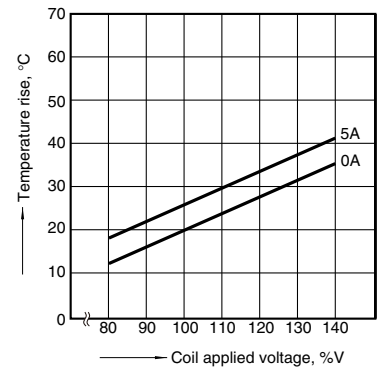
2-(3). Coil temperature rise (2 Form C/AC type)

Measured portion: Inside the coil
Ambient temperature: 70°C 158°F



2-(4). Coil temperature rise (2 Form C/DC type)

Measured portion: Inside the coil
Ambient temperature: 70°C 158°F

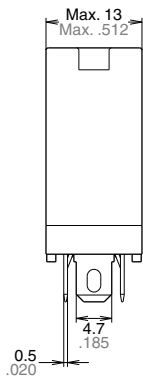


DIMENSIONS (mm inch)

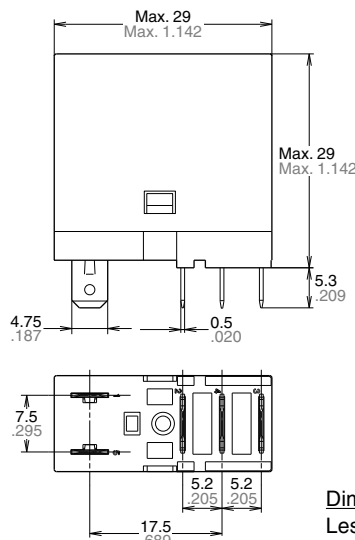
1. Plug-in type 1 Form C

CAD Data

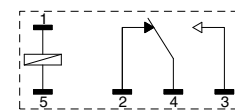
The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>



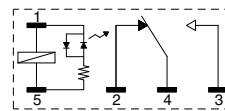
External dimensions



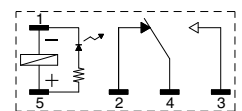
Schematic (Bottom view) Standard type



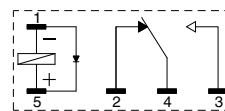
With LED AC type



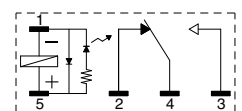
With LED DC type



With Diode type



With Diode and LED type



Dimension:

Less than 1mm .039inch:

Min. 1mm .039inch less than 3mm .118 inch:

Min. 3mm .118 inch:

Tolerance

±0.1 ±.004

±0.2 ±.008

±0.3 ±.012