

### Miniature Single-pole Relay with 80-A Surge Current and 20-A Switching Current

- Ideal for motor switching.
- Miniature, relay with high switching capacity built-in applications.
- Creepage distance conforms to UL and CSA standards.
- Highly noise-resistive insulation materials employed.
- Standard model available with flux protection construction.



### Ordering Information

Contact form	Terminals	Coil terminals	Rated voltage	Model
SPST-NO	#250 tab terminals	PCB terminals	5, 12, 24 VDC	G4A-1A
	PCB terminals			G4A-1A-P

**Note:** When ordering, add the rated coil voltage to the model number.

Example: G4A-1A 12 VDC  
└───┘ Rated coil voltage

#### Model Number Legend:

G4A -     -     VDC  
1    2    3    4

**1. Number of Poles**

1: 1 pole

**2. Contact Form**

A: SPST-NO

**3. Terminals**

None: Relays with #250 tab/PCB

P: Straight PCB

**4. Rated Coil Voltage**

5, 12, 24 VDC

# Specifications

## ■ Coil Ratings

Rated voltage	5 VDC	12 VDC	24 VDC
Rated current	180 mA	75 mA	37.5 mA
Coil resistance	27.8 Ω	160 Ω	640 Ω
Coil inductance (ref. value)	Armature OFF	---	3.5 H
	Armature ON	---	4.8 H
Must operate voltage	70% of rated voltage max.		
Must release voltage	10% of rated voltage min.		
Max. voltage	110% of rated voltage		
Power consumption	Approx. 0.9 W		

**Note:** 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.  
2. Operating characteristics are measured at a coil temperature of 23°C.

## ■ Contact Ratings

Rated load	20 A at 250 VAC
Rated carry current	20 A
Max. switching voltage	250 VAC
Max. switching current	20 A
Max. switching capacity	5,000 VA
Min. permissible load	100 mA at 5 VDC

**Note:** P level:  $\lambda_{60} = 0.1 \times 10^{-6}$ /operation (with an operating frequency of 120 operations/min)

## ■ Life Expectancies

### With Motor Load

Load conditions	Switching frequency	Electrical life expectancy
250 VAC: Inrush current: 80 A, 0.3 s ( $\cos\phi = 0.7$ ) Break current: 20 A ( $\cos\phi = 0.9$ )	ON: 1.5 s OFF: 1.5 s	100,000 operations

### With Overload

Load conditions	Switching frequency	Electrical life expectancy
250 VAC: Inrush current: 80 A ( $\cos\phi = 0.7$ ) Break current: 80 A ( $\cos\phi = 0.7$ )	ON: 1.5 s OFF: 1.5 s	1,500 operations

### With Inverter Load

Load conditions	Switching frequency	Electrical life expectancy
100 VAC; Inrush current: 200 A (0-P) Break current: 20 A	ON: 3 s OFF: 5 s	30,000 operations

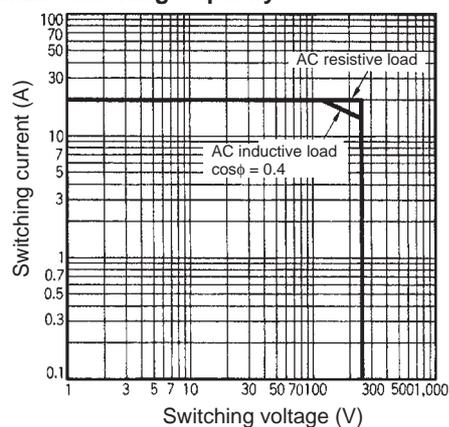
## ■ Characteristics

<b>Contact resistance</b>	30 mΩ max.
<b>Operate time</b>	20 ms max.
<b>Release time</b>	10 ms max.
<b>Max. operating frequency</b>	Mechanical: 18,000 operations/hr
<b>Insulation resistance</b>	1,000 MΩ min. (at 500 VDC)
<b>Dielectric strength</b>	4,500 VAC 50/60 Hz for 1 min between coil and contact 1,000 VAC 50/60 Hz for 1 min between contacts of same polarity
<b>Vibration resistance</b>	Destruction: 10 to 55 Hz, 1.5-mm double amplitude Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
<b>Shock resistance</b>	Destruction: 1,000 m/s <sup>2</sup> (approx. 100G) Malfunction: 200 m/s <sup>2</sup> (approx. 20G)
<b>Life expectancy</b>	Mechanical: 2,000,000 operations min. (at 18,000 operations/hr) Motor load: 100,000 operations min. (ON/OFF: 1.5 s) Inverter load: 30,000 operations min. (ON: 3 s, OFF: 5 s)
<b>Ambient temperature</b>	Operating: -20°C to 55°C (with no icing)
<b>Ambient humidity</b>	Operating: 35% to 85%
<b>Weight</b>	Approx. 23 g

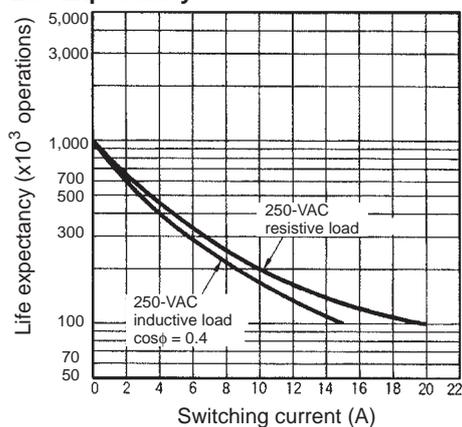
**Note:** The data shown above are initial values.

## Engineering Data

### Max. Switching Capacity



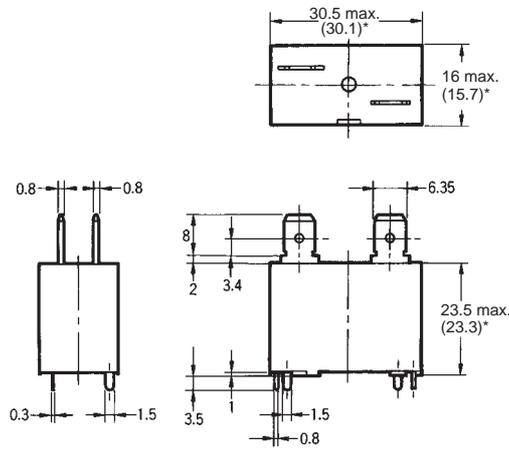
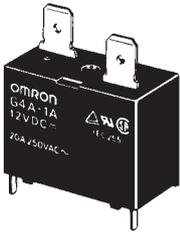
### Life Expectancy



## Dimensions

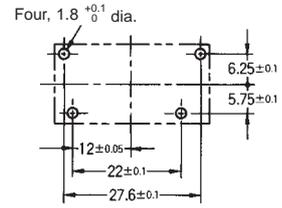
**Note:** All units are in millimeters unless otherwise indicated; dimensions shown in parentheses are in inches.

G4A-1A

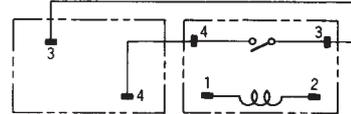


\*Average value

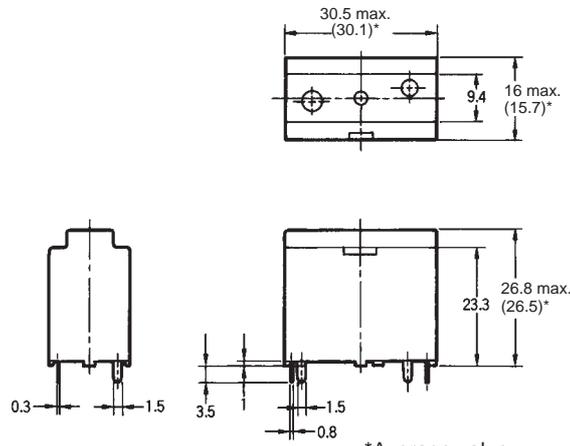
Mounting Holes (Bottom View)



Terminal Arrangement / Internal Connections (Top View) (Bottom View)

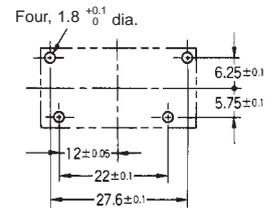


G4A-1A-P

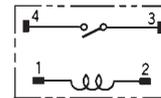


\*Average value

Mounting Holes (Bottom View)



Terminal Arrangement / Internal Connections (Bottom View)



## Precautions

### Mounting

When mounting two or more relays side by side, provide a minimum space of 3 mm between relays.

### Terminal Connection

The terminals fit FASTON receptacle 250 and are suitable for positive-lock mounting.

Do not apply excessive force on the terminals when mounting or dismantling the relay.

The following positive-lock connectors made by AMP are recommended.

Type	Receptacle terminals	Positive housing
#250 terminals (width: 6.35 mm)	AMP 170333-1 (170327-1) AMP 170334-1 (170328-1) AMP 170335-1 (170329-1)	AMP 172076-1 natural color AMP 172076-4 yellow AMP 172076-5 green AMP 172076-6 blue

**Note:** The numbers shown in parentheses are for air-feeding.

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.