

# SOLID STATE RELAY

## MAXIMUM LOAD CURRENT 3 A

### SG Series

RoHS compliant

#### ■ FEATURES

- Conforms to UL, CSA Standards
- Slim, SIL Terminal Type
  - Size: 9.0 (W) × 40.0 (L) × 20.0(H) mm
  - Weight: approximately 13g
- High reliability, long life and maintenance free
- High isolation (between input and output)
  - Dielectric strength: 2,500 Vrms
- Internal zero cross circuit type available
- Internal output surge absorber (varistor) type available.
- RoHS compliant since date code: 6703 (July 3rd, 2006)  
Please see page 5 for more information



#### ■ ORDERING INFORMATION

[Example] SG - 12 A 03 C V L  
 (a) (b) (c) (d) (e) (f) (g)

(a)	Series Name	SG: SG Series
(b)	Nominal Voltage (Input side)	3 : 3 VDC 5: 5 VDC 12: 12 VDC 24: 24 VDC
(c)	Load Voltage	A: AC type
(d)	Load Current	03: 3 A rms
(e)	Zero Cross Circuit	Nil: No zero cross tyoe C: Zero cross type
(f)	Varistor	Nil: No varistor type V : Internal varistor type
(g)	Input Terminal Distance	Nil: 7.62 mm L: 5.08 mm

# SG SERIES

## ■ SPECIFICATIONS

Item		AC	Remarks
		TYPE 3 A	
INPUT side	Nominal Voltage (DC)	3 V, 5 V, 12 V, 24 V	
	Operate Range	±20% of nominal voltage	
	Must Operate Voltage	80% of nominal voltage	
	Must Release Voltage	Minimum 1 V	
	Input Impedance	3 VDC Type	130Ω ±10%
5 VDC Type		330Ω ±10%	
12 VDC Type		1.0 kΩ ±10%	
24 VDC Type		2.2 kΩ ±10%	
OUTPUT side	Load Voltage Range	75 to 265 Vrms	
	Maximum Load Current	3.0 Arms	CHARACTERISTIC DATA
	Minimum Load Current	10 mArms	
	1 Cycle Surge Current	132 A (60 Hz)	
	Max. Off-state Leakage Current	2.5 mArms (at 100 Vrms 60 Hz) 5.0 mArms (at 200 Vrms 60 Hz)	
	Max. Off-state Voltage Drop	1.5 Vrms	at max. load current
Max. Operate Time	at no zero cross type	1 ms	
	at zero cross type	1/2 cycle + 1 ms	
Max. Release Time		1/2 cycle + 1 ms	
Insulation Resistance		Minimum 1,000 MΩ (at 500 VDC)	for input-output
Dielectric Strength		2,500 Vrms for 1 minute	for input-output
Operating Temperature Range		-30°C to + 85°C	
Storage Temperature Range		-40°C to + 100°C	
Case Color		Black	
Weight		Approximately 13g	

## ■ INSULATION

Item	AC 3.0A type	Note
Resistance (initial)	Minimum 1,000 MΩ (500VDC)	Input-output
Surge Voltage	2,500V rms 1 min.	

## ■ BLOCK DIAGRAM

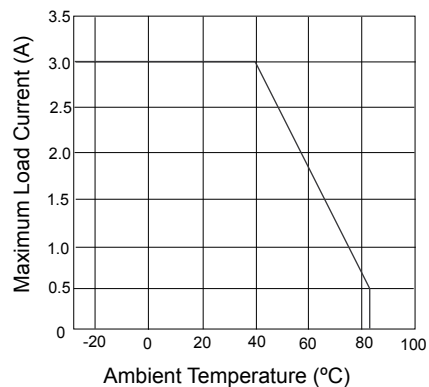
LOAD	INSULATION	CIRCUITS	Input/Output waveform (resistive load)
AC	Photo-triac coupler		

# SG SERIES

## ■ CHARACTERISTIC DATA

SG-A03 (3.0A type)

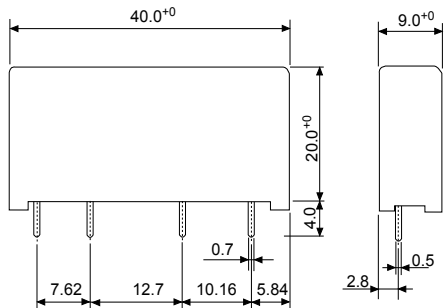
Ambient Temperature vs. Maximum Load Current



## ■ DIMENSIONS

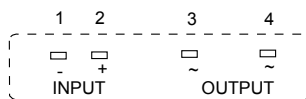
### ● Dimensions

SG-( ) A03 Type



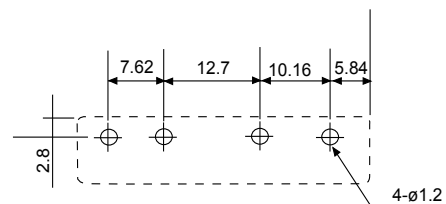
### ● Schematics

(BOTTOM VIEW)

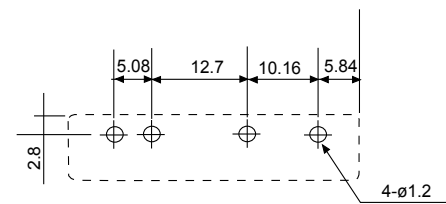
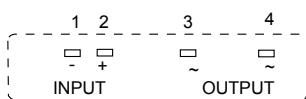
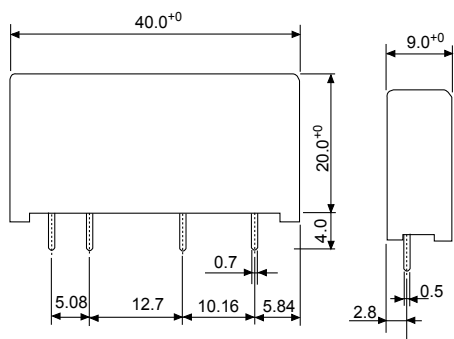


### ● PC board mounting hole layout

(BOTTOM VIEW)



SG-( ) A03L Type

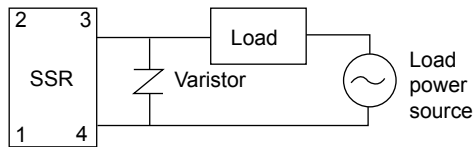


Unit: mm

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## ■ NOTES

1. Polarity of terminals are pre-determined. Please design accordingly.
2. If using non-Varistor enclosure type please use Varistor type as in Figure 1.



## RoHS Compliance and Lead Free Relay Information

### 1. General Information

- Relays produced after the specific date code that is indicated on each data sheet are lead-free now. Most of our signal and power relays are lead-free. Please refer to Lead-Free Status Info. (<http://www.fujitsu.com/us/downloads/MICRO/fcai/relays/lead-free-letter.pdf>)
- Lead free solder paste currently used in relays is Sn-3.0Ag-0.5Cu.
- All signal and most power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 5 hazardous materials that are restricted by RoHS directive (lead, mercury, chromium IV, PBB, PBDE).
- It has been verified that using lead-free relays in leaded assembly process will not cause any problems (compatible).
- "LF" is marked on each outer and inner carton. (No marking on individual relays).
- To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.
- We will ship leaded relays as long as the leaded relay inventory exists.

Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)

### 2. Recommended Lead Free Solder Profile

- Recommended solder paste Sn-3.0Ag-0.5Cu.

#### Reflow Solder condition

**Flow Solder condition:**

Pre-heating: maximum 120°C  
Soldering: dip within 5 sec. at  
260°C solder bath

**Solder by Soldering Iron:**

Soldering Iron  
Temperature: maximum 360°C  
Duration: maximum 3 sec.

**We highly recommend that you confirm your actual solder conditions**

### 3. Moisture Sensitivity

- Moisture Sensitivity Level standard is not applicable to electromechanical relays.

### 4. Tin Whisker

- Dipped SnAgCu solder is known as low risk tin whisker. No considerable length whisker was found by our in house test.

# SG SERIES

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