

# SOLID STATE RELAY

## Maximum Load Current 3A

### SG Series

#### ■ 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
- Please see page 5 for more information



#### ■ PARTNUMBER INFORMATION

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

(a)	Relay type	SG	: SG Series
(b)	Coil rated voltage	12	: 3...24VDC
(c)	Load voltage	A	: AC type
(d)	Load current	03	: 3A rms
(e)	Zero cross circuit	F C	: No zero cross type : Zero cross type
(f)	Output protection	Nil V	: No varistor : Internal varistor type
(g)	Input terminal distance	Nil L	: 7.62 mm : 5.08 mm

# SG SERIES

## ■ SPECIFICATION

Item			AC	Remarks
			TYPE 3A	
Input side	Nominal voltage (DC)		3V, 5V, 12V, 24V	
	Operate range		± 20% of nominal voltage	
	Must operate voltage		80% of nominal voltage	
	Must release voltage		Min. 1VDC	
	Input Impedance	3VDC Type		130Ω ± 10%
5VDC Type		330Ω ± 10%		
12VDC Type		1.0kΩ ± 10%		
24VDC Type		2.2kΩ ± 10%		
Output side	Load voltage range		75 to 265V rms	
	Maximum load current		3.0A rms	See characteristic data
	Minimum load current		10 mA rms	
	1 cycle surge current		132A (60Hz)	
	Max. off-state leakage current		2.5mA rms (at 100V rms 60Hz) 5.0mA rms (at 200V rms 60Hz)	
	Max. off-state voltage drop		1.5V rms	At max. load current
Coil Data	Operating temperature range		-30 °C to +85 °C	
	Storage temperature range		-40 °C to +100 °C	
Timing Data	Max. operate time	At no zero cross type	1ms	
		At zero cross type	1/2 cycle + 1ms	
	Maximum release time		1/2 cycle + 1ms	
Insulation	Initial resistance		Min. 1,000MΩ (500VDC) (input-output)	
	Surge voltage		2,500V rms 1 min. (input-output)	
Other	Case color		Black	
	Weight		Approximately 13 g	

## ■ BLOCK DIAGRAM

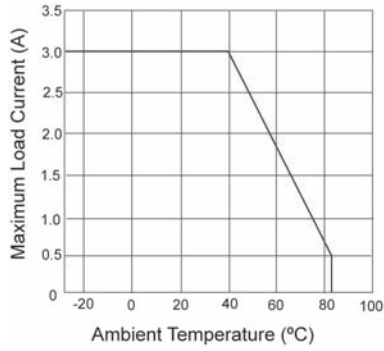
Load	Insulation	Circuit	Input/Output Waveform (resistive load)
AC type	Phototriac coupler		

# SG SERIES

## CHARACTERISTIC DATA

SG- ( ) A03 type (3.0A type)

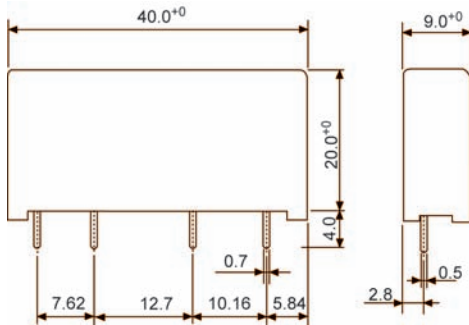
Ambient Temperature vs. Maximum Load Current



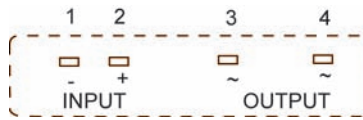
## DIMENSIONS

SG- ( ) A03 type

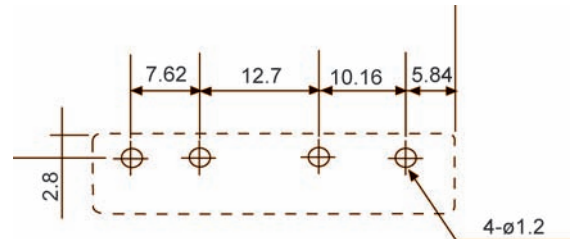
### • Dimensions



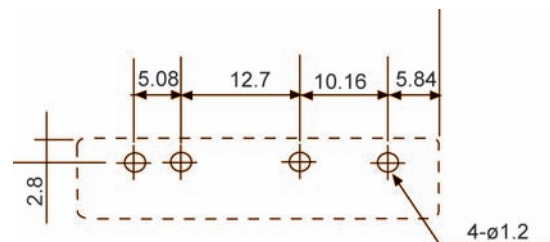
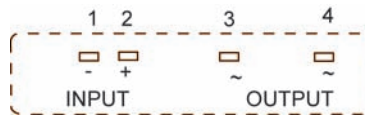
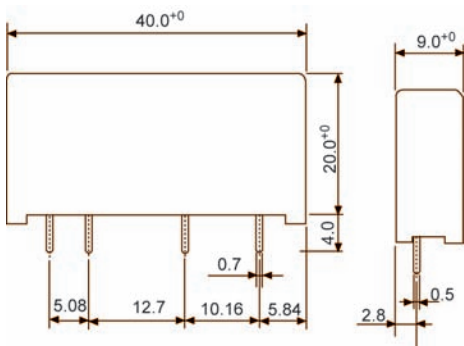
### • Schematic (bottom view)



### • PC board mounting hole layout (bottom view)



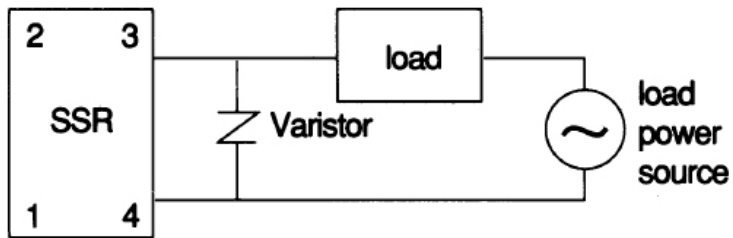
SG- ( ) A03L type



Unit: mm

## ■ 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.



## CAUTIONS

- All values mentioned in this datasheet are provided under ideal conditions. Please perform the confirmation test before actual use.
- Reflow soldering is prohibited.
- Do not use relays in the atmosphere with sulfide gas, chloride gas or nitric oxide. Contact resistance may increase.
- Do not use silicon or silicon-containing product or materials near relays. It may cause contact failure.

## GENERAL INFORMATION

### 1. RoHS Compliance

- All relays produced by FCL Components are compliant with RoHS directive 2011/65/EU, including commission delegated directive 2015/863.

### 2. Recommended lead free solder condition

- Lead free solder plating on relay terminals is Sn-3.0Ag-0.5Cu, unless otherwise specified. This material has been verified to be compatible with PbSn assembly process.
- Recommended solder for assembly: Sn-3.0Ag-0.5Cu.

#### Flow Solder Condition:

Pre-Heating: Maximum 120°C

Soldering: Dip within 5 sec. at 255°C±5°C solder bath

Relay must be cooled by air immediately after soldering

#### Solder by Soldering Iron:

Soldering Iron: 30-60W

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, unless otherwise indicated.

### 4. Tin Whiskers

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

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