Not for New Design

SOLID STATE RELAY
MAXIMUM LOAD CURRENT 3A

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 stength: 2,500 Vrms
- Internal zero cross circuit type available
- Internal output surge absorber (varistor) type available.
- RoHS Compliant

Note: The piece-parts used in this relay contains lead but they are excluded from controlled substances.

■ PART NUMBERS

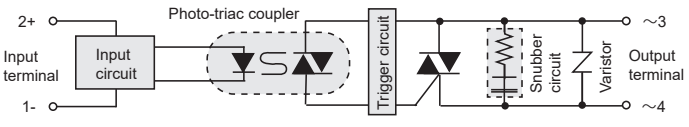
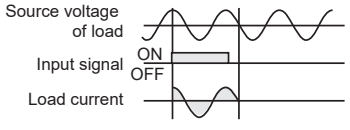
[Example] SG - 12 A 03 C V L
(a) (b) (c) (d) (e) (f) (g)

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

■ SPECIFICATIONS

Item			Specifications		Remarks/Conditions
			Without zero cross	With zero cross	
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%	180Ω±10%	
		5VDC type	330 Ω± 10%	470Ω±10%	
		12VDC type	1,000 Ω± 10%	1,500Ω±10%	
		24VDC type	2,200 Ω± 10%	3,000Ω±10%	
Output side	Load voltage range		75 to 265Vrns		
	Maximum load current		3.0Arms		Please refer to characteristic data
	Minimum load current		10mArms		
	1 cycle surge current		132A (60Hz)		
	Max. off-state leakage current		2.5mArms (at 100Vrms 60Hz) 5.0mArms (at 200Vrms 60Hz)		
	Max. on-state voltage drop		1.5Vrms		At max. load current
Coil data	Opearting temperature range		-30 °C to +85 °C		
	Storage temperature range		-40 °C to +100 °C		
Timing data	Maximum operate time		1ms	1/2 cycle+1ms	
	Maximum release time		1/2 cycle +1ms		
Insulation	Initial resistance		Min. 1,000MΩ (500VDC) (input-output)		
	Surge voltage		2,500Vrms 1 minute (input-output)		
Other	Case color		Black		
	Weight		Approximately 13 g		

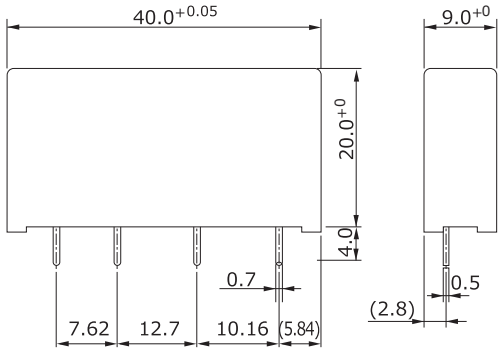
■ BLOCK DIAGRAM

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

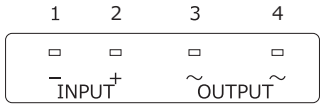
■ DIMENSIONS

SG-( )03

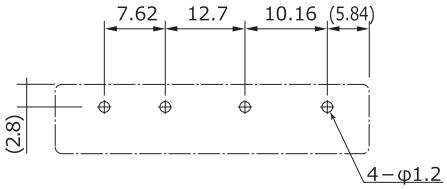
●Dimensions



●Schematics
（BOTTOM VIEW）

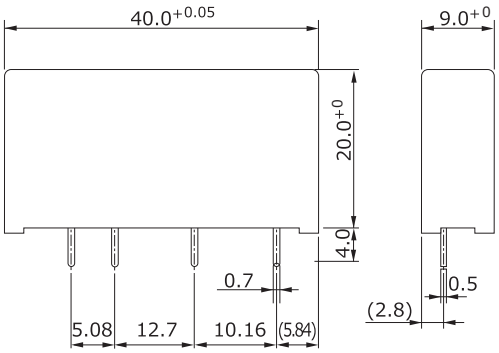


●PC board mounting hole layout
（BOTTOM VIEW）



SG-( )A03L

●Dimensions



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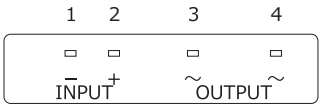
（BOTTOM VIEW）



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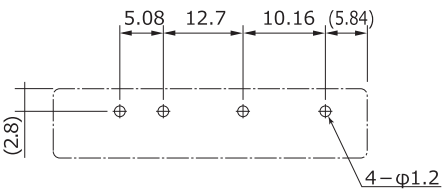
（BOTTOM VIEW）



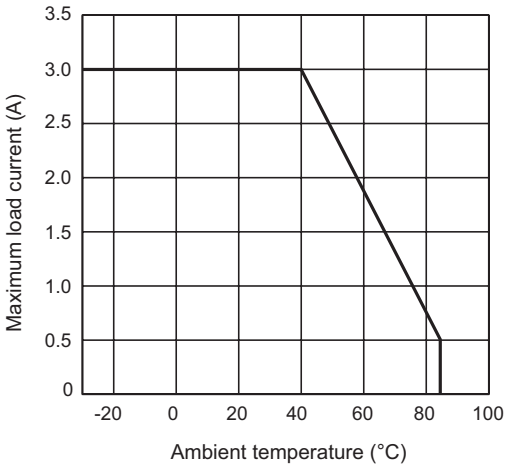
単位: mm

■ CHARACTERISTIC DATA

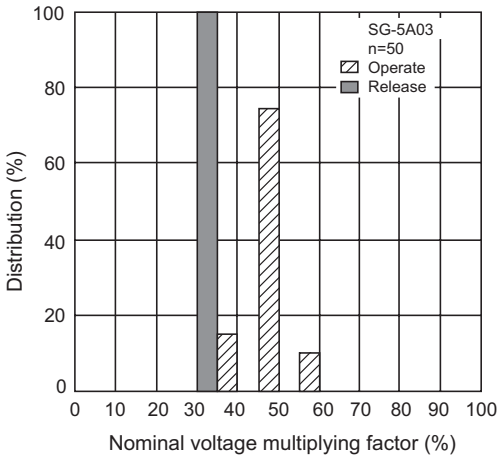
(Characteristic data is not guaranteed value but measured values of samples from production line.)

● SG - A03 (3.0A type)

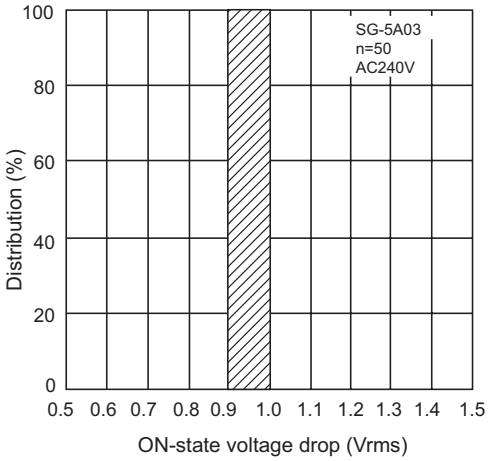
Ambient temperature vs maximum load current



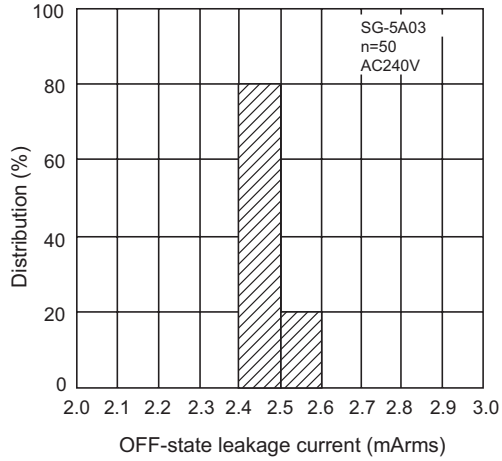
Distribution of operate/release voltage



Distribution of ON-state voltage drop



Distribution of OFF-state leakage current



■ 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.

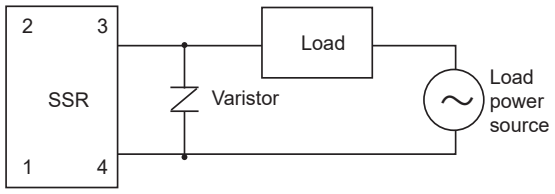


Figure 1

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 within 90 sec.
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 340-360˚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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