

# SOLID STATE RELAY

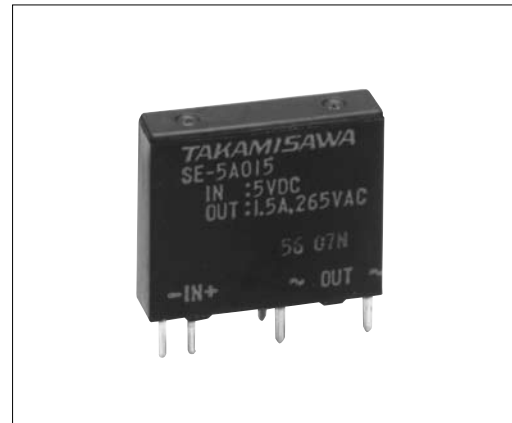
# MAXIMUM LOAD CURRENT 1.5 A / 2A SE SERIES

RoHS compliant



## FEATURES

- Conforms to UL, CSA standards
- Ultra slim and light weight, SIL terminals type
  - Size: 5.0 (W) × 20.0 (L) × 17.0 (H)mm
  - Weight: approximately 4.0 g
- High reliability, long life and maintenance free
- High isolation (between input and output)
  - Dielectric strength: 2,500 Vrms
- Internal zero cross circuit type available
- RoHS compliant since date code: 6522 (May 22nd, 2006)  
Please see page 5 for more information



## ORDERING INFORMATION

[Example]  $\frac{SE}{(a)}$  -  $\frac{12}{(b)}$   $\frac{A}{(c)}$   $\frac{02}{(d)}$   $\frac{V}{(e)}$   $\frac{F}{(f)}$

(a)	Series Name	SE : SE 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	015 : 1.5 A 02 : 2.0 A
(e)	Output Protection	Nil: No varistor V : Varistor type (2.0A type only)
(f)	Zero Cross Circuit	F: No zero cross type C: Zero cross type

# SE SERIES

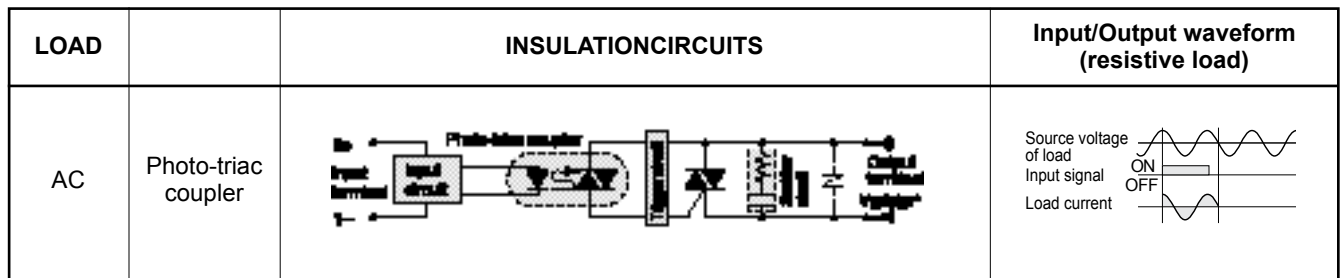
## ■ SPECIFICATIONS

Item		AC 1.5 A		AC 2.0 A		Remarks
		no zero cross	zero cross	no zero cross	zero cross	
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 VDC				
	Input Impedance	3 VDC Type	130Ω	180Ω	130Ω	180Ω
5 VDC Type		330Ω	470Ω	330Ω	470Ω	±10%
12 VDC Type		1.0 kΩ	1.5 kΩ	1.0 kΩ	1.5 kΩ	±10%
24 VDC Type		2.2 kΩ	3.0 kΩ	2.2 kΩ	3.0 kΩ	±10%
OUTPUT side	Load Voltage Range	AC 24 to 265V rms				
	Maximum Load Current	1.5 Arms		2.0 Arms		see CHARACTERISTIC DATA
	Minimum Load Current	10 mArms				
	1 Cycle Surge Current	50 A (60 Hz 1 cycle)				
	Max. Off-State Leakage Current	0.5 mA rms		1.0 mA rms		(at 100 V rms 60 Hz)
		1.0 mA rms		2.0 mA rms		(at 200 V rms 60 Hz)
Max. On-State Voltage Drop	1.2 V rms		1.3 V rms		at maximum load current	
Maximum Operate Time	1 ms	1/2 cycle + max.1 ms	1 ms	1/2 cycle + max.1 ms		
Maximum Release Time	1/2 cycle + 1ms max.					
Operating Temperature Range	-30°C to + 85°C					
Storage Temperature Range	-40°C to +100°C					
Case Color	Black					
Weight	Approximately 3.5 g		5.1 g			

## ■ INSULATION

Item	AC 1.5A type	AC 2.0A type	Note
Resistance (initial)	Minimum 1,000 MΩ (500VDC)		Input - Output
Surge Voltage	2,500V rms 1min.		

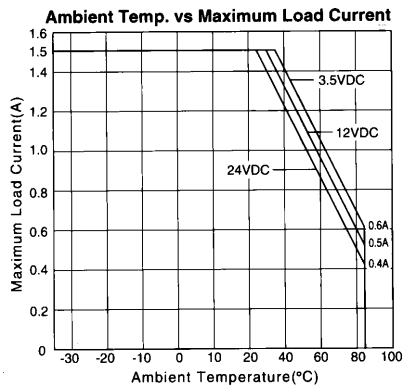
## ■ BLOCK DIAGRAM



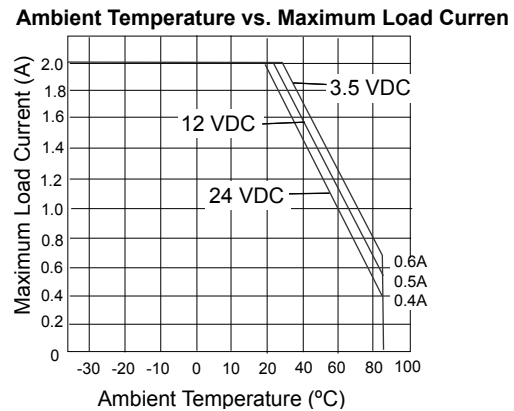
\*: only 2A type had varistor

## ■ CHARACTERISTIC DATA

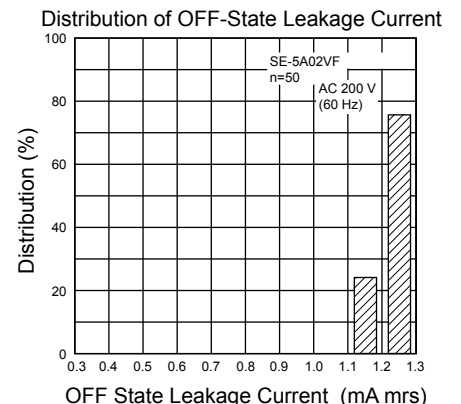
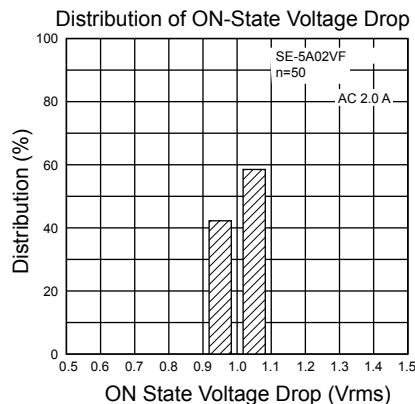
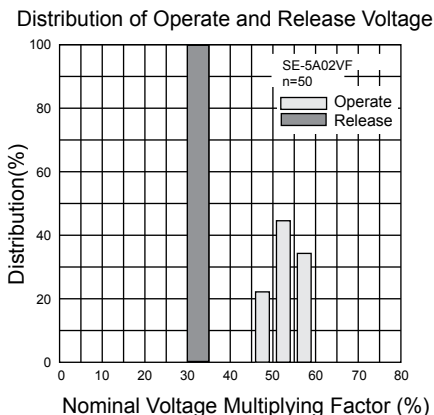
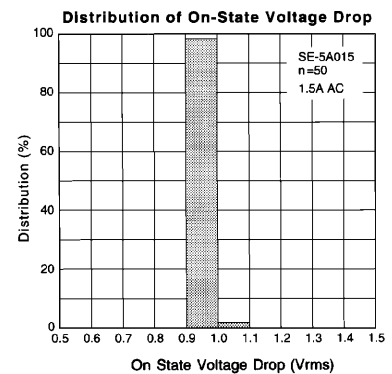
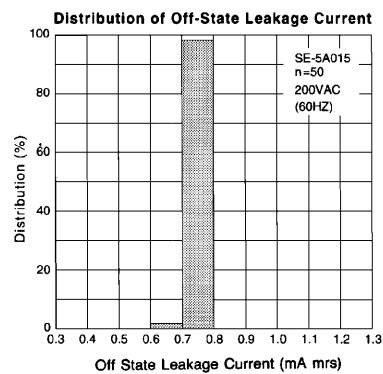
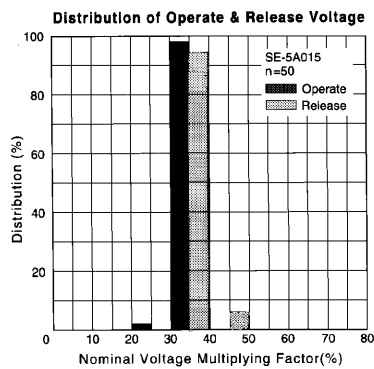
SE-( )A015 type (1.5 A type)



SE-( )A02 type (2.0A type)



## ■ REFERENCE DATA

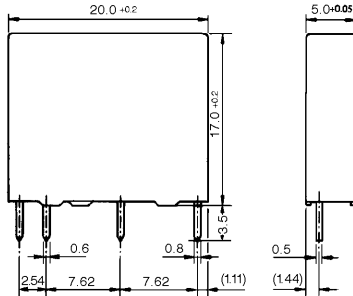


# SE SERIES

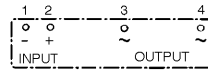
## ■ DIMENSIONS

### ● Dimensions

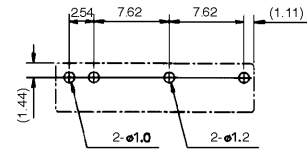
SE- ( ) A015 type



### ● Schematics (BOTTOM VIEW)

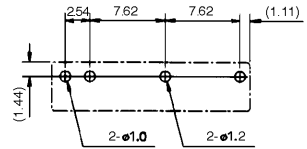
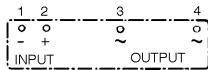
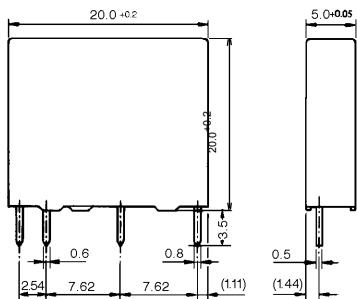


### ● PC board mounting hole layout (BOTTOM VIEW)



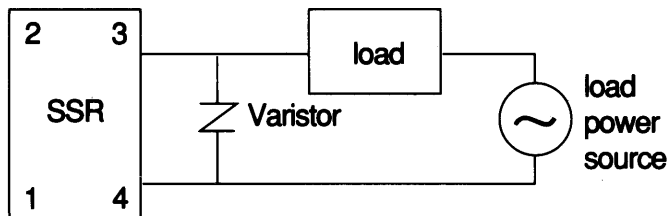
Unit: mm

SE- ( ) A02 type



## ■ NOTES

When large noise and surge are impressed on the load side, there is the possibility of the occurrence of malfunction or damage. In such a case, a varistor should be inserted in the circuit.



## 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.

## Fujitsu Components International Headquarter Offices

### Japan

Fujitsu Component Limited  
Gotanda-Chuo Building  
3-5, Higashigotanda 2-chome, Shinagawa-ku  
Tokyo 141, Japan  
Tel: (81-3) 5449-7010  
Fax: (81-3) 5449-2626  
Email: [promothq@ft.ed.fujitsu.com](mailto:promothq@ft.ed.fujitsu.com)  
Web: [www.fcl.fujitsu.com](http://www.fcl.fujitsu.com)

### North and South America

Fujitsu Components America, Inc.  
250 E. Caribbean Drive  
Sunnyvale, CA 94089 U.S.A.  
Tel: (1-408) 745-4900  
Fax: (1-408) 745-4970  
Email: [components@us.fujitsu.com](mailto:components@us.fujitsu.com)  
Web: <http://www.fujitsu.com/us/services/edevices/components/>

### Europe

Fujitsu Components Europe B.V.  
Diamantlaan 25  
2132 WV Hoofddorp  
Netherlands  
Tel: (31-23) 5560910  
Fax: (31-23) 5560950  
Email: [info@fceu.fujitsu.com](mailto:info@fceu.fujitsu.com)  
Web: [emea.fujitsu.com/components/](http://emea.fujitsu.com/components/)

### Asia Pacific

Fujitsu Components Asia Ltd.  
102E Pasir Panjang Road  
#01-01 Citilink Warehouse Complex  
Singapore 118529  
Tel: (65) 6375-8560  
Fax: (65) 6273-3021  
Email: [fcal@fcal.fujitsu.com](mailto:fcal@fcal.fujitsu.com)  
Web: <http://www.fujitsu.com/sg/services/micro/components/>

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