FUJITSU THE POSSIBILITIES ARE INFINITE

SOLID STATE RELAY

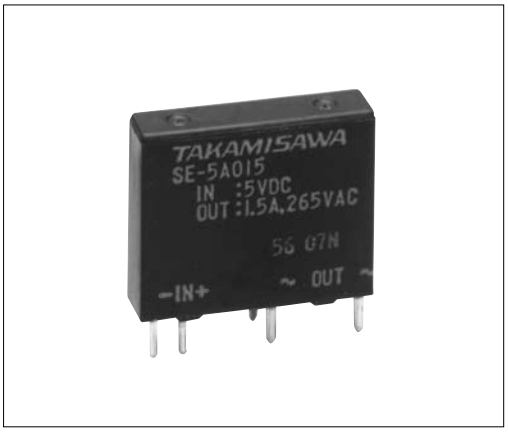
MAXIMUM LOAD CURRENT 1.5 A / 2A

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] SE – 12 A 02 V F
(a) (b) (c) (d) (e) (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

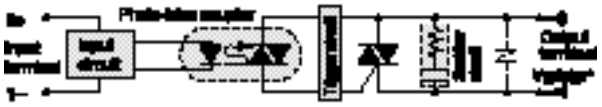
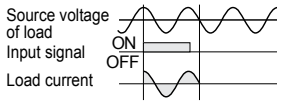
■ SPECIFICATIONS

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	±10%
		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 rns				
	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.		

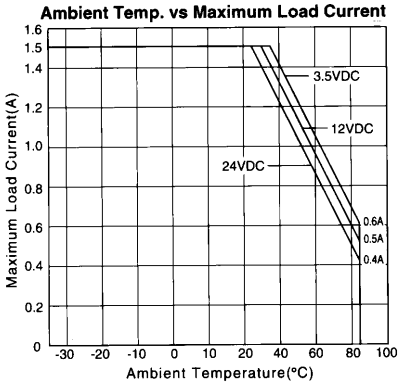
■ BLOCK DIAGRAM

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

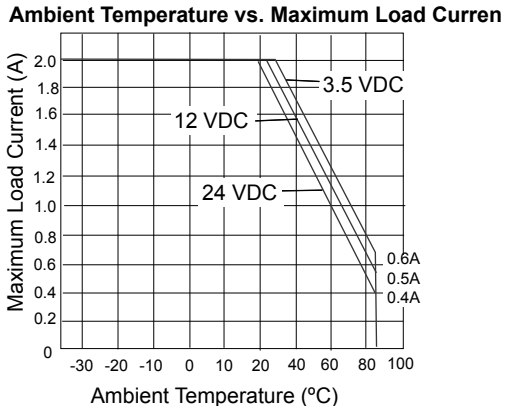
*: only 2A type had varistor

■ CHARACTERISTIC DATA

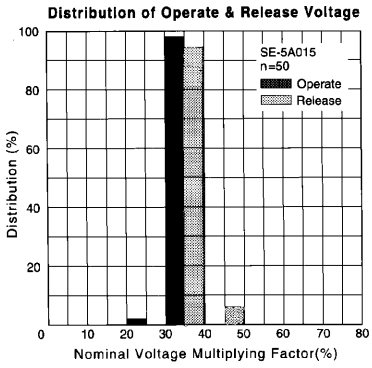
SE-( )A015 type (1.5 A type)

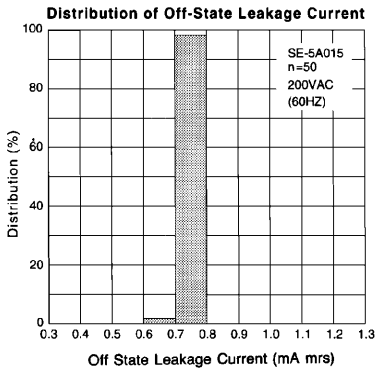


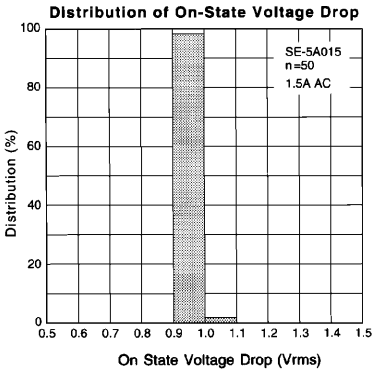
SE-( )A02 type (2.0A type)



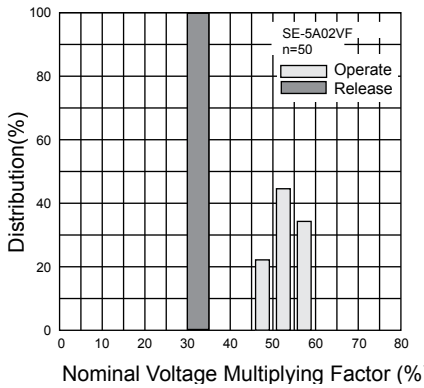
■ REFERENCE DATA



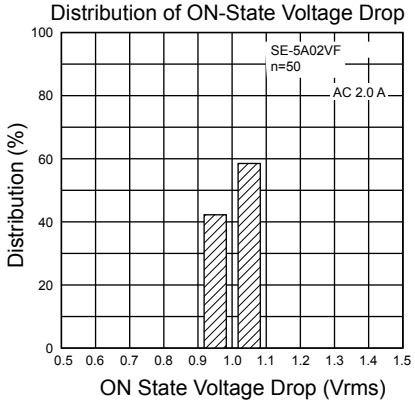




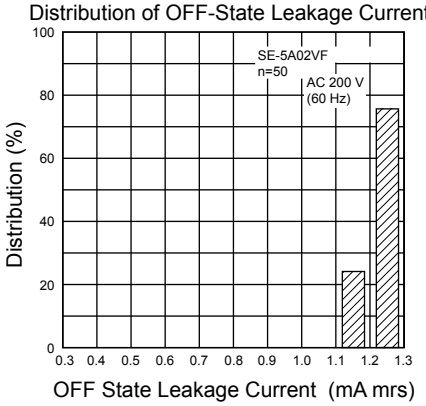
Distribution of Operate and Release Voltage



Distribution of ON-State Voltage Drop



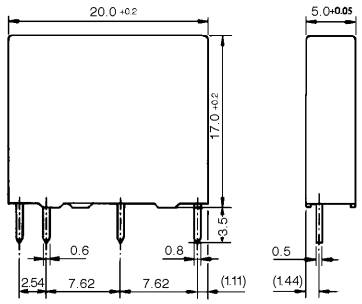
Distribution of OFF-State Leakage Current



■ DIMENSIONS

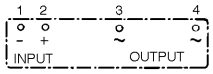
● Dimensions

SE- ( ) A015 type



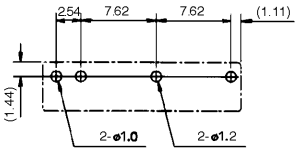
● Schematics

(BOTTOM VIEW)



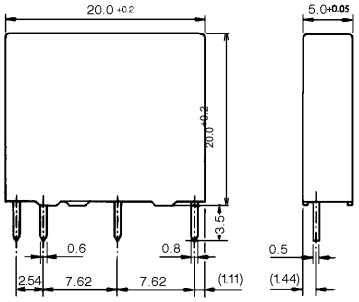
● PC board mounting hole layout

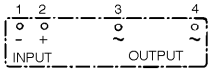
(BOTTOM VIEW)

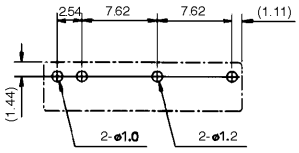


Unit: mm

SE- ( ) A02 type

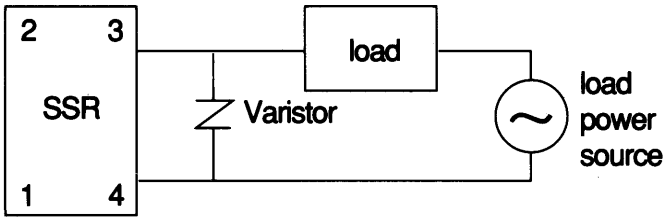






■ NOTES

When large noise and surge are impressed on the load side, there is the possibility of the occurence 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 soler 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 realys.

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
Web: www.fcl.fujitsu.com

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
Web: emea.fujitsu.com/components/

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
Web: http://www.fujitsu.com/us/services/edevices/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
Web: http://www.fujitsu.com/sg/services/micro/components/