# FUJITSU

## SOLID STATE RELAY Maximum Load Current 1A

## SJ Series

## **RoHS Compliant**

#### ■ FEATURES

- Extremely small and light weight
- Size: 10.0 (W) × 20.2 (L) × 12.8 (H) mm
- Weight: approximately 5.5g
- High reliability, long life and maintenance free
- High isolation (between input and output)
   Dielectric strength: 2,500 Vrms
- Compatible with JY Relay in size and terminal arrangement
- RoHS compliant Please see page 6 for more information



#### PARTNUMBER INFORMATION

[Example] –	SJ	- 12	D	01	HZ	R	Ν	-NV
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)

(a)	Relay type	SJ	: SJ Series
(b)	Nominal Voltage (input side)	03: 05: 12: 24:	: 3 VDC (only AC type) : 5VDC : 12VDC : 24VDC
(c)	Load voltage	A D	: AC type : DC type
(d)	Load current	01	:1A
(e)	Kinds of inverse connection protecting element (only dc type)	Nil HZ	: Diode : Zener diode type
(f)	Output polarity (DC type)	Nil R	: Standard polarity : Reverse poalrity
(g)	Terminal classification	Nil N	: Socket mounting : PC board mounting type
(h)	Kinds of inverse connection protecting element (AC type)	NV	: Without varistor

### SPECIFICATION

ltem			AC	DC	Remarks	
			Туре 1А	Туре 1А		
Input side	side Nominal voltage (DC) Operate range Must operate voltage Must release voltage		3V, 5V, 12V, 24V	5V, 12V, 24V		
			± 20% of nominal voltage			
			80% of nominal voltage			
			Min. 1V (min. 0.5V*)	*3 VDC type		
	Input	3VDC Type	130Ω ± 10%	-		
		5VDC Type	330Ω ± 10%	430Ω ± 10%		
	Impedance	12VDC Type	1.0kΩ ± 10%	1.2KΩ ± 10%		
		24VDC Type	2.2KΩ ± 10%	2.4KΩ ± 10%		
Output side	Load voltage ran	је	24 to 265V rns	3 to 30VDC		
	Maximum load current		1.0A rms	1.0A	See reference data	
	Minimum load cu	rrent	10mA rms	1 mA	Reference	
	1 cycle surge current		50A (60Hz)	3A (10 ms)		
	Max. off-state leakage		0.75mA rms max. (at 100V rms 60Hz) 1.50mA rms max. (at 200V rms 60Hz)	0.1mA max. (at 30VDC)		
	Max. off-state voltage drop		1.2V rms	1.2V	At max. load current	
Coil Data	a Operating temperature range		-30 °C to +85 °C			
Storage temperature range		ure range	-40 °C to +100 °C			
Timing Data	ta Maximum operate time Maximum release time		1ms			
			1/2 cycle + 1ms	1 ms		
Insulation	tion Initial resistance		Min. 1,000MΩ (500VDC) (input-output)			
	Surge voltage		2,500V rms 1 min. (input-			
Other	Case color		Black	Green		
Weight			Approximately 5.5 g			

### BLOCK DIAGRAM

Load	Insulation	Circuit	Input/Output Waveform (resistive load)
AC type	Phototriac coupler	8+ Photo-triac coupler Input terminal 9D o- ~16 Output terminal 9D o- ~16	Source voltage of load Input signal OFF Load current
DC type	Photo tran- sistor coupler	8+ • Photo-transistor coupler Input terminal 9D • 16 0utput terminal 9D • 16 0utput 000000000000000000000000000000000000	Input signal OFF

### CHARACTERISTIC DATA



#### REFERENCE DATA







## **SJ SERIES**



#### DIMENSIONS

#### • Dimensions

SJ-() A type (socket mounting)



#### • Schematic (bottom view)

#### 

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



#### Unit: mm



8.0

7.62

0.25

0.8

- 2. Socket ordering code: JK-4N
- 3. Standard IC socket is not recommended. Please use socket "JK-4N"

4. Dimensions of the terminals do not include thickness of pre-solder.

Unit: mm

0.25

7.62

0.8

10.16

8.5 19.8)

7.0

3.5

## 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.
- Please connect a varistor as below to switch inductive load with SJ AC type without varistor relays.



## RoHS Compliance and Lead Free Information

## 1. General Information

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives. As per Annex III of directive 2011/65/EU.
- All relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: http://www.fujitsu.com/ downloads/MICRO/fcai/relays/lead-free-letter.pdf
- 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.

## 2. Recommended Lead Free Solder Condition

• Recommended solder Sn-3.0Ag-0.5Cu.

### Flow Solder Condition:

Pre-heating: Soldering: maximum 120°C within 90 sec

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:30-60WTemperature:maximum 350-360°CDuration: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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