

Socket mounting type:
To be discontinued in October 2024

This datasheet provides information of discontinued products.
Please refer to the latest datasheets for active products.

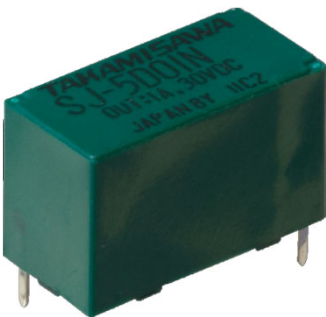
SOLID STATE RELAY

Maximum Load Current 1A

SJ Series

■ 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



■ PARTNUMBER INFORMATION

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

(a)	Relay type	SJ	: SJ Series
(b)	Nominal voltage (input side)	03 05 12 24	: 3VDC (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 polarity
(g)	Terminal classification	Nil N	: Socket mounting : PC board mounting (Last buy: October 2024)
(h)	Kinds of inverse connection protecting element (AC type)	NV	: Without varistor

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■ SPECIFICATIONS

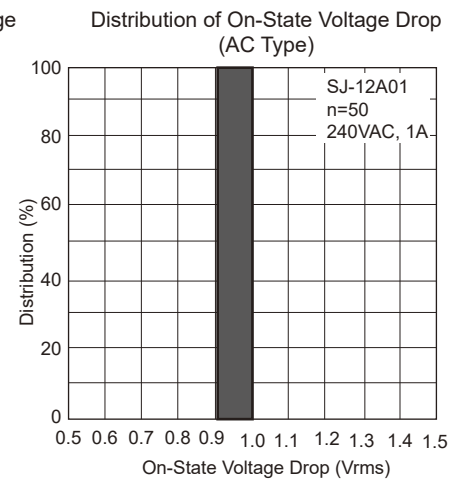
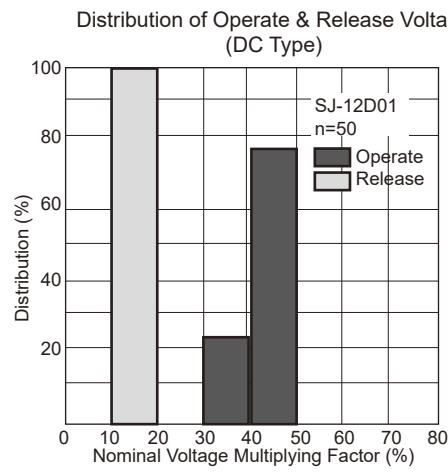
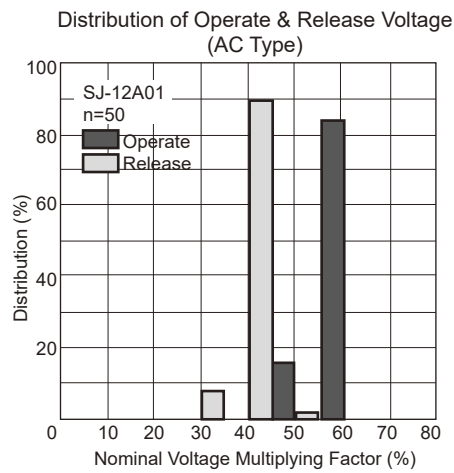
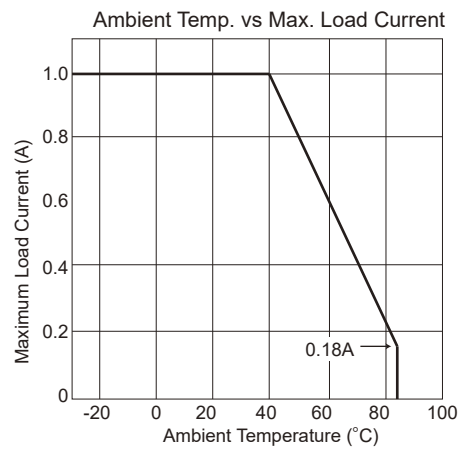
Item		AC	DC	Remarks / Conditions
		Type 1A	Type 1A	
Input side	Nominal voltage (DC)	3V, 5V, 12V, 24V	5V, 12V, 24V	
	Operate range	$\pm 20\%$ of nominal voltage		
	Must operate voltage	80% of nominal voltage		
	Must release voltage	Min. 1V (min. 0.5V*)		* 3VDC type
	input impedance	3VDC type	130 $\Omega \pm 10\%$	-
		5VDC type	330 $\Omega \pm 10\%$	430 $\Omega \pm 10\%$
		12VDC type	1.0k $\Omega \pm 10\%$	1.2K $\Omega \pm 10\%$
		24VDC type	2.2K $\Omega \pm 10\%$	2.4K $\Omega \pm 10\%$
Output side	Load voltage range	24 to 265V rms	3 to 30VDC	
	Maximum load current	1.0A rms	1.0A	See reference data
	Minimum load current	10mA rms	1 mA	Reference
	1 cycle surge current	50A (60Hz)	3A (10 ms)	
	Max. off-state leakage current	0.75mA rms max. (at 100V rms 60Hz) 1.50mA rms max. (at 200V rms 60Hz)	0.1mA max. (at 30VDC)	
	Max. off-stage voltage drop	1.2V rms	1.2V	At max. load current
Coil data	Operating temperature range	-30°C to +85°C		
	Storage temperature range	-40°C to +100°C		
Timing data	Maximum operate time	1ms		
	Maximum release time	1/2 cycle + 1ms	1ms	
Insulation	Initial resistance	Min. 1,000M Ω (500VDC) (input-output)		
	Surge voltage	2,500V rms 1 min. (input-output)		
Other	Case color	Black	Green	
	Weight	Approximately 5.5 g		

BLOCK DIAGRAM

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

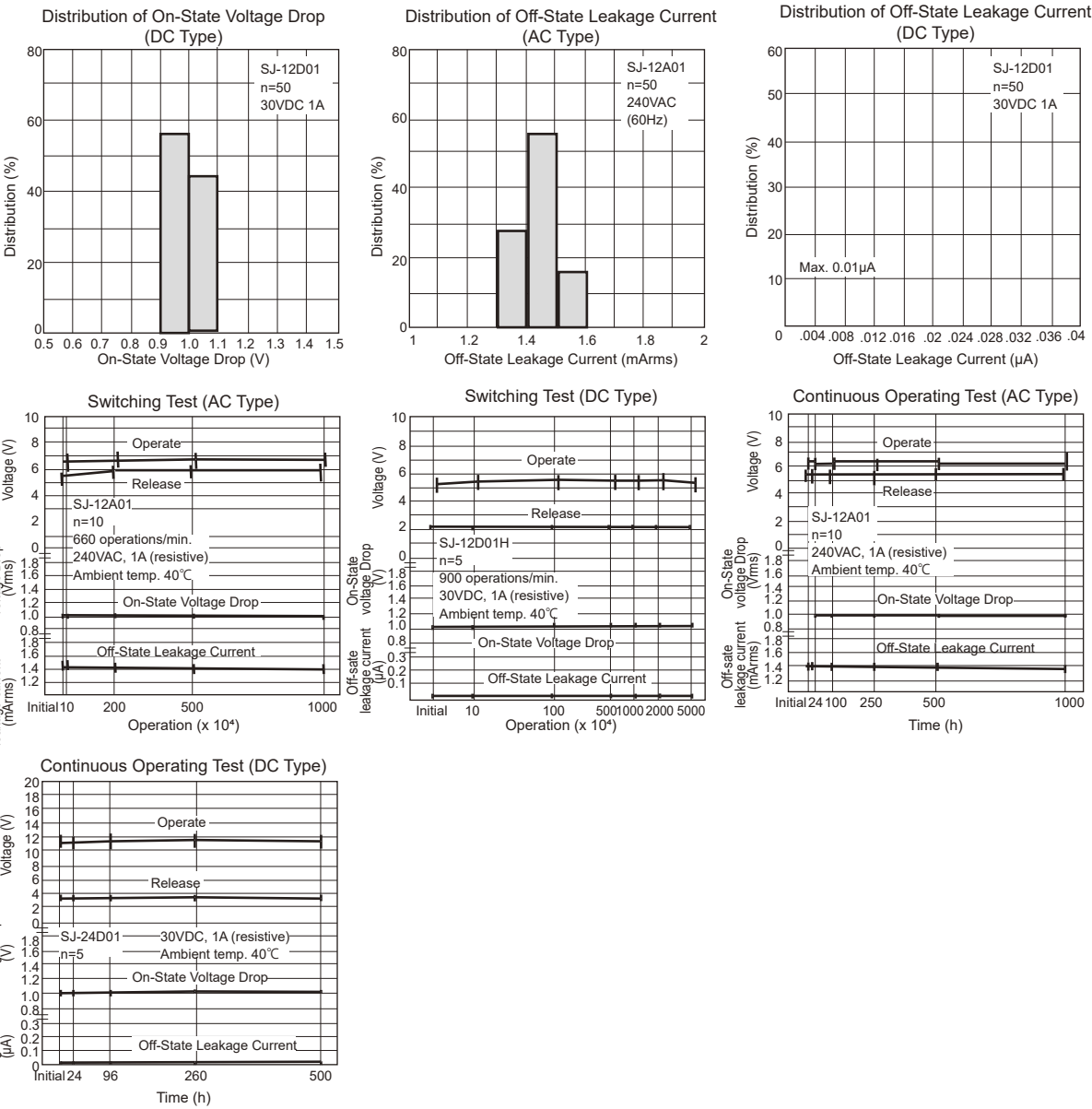
CHARACTERISTIC DATA

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



CHARACTERISTIC DATA

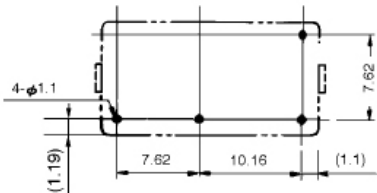
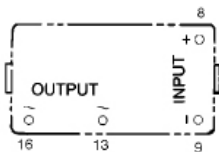
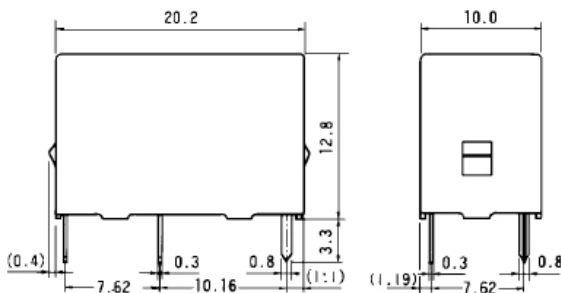
(Characteristic data is not guaranteed value but measured values of samples from production line)



DIMENSIONS

- Dimensions
- Schematic (bottom view)
- PC board mounting hole layout (bottom view)

SJ- () A type (socket mounting)
(Last buy: October 2024)



Unit: mm

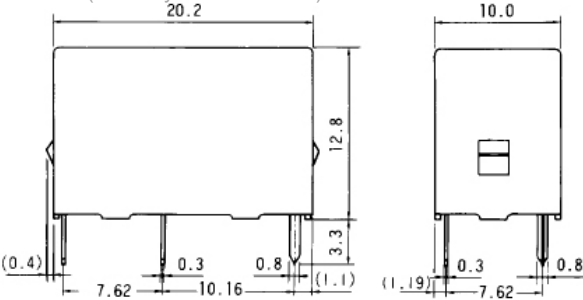
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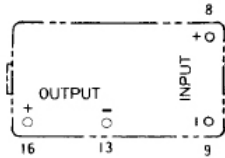
DIMENSIONS

• Dimensions

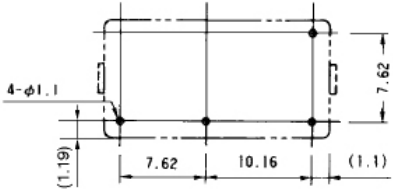
SJ- () D type (socket mounting)
(Last buy: October 2024)



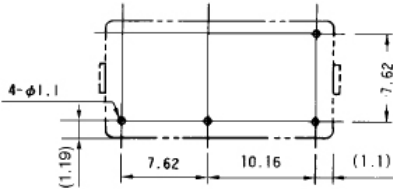
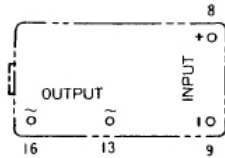
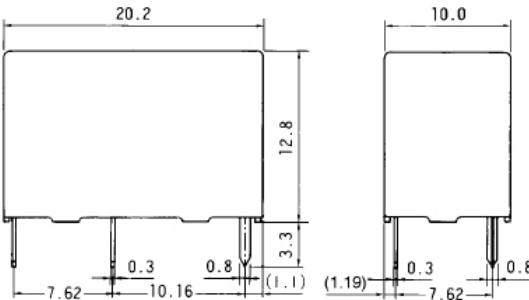
• Schematic
(bottom view)



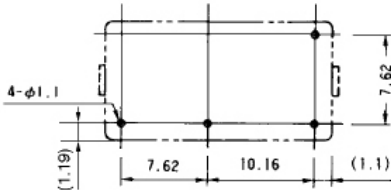
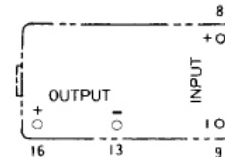
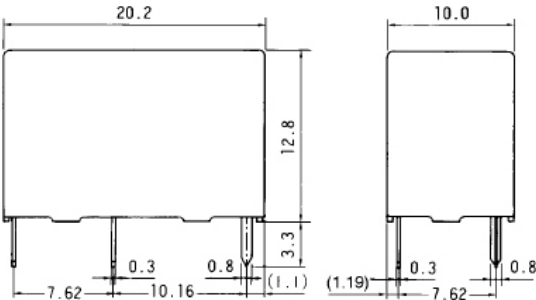
• PC board mounting hole layout
(bottom view)



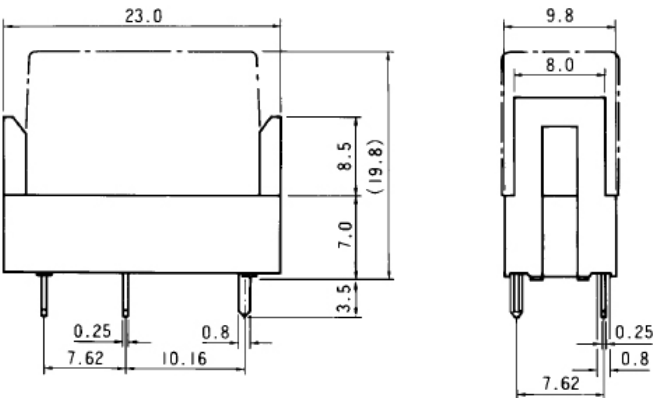
SJ- () AN type



SJ- () DN type



SOCKET DIMENSIONS (Last buy: October 2024)



Unit: mm

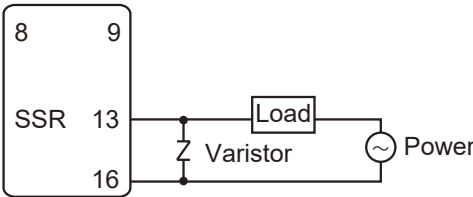
NOTES

1. Polarity of terminals are pre-determined.
Please design your circuit accordingly.
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.

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.

Recommended varistor
Varistor voltage : 470V to 510V
Maximum energy : Minimum 4J
Maximum allowable voltage : 300VACrms



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 350-360°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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