



**EN:** This Datasheet is presented by the manufacturer.

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# MINIATURE RELAY

## 1 POLE - 1 to 2 A (For Signal Switching)

### SY Series

#### ■ FEATURES

- Very small size and light weight
  - UL, CSA recognized
  - Conforms to FCC rules and regulations part 68
    - Dielectric strength 1000 VAC between coil and contacts
    - Surge strength 1500 V
  - High sensitivity
  - Wide ambient temperature range (-30°C to +90°C)
  - Wide operating range
  - DIL pitch terminals
  - Plastic sealed type
  - RoHS compliant.
- Please see page 7 for more information



#### ■ PARTNUMBER INFORMATION

[Example]      $\frac{\text{SY}}{\text{(a)}} - \frac{12}{\text{(b)}} \frac{\text{W}}{\text{(c)}} - \frac{\text{K}}{\text{(d)}} - \frac{\text{UL}}{\text{(e)}}$

(a)	Relay type	SY	: SY-Series
(b)	Coil rated voltage	12	: 1.5.....24 VDC Coil rating table at page 3
(c)	Contact style	Nil W	: Single type : Bifurcated type
(d)	Enclosure	K	: Plastic sealed type
(e)	Approvals	Nil UL	: No UL/CSA marking on relay : UL, CSA marking on relay

Note: For movable and stationary contact with gold overlay type, add suffix "-OH"

## ■ SPECIFICATION

Item			Single type	Bifurcated type
			SY - ( ) - K	SY - ( ) W - K
Contact Data	Configuration		1 form C (SPDT)	
	Construction		Single (cross bar)	Bifurcated (cross bar)
	Material		Gold overlay silver palladium	
	Resistance (initial)		Max. 100 mΩ at 1 A, 6 VDC	
	Contact rating (resistive)		0.5A, 120VAC or 1A, 24VDC	
	Max. carrying current		2A	
	Max. switching voltage		120VAC / 60VDC	
	Max. switching power		60AV / 24W	
	Max. switching current		1A	
	Min. switching load *		1 mA, 1VDC	0.1 mA, 100mVDC
	Capacitance (at 10 MHz)		Approximately 1.4 pF (between open contacts) Approximately 5.0 pF (between coil and contacts)	
Life	Mechanical		Min. 5 x 10 <sup>6</sup> operations	
	Electrical (at contact rating)		Min. 100 x 10 <sup>3</sup> operations	
Coil Data	Rated power		150 to 175 mW	
	Operate power		75 to 86 mW	
	Operating temperature range		-30 °C to +90 °C (no frost) (18V coil: +85 °C, 24V coil: +80 °C)	
Timing Data	Operate (at nominal voltage)		Max. 5 ms	
	Release (at nominal voltage)		Max. 2 ms	
Insulation	Resistance (initial)		Min. 1,000MΩ at 500VDC	Min. 1,000MΩ at 250VDC
	Dielectric strength	Open contacts	400VAC, 1min	300VAC, 1min
		Contacts to coil	1,000VAC, 1min	
	Surge strength	Coil to contacts	1,500V/ 10 x 160μs standard wave	
Other	Vibration resistance	Misoperation	10 to 55Hz double amplitude 1.5mm	
		Endurance	10 to 55Hz double amplitude 1.5mm	
	Shock	Misoperation	300m/s <sup>2</sup> (11 ± 1ms)	
		Endurance	1,000m/s <sup>2</sup> (6 ± 1ms)	
	Weight		Approximately 1.7 g	

\* Minimum switching loads mentioned above are reference values. Please perform the confirmation test with actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

## ■ COIL RATING

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release Voltage (VDC) *	Rated Power (mW)
1.5	1.5	15	1.05	0.08	150
3	3	60	2.1	0.15	
4.5	4.5	135	3.2	0.23	
5	5	167	3.5	0.25	
6	6	240	4.2	0.3	
9	9	540	6.3	0.45	
12	12	960	8.4	0.6	170
18	18	1,940	12.6	0.9	
24	24	3,290	16.8	1.2	

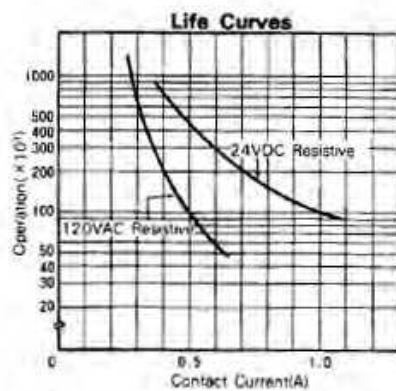
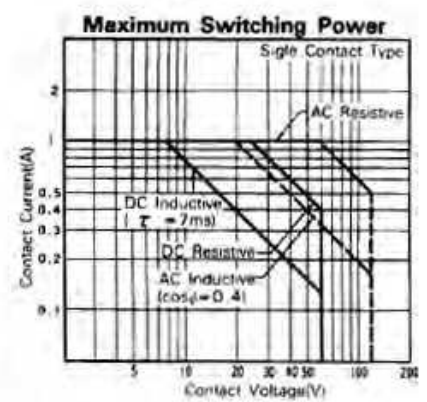
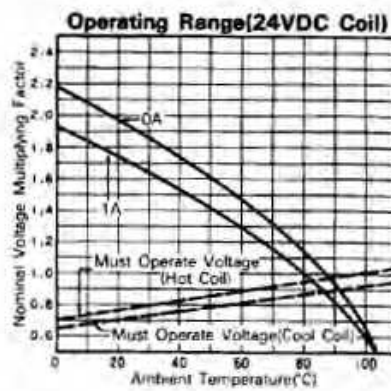
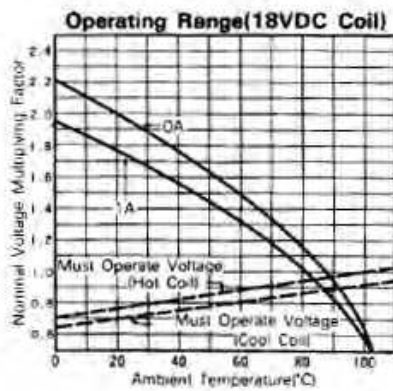
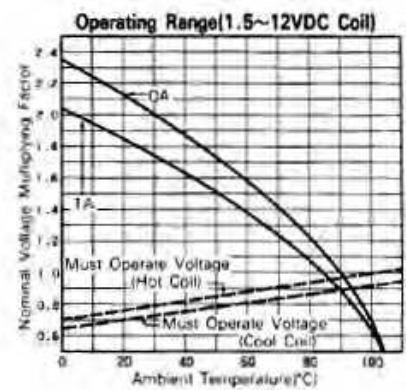
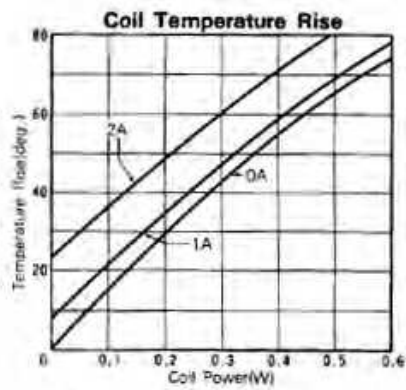
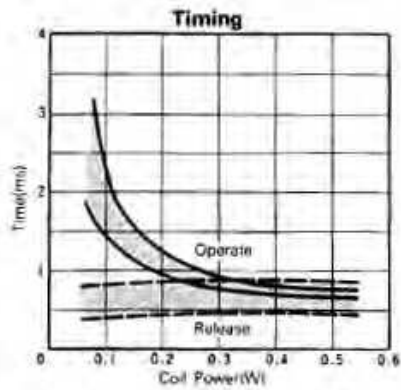
Note: All values in the table are valid for 20°C and zero contact current.

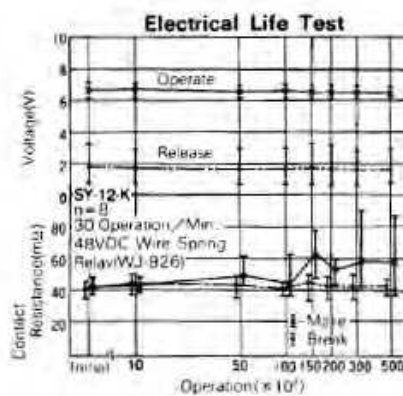
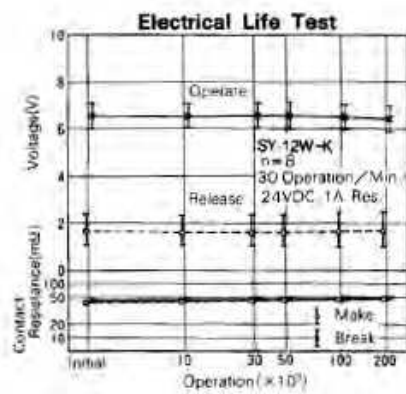
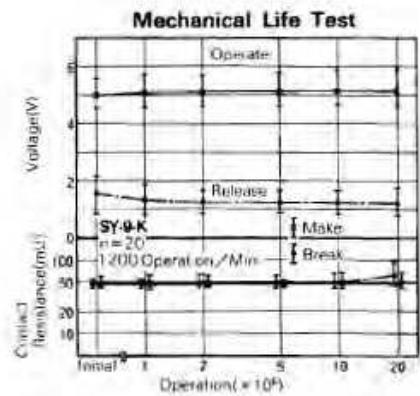
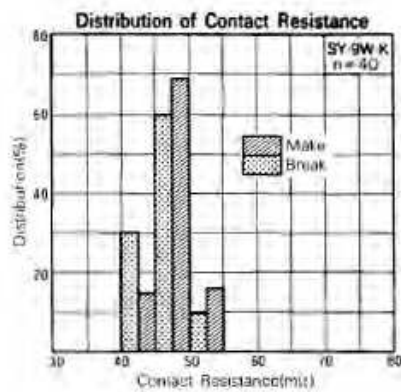
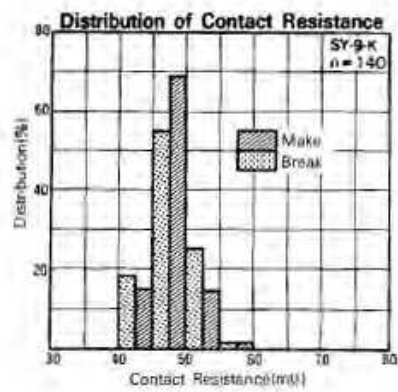
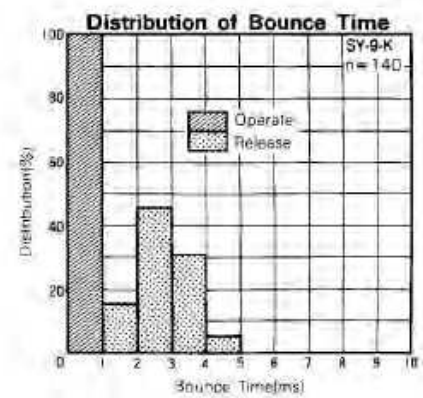
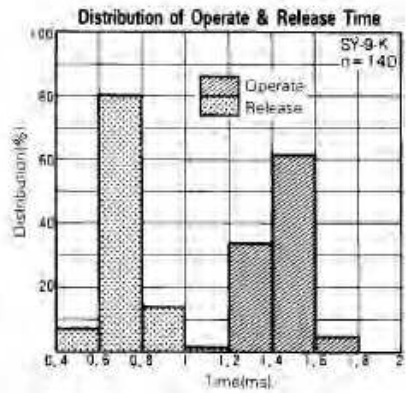
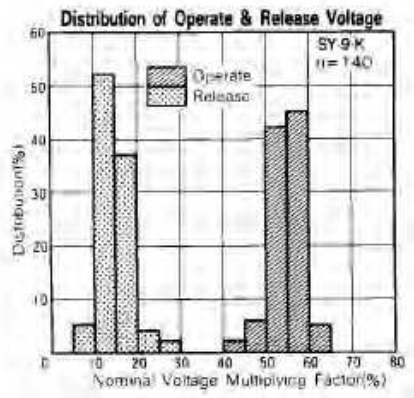
\* Specified operate values are valid for pulse wave voltage.

## ■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 478 UL 508	Flammability: UL 94-V0 (plastics)
	E 45026	0.5A, 120VAC (resistive) 1A, 30VDC (resistive) 0.15A, 48VDC (resistive)
CSA	C22.2 No. 14 LR 35579	

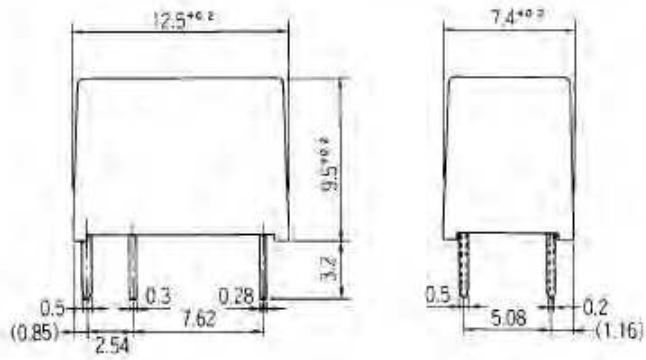
## ■ CHARACTERISTIC DATA



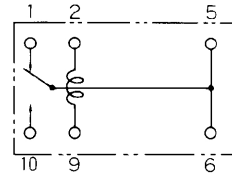


## ■ DIMENSIONS

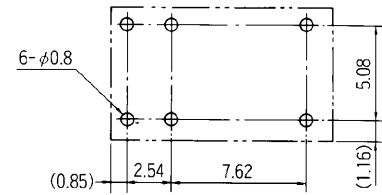
### ● Dimensions



### ● Schematics (BOTTOM VIEW)



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



Unit: mm

## RoHS Compliance and Lead Free Information

### 1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005. (Amendment to Directive 2002/95/EC)
- All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: <http://www.fujitsu.com/us/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 Profile

- **Recommended solder Sn-3.0Ag-0.5Cu.**

#### **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, 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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