

MINIATURE RELAY

1 POLE - 1 to 2A (FOR SIGNAL SWITCHING)

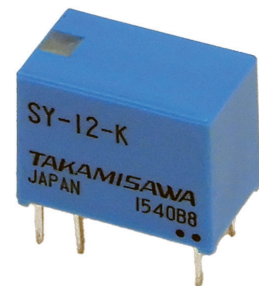
SY Series

RoHS Compliant



■ FEATURES

- Very small size and light weight
- UL, CSA recognized
- Conforms to FCC rules and regulations part 68
Dielectric strength 1,000VAC between coil and contacts
Surge strength 1,500V
- High sensitivity
- Wide ambient temperature range (-30°C to +90°C)
- Wide operating range
- DIL pitch terminals
- Plastic sealed type
- RoHS compliant



■ APPLICATIONS

Communication equipment, amusement equipment, electric remote-controlled outside mirror etc.

■ PART NUMBERS

[Example] SY - 12 W - 0H - K - UL
(a) (b) (c) (d) (e) (f)

(a)	Relay type	SY series
(b)	Coil rated voltage	12 : 5....24VDC Please refer to coil rating table
(c)	Contact construction	Nil : Single type W : Bifurcated type
(d)	Options	Nil : Standard 0H : Gold overlay on movable and stationary contacts HW : Marking on top of relay
(e)	Enclosure	K : Plastic sealed type
(f)	Safety Standards	Nil : No UL, CSA marking on relay UL : UL, CSA marking on relay

Note: For movable and stationary contact with gold overlay type, add suffix "0H" (zeroH)

■ SPECIFICATIONS

Item			Specifications		Remarks/Conditions
			Single type SY-()-K	Bifurcated type SY-()W-K	
Contact Data	Configuration		1c (1 Form C, SPDT)		
	Construction		Single (cross bar)	Bifurcated (cross bar)	
	Material		Gold overlay silver palladium		
	Resistance		Max. 100mΩ		Initial at 1A, 6VDC
	Contact rating		0.5A, 120VAC or 1A, 24VDC		Resistive
	Max. carrying current		2A		
	Max. switching current		1A		
	Max. switching voltage		120VAC/60VDC		
	Max. switching power		60VA/24W		
	Min. switching load ^{*1}		1mA, 1VDC	0.1mA, 100mVDC	
	Capacitance (at 10MHz)		Approx. 1.4 pF (between open contacts) Approx. 5.0 pF (between coil and contacts)		
Coil	Rated power (at 20°C)		150 to 175mW		
	Operate power (at 20°C)		75 to 86mW		
	Operating temperature range		-30°C ~ +90°C (18V coil: +85°C, 24V coil: +80°C)		No frost
Time	Opearte		Max. 5ms (without bounce)		Without bounce
	Release		Max. 2ms (without bounce)		Without bounce
Life	Mechanical		Min. 5 x 10 ⁶ operations		
	Electrical		Min. 100 x 10 ³ ops.		
Insulation	Insulation resistance		Min. 1,000MΩ at 500VDC	Min. 1,000MΩ at 250VDC	Initial
	Dielectric strength	Open contacts	400VAC, 1 minute	300VAC, 1 minute	
		Coil to contacts	1,000VAC, 1 minute		
	Surge strength	Coil to contacts	1,500V / 10 x 160μs standard wave		
Others	Vibration resistance	Misoperation≥1μs	10 to 55 to 10Hz, single amplitude 0.75mm		Coil ON/OFF, 3 axis, total 6 cycles
		Endurance	10 to 55 to 10Hz, single amplitude 0.75mm		Coil OFF, 3 axis, total 6 hours
	Shock resistance	Misoperation≥1μs	Min. 300m/s ² (11 ± 1ms)		Coil ON/OFF, 3 axis, total 36 operations
		Endurance	Min. 1,000m/s ² (6 ± 1ms)		Coil OFF, 3 axis, total 18 operations
	Dimensions / Weight		7.4 x 12.5 x 9.5mm / approx. 1.7g		

*: 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 contions

■ COIL DATA

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance (Ω) ±10%	Must Operate Voltage*1 (VDC)	Must Release Voltage*1 (VDC)	Rated Power (mW)
1.5	1.5	15	1.05	0.08	150
3	3	60	2.1	0.15	150
4.5	4.5	135	3.2	0.23	150
5	5	167	3.5	0.25	150
6	6	240	4.2	0.3	150
9	9	540	6.3	0.45	150
12	12	960	8.4	0.6	150
18	18	1,940	12.6	0.9	170
24	24	3,290	16.8	1.2	175

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

*: Specified operated values are valid for pulse wave voltage.

❗ Please use at rated coil voltage. Please refer to characteristic data and set up adequate voltage in case of use at over voltage.

■ SAFETY STANDARDS

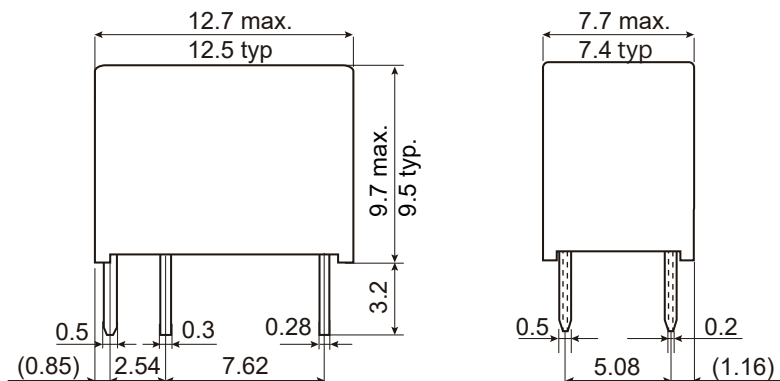
Type	Compliance	Contact Rating
UL	Flammability: UL 94-V0 (plastics)	
	UL478, UL508 (File No. E45026)	0.5A, 120VAC (resistive) 1A, 30VDC (resistive)
CSA	C22.2 No. 14 (File No. LR40304)	0.15A 48VDC (resistive)

■ PART NUMBER LIST

Part number	Contact Construction	Contact Material	Safety Standards
SY-()-K	Single	Gold overlay on one contact	-
SY-()-K-UL			UL, CSA
SY-()-0H-K		Gold overlay on both contacts	-
SY-()W-K	Bifurcated	Gold overlay on one contact	-
SY-()W-K-HW			-
SY-()W-K -UL			UL, CSA
SY-()W-0H-K		Gold overlay on both contacts	-

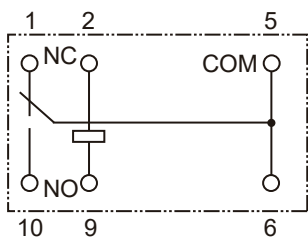
■ DIMENSIONS

- Dimensions

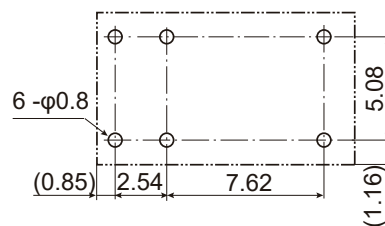


*Dimensions of the terminals do not include thickness of pre-soldering.

- Schematics
(BOTTOM VIEW)



- PC Board Mounting Hole Layout
(BOTTOM VIEW)



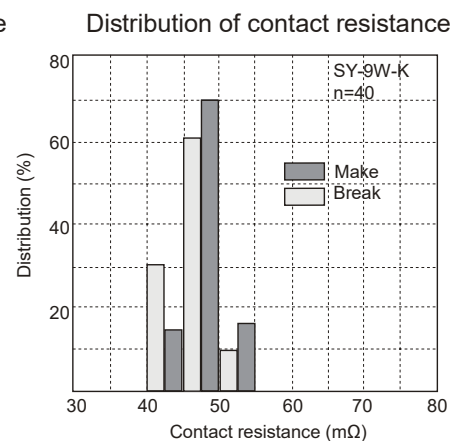
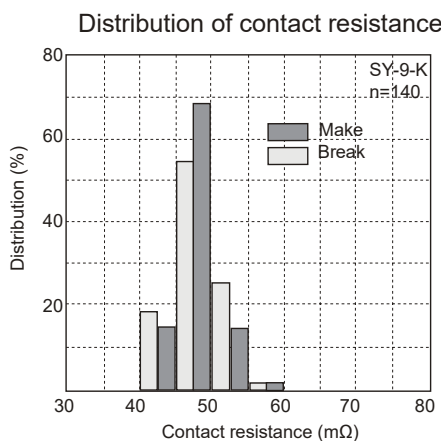
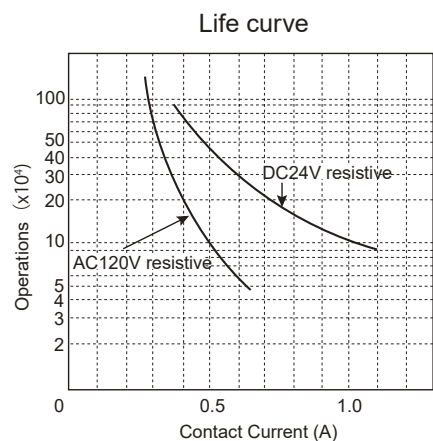
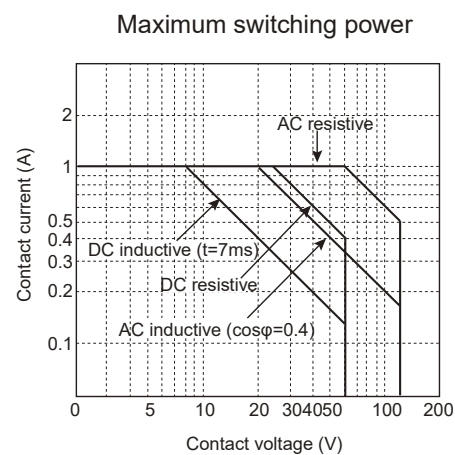
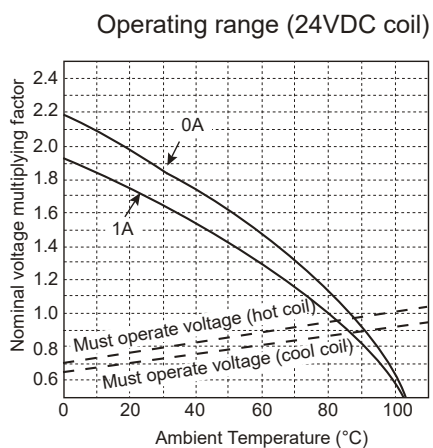
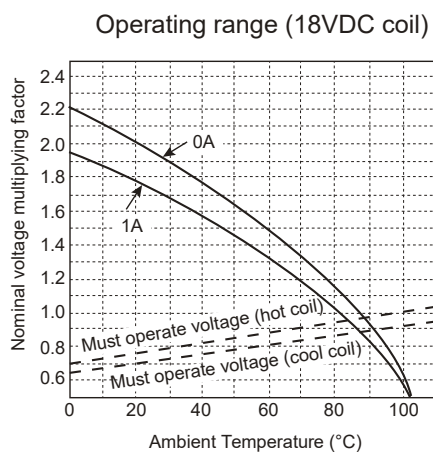
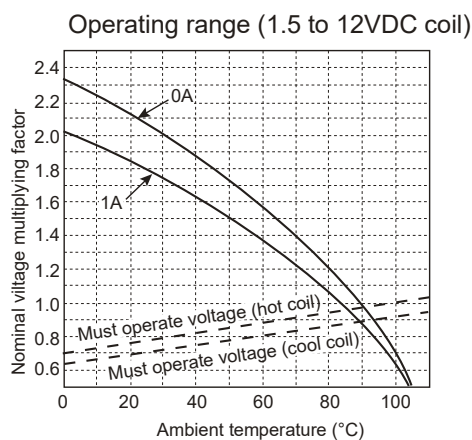
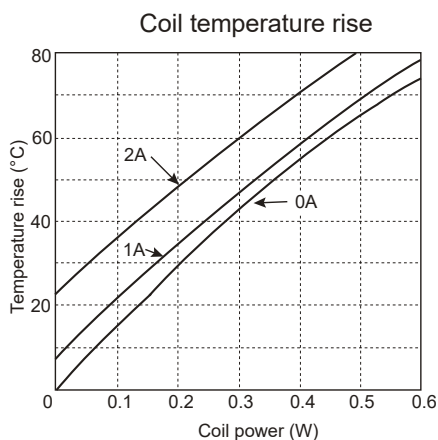
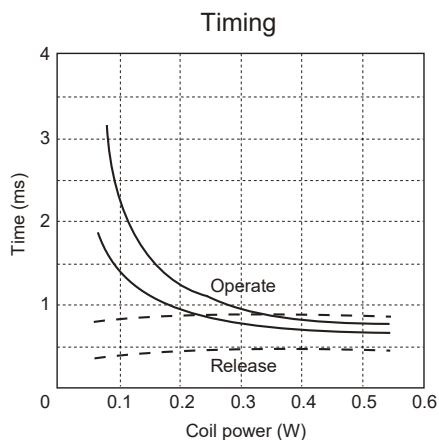
* Tolerance of PC board mounting hole layout:
±0.1 unless otherwise specified.

(): Reference value

Unit: mm

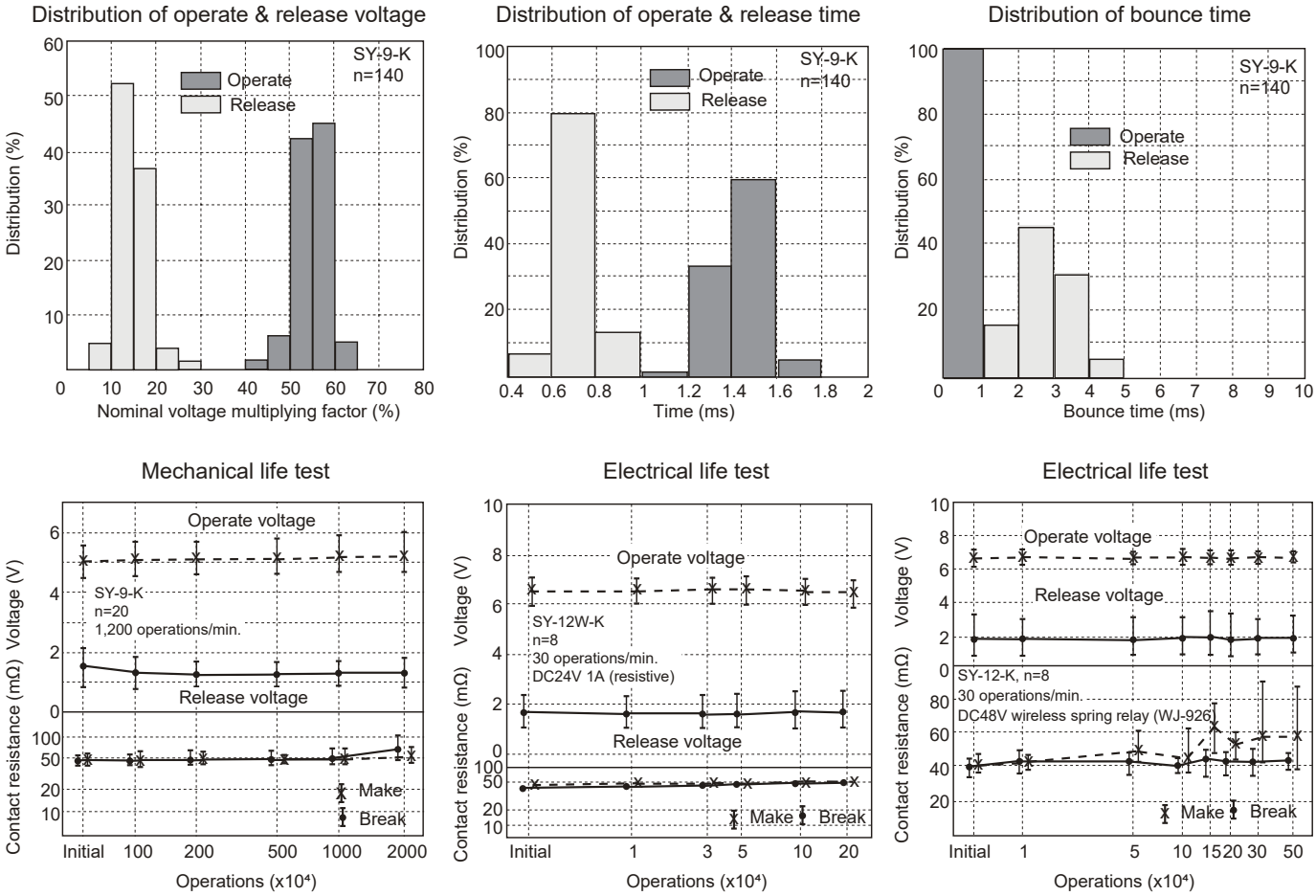
CHARACTERISTIC DATA

(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.)



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.

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 340-360°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.

Contact

Japan

FCL COMPONENTS LIMITED
Shinagawa Seaside Park Tower
12-4, Higashi-shinagawa 4-chome,
Tokyo 140 0002, Japan
Tel: +81-3-3450-1682
Email: fcl-contact@cs.fcl-components.com

North and South America

FCL COMPONENTS AMERICA, INC.
2055 Gateway Place Suite 480,
San Jose, CA 95110 USA
Tel: +1-408-745-4900
Email: contact@fcl-components.us

Europe

FCL COMPONENTS EUROPE B.V.
Diamantlaan 25
2132 WV Hoofddorp, Netherlands
Tel: +31-23-556-0910
Email: info@fcl-components.eu

Asia Pacific

FCL COMPONENTS ASIA PTE LTD.
No. 20 Harbour Drive, #07-01B
Singapore 117612
Tel: +65-6375-8560
Email: fcal@fcl-components.com

China

FCL COMPONENTS (SHANGHAI) CO.,LTD.
Unit 1105, Central Park - Jing An,
No.329 Heng Feng Road, Shanghai
200070, China
Tel: +86-21-3253 0998
Email: fcsh@fcl-components.com

Hong Kong

FCL COMPONENTS HONG KONG CO.,
LIMITED
Unit 2313, Seapower Tower, Concordia
Plaza, No.1 Science Museum Road,
TST, Kowloon, Hong Kong
Tel: +852-2881-8495
Email: fcal@fcl-components.com

Web: www.fcl-components.com/en/

© 2025 FCL Components Limited. All rights reserved. All trademarks or registered trademarks are the property of their respective owners.

FCL Components Products are intended for general use, including without limitation, in personal, household and office environments, in buildings and for ordinary use in the industry. FCL Components Products are not intended to be used in applications where extremely high safety is required ("High Safety Required Applications"), such as, but not limited to, applications in nuclear facilities, in aircraft automatic flight control, in air traffic control, in mass transit system control, in missile launch system, in weapon systems, in medical equipment for life support or any application involving a direct serious risk of physical injury or death.

Please do not use FCL Components Products without securing the sufficient safety and reliability required for the High Safety Required Applications.

In addition, FCL Components shall not be liable against the customer and/or any third party for any claims or damages arising in connection with the use of FCL Components Products in the High Safety Required Applications.

FCL Components warrants that its Products, if properly used and services, will conform to their specification and will be free from defects in material and workmanship for twelve months from delivery.

The implied warranties of merchantability and fitness for a particular purpose and all other warranties, representations and conditions, express or implied by statute, trade usage or otherwise, except as set forth in this warranty, are excluded and shall not apply to the Products delivered.

The contents, data and information in this datasheet are provided by FCL Components Limited as a service only to its user and only for general information purposes. The use of the contents, data and information provided in this datasheet is at the users' own risk.

FCL Components has assembled this datasheet with care and will endeavor to keep the contents, data and information correct, accurate, comprehensive, complete and up to date.

FCL Components Limited and affiliated companies do however not accept any responsibility or liability on their behalf, nor on behalf of its employees, for any loss or damage, direct, indirect or consequential, with respect to this datasheet, its contents, data, and information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof. Nor do FCL Components Limited and affiliated companies accept on their behalf, nor on behalf of its employees, any responsibility or liability with respect to these datasheets, its contents, data, information and related graphics and the correctness, reliability, accuracy, comprehensiveness, usefulness, availability and completeness thereof. Rev. January 10, 2025