

MINITURE SIGNAL RELAY

2 POLES - 1 to 2 A (for signal switching)

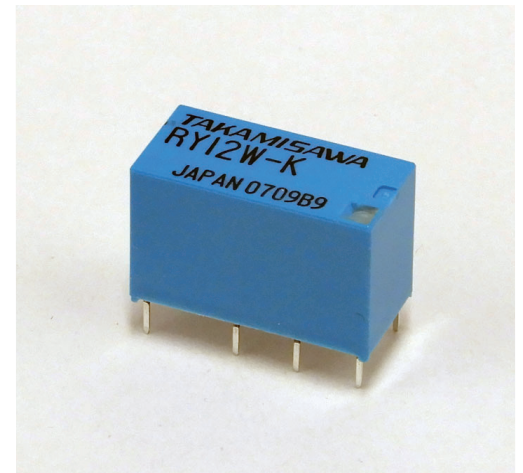
RY Series

RoHS Compliant



■ FEATURES

- Ultra high sensitivity
- UL, CSA recognized
- Conforms to FCC rules and regulations Part 68
 - Surge strength 1,500V
- High dielectric strength type available (RY-WF type)
- High reliability-bifurcated contacts
- Wide operating range
- DIL terminals
- Plastic sealed type, cat III
- RoHS compliant



■ APPLICATIONS

Communication equipment etc.

■ PART NUMBERS

[Example] RY - 12 W F - OH - K - UL
 (a) (*) (b) (c) (d) (e) (f) (g)

(a)	Relay type	RY series
(b)	Coil rated voltage	12 : 3...48VDC See coil rating table
(c)	Contact construction	W : Bifurcated contact
(d)	Function	Nil : High sensitive type Z : Nominal 500mW type F : High dielectric strength type FZ : 2A type
(e)	Gold overlay	Nil : Gold overlay on movable contact (FZ: Gold overlay on movable and stationary contact) OH : Gold overlay on movable and stationary contact (Not applicable for FZ)
(f)	Enclosure	K : Plastic sealed
(g)	Safety standards	Nil : No safety standard UL : UL, CSA recognized

Note 1: Actual marking omits the hyphen (-) of (*) and "-UL".

■ SPECIFICATIONS

Item			Specifications			
			High sensitive type	500mW type	High dielectric strength type	2A type
			RY-()W-K	RY-()WZ-K	RY-()WF-K	RY-()WFZ-K
Contact Data	Configuration		2c (2 Form C)			
	Construction		Bifurcated (cross bar)			
	Material		Gold overlay silver palladium		Gold overlay silver nickel	
	Resistance (initial)		max. 100mΩ at 6VDC, 1A			
	Contact rating (resistive)		1A, 24VDC 0.5A, 120VAC		1A, 24VDC 0.25A,120VAC	2A, 30VDC 0.5A,125VAC
	Max. carrying current		1.25A			2A
	Max. switching voltage		120VAC, 60VDC			125VAC, 150VDC
	Max. switching power		60VA / 24W		30VA / 24W	62.5VA / 60W
	Max. switching current		1A			2A
	Min. switching load *		0.01mA, 10mVDC			
	Capacitance (at 10MHz)		Approx. 0.9pF (open contacts), approx. 1.4pF (adjacent contacts) approx. 1.9pF (between coil and contacts)			
Coil	Rated power (at 20 °C)		150 to 300mW	500 to 580mW	450 to 460mW	500 to 580mW
	Operate power (at 20 °C)		75 to 140mW	125 to 145mW	200 to 210mW	200 to 324mW
	Operating temperature range (no frost)		-30 °C to +90 °C (48VDC: +80 °C)	-30 °C to +60 °C		
Time	Operate (at nominal voltage)		Max. 6ms (without bounce)			
	Release (at nominal voltage)		Max. 3ms (without bounce)			
Life	Mechanical		Min. 20 x 10 ⁶ operations	Min. 10 x 10 ⁶ operations		
	Electrical (at rated coil voltage)		Min. 200 x 10 ³ operations (0.5A, 120VAC) Min. 500 x 10 ³ operations (1A, 24VDC)		Min. 500x10 ³ operations (0.25A, 120VAC) (1A, 24VDC)	Min. 100x10 ³ operations (2A, 30VDC)
Insulation	Resistance (initial)		Min. 1,000MΩ at 500VDC			
	Dielectric strength	Open contacts	500VAC, 1min		1,000VAC, 1min.	500VAC, 1min
		Contact to coil	1,000VAC 1min			
		Adjacent contacts	1,000VAC 1min			
	Surge strength	Coil to contacts	1,500V (10/160μs standard wave)			
Others	Vibration resistance	Misoperation	10 to 55 to 10Hz single amplitude 0.75 mm			
		Endurance	10 to 55 to 10Hz single amplitude 2.25 mm			
	Shock resistance	Misoperation	Min. 100m/s ² (11 ± 1ms)			
		Endurance	Min. 1,000m/s ² (6 ± 1ms)			
	Dimensions / Weight		Approx. 5.0g / 9.8 × 20.2 × 12.5mm			
	Sealing		Sealed cat. RTIII			

* 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 DATA

Type	Coil code	Rated coil voltage (VDC)	Coil resistance $\pm 10\%$ (Ω)	Must operate voltage ^{*1} (VDC)	Must release voltage ^{*1} (VDC)	Rated power (mW)
High sensitive type RY-()W-K	3	3	60	2.1	0.15	150
	4.5	4.5	135	3.2	0.23	150
	5	5	167	3.6	0.25	150
	6	6	240	4.3	0.3	150
	9	9	540	6.4	0.45	150
	12	12	960	8.5	0.6	150
	18	18	1,620	12.6	0.9	200
	24	24	2,880	16.8	1.2	200
	48	48	7,680	32.6	2.4	300
500mW type RY-()WZ-K	3	3	18	1.5	0.15	500
	4.5	4.5	36	2.25	0.23	560
	5	5	45	2.5	0.25	560
	6	6	66	3.0	0.3	550
	9	9	140	4.5	0.45	580
	12	12	280	6.0	0.6	510
	18	18	560	9.0	0.9	580
	24	24	1,070	12.0	1.2	540
	48	48	4,000	24.0	2.4	580
High dielectric strength type RY-()WF-K	5	5	56	3.3	0.25	450
	6	6	80	4.0	0.3	450
	9	9	180	6.0	0.45	450
	12	12	320	8.0	0.6	450
	18	18	720	12.0	0.9	450
	24	24	1,260	15.9	1.2	450
	48	48	5,000	33.0	2.4	460
2A type RY-()WFZ-K	3	3	18	1.9	0.15	500
	4.5	4.5	36	2.9	0.23	560
	5	5	45	3.2	0.25	560
	6	6	66	3.8	0.3	550
	9	9	140	5.7	0.45	580
	12	12	280	7.6	0.6	510
	18	18	560	11.4	0.9	580
	24	24	1,070	15.2	1.2	540
	48	48	4,000	36.0	2.4	580

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

Note: Please use at rated coil voltage.

*: Specified operate values are valid for pulse wave 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)	<RY-W, RY-WZ> 0.5A, 120VAC (resistive), 1A, 24VDC (resistive) 0.3A, 60VDC (resistive), 2A, 30VDC (resistive)
	UL 478, UL 508 File No. E45026	
CSA	C22.2 No. 14 File No. LR40304	<RY-WF> 0.5A, 120VAC (resistive) (UL) 0.25A, 120VAC (resistive) (CSA) 1A, 24VDC (resistive), 0.3A, 60VDC (resistive) 2A, 30VDC (resistive) <RY-WFZ> 0.5A, 125VAC (resistive), 2A, 30VDC (resistive) 0.6A, 110VDC (resistive)

Note: for UL/CSA certified relays; UL/CSA marking, add -UL to the ordering part number.

- Compliant with FCC Part 68.
- Conditions of resistive load is voltage application with the same polarity.

DIMENSIONS

●Dimensions

20.2 max.

12.5 max.

0.5

7.62

5.08

5.08

(1.2)

3.3

9.8 max.

0.25

7.62

(1.09)

●Schematics (BOTTOM VIEW)

●PC board mounting hole layout (BOTTOM VIEW)

8-Φ0.8

7.62

5.08

5.08

7.62

1.09

(1.2)

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

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

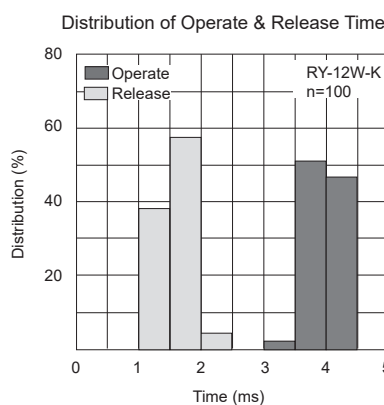
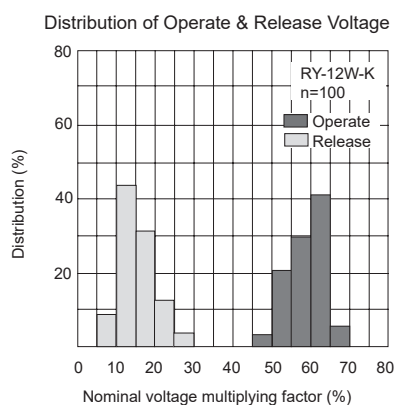
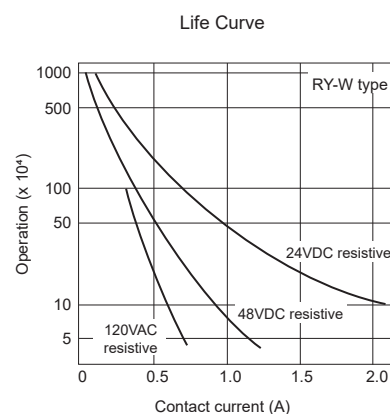
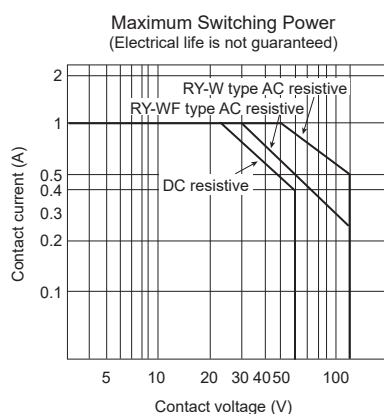
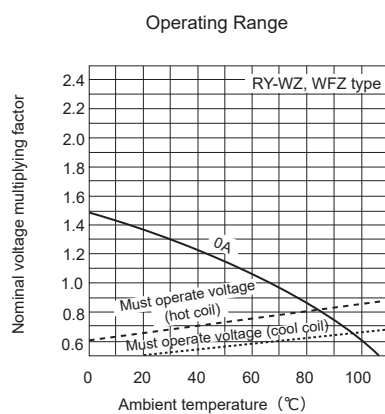
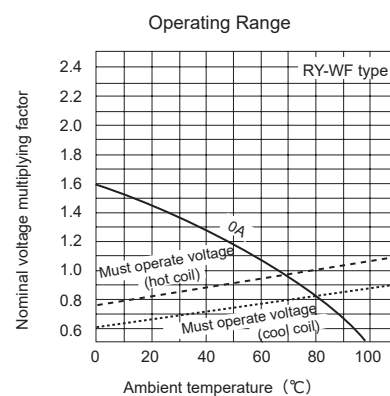
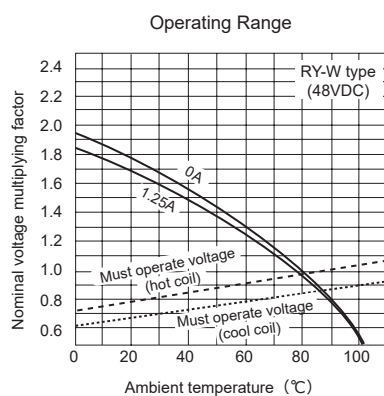
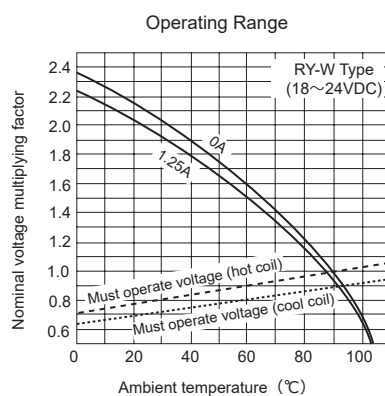
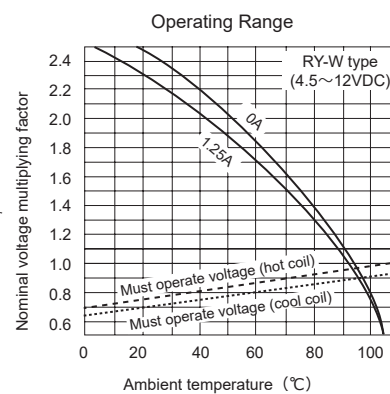
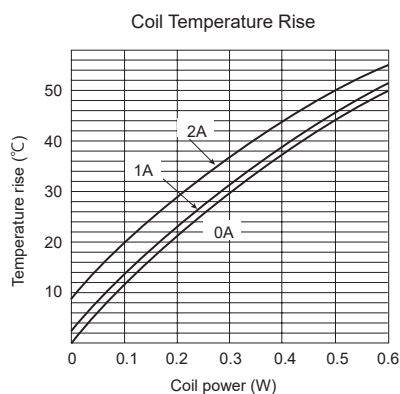
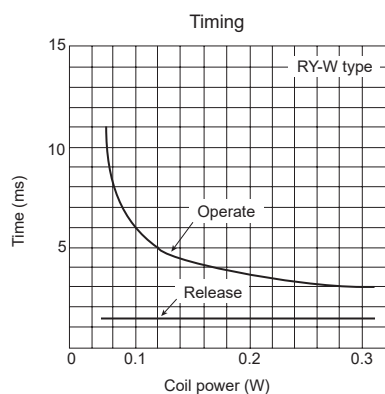
() : Reference
Unit: mm

■ PART NUMBER LIST

Part number	Contact configuration	Contact rating	Contact material	Raged power	Coil sensitivity	Dielectric strength	Safety standard
RY-()W-K	2c (2 Form C)	1A 24VDC	Silver palladium with gold overlay on one side	150mW to 300mW	68 to 72%	500VAC	-
RY-()W-K-UL							UL, CSA
RY-()W-OH-K			Silver palladium with gold overlay on two sides				-
RY-()W-OH-K-UL							UL, CSA
RY-()WZ-K	2c (2 Form C)	1A 24VDC	Silver palladium with gold overlay on one side	500mW to 580mW	50%	500VAC	-
RY-()WZ-K-UL							UL, CSA
RY-()WZ-OH-K			Silver palladium with gold overlay on two sides				-
RY-()WZ-OH-K-UL							UL, CSA
RY-()WF-K	2c (2 Form C)	1A 24VDC	Silver palladium with gold overlay on one side	450mW to 460mW	67 to 69%	1,000VAC	-
RY-()WF-K-UL							UL, CSA
RY-()WF-OH-K			Silver palladium with gold overlay on two sides				-
RY-()WF-OH-K-UL							UL, CSA
RY-()WFZ-K	2c (2 Form C)	2A 30VDC	Silver nickel with gold overlay on two sides	460mW to 580mW	63 to 75%	500VAC	-
RY-()WFZ-K-UL							UL, CSA

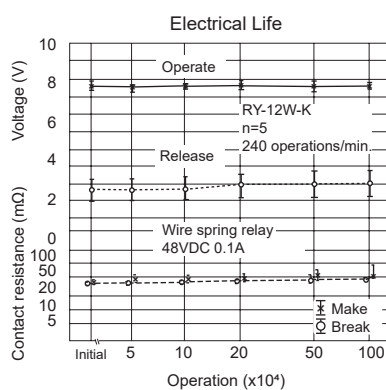
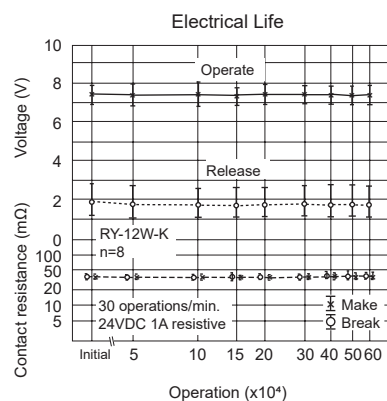
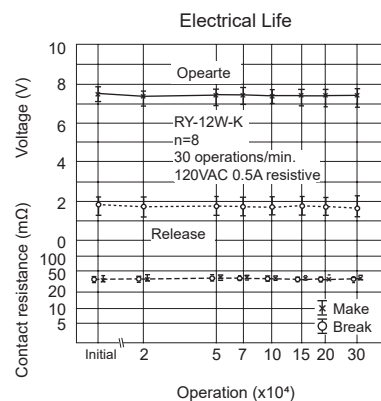
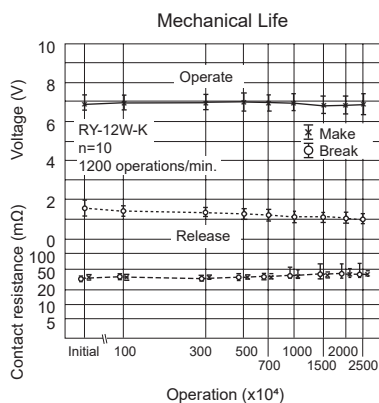
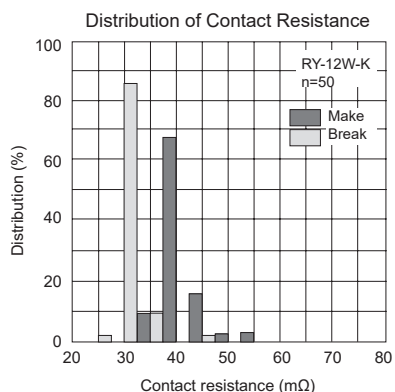
CHARACTERISTIC DATA

(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.

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