

902

»» Features



- Long terminals for ideal for soldering and mounting reliability.
- High dielectric strength between coil and contacts (2000VAC) and between contacts of different polarity (1500VAC).
- High impulse withstand voltages between coil and contacts, and between contacts of different polarity (2500V, 2x10 μ s: Bellcore requirements).
- Low power consumption (140mW).
- Bifurcated crossbar contact (Au-clad) and plastic sealed construction for high reliability.
- High seal ability after IRS.
- Comply with RoHS-Directive 2002/95/EC.

»» Type List

Terminal style	Contact form	Relay function	Terminal shape	Enclosure style
				Plastics sealed
PCB terminal	2C (DPDT)	Single-side stable	-----	902-2C-S
				902-2C-S-Y
		Single-winding latching	-----	902U-2C-S
		Double-winding latching	-----	902K-2C-S
	Single-side stable	Outside-L surface mounting terminal	902F-2C-S	902F-2C-S-TR

»» Ordering Information

902 - 2C - S - -
 1 2 3 4 5 6 7

- | | |
|------------------------------------|-----------------------------------|
| 1. 902 -- Basic series designation | 4. 2C -- Double pole double throw |
| 2. Blank -- Single-side stable | 5. S -- Plastics sealed |
| U -- Single-winding latching | |
| K -- Double-winding latching | 6. Blank -- Standard type |
| | TR -- Tape packing |
| 3. Blank -- PCB terminal | |
| F -- Surface mount terminal | 7. Blank -- UL/CUL approved |
| | Y -- EN60950 approved |

»» Contact Rating

Rated load (resistive load)	0.5A at 125VAC, 2A at 30VDC
Contact material	Ag + Au-clad
Max. continuous current	2A
Maximum switching voltage	250VAC, 220VDC
Maximum switching capacity	62.5VA, 60W
Min. permissible load ⁽¹⁾	10 μ A at 10mVDC

Note : (1) P level: $\lambda_{60} = 0.1 \times 10^{-6}$ / operation

»» Coil Rating (DC)

◆ Single-side stable

Rated voltage (V)	Rated current $\pm 10\%$ at 23°C (mA)	Coil resistance $\pm 10\%$ at 23°C (Ω)	Max. continuous voltage at 23°C	Pick up voltage(Max) at 23°C	Drop out voltage(Min) at 23°C	Power consumption at rated voltage
4.5	31	145	200 % of rated voltage	75 % of rated voltage	10 % of rated voltage	approx. 0.14W
5	28.1	178				
12	11.7	1028				
24	8.3	2880	170 % of rated voltage			approx. 0.2W

◆ Single-winding latching

Rated voltage (V)	Rated current $\pm 10\%$ at 23°C (mA)	Coil resistance $\pm 10\%$ at 23°C (Ω)	Max. continuous voltage at 23°C	Set voltage(Max) at 23°C	Reset voltage(Max) at 23°C	Power consumption at rated voltage
4.5	22.2	203	180 % of rated voltage	75 % of rated voltage	75 % of rated voltage	approx. 0.1W
5	20	250				
12	8.3	1440				
24	6.3	3840				approx. 0.15W

◆ Double-winding latching

Rated voltage (V)	Rated current $\pm 10\%$ at 23°C (mA)	Coil resistance $\pm 10\%$ at 23°C (Ω)	Max. continuous voltage at 23°C	Set voltage(Max) at 23°C	Reset voltage(Max) at 23°C	Power consumption at rated voltage
4.5	44.4	101	170 % of rated voltage	75 % of rated voltage	75 % of rated voltage	approx. 0.2W
5	40	125				
12	16.7	720				
24	12.5	1920	140 % of rated voltage			approx. 0.3W

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◆Single-side stable (EN60950 approved type)

Rated voltage (V)	Rated current ±10 % at 23°C (mA)	Coil resistance ±10 % at 23°C (Ω)	Max. continuous voltage at 23°C	Pick up voltage(Max) at 23°C	Drop out voltage(Min) at 23°C	Power consumption at rated voltage
5	40	125	170 % of rated voltage	75 % of rated voltage	10 % of rated voltage	approx. 0.2W
12	16.7	720		rated voltage	rated voltage	approx. 0.23W
24	9.6	2504		rated voltage	rated voltage	

» Specification

Contact resistance ⁽¹⁾	75 mΩ Max. (100mA/6VDC by 4 pipes mΩ meter)	
Operate time ⁽¹⁾	4 ms max.	
Release time ⁽¹⁾	4 ms max.	
Bounce time	operate : approx 0.5ms set/reset : approx 0.5ms	release : approx 0.5ms
Insulation resistance ^{(1) (2)}	1000MΩ Min. (DC 500V)	
Dielectric strength ⁽¹⁾	Between coil and contacts	: AC 2000V, 50/60Hz 1 min. : AC 1000V, 50/60Hz 1 min (double-winding latching)
	Between contact of different pole	: AC 1500V, 50/60Hz 1 min.
	Between contact of same pole	: AC 1000V, 50/60Hz 1 min.
	Between set and reset coil	: AC 500V, 50/60Hz 1 min. (double-winding latching)
Surge withstand voltage	Between coil and contacts	: AC 2500V (2X10 μs) : AC 1500V (10X160 μs) (double-winding latching)
	Between contact of different pole	: AC 2500V (2X10 μs)
	Between contact of same pole	: AC 1500V (10X160 μs) (conforms to FCC part 68)
Vibration resistance	Operating extremes	10~55Hz , double amplitude 3.3 mm
	Damage limits	10~55Hz , double amplitude 5 mm
Shock resistance	Operating extremes	75G
	Damage limits	100G
Life expectancy	Mechanical	100,000,000 operations (frequency 36,000 operations/hr)
	Electrical	100,000 operations (frequency 1,200 operations/hr)
Operating ambient temperature	-40~+85°C (no freezing)	
	-40~+70°C (no freezing) [double winding latching]	
Weight	Approx. 2 g	

Note : (1) initial value

(2) except between set and reset coil

»» Safety Approval

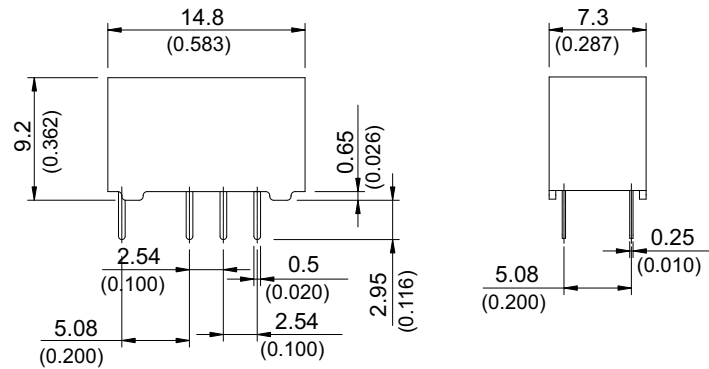
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File No.	E74321	218083

»» Safety Approval Rating

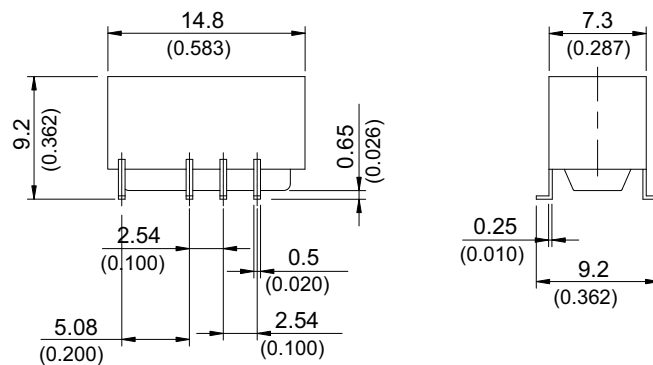
UL	CSA
2A 30VDC	2A 30VDC
0.3A 110VDC	0.3A 110VDC
0.5A 125VAC	0.5A 125VAC

»» Outline Dimensions

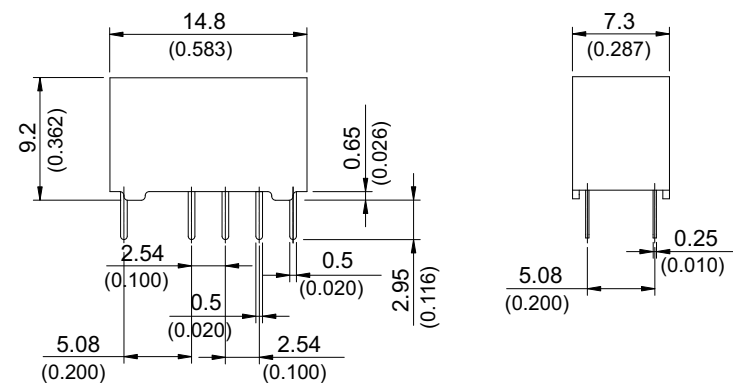
◆ 902,902U



◆ 902F



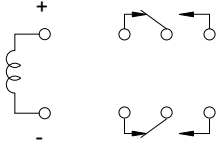
◆ 902K



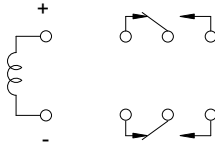
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»» Wiring Diagram BOTTOM VIEW

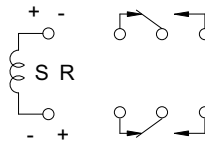
◆902



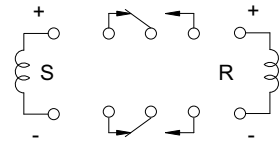
◆902F



◆902U

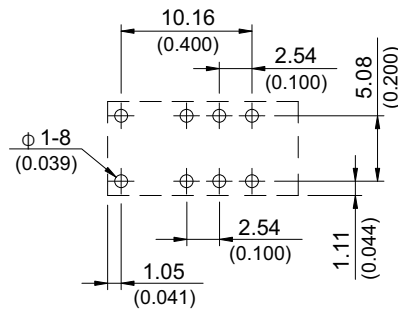


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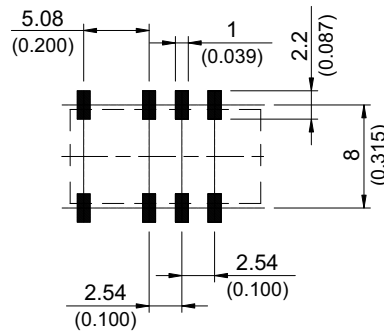


»» PC Board Layout BOTTOM VIEW

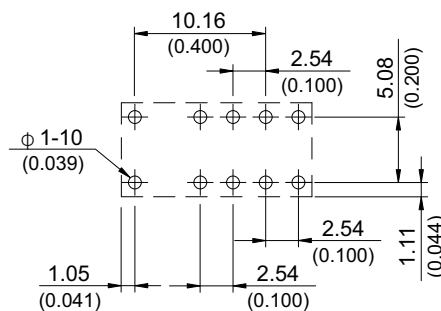
◆902,902U



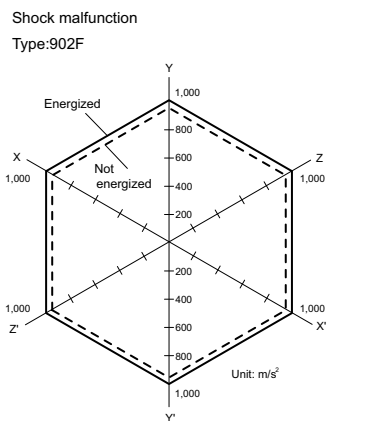
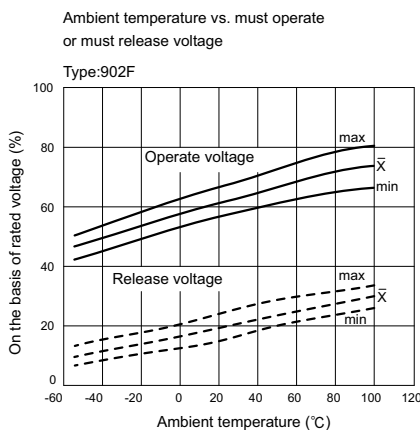
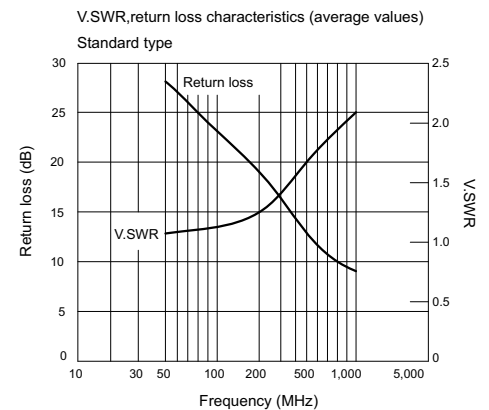
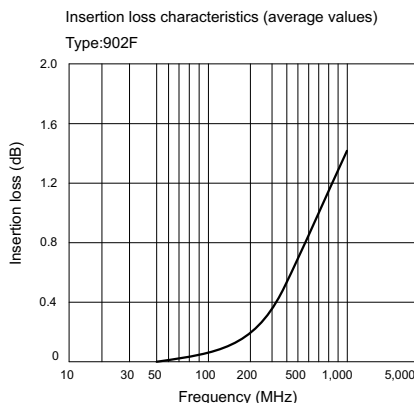
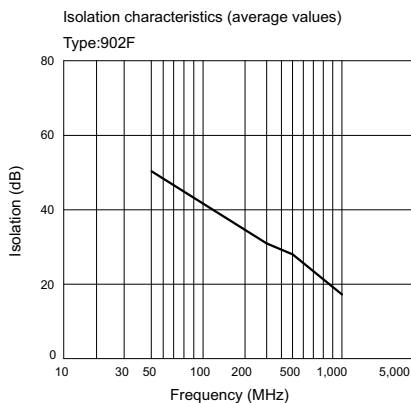
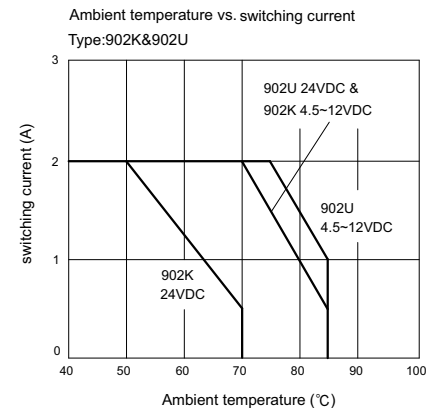
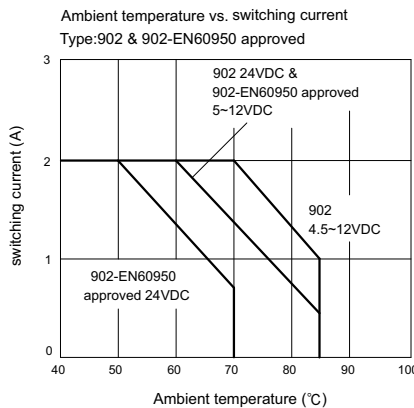
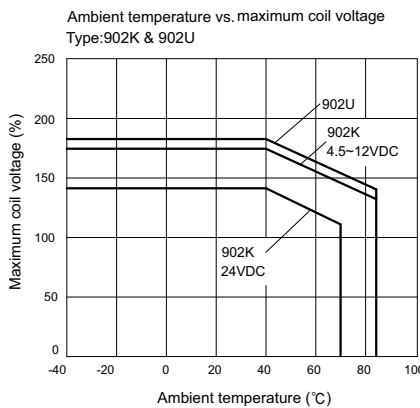
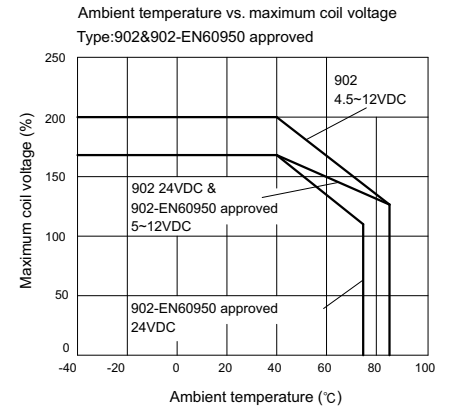
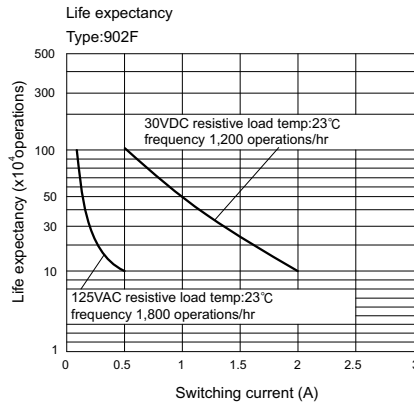
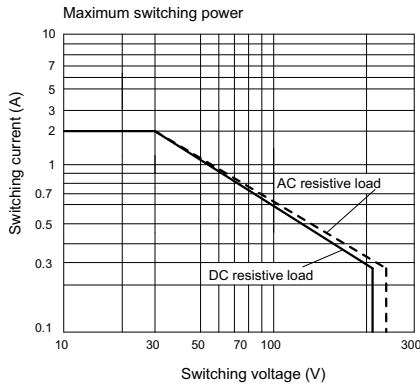
◆902F



◆902K



Engineering Data



Shock direction

X ← X'

Y ↑ Y'

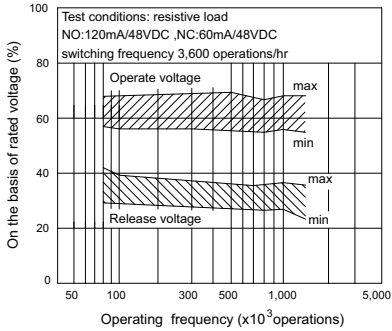
Z ● Z'

Z' ⊗

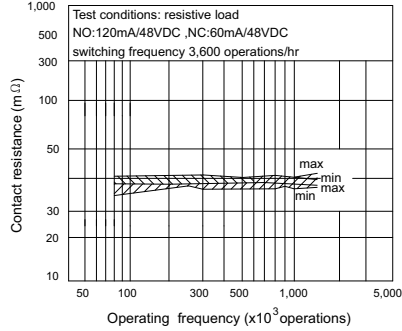
Conditions:
Shock is applied in +X, +Y, and +Z directions three times each with and without energizing the Relays to check the number of contact malfunctions.

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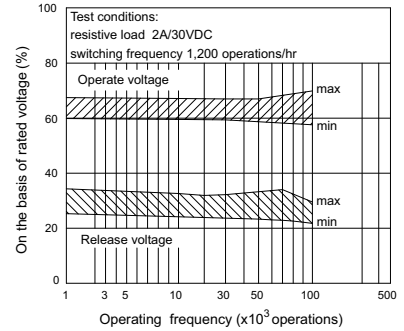
Electrical life expectancy
(with must operate and must release voltage)
Type:902F



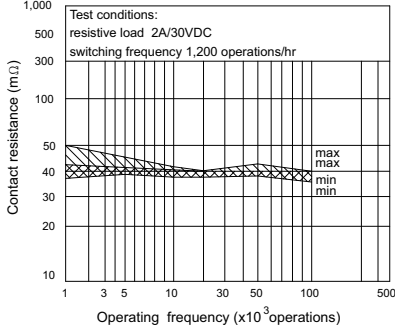
Electrical life expectancy
(contact resistance)
Type:902F



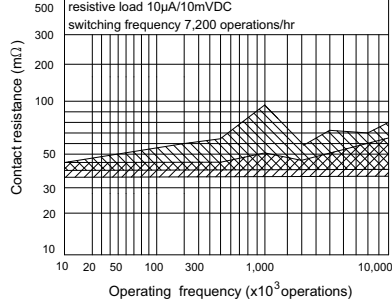
Electrical life expectancy
(with must operate and must release voltage)
Type:902F



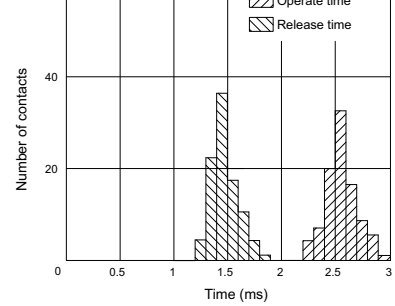
Electrical life expectancy
(contact resistance)
Type:902F



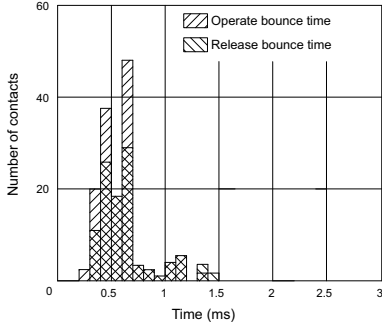
Contact reliability test
Type:902F



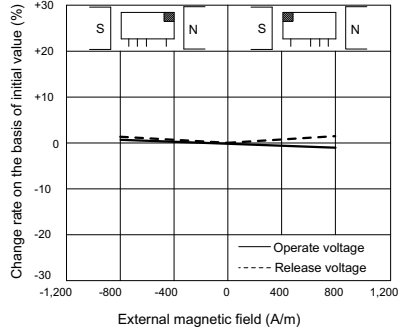
Must operate and must release time distribution
Type:902F



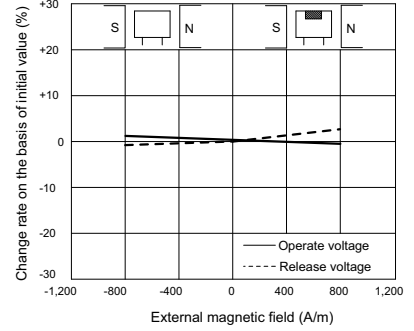
Must operate and must release bounce time distribution
Type:902F



External magnetic Interference (average value)
Type:902F



External magnetic Interference (average value)
Type:902F



External magnetic Interference (average value)
Type:902F

