

502 

### »» Features

- Wide switching capacity of 10  $\mu$  A to 2A.
- Sensitivity coil : 0.22W.
- High dielectric strength coil-contacts: 1000VAC, open contacts: 750VAC.
- Conforms to FCC part 68 requirements.
- Ag+Au clad bifurcated crossbar contacts and fully sealed for high contact reliability.
- Comply with RoHS-Directive 2002/95/EC.

### »» Type List

Terminal style	Contact form	Coil sensitivity	Enclosure style
			Plastics sealed
PCB terminal	2C (DPDT)	Standard type	502-2C-S
		High sensitivity type	502N-2C-S
		Ultra-sensitivity type	502N1-2C-S

### »» Ordering Information

502  - 2C - S  
 1      2              3              4

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 1. 502 -- Basic series designation | 3. 2C -- Double pole double throw |
| 2. Blank -- Standard type          | 4. S -- Plastics sealed           |
| N -- High sensitivity type         |                                   |
| N1 -- Ultra-sensitivity type       |                                   |

### »» Contact Rating

Number of contacts and type	2 changeover contacts	
Contact assembly	Bifurcated crossbar	
Contact material	Ag + Au-clad	
Max. continuous current	2A	
Maximum switching current	2A / standard type	
	1A / high sensitivity & Ultra-sensitivity type	
Maximum switching voltage	125VAC	
	125VDC	
Maximum switching capacity	DC voltage	60W / standard type 24W / high sensitivity & Ultra-sensitivity type
	AC voltage	62.5VA
Min. permissible load <sup>(1)</sup>	10 $\mu$ A at 10mVDC	
Contact resistance (initial value)	$\leq$ 100 m $\Omega$	

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

## »» Coil Rating (DC)

### ◆ Standard 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
3	166.7	18	120 % of rated voltage	75 % of rated voltage	5 % of rated voltage	approx. 0.5W
5	100	50				
6	83.3	72				
9	55.6	162				
12	41.7	288				
24	20.8	1152	110 % of rated voltage			approx. 0.58W
48	12	4000				

### ◆ High Sensitivity 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
3	120	25	140 % of rated voltage	75 % of rated voltage	5 % of rated voltage	approx. 0.36W
5	72	70				
6	60	100				
9	40	225				
12	30	400				
24	15	1600				
48	7.5	6400				

### ◆ Ultra-sensitivity 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
3	50	60	180 % of rated voltage	75 % of rated voltage	5 % of rated voltage	approx. 0.15W
5	30	166.7				
6	25	240				
9	16.7	540				
12	12.5	960				
24	8.3	2880	150 % of rated voltage			approx. 0.2W
48	6.25	7680				

## »» Specification

Contact resistance <sup>(1)</sup>	50mΩ Max. (for 502(N) type) (100mA/6VDC by 4 pipes mΩ meter)	
	100mΩ Max. (for 502N1 type) (100mA/6VDC by 4 pipes mΩ meter)	
Operate time <sup>(1)</sup>	7 ms max.	
Release time <sup>(1)</sup>	3 ms max.	
Bounce time	operate	approx. 0.5ms
	release	approx. 3.5ms
Insulation resistance <sup>(1)</sup>	1000 MΩ Min. (DC 500V)	
Surge withstand voltage	1500V 10 X 160 μs (conforms to part 68 of FCC rules)	
Dielectric strength <sup>(1)</sup>	Between contact and coil	: AC 1000V, 50/60Hz 1 min.
	Between contacts of different poles	: AC 1000V, 50/60Hz 1 min.
	Between contact of same poles	: AC 750V, 50/60Hz 1 min.
		: AC 500V, 50/60Hz 1 min. (for 502N1 type)
Vibration resistance	Operating extremes	10 ~ 55Hz , amplitude 1.5 mm
	Damage limits	10 ~ 55Hz , amplitude 1.5 mm
Shock resistance	Operating extremes	20G
	Damage limits	100G
Life expectancy	Mechanical	15,000,000 operations (frequency 36,000 operations/hr)
	Electrical	AC 100,000 operations / DC 300,000 operations (frequency 1,800 operations/hr)
Operating ambient temperature	-25 ~ +70°C (no freezing)	
	-25 ~ +65°C (no freezing) for standard coil	
Weight	Approx. 6 g	

Note : (1) initial value

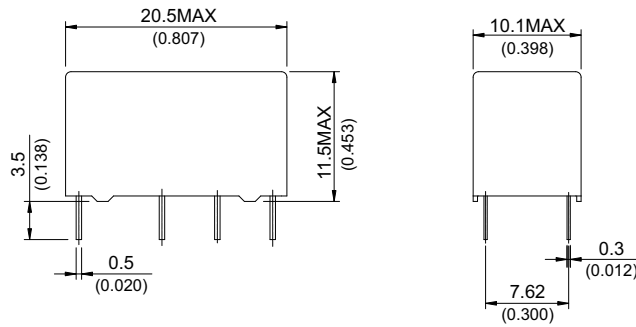
## »» Safety Approval

Certified	UL	CSA
File No.	E74321	218083

## »» Safety Approval Rating

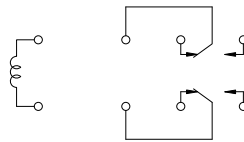
502 , 502N	502N1
0.6A 125VAC	0.5A 125VAC
0.6A 110VDC	0.2A 110VDC
2A 30VDC	1A 24VDC

## »» Outline Dimensions



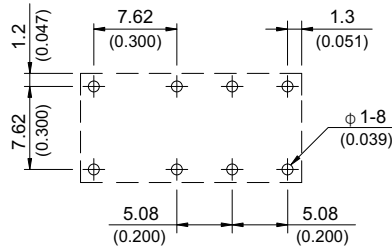
## »» Wiring Diagram

BOTTOM VIEW

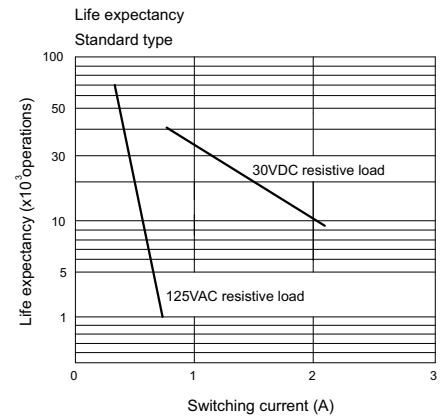
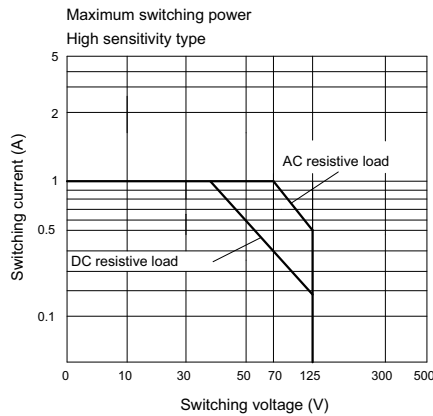
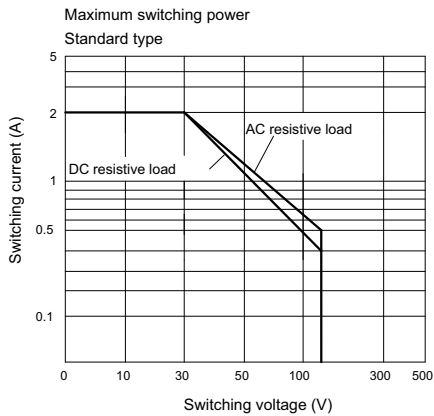


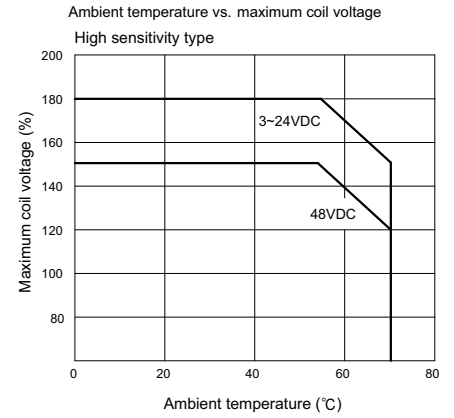
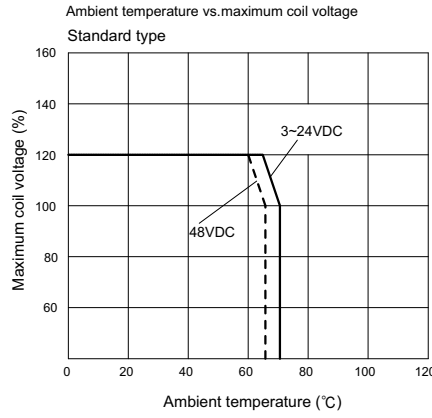
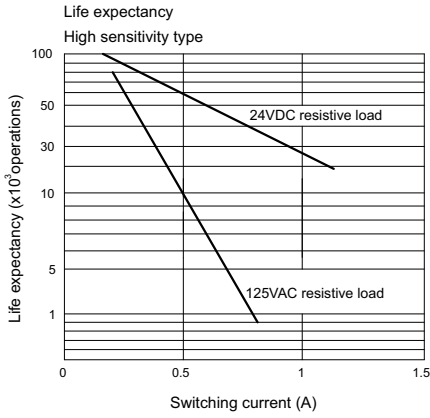
## »» PC Board Layout

BOTTOM VIEW

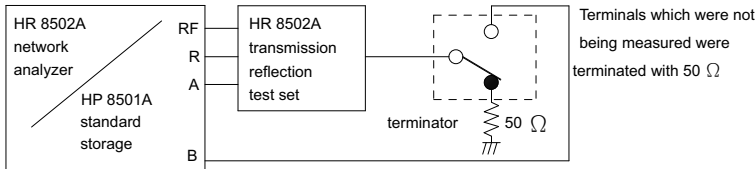


## »» Engineering Data

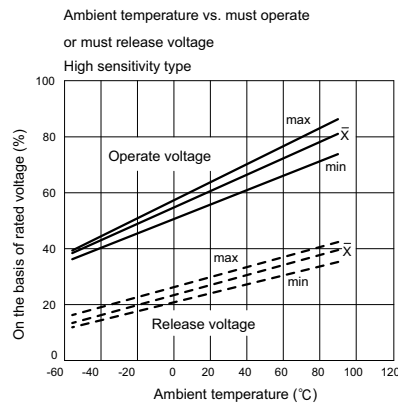
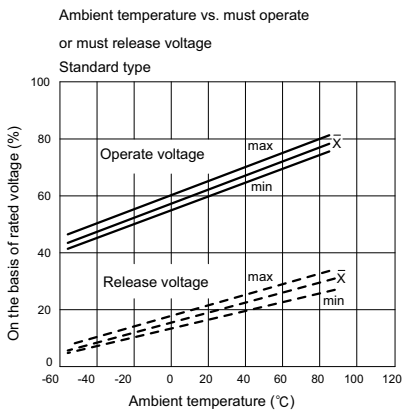
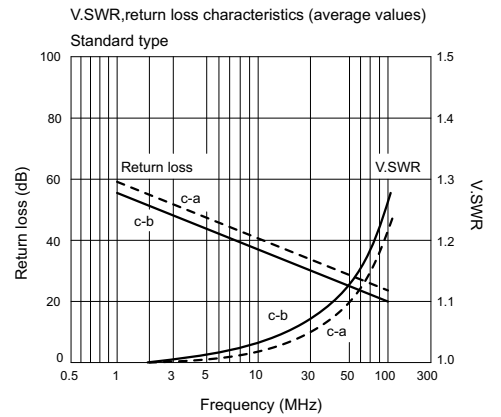
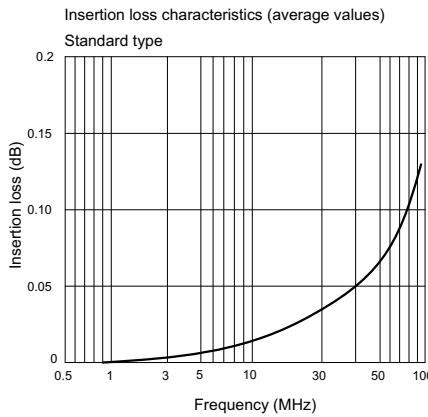
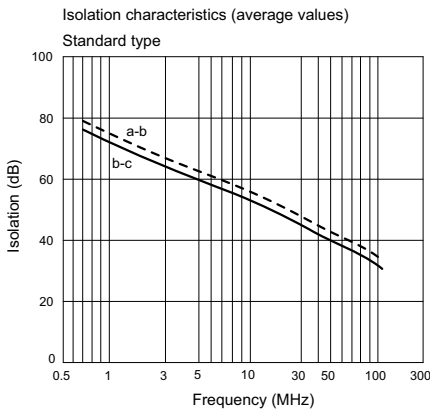




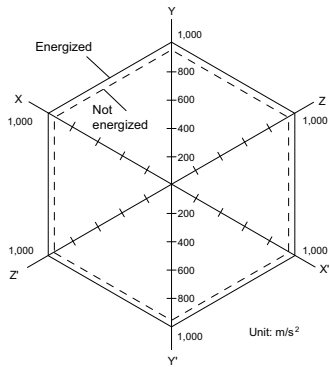
**High-frequency characteristics**  
measurement conditions



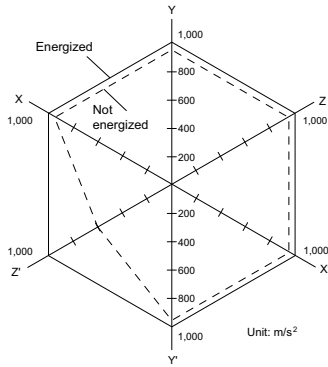
Notes: The high-frequency characteristics data were measured using a dedicated circuit board and actual values will vary depending on the usage conditions. Check the characteristics of the actual equipment used.



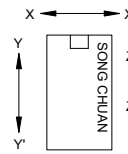
Shock malfunction  
Standard type



Shock malfunction  
High sensitivity type



Shock direction



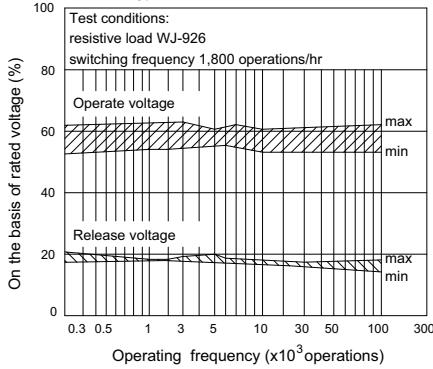
Conditions:

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.

Electrical life expectancy

(with must operate and must release voltage)

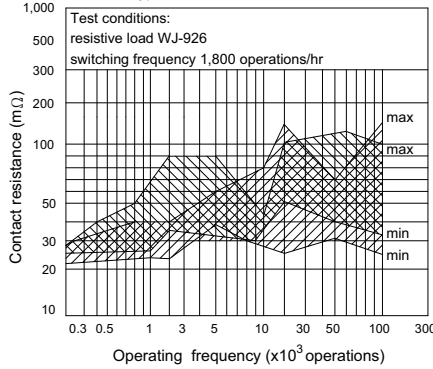
Standard type



Electrical life expectancy

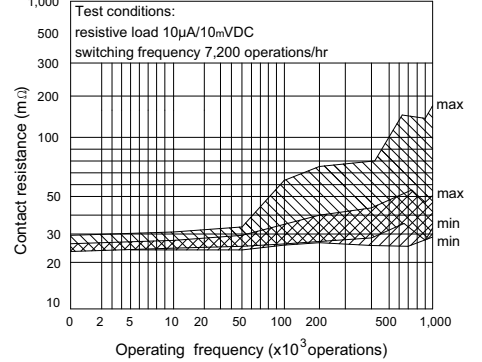
(contact resistance)

Standard type



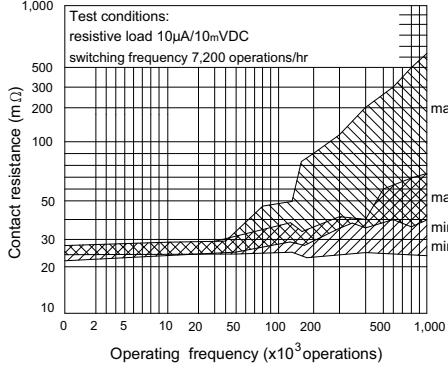
Contact reliability test

Standard type



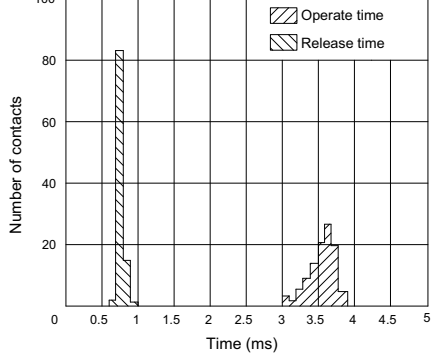
Contact reliability test

High sensitivity type



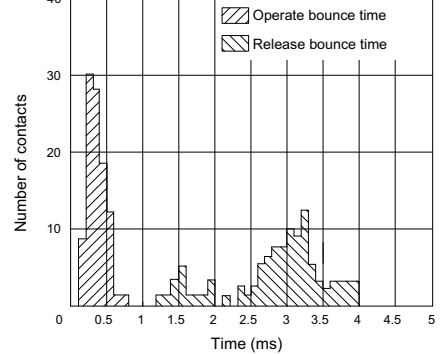
Must operate and must release time distribution

Standard type



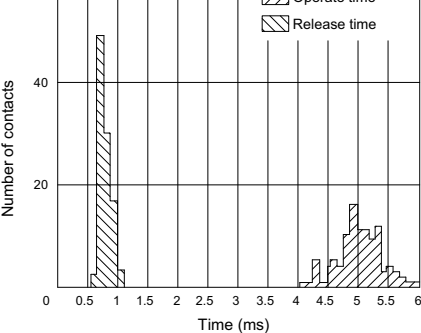
Must operate and must release bounce time distribution

Standard type



Must operate and must release time distribution

High sensitivity type



Must operate and must release bounce time distribution

High sensitivity type

