

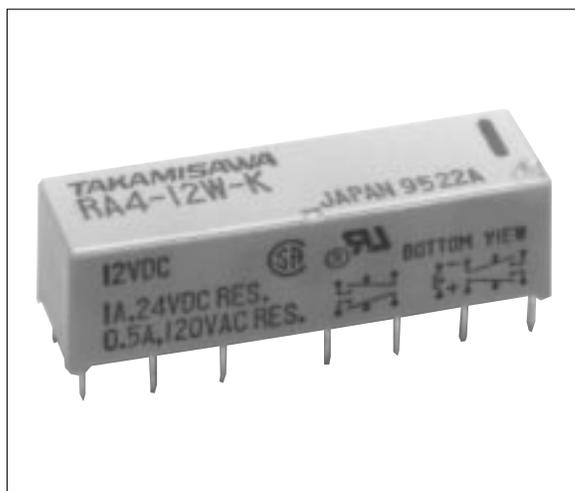
# MINIATURE RELAY

## 4 POLES—1 to 2 A (FOR SIGNAL SWITCHING)

### RA4 SERIES

#### ■ FEATURES

- Ultra high sensitivity
- High reliability-bifurcated contacts
- Conforms to FCC rules and regulations Part 68
  - Dielectric strength 1,500 VAC between coil and contacts
  - Surge strength 1,500 V
- UL, CSA recognized
- Wide operating range
- DIL pitch terminals
- Plastic sealed type
- Latching type available



#### ■ ORDERING INFORMATION

[Example]     RA4   L   -   D   12   W   -   K  
                   (a) (b)    (c) (d) (e)    (f)

(a)	Series Name	RA4 : RA4 Series
(b)	Operation Function	Nil : Standard type L : Latching type
(c)	Number of Coil	Nil : Single winding type D : Double winding type
(d)	Nominal Voltage	Refer to the COIL DATA CHART
(e)	Contact	W : Bifurcated type
(f)	Enclosure	K : Plastic sealed type

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

#### ■ SAFETY STANDARD AND FILE NUMBERS

UL478, 508 (File No. E45026)

C22.2 No. 14 (File No. LR35579)

Please request when the approval markings are required on the cover.

Nominal voltage	Contact rating
1.5 to 48 VDC	0.5 A    120 VAC
	2 A      30 VDC
	0.5 A    60 VDC
	resistive

# RA4 SERIES

## ■ SPECIFICATIONS

Item		Standard Type	Single Winding Latching Type	Double Winding Latching Type
		RA4-( ) W-K	RA4L-( ) W-K	RA4L-D ( ) W-K
Contact	Arrangement	4 form C (4PDT)		
	Material	Gold overlay silver alloy / silver alloy		
	Style	Bifurcated		
	Resistance (initial)	Maximum 100 mΩ (at 1 A 6 VDC)		
	Rating (resistive)	0.5 A 120 VAC or 1 A 24 VDC		
	Maximum Carrying Current	2 A		
	Maximum Switching Power	60 VA, 24 W		
	Maximum Switching Voltage	250 VAC, 220 VDC		
	Maximum Switching Current	2 A		
	Minimum Switching Load*1	0.01 mA 10 mVDC		
	Capacitance (10 MHz)	Approximately 1.4 pF (between open contacts), 1.3 pF (adjacent contacts) Approximately 2.4 pF (between coil and contacts)		
Coil	Nominal Power (at 20°C)	0.2 W	0.09 W	0.18 W
	Operate Power (at 20°C)	0.1 W	0.045 W	0.09 W
	Operating Temperature	-40°C to +80°C (no frost) (refer to the CHARACTERISTIC DATA)		
Time Value	Operate (at nominal voltage)	Maximum 6 ms	Maximum 6 ms (set)	
	Release (at nominal voltage)	Maximum 4 ms	Maximum 6 ms (reset)	
Insulation	Resistance (at 500 VDC)	Minimum 1,000 MΩ		
	Dielectric Strength	between open contacts	1,000 VAC 1 minute	
		between adjacent contacts	1,500 VAC 1 minute	
		between coil and contacts	1,500 VAC 1 minute	
Surge Strength	1,500 V			
Life	Mechanical	2 × 10 <sup>7</sup> operations minimum		
	Electrical	2 × 10 <sup>5</sup> ops. min. (0.5 A 120 VAC), 5 × 10 <sup>5</sup> ops. min. (1 A 24 VDC)		
Other	Vibration Resistance	Misoperation	10 to 55 Hz (double amplitude of 3.3 mm)	
		Endurance	10 to 55 Hz (double amplitude of 5.0 mm)	
	Shock Resistance	Misoperation	300 m/s <sup>2</sup> (11 ±1 ms)	
		Endurance	1,000 m/s <sup>2</sup> ( 6 ±1 ms)	
	Weight	Approximately 6.4 g		

\*1 Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

# RA4 SERIES

## ■ COIL DATA CHART

MODEL		Nominal voltage	Coil resistance (±10%)	Must operate voltage* <sup>1</sup>	Must release voltage* <sup>1</sup>	Nominal power
Standard Type	RA4-1.5 W-K	1.5 VDC	11Ω	+1.0 VDC	+0.15 VDC	200 mW
	RA4- 3 W-K	3 VDC	45Ω	+2.1 VDC	+0.3 VDC	200 mW
	RA4-4.5 W-K	4.5 VDC	100Ω	+3.1 VDC	+0.45 VDC	200 mW
	RA4- 5 W-K	5 VDC	125Ω	+3.5 VDC	+0.5 VDC	200 mW
	RA4- 6 W-K	6 VDC	180Ω	+4.2 VDC	+0.6 VDC	200 mW
	RA4- 9 W-K	9 VDC	405Ω	+6.3 VDC	+0.9 VDC	200 mW
	RA4- 12 W-K	12 VDC	720Ω	+8.4 VDC	+1.2 VDC	200 mW
	RA4- 18 W-K	18 VDC	1,620Ω	+12.6 VDC	+1.8 VDC	200 mW
	RA4- 24 W-K	24 VDC	2,880Ω	+16.8 VDC	+2.4 VDC	200 mW
	RA4- 48 W-K	48 VDC	11,520Ω	+33.6 VDC	+4.8 VDC	200 mW

Note: \*<sup>1</sup> Specified values are subject to pulse wave voltage.  
All values in the table are measured at 20°C.

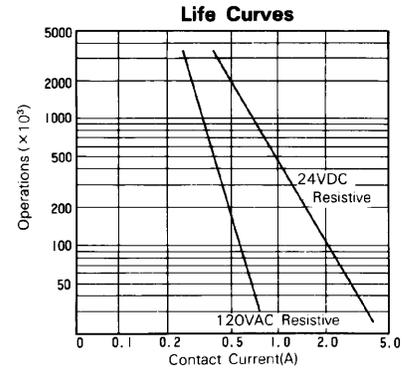
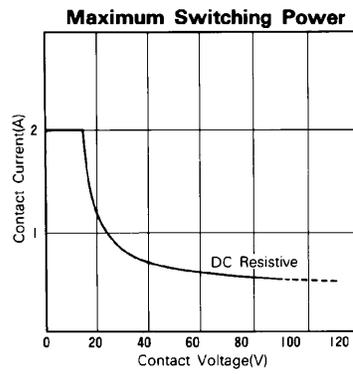
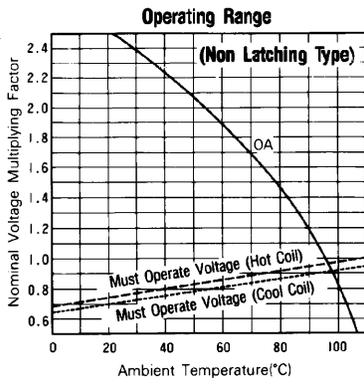
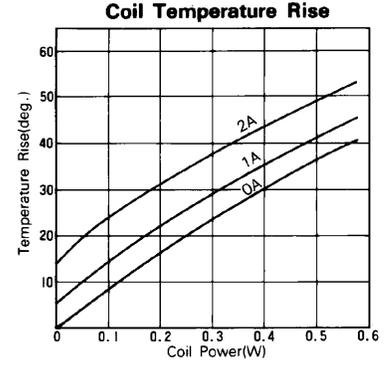
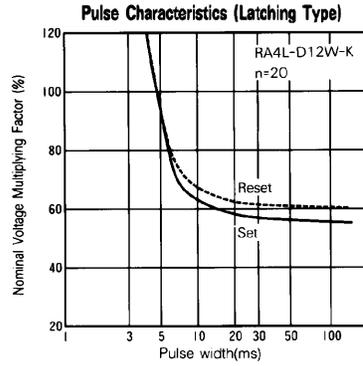
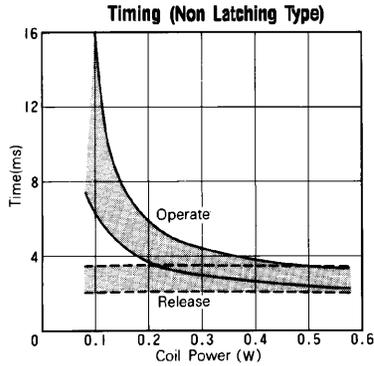
# RA4 SERIES

MODEL		Nominal voltage	Coil resistance ( $\pm 10\%$ )	Set voltage* <sup>1</sup>	Reset voltage* <sup>1</sup>	Nominal power
Single Winding Latching Type	RA4L-1.5 W-K	1.5 VDC	25 $\Omega$	+1.0 VDC	-1.0 VDC	90 mW
	RA4L- 3 W-K	3 VDC	100 $\Omega$	+2.1 VDC	-2.1 VDC	90 mW
	RA4L-4.5 W-K	4.5 VDC	225 $\Omega$	+3.1 VDC	-3.1 VDC	90 mW
	RA4L- 5 W-K	5 VDC	278 $\Omega$	+3.5 VDC	-3.5 VDC	90 mW
	RA4L- 6 W-K	6 VDC	400 $\Omega$	+4.2 VDC	-4.2 VDC	90 mW
	RA4L- 9 W-K	9 VDC	900 $\Omega$	+6.3 VDC	-6.3 VDC	90 mW
	RA4L- 12 W-K	12 VDC	1,600 $\Omega$	+8.4 VDC	-8.4 VDC	90 mW
	RA4L- 18 W-K	18 VDC	3,600 $\Omega$	+12.6 VDC	-12.6 VDC	90 mW
	RA4L- 24 W-K	24 VDC	6,400 $\Omega$	+16.8 VDC	-16.8 VDC	90 mW
	RA4L- 48 W-K	48 VDC	25,600 $\Omega$	+33.6 VDC	-33.6 VDC	90 mW
Double Winding Latching Type	RA4L-D1.5 W-K	1.5 VDC	P 12.5 $\Omega$	+1.0 VDC		180 mW
			S 12.5 $\Omega$		+1.0 VDC	
	RA4L-D 3 W-K	3 VDC	P 50 $\Omega$	+2.1 VDC		180 mW
			S 50 $\Omega$		+2.1 VDC	
	RA4L-D4.5 W-K	4.5 VDC	P 113 $\Omega$	+3.1 VDC		180 mW
			S 113 $\Omega$		+3.1 VDC	
	RA4L-D 5 W-K	5 VDC	P 139 $\Omega$	+3.5 VDC		180 mW
			S 139 $\Omega$		+3.5 VDC	
	RA4L-D 6 W-K	6 VDC	P 200 $\Omega$	+4.2 VDC		180 mW
			S 200 $\Omega$		+4.2 VDC	
	RA4L-D 9 W-K	9 VDC	P 450 $\Omega$	+6.3 VDC		180 mW
			S 450 $\Omega$		+6.3 VDC	
	RA4L-D 12 W-K	12 VDC	P 800 $\Omega$	+8.4 VDC		180 mW
			S 800 $\Omega$		+8.4 VDC	
	RA4L-D 18 W-K	18 VDC	P 1,800 $\Omega$	+12.6 VDC		180 mW
			S 1,800 $\Omega$		+12.6 VDC	
	RA4L-D 24 W-K	24 VDC	P 3,200 $\Omega$	+16.8 VDC		180 mW
			S 3,200 $\Omega$		+16.8 VDC	
RA4L-D 48 W-K	48 VDC	P 12,800 $\Omega$	+33.6 VDC		180 mW	
		S 12,800 $\Omega$		+33.6 VDC		

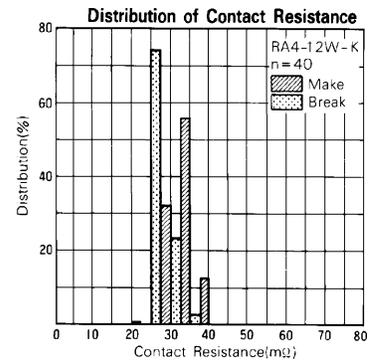
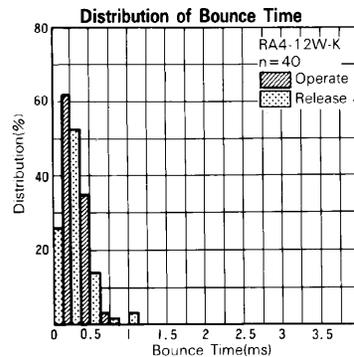
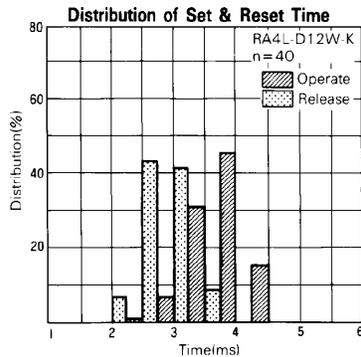
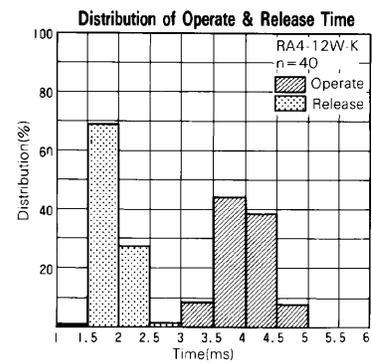
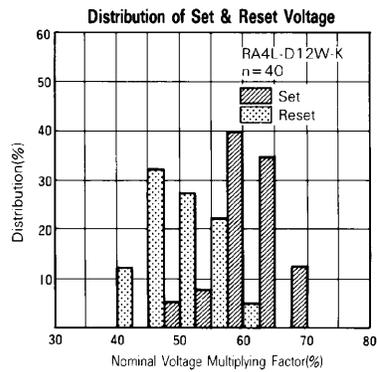
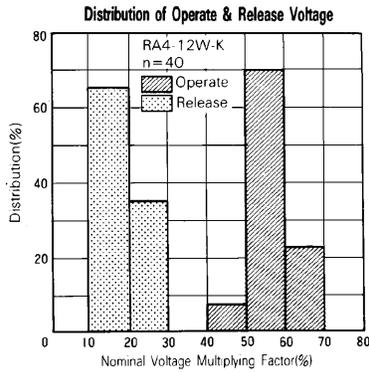
Note: \*<sup>1</sup> Specified values are subject to pulse wave voltage.  
All values in the table are measured at 20°C.

P: Primary coil S: Secondary coil

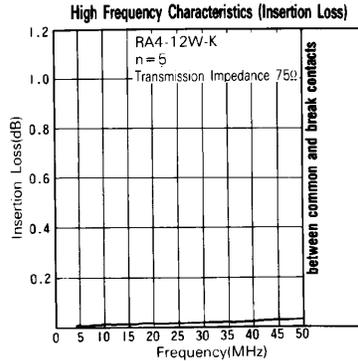
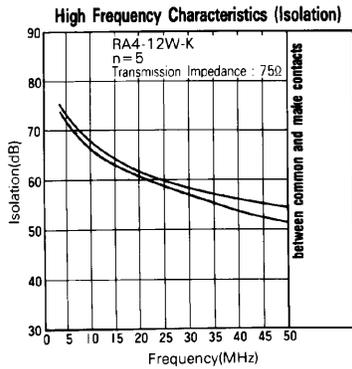
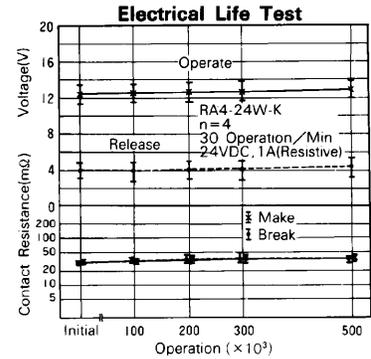
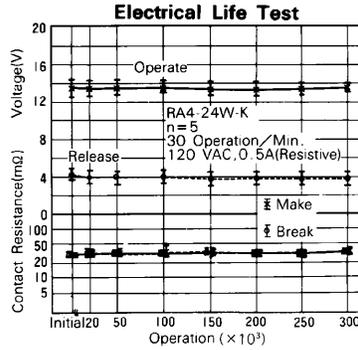
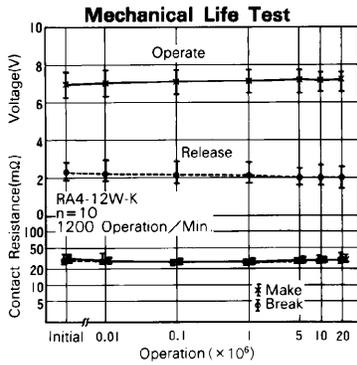
## CHARACTERISTIC DATA



## REFERENCE DATA



# RA4 SERIES



## ■ DIMENSIONS

### ● Dimensions

### ● Schematics

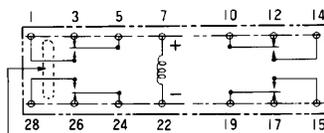
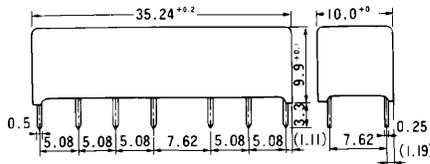
(Bottom View)

### ● PC board mounting

hole layout

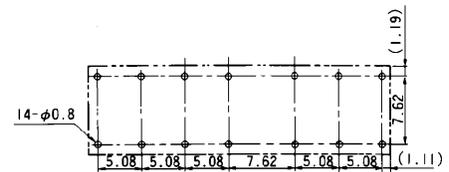
(Bottom view)

RA4, RA4L type (Non-latching type, single winding latching type)

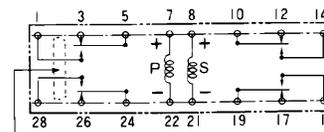
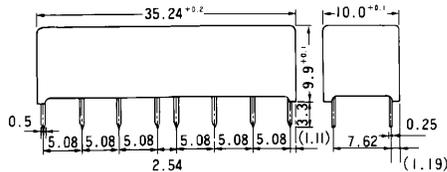


Orientation Mark

Deenergized or reset condition

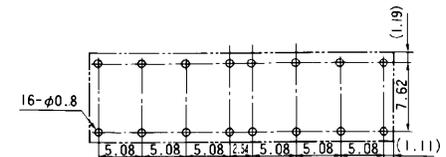


RA4L-D type (Double winding latching type)



Orientation Mark

Reset condition



Unit: mm