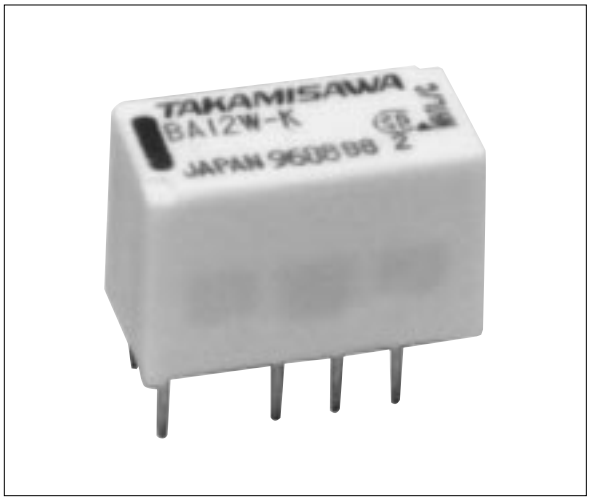
FUJITSU THE POSSIBILITIES ARE INFINITE

MINIATURE RELAY

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

BA SERIES

■ FEATURES



- Slim type relay for high density mounting
- CSA recognized
- Conforms to IEC60950, Bellcore specification and FCC Part 68
  —Clearance more than 2.0 mm between coil and contacts
  —Creepage more than 2.5 mm between coil and contacts
  —Dielectric strength 2,000 VAC between coil and contacts
  —Surge strength 3,000 V between coil and contacts (at 2 × 10 μs surge wave)
- High sensitivity and low consumption power
- Latching type available
- High reliability—bifurcated contacts
- Plastic sealed type
- Conforms to UL (under approval)
- SMT is available: BAS

■ ORDERING INFORMATION

[Example] BA (a) L (b) – (∗) D (c) 12 (d) W (e) K (g)

(a)	Series Name	BA : BA 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
(g)	Enclosure	K : Plastic sealed type

Note: Actual marking omits the hyphen (-) of (∗)

■ SAFETY STANDARD AND FILE NUMBERS

CSA CERTIFIED NRTL/C to C22.2 No. 14 No. 950 (File No. LR35579), UL 508, 1950 (File No. E45026)

Relay type	Nominal voltage	Contact rating
BA BAL BALD	1.5 to 48 VDC	0.5 A 125 VAC 2 A 30 VDC 0.3 A 110 VDC resistive

■ SPECIFICATIONS

Item			Standard	Single Winding Latching Type	Double Winding Latching
			BA-( ) W-K	BAL-( ) W-K	BAL-D ( ) W-K
Contact	Arrangement		2 form C (DPDT)		
	Material		Gold overlay silver alloy		
	Style		Bifurcated		
	Resistance (initial) (at 1 A 6 VDC)		Maximum 50 mΩ		
	Rating (resistive)		0.5 A 125 VAC or 1 A 30 VDC		
	Maximum Carrying Current		2 A		
	Maximum Switching Power		62.5 AV, 30 W		
	Maximum Switching Voltage		250 VAC, 220 VDC		
	Maximum Switching Current		2 A		
	Minimum Switching Load*1		0.01 mA 10 mVDC		
	Capacitance		Approximately 0.5 pF (between open contacts, adjacent contacts) Approximately 1.0 pF (between coil and contacts)		
Coil	Nominal Power (at 20°C)		0.25 to 0.36 W	0.2 W	0.36 W
	Operate Power (at 20°C)		0.14 to 0.2 W	0.15 W	0.205 W
	Operating Temperature		–40°C to +70°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			
		between coil and contacts	2,000 VAC 1 minute		1,000 VAC 1 minute
	Surge Strength		3,000 V (at 2×10 μs)		1,500 V (at 10×160 μs)
Life	Mechanical		1×10^7 operations minimum		
	Electrical		2×10^5 operations minimum (0.5 A 125 VAC) 5×10^5 operations minimum (1 A 30 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	500 m/s^2 (11 ±1 ms)		
		Endurance	1,000 m/s^2 (6 ±1 ms)		
	Weight		Approximately 1.9 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.

■ COIL DATA CHART

	MODEL	Nominal voltage	Coil resistance (±10%)	Must operate voltage*1	Must release voltage*1	Nominal power
Standard Type	BA-1.5 W-K	1.5 VDC	9 Ω	+1.13 VDC	+0.15 VDC	250 mW
	BA- 3 W-K	3 VDC	36 Ω	+2.25 VDC	+0.3 VDC	250 mW
	BA-4.5 W-K	4.5 VDC	81 Ω	+3.38 VDC	+0.45 VDC	250 mW
	BA- 5 W-K	5 VDC	100 Ω	+3.75 VDC	+0.5 VDC	250 mW
	BA- 6 W-K	6 VDC	144 Ω	+4.5 VDC	+0.6 VDC	250 mW
	BA- 9 W-K	9 VDC	324 Ω	+6.75 VDC	+0.9 VDC	250 mW
	BA- 12 W-K	12 VDC	576 Ω	+9.0 VDC	+1.2 VDC	250 mW
	BA- 18 W-K	18 VDC	1,296 Ω	+13.5 VDC	+1.8 VDC	250 mW
	BA- 24 W-K	24 VDC	2,304 Ω	+18.0 VDC	+2.4 VDC	250 mW
	BA- 48 W-K	48 VDC	6,400 Ω	+36.0 VDC	+4.8 VDC	360 mW

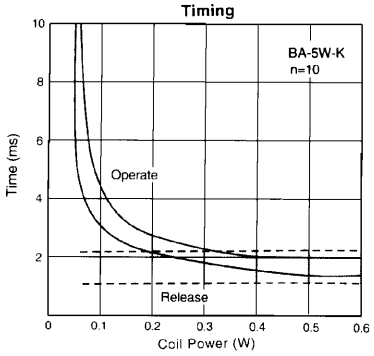
Note: *1 Specified values are subject to pulse wave voltage.
All values in the table are measured at 20°C.

	MODEL	Nominal voltage	Coil resistance (±10%)	Set voltage*1	Reset voltage*1	Nominal power
Single Winding Latching Type	BAL-1.5 W-K	1.5 VDC	11.25 Ω	+1.13 VDC	–1.13 VDC	200 mW
	BAL- 3 W-K	3 VDC	45 Ω	+2.25 VDC	–2.25 VDC	200 mW
	BAL-4.5 W-K	4.5 VDC	101 Ω	+3.38 VDC	–3.38 VDC	200 mW
	BAL- 5 W-K	5 VDC	125 Ω	+3.75 VDC	–3.75 VDC	200 mW
	BAL- 6 W-K	6 VDC	180 Ω	+4.5 VDC	–4.5 VDC	200 mW
	BAL- 9 W-K	9 VDC	405 Ω	+6.75 VDC	–6.75 VDC	200 mW
	BAL- 12 W-K	12 VDC	720 Ω	+9.0 VDC	–9.0 VDC	200 mW
	BAL- 18 W-K	18 VDC	1,620 Ω	+13.5 VDC	–13.5 VDC	200 mW
	BAL- 24 W-K	24 VDC	2,880 Ω	+18.0 VDC	–18.0 VDC	200 mW
Double Winding Latching Type	BAL-D1.5 W-K	1.5 VDC	P 6.25 Ω	+1.13 VDC		360 mW
			S 6.25 Ω		+1.13 VDC	
	BAL-D 3 W-K	3 VDC	P 25 Ω	+2.25 VDC		360 mW
			S 25 Ω		+2.25 VDC	
	BAL-D4.5 W-K	4.5 VDC	P 56.3 Ω	+3.38 VDC		360 mW
			S 56.3 Ω		+3.38 VDC	
	BAL-D 5 W-K	5 VDC	P 69.4 Ω	+3.75 VDC		360 mW
			S 69.4 Ω		+3.75 VDC	
	BAL-D 6 W-K	6 VDC	P 100 Ω	+4.5 VDC		360 mW
			S 100 Ω		+4.5 VDC	
	BAL-D 9 W-K	9 VDC	P 225 Ω	+6.75 VDC		360 mW
			S 225 Ω		+6.75 VDC	
	BAL-D 12 W-K	12 VDC	P 400 Ω	+9.0 VDC		360 mW
			S 400 Ω		+9.0 VDC	
	BAL-D 18 W-K	18 VDC	P 900 Ω	+13.5 VDC		360 mW
			S 900 Ω		+13.5 VDC	
	BAL-D 24 W-K	24 VDC	P 1,600 Ω	+18.0 VDC		360 mW
			S 1,600 Ω		+18.0 VDC	

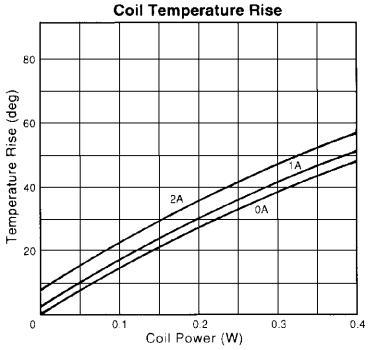
Note: *1 Specified values are subject to pulse wave voltage. P: Primary coil S: Secondary coil
All values in the table are measured at 20°C.

■ CHARACTERISTIC DATA

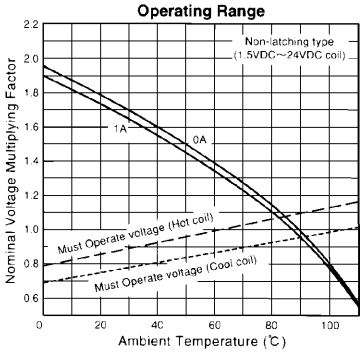
Timing



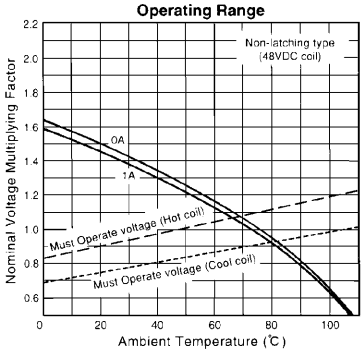
Coil Temperature Rise



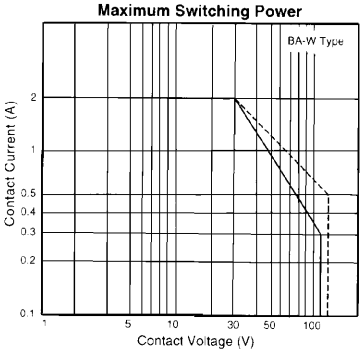
Operating Range



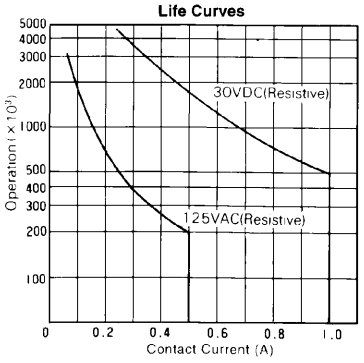
Operating Range



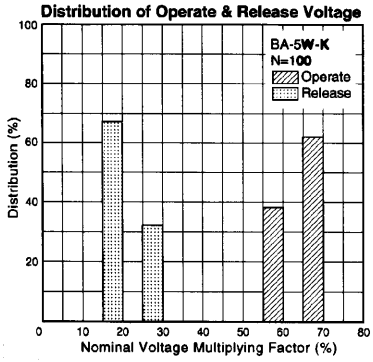
Maximum Switching Power

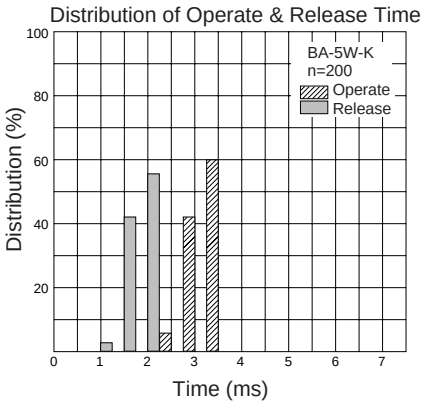


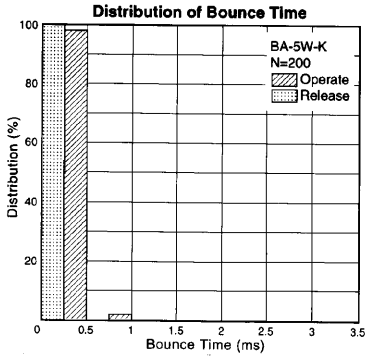
Life Curves

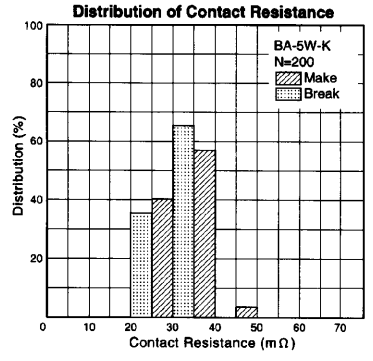


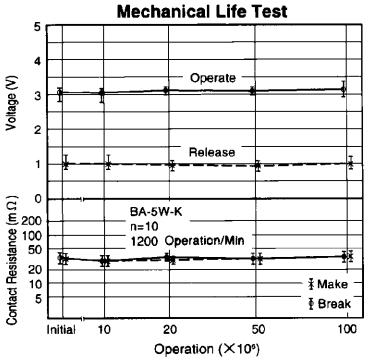
■ REFERENCE DATA

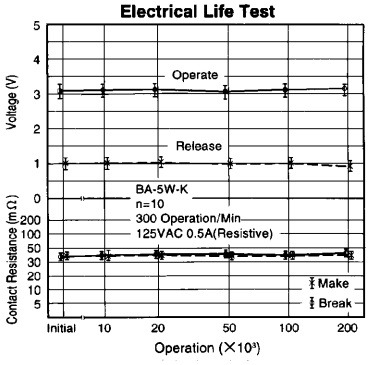


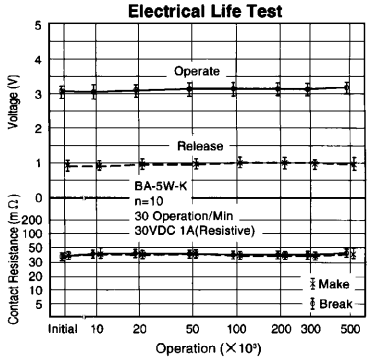


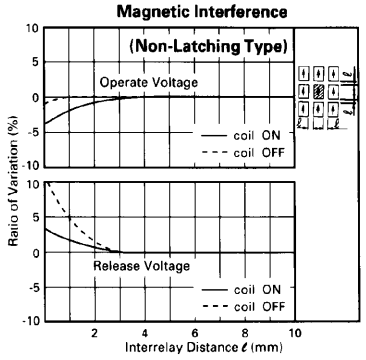


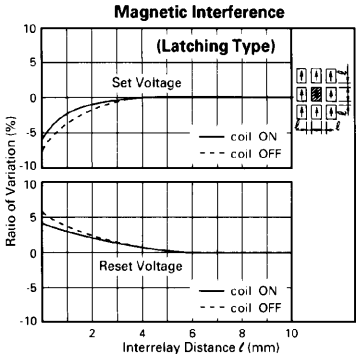








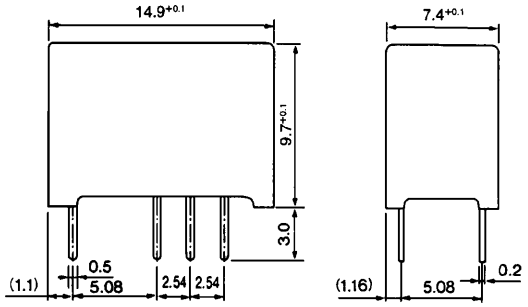


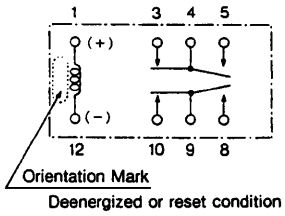


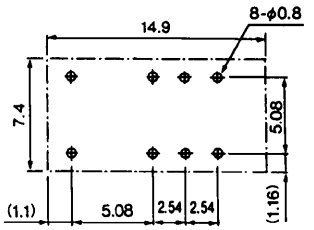
■ DIMENSIONS

●Dimensions **●Schematics** (Bottom View) **●PC board mounting hole layout** (Bottom view)

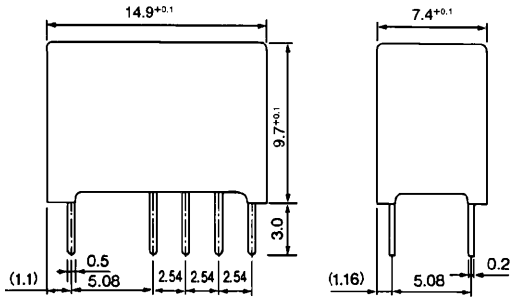
BA, BAL, BA-WD type (Non-latching, single winding latching, MBB type)

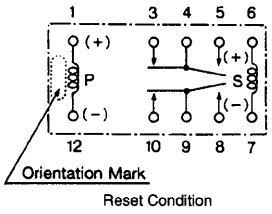


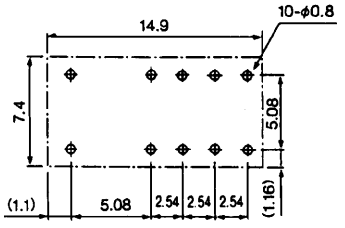




BAL-D type (Double winding latching type)







Unit: mm

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