POWER RELAY

1 POLE—16 A (HEAVY POWER CONTROL)

VSB SERIES



■ FEATURES

- All or nothing relay
- UL, CSA, VDE, SEV, FIMKO, SEMKO, IMQ, ÖVE, BSI recognized
- Working class: C
- Type of service: continuous duty
- Heavy duty 16 A miniature power relay
- UL Class B (130°C) insulation
- High isolation in small package
  —Insulation distance: 8 mm
  —Dielectric strength: 5,000 VAC (between coil and contacts)
  —Surge strength: 10,000 V
- Low power consumption and high sensitivity type available VSB-S)
- Plastic sealed (with tape) type available

■ ORDERING INFORMATION

[Example] VSB – (*) 12 S T B
(a) (b) (c) (d) (e)

(a)	Series Name	VSB: VSB Series
(b)	Nominal Voltage	Refer to the COIL DATA CHART
(c)	Coil Type	Nil : Standard type S : High sensitivity type
(d)	Contact Arrangement	M : 1 form A (SPST-NO) T : 1 form C (SPDT)
(e)	Enclosure	B : Flux free type C : Plastic sealed type (with tape)

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

■ SAFETY STANDARD AND FILE NUMBERS

UL508, 873 (File No. E56140, E108658)
C22.2 No. 14 (File No. LR35579)
VDE0435, 0631, 0700 (File No. 11039-4940-0005/30K)

Nominal voltage	Contact rating
3 to 100 VDC	1/3 HP 125 VAC/250 VAC 16 A 30 VDC/250 VAC resistive Pilot duty C 150

■ SPECIFICATIONS

Item			Standard Type	High Sensitve Type
			VSB-( )	VSB-( )-S
Contact	Arrangement		1 form A (SPST-NO) or 1 form C (SPDT)	
	Material		Silver alloy	
	Style		Single	
	Resistance (initial)		Maximum 200 mΩ (at 1 A 6 VDC)	
	Rating (resistive)		16 A 250 VAC/30 VDC	
	Maximum Carrying Current		16 A	
	Maximum Switching Power		4,000 VA, 480 W	
	Maximum Switching Voltage		380 VAC, 150 VDC	
	Maximum Switching Current		16 A	
	Minimum Switching Load*1		100 mA 5 VDC	
Coil	Nominal Power (at 20°C)		0.7 to 0.75 W	0.53 W
	Nominal Voltage (at 20°C)		0.35 to 0.37 W	0.26 W
	Operating Temperature		–40°C to +65°C (no frost)	–40°C to +75°C (no frost)
Time Value	Operate (at nominal voltage)		Maximum 15 ms	
	Release (at nominal voltage)		Maximum 10 ms	
Insulation	Resistance (at 500 VDC)		Minimum 1,000 MΩ	
	Dielectric Strength	between open contacts	1,000 VAC 1 minute	
		between coil and contacts*2	5,000 VAC 1 minute	
	Surge Strength*3		10,000 V (at 1.2 x 50μs)	
Life	Mechanical		2×10^7 operations minimum	
	Electrical		1×10^5 operations minimum (contact rating)	
Other	Vibration Resistance	Misoperation	10 to 55 Hz (double amplitude of 1.5 mm)	
		Endurance	10 to 55 Hz (double amplitude of 1.5 mm)	
	Resistance	Misoperation	100 m/s^2 (11 ±1 ms)	
		Endurance	1,000 m/s^2 (6 ±1 ms)	
	Weight		Approximately 18 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.

*2 IMQ

*3 IMQ

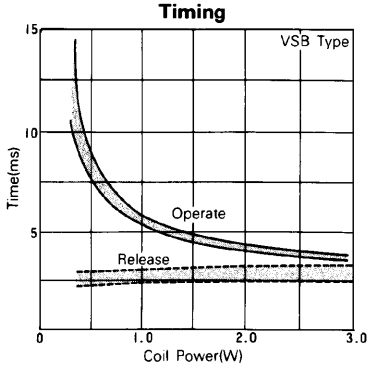
■ COIL DATA CHART

	MODEL	Nominal voltage	Coil resistance (±10%)	Must operate voltage	Must release voltage	Nominal power
Standard Type	VSB- 3 ( ) ( )	3 VDC	12.5 Ω	2.1 VDC	0.3 VDC	0.72 W
	VSB- 5 ( ) ( )	5 VDC	36 Ω	3.5 VDC	0.5 VDC	0.70 W
	VSB- 6 ( ) ( )	6 VDC	50 Ω	4.2 VDC	0.6 VDC	0.72 W
	VSB- 9 ( ) ( )	9 VDC	115 Ω	6.3 VDC	0.9 VDC	0.70 W
	VSB- 12 ( ) ( )	12 VDC	200 Ω	8.4 VDC	1.2 VDC	0.72 W
	VSB- 14 ( ) ( )	14 VDC	280 Ω	9.8 VDC	1.4 VDC	0.70 W
	VSB- 18 ( ) ( )	18 VDC	460 Ω	12.6 VDC	1.8 VDC	0.70 W
	VSB- 24 ( ) ( )	24 VDC	820 Ω	16.8 VDC	2.4 VDC	0.70 W
	VSB- 36 ( ) ( )	36 VDC	1,850 Ω	25.2 VDC	3.6 VDC	0.70 W
	VSB- 48 ( ) ( )	48 VDC	3,300 Ω	33.6 VDC	4.8 VDC	0.70 W
	VSB- 60 ( ) ( )	60 VDC	5,100 Ω	42.0 VDC	6.0 VDC	0.70 W
	VSB-100 ( ) ( )	100 VDC	13,400 Ω	70.0 VDC	10.0 VDC	0.75 W
High Sensitivity Type	VSB- 3S ( ) ( )	3 VDC	17 Ω	2.1 VDC	0.3 VDC	0.53 W
	VSB- 5S ( ) ( )	5 VDC	47 Ω	3.5 VDC	0.5 VDC	0.53 W
	VSB- 6S ( ) ( )	6 VDC	68 Ω	4.2 VDC	0.6 VDC	0.53 W
	VSB- 9S ( ) ( )	9 VDC	155 Ω	6.3 VDC	0.9 VDC	0.53 W
	VSB- 12S ( ) ( )	12 VDC	270 Ω	8.4 VDC	1.2 VDC	0.53 W
	VSB- 14S ( ) ( )	14 VDC	370 Ω	9.8 VDC	1.4 VDC	0.53 W
	VSB- 18S ( ) ( )	18 VDC	610 Ω	12.6 VDC	1.8 VDC	0.53 W
	VSB- 24S ( ) ( )	24 VDC	1,100 Ω	16.8 VDC	2.4 VDC	0.53 W
	VSB- 36S ( ) ( )	36 VDC	2,450 Ω	25.2 VDC	3.6 VDC	0.53 W
	VSB- 48S ( ) ( )	48 VDC	4,400 Ω	33.6 VDC	4.8 VDC	0.53 W
	VSB- 60S ( ) ( )	60 VDC	6,800 Ω	42.0 VDC	6.0 VDC	0.53 W
	VSB-100S ( ) ( )	100 VDC	18,560 Ω	70.0 VDC	10.0 VDC	0.53 W

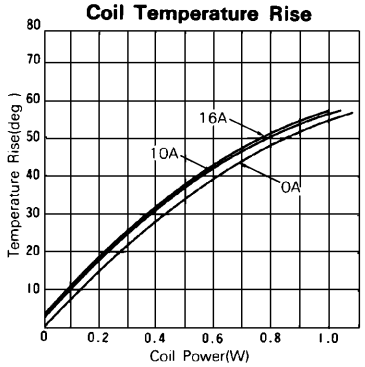
Note: All values in the table are measured at 20°C

■ CHARACTERISTIC DATA

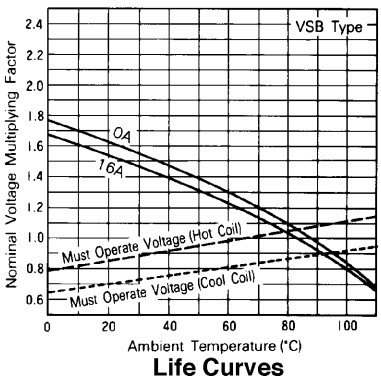
Timing



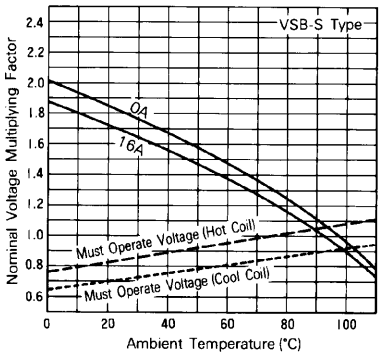
Coil Temperature Rise



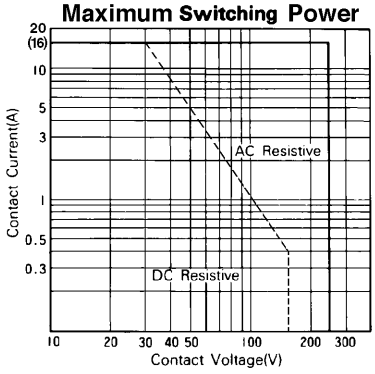
Operating Range



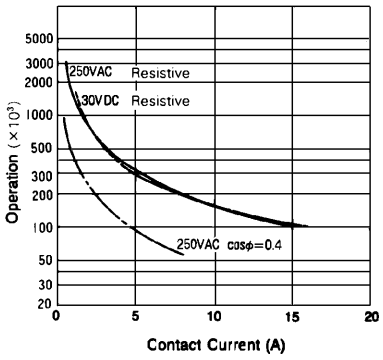
Operating Range



Maximum Switching Power

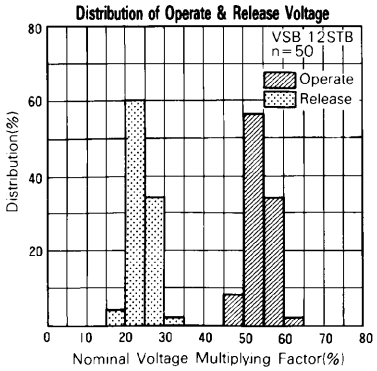


Life Curves

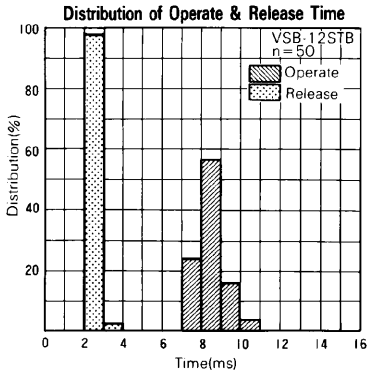


■ REFERENCE DATA

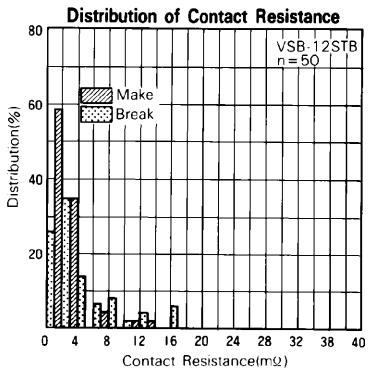
Distribution of Operate & Release Voltage



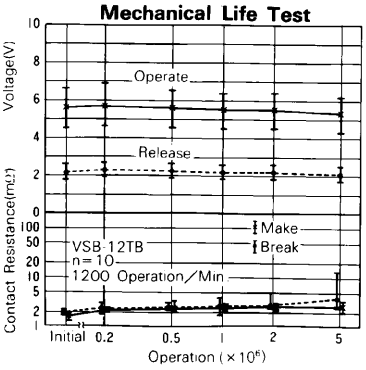
Distribution of Operate & Release Time



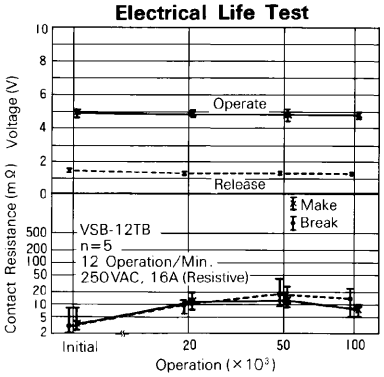
Distribution of Contact Resistance



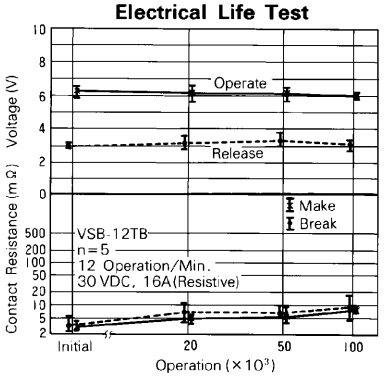
Mechanical Life Test



Electrical Life Test



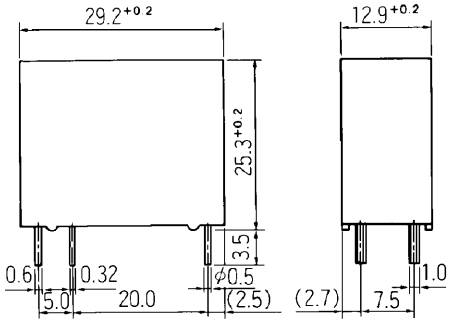
Electrical Life Test



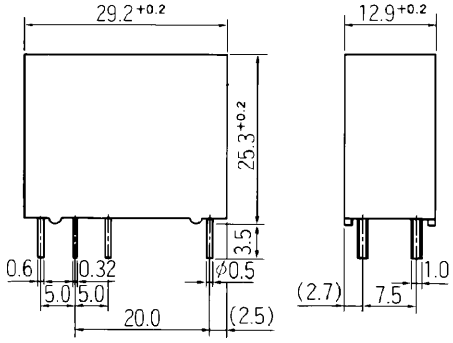
■ DIMENSIONS

● Dimensions

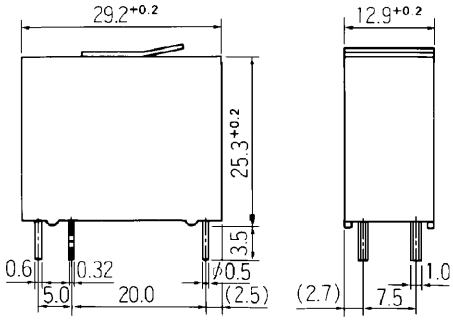
VSB-M type



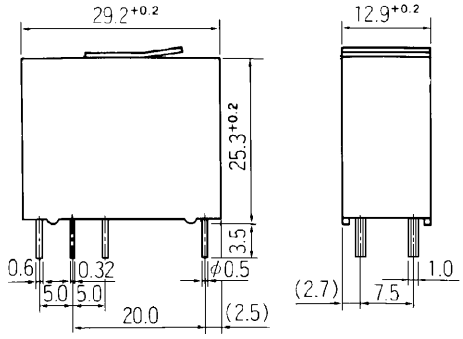
VSB type



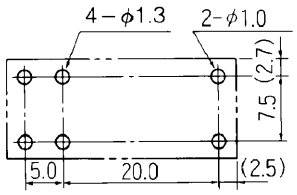
VSB-MC type (Plastic sealed type with tape)

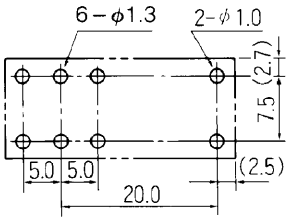


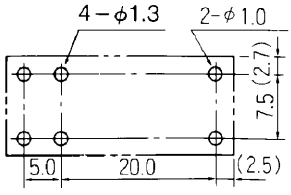
VSB-C type (Plastic sealed type with tape)

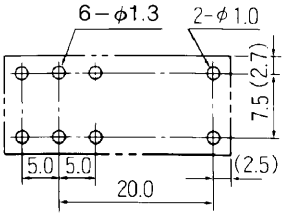


● Schematics
(BOTTOM VIEW)

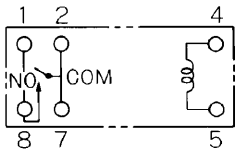


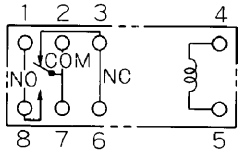


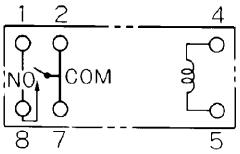


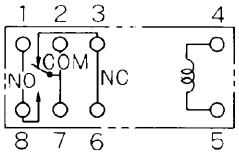


● PC board mounting hole layout
(BOTTOM VIEW)









Unit: mm

Fujitsu Components International Headquarter Offices

Japan
Fujitsu Component Limited
Gotanda-Chuo Building
3-5, Higashigotanda 2-chome, Shinagawa-ku
Tokyo 141, Japan
Tel: (81-3) 5449-7010
Fax: (81-3) 5449-2626
Email: promothq@ft.ed.fujitsu.com
Web: www.fcl.fujitsu.com

North and South America
Fujitsu Components America, Inc.
250 E. Caribbean Drive
Sunnyvale, CA 94089 U.S.A.
Tel: (1-408) 745-4900
Fax: (1-408) 745-4970
Email: marcom@fcai.fujitsu.com
Web: www.fcai.fujitsu.com

Europe
Fujitsu Components Europe B.V.
Diamantlaan 25
2132 WV Hoofddorp
Netherlands
Tel: (31-23) 5560910
Fax: (31-23) 5560950
Email: info@fceu.fujitsu.com
Web: www.fceu.fujitsu.com

Asia Pacific
Fujitsu Components Asia Ltd.
102E Pasir Panjang Road
#04-01 Citilink Warehouse Complex
Singapore 118529
Tel: (65) 6375-8560
Fax: (65) 6273-3021
Email: fcal@fcal.fujitsu.com
www.fcal.fujitsu.com

© 2003 Fujitsu Components America, Inc. All company and product names are trademarks or registered trademarks of their respective owners. Rev. 02/18/2003