

# 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
  - 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]      $\frac{\text{VSB}}{\text{(a)}} - \frac{12}{\text{(*)}} \frac{\text{S}}{\text{(b)}} \frac{\text{T}}{\text{(c)}} \frac{\text{B}}{\text{(d)}} \frac{\text{B}}{\text{(e)}}$

(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 Sensitive 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 <sup>7</sup> operations minimum		
	Electrical		1 × 10 <sup>5</sup> 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 <sup>2</sup> (11 ±1 ms)		
		Endurance	1,000 m/s <sup>2</sup> (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 

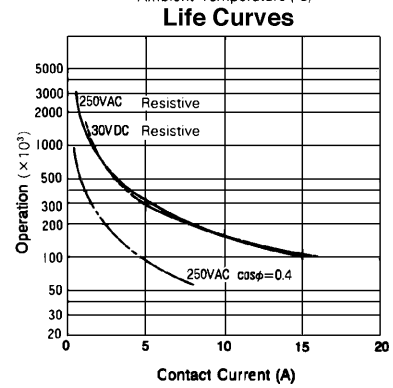
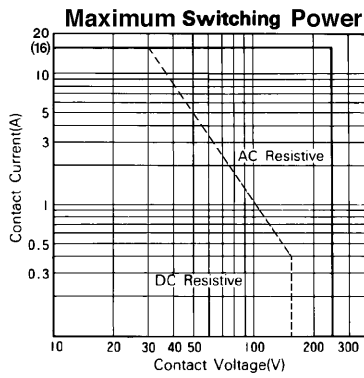
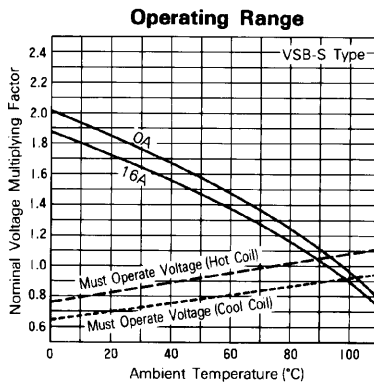
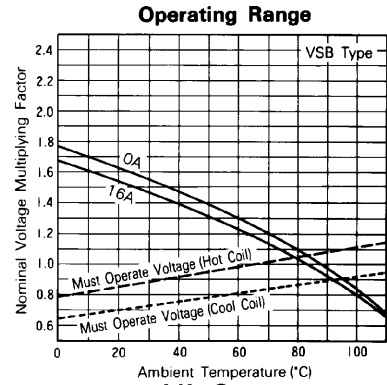
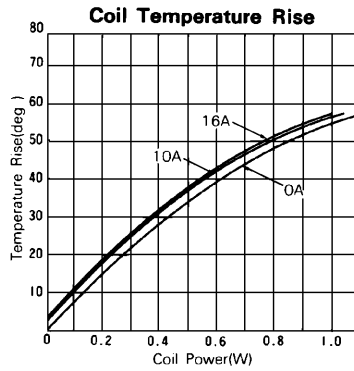
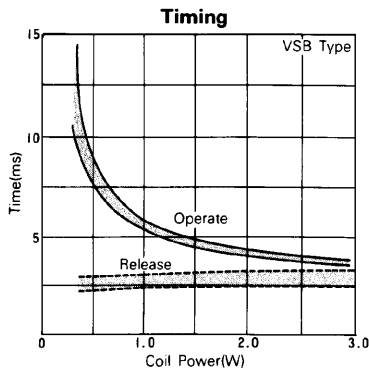
# VSB SERIES

## ■ COIL DATA CHART

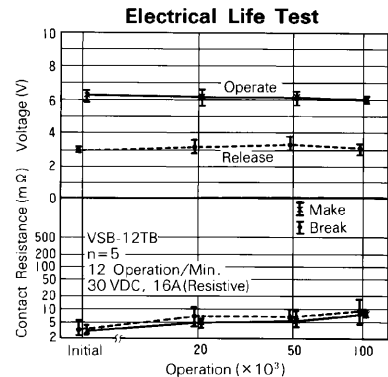
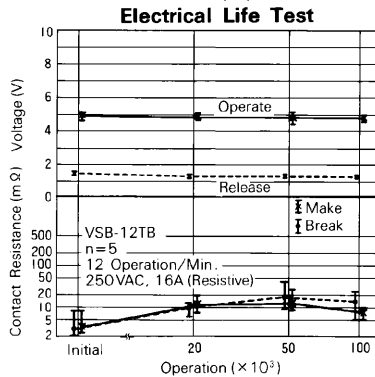
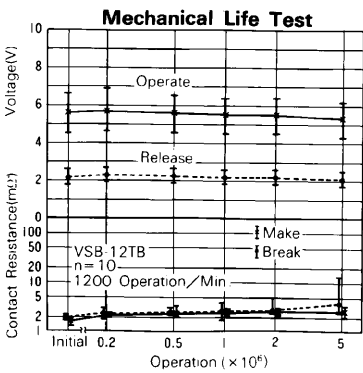
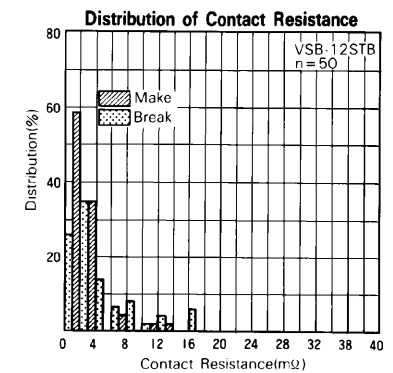
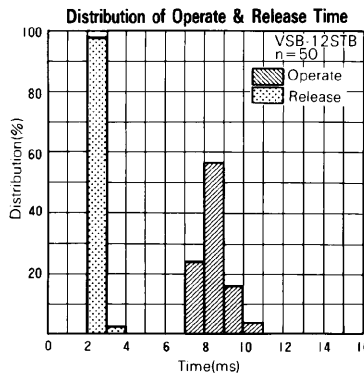
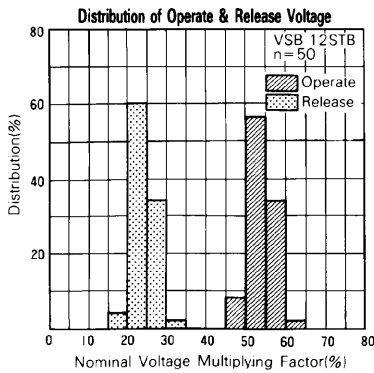
	MODEL	Nominal voltage	Coil resistance (±10%)	Must operate voltage	Must release voltage	Nominal power
Standard Type	VSB- 3 ( ) ( )	3 VDC	12.5 Ω	2.1 VDC	0.3 VDC	0.72 W
	VSB- 5 ( ) ( )	5 VDC	36 Ω	3.5 VDC	0.5 VDC	0.70 W
	VSB- 6 ( ) ( )	6 VDC	50 Ω	4.2 VDC	0.6 VDC	0.72 W
	VSB- 9 ( ) ( )	9 VDC	115 Ω	6.3 VDC	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



## REFERENCE DATA

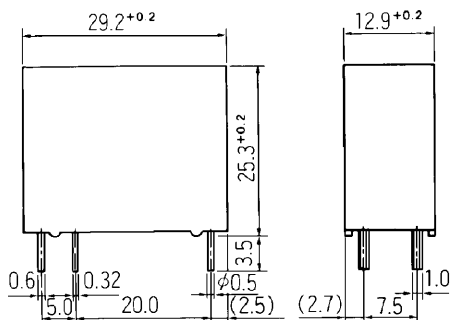


# VSB SERIES

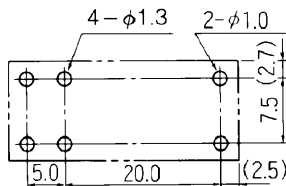
## ■ DIMENSIONS

### ● Dimensions

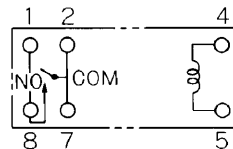
VSB-M type



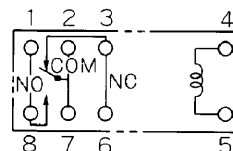
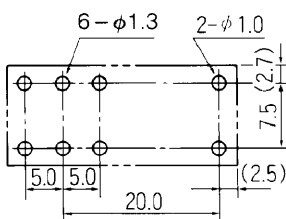
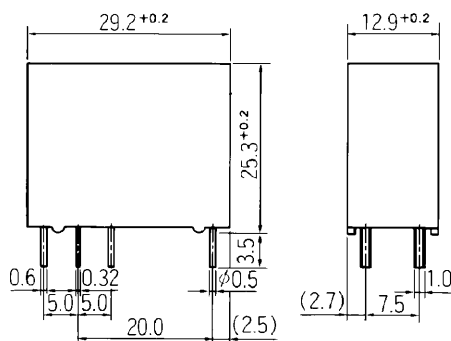
### ● Schematics (BOTTOM VIEW)



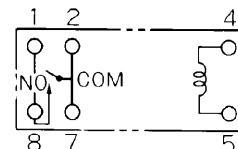
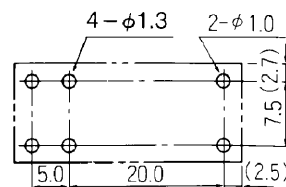
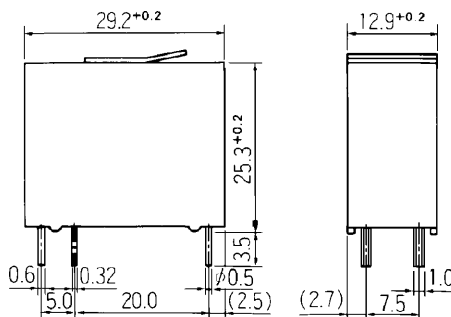
### ● PC board mounting hole layout (BOTTOM VIEW)



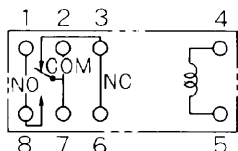
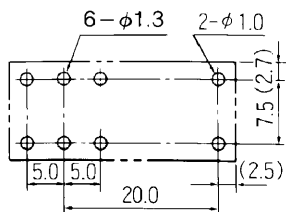
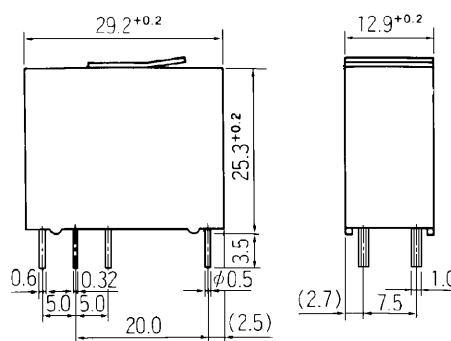
VSB type



VSB-MC type (Plastic sealed type with tape)



VSB-C type (Plastic sealed type with tape)



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](mailto:promothq@ft.ed.fujitsu.com)  
Web: [www.fcl.fujitsu.com](http://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](mailto:marcom@fcai.fujitsu.com)  
Web: [www.fcai.fujitsu.com](http://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](mailto:info@fceu.fujitsu.com)  
Web: [www.fceu.fujitsu.com](http://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](mailto:fcal@fcal.fujitsu.com)  
[www.fcal.fujitsu.com](http://www.fcal.fujitsu.com)

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