

POWER RELAY

1 POLE - 20/25/30A - Heavy power control

VF Series

■ FEATURES

- UL, CSA, VDE recognized TV-15 rated
 - 1 form A contact (SPST-NO)
 - Heavy duty 20 to 30A small power relay
 - High inrush current and high surge voltage
 - Inrush current 65A
 - Surge strength 10,000V
 - Printed circuit coil terminals type available
 - Small package meets high density mounting requirement
 - Flux proof sealing, RTII
 - RoHS Compliant
- Please see page 7 for more information



■ PARTNUMBER INFORMATION

[Example] VF B - 6 H U
 (a) (b) (*) (c) (d) (e)

(a)	Relay type	VF	: VF-Series
(b)	Terminal	Nil B D P	: Top - All tab-terminal : Top - Tab terminal (contacts) Bottom - PCB terminal (coil and movable contact) : Top - Tab terminal (coil) Screw tight terminal (contacts) : Top - Screw tight terminal (contacts) Bottom - PCB terminal (coil and movable contact)
(c)	Coil rated voltage	6	: 3.....60 VDC Coil rating table at page 3
(d)	Contact rating	H M L	: 30A (applicable for D.P.) : 25A : 20A
(e)	Approvals	U	: UL, CSA, VDE rating acquired

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

■ SPECIFICATION

Item			30A type	25A type	20A type
			VFD, VFP - () H	VF () - () M	VF () - () L
Contact Data	Configuration		1 form A (SPST-NO)		
	Construction		Single		
	Material		Silver alloy (AgSnO ₂ ; AgSnOInO)		
	Resistance (initial)		Max. 30mΩ at 1A, 6VDC		
	Contact rating	Resistive	30A, 250VAC	25A, 250VAC	20A, 250VAC
		Motor	2HP, 250VAC	1.5HP, 250VAC	1HP, 250VAC
	Max. carrying current		30A	25A	20A
	Max. switching voltage		250VAC		
	Max. switching power		7,500VA	6,250VA	5,000VA
	Max. switching current		30A	25A	20A
	Min. switching load *		1A, 10V		
Life	Mechanical		Min. 5 x 10 ⁶ operations		
	Electrical (at contact rating)	Resistive load	Min. 100 x 10 ³ operations		
		Motor load	Min. 200 x 10 ³ operations		
Coil Data	Rated Power (at 20 ° C)		1,200 to 1,250mW		
	Operate Power (at 20 ° C)		590 to 620mW		
	Operating temperature range		-30 to +65 °C (no frost)		
Timing Data	Operate (at nominal voltage)		Max. 20ms		
	Release (at nominal voltage)		Max. 5ms (without diode)		
Insulation	Resistance (Initial)		Min. 1,000MΩ at 500VDC		
	Dielectric strength	Open contacts	1,200VAC (50/60Hz) 1min.		
		Coil and contacts	4,000VAC (50/60Hz) 1min.		
	Surge strength	Coil and contacts	10,000V/ 1.2 x 50μs standard wave		
Other	Vibration Resistance	Misoperation	10 to 55Hz double amplitude 1.5mm		
		Endurance	10 to 55Hz double amplitude 1.5mm		
	Shock	Misoperation	Min. 200m/s ² (11 ± 1ms)		
		Endurance	Min. 1,000m/s ² (6 ± 1ms)		
	Weight		Approximately 55 g		
	Sealing		Flux proof (RTII)		

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

■ COIL RATING

Coil Code	Rated Coil Voltage (VDC)	Coil Resistance +/- 10% (Ohm)	Must Operate Voltage (VDC) *	Must Release Voltage (VDC) *	Rated Power (mW)
3	3	7.5	2.1	0.3	1,200
5	5	20	3.5	0.5	1,250
6	6	30	4.2	0.6	1,200
9	9	67	6.3	0.9	
12	12	120	8.4	1.2	
18	18	270	12.6	1.8	
24	24	480	16.8	2.4	
48	48	1,920	33.6	4.8	
60	60	3,000	42.0	6.0	

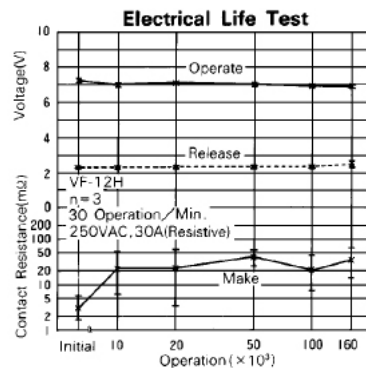
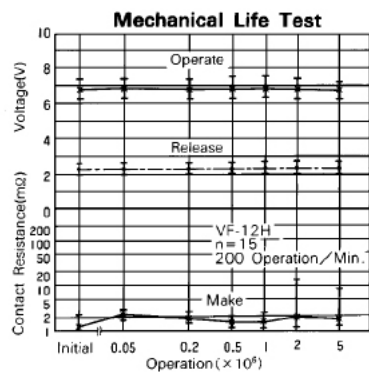
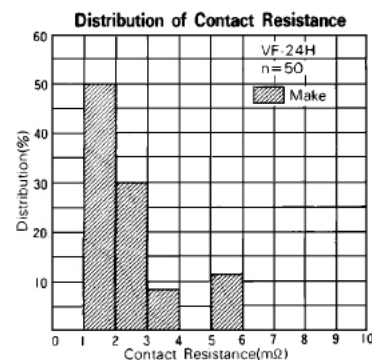
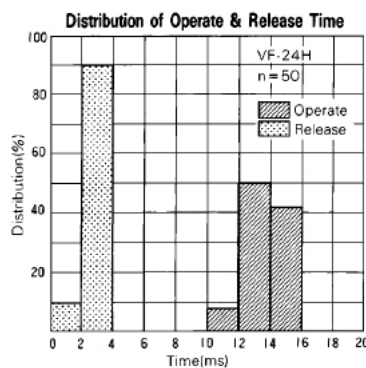
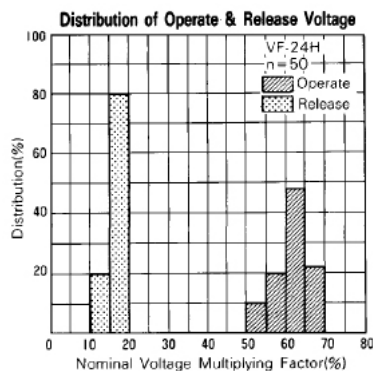
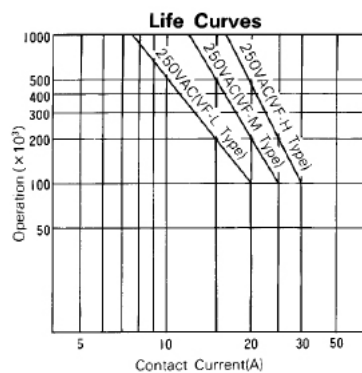
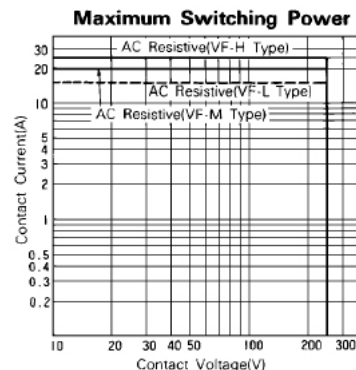
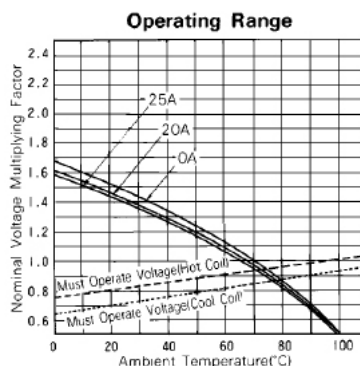
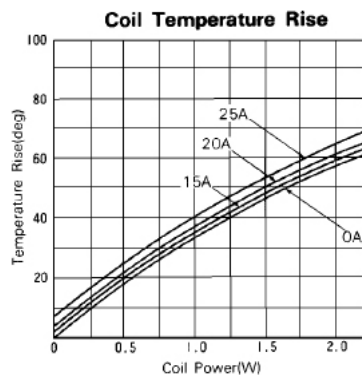
Note: All values in the table are valid for 20°C and zero contact current.

* Specified operate values are valid for pulse wave voltage.

■ SAFETY STANDARDS

Type	Compliance	Contact rating
UL	UL 508 873	Flammability: UL 94-V0 (plastics)
	E56140	VF - () - () L 20A, 250VAC (resistive)
CSA	C22.2 No. 14	1HP, 250VAC/125VAC
	LR 35579	TV-15, 120VAC VF - () - () M 25A, 250VAC (resistive) 1.5HP, 250VAC TV-15, 120VAC VFD, VFP - () - H 30A, 250VAC (resistive) 2HP, 250VAC TV-15, 120VAC
VDE	0435	VF-(-;B)-LU: 20A, 250VAC resistive: 100K 15A, 250VAC cos φ 0.7: 100K
	40017717	VF-(-;B)-HU: 30A, 250VAC resistive: 100K 22.5A, 250VAC cos φ 0.7: 100K

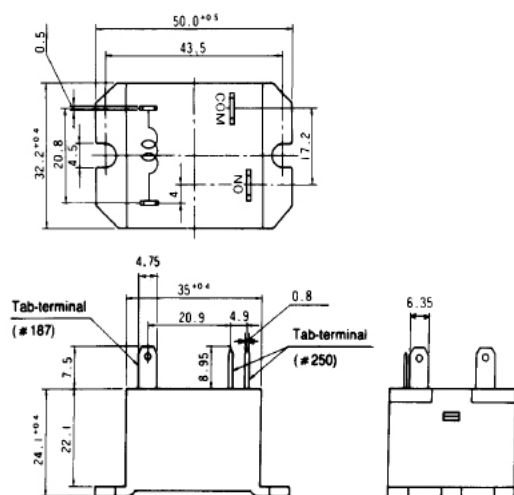
CHARACTERISTIC DATA



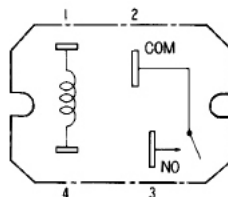
■ DIMENSIONS

VF-type

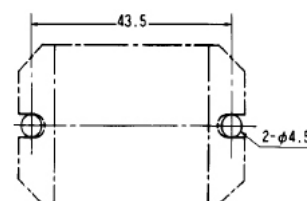
- **Dimensions**



- **Schematics**
(TOP VIEW)

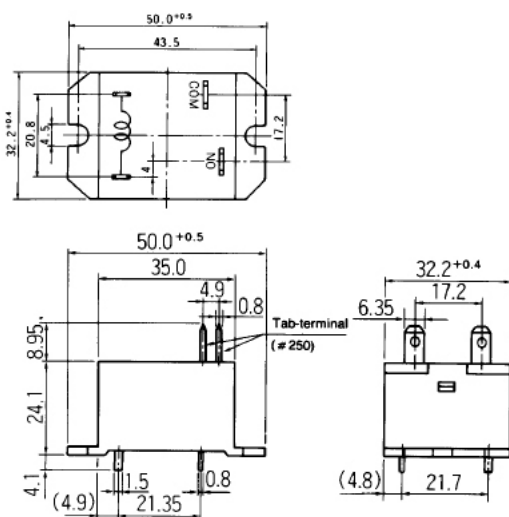


- **PC board mounting hole layout (TOP VIEW)**

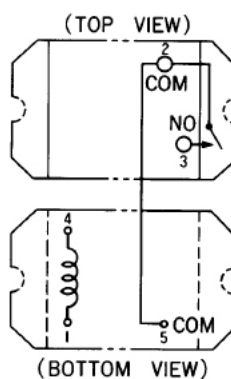


VFB-type

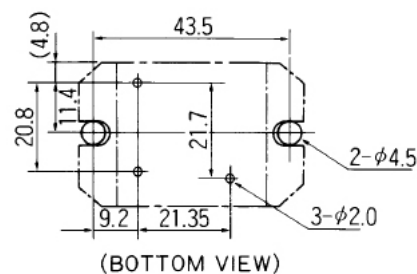
- **Dimensions**



- **Schematics**



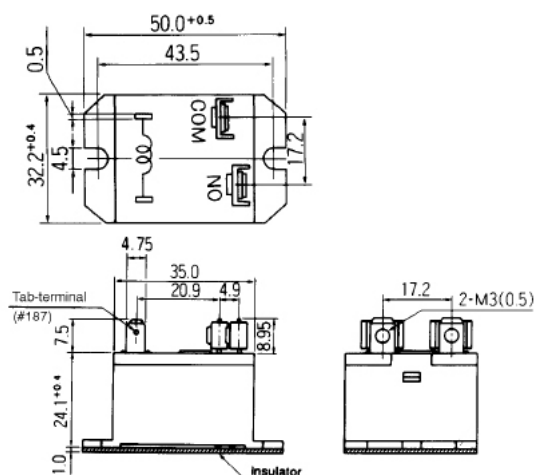
- **PC board mounting hole layout**



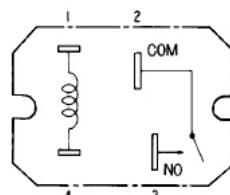
Unit: mm

VFD-type

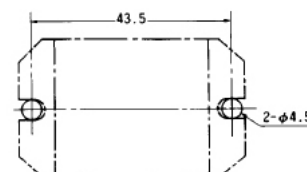
● Dimensions



● Schematics (TOP VIEW)

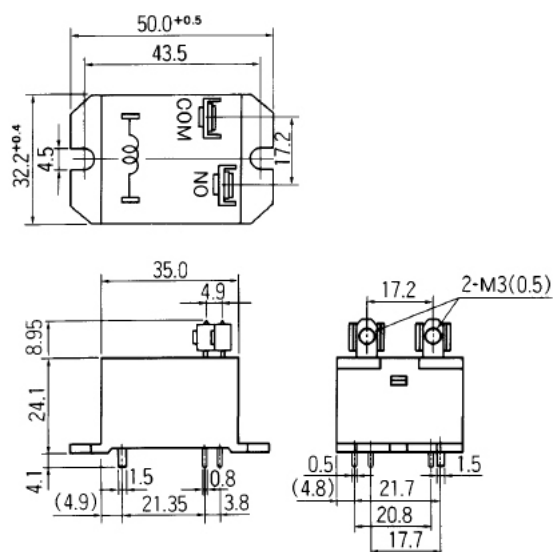


● PC board mounting hole layout (TOP VIEW)

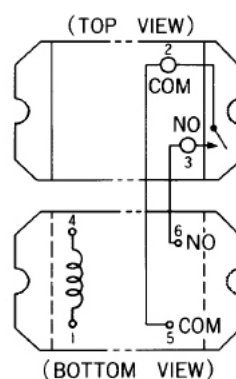


VFP-type

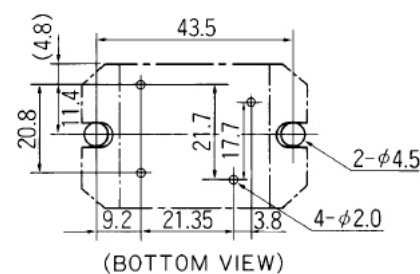
● Dimensions



● Schematics



● PC board mounting hole layout



Unit: mm

Note: This datasheet provide only + tolerance for outer dimensions.

RoHS Compliance and Lead Free Information

1. General Information

- All relays produced by Fujitsu Components are compliant with RoHS directive 2011/65/EU including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives.
As per Annex III of directive 2011/65/EU.
- All relays are lead-free. Please refer to Lead-Free Status Info for older date codes at:
<http://www.fujitsu.com/downloads/MICRO/fcai/relays/lead-free-letter.pdf>
- Lead free solder plating on relay terminals is Sn-3.0Ag-0.5Cu, unless otherwise specified.
This material has been verified to be compatible with PbSn assembly process.

2. Recommended Lead Free Solder Condition

- Recommended solder Sn-3.0Ag-0.5Cu.

Flow Solder Condition:

Pre-heating: maximum 120°C
within 90 sec.
Soldering: dip within 5 sec. at
255°C ± 5°C solder bath
Relay must be cooled by air immediately
after soldering

Solder by Soldering Iron:

Soldering Iron 30-60W
Temperature: maximum 350-360°C
Duration: maximum 3 sec.

We highly recommend that you confirm your actual solder conditions

3. Moisture Sensitivity

- Moisture Sensitivity Level standard is not applicable to electromechanical relays, unless otherwise indicated.

4. Tin Whiskers

- Dipped SnAgCu solder is known as presenting a low risk to tin whisker development. No considerable length whisker was found by our in house test.

Fujitsu Components International Headquarter Offices

Japan

Fujitsu Component Limited
Shinagawa Seaside Park Tower 19F,
12-4, Higashi-shinagawa 4-chome, Shinagawa-ku,
Tokyo, 140-0002, Japan
Tel: (81-3) 3450-1681
Fax: (81-3) 3474-2385
Email: fcl-contact@cs.jp.fujitsu.com
Web: www.fcl.fujitsu.com

North and South America

Fujitsu Components America, Inc.
2290 North 1st Street, Suite 212
San Jose, CA 95131, USA
Tel: (1-408) 745-4900
Fax: (1-408) 745-4970
Email: components@us.fujitsu.com
Web: http://us.fujitsu.com/components

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: emea.fujitsu.com/components/

Asia Pacific

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