

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**

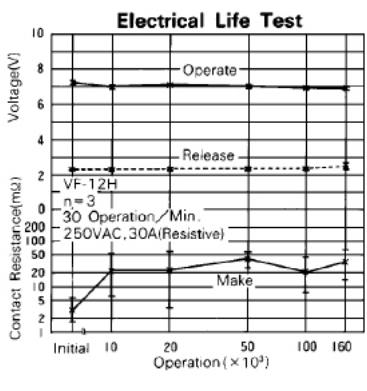
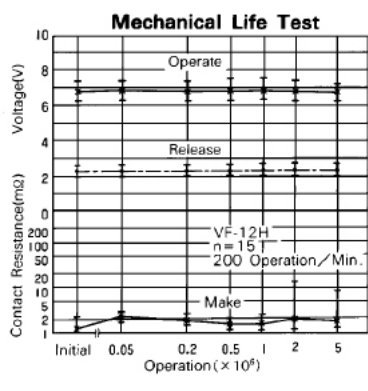
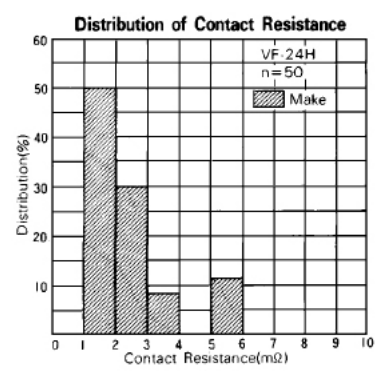
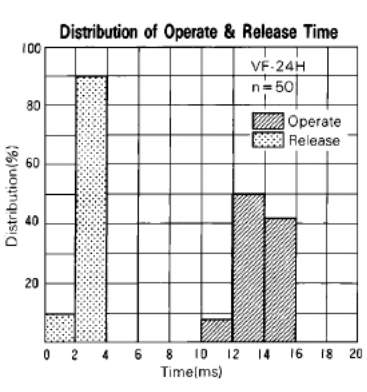
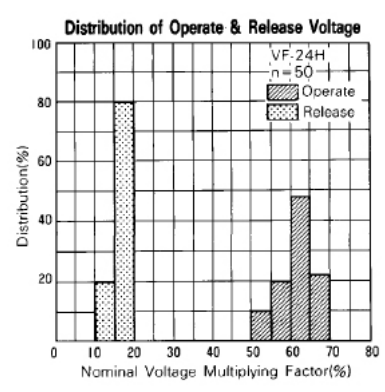
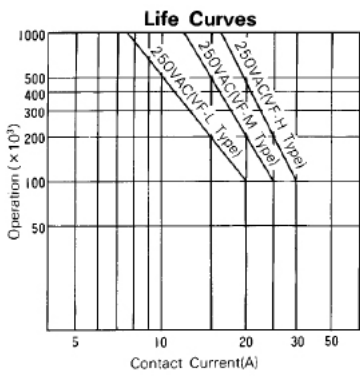
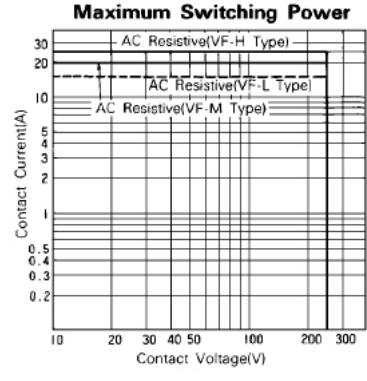
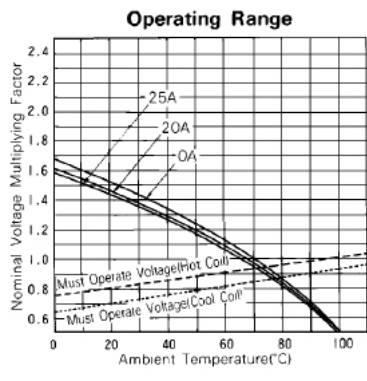
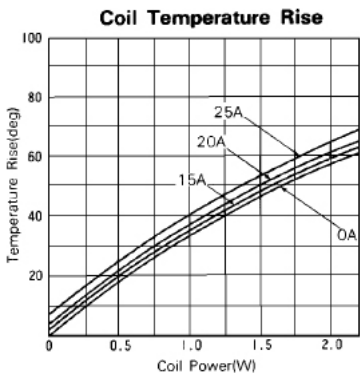
| Coil Code | Rated Coil Voltage (VDC) | Coil Resistance +/- 10% (Ohm) | Must Operate Voltage (VDC) * | Must Release Voltage (VDC) * | Rated Power (mW) |
|-----------|--------------------------|-------------------------------|------------------------------|------------------------------|------------------|
| 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 LR 35579 | 1HP, 250VAC/125VAC 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 40017717 | VF-(-;B)-LU: 20A, 250VAC resistive: 100K 15A, 250VAC cos φ 0.7: 100K VF-(-;B)-HU: 30A, 250VAC resistive: 100K 22.5A, 250VAC cos φ 0.7: 100K |

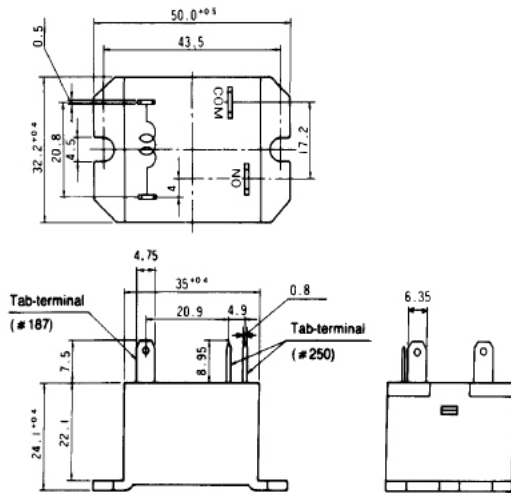
CHARACTERISTIC DATA



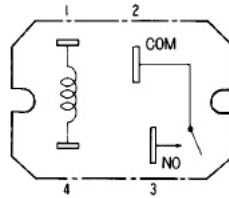
■ DIMENSIONS

VF-type

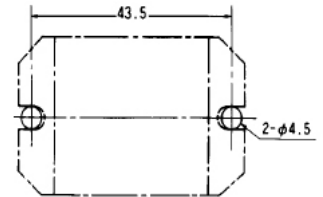
● Dimensions



● Schematics (TOP VIEW)

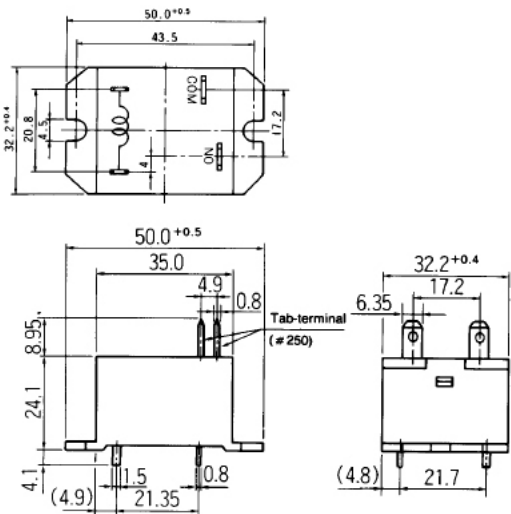


● PC board mounting hole layout (TOP VIEW)

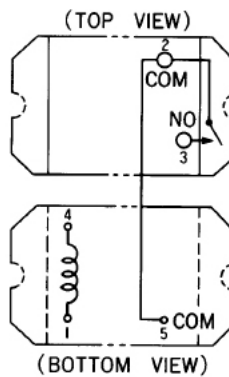


VFB-type

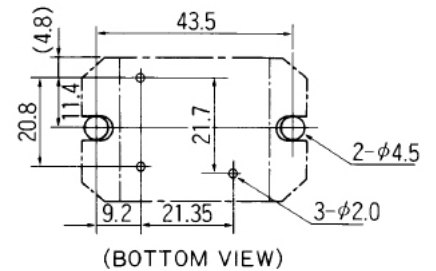
● Dimensions



● Schematics



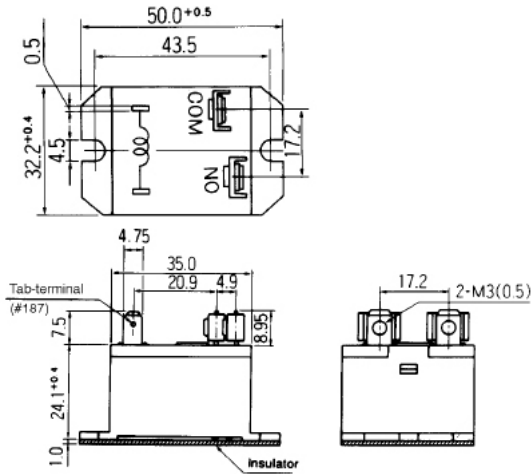
● PC board mounting hole layout



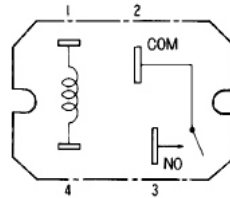
Unit: mm

VFD-type

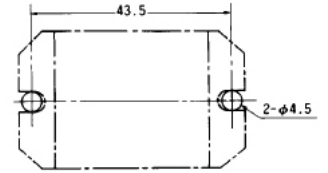
● Dimensions



● Schematics (TOP VIEW)

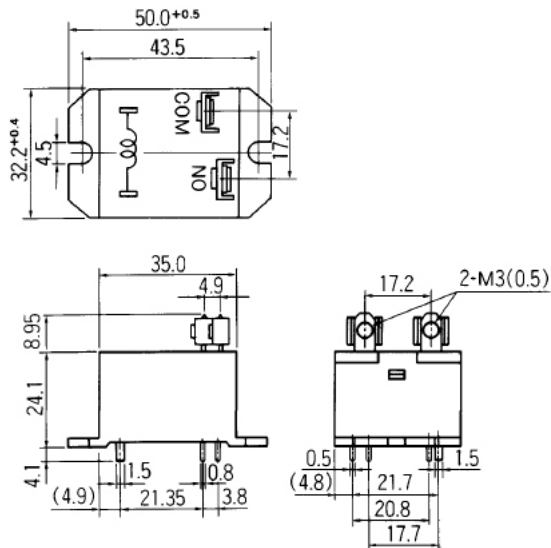


● PC board mounting hole layout (TOP VIEW)

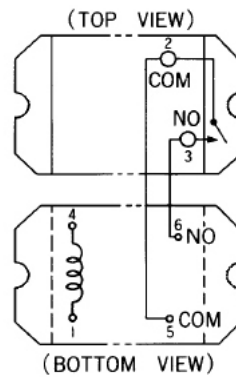


VFP-type

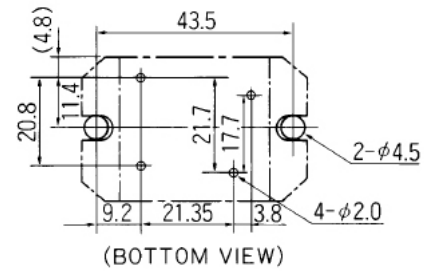
● Dimensions



● 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

| | |
|--|--|
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