POWER RELAY

1 POLE 16 A—SLIM POWER RELAY

FTR-JR Series

RoHS Compliant

■ FEATURES

- 1 Pole 16A 18 PCB slim relay
- Nominal Power: 530 mW (35% power reduction compared to VR Series)
- Cadmium free contacts
- Insulation distance: 9.5mm, Dielectric strength: 5K VAC
- UL Class B (130 ˚C), Flamability 94V-0
- SAFETY STANDARDS
  UL, CSA, VDE
- RoHS compliant since date code: 0434R
  Please see page 5 for more information

■ APPLICATIONS

- Mircrowave oven magnetron, and heater

■ ORDERING INFORMATION

[Example] FTR-JR (a) J (b) B (c) 012 (d) W (e) –** (f)

(a)	Series Name	FTR-JR Series
(b)	Contact Arrangement	J : Tab terminal
(c)	Coil Type	B : 530 mW (TAB and PCB terminals connected) C : 530mW (TAB and PCB terminals unconnected)
(d)	Coil Nominal Voltage	012 : 12 VDC 018 : 18 VDC 024 : 24 VDC
(e)	Contact Material	W : Silver alloy
(f)	Custom Designation	Special Number

Note: The designation name is stamped on the top of the relay case as follows:
(Example: Designation ordered: FTR-JRJB012W
Stamp: JRJB012W

■ SPECIFICATIONS

Item			FTR-JR Series
Contact	Arrangement		1 Form A
	Material		Silver alloy
	Resistance (initial)		Maximum 100mΩ (at 1A 6VDC)
	Rating (resistive)		277VAC 16A
	Maximum Carrying Current		20A
	Maximum Switching Rating		4,432VA
	Maximum Switching Voltage		400 VAC
	Maximum Switching Current		20A
	Maximum Switching Load *1		5 VDC, 100 mA
Coil	Nominal Power (at 20° C)		0.53W
	Operate Power (at 20° C)		0.3W
	Operating Temperature		-40° C to +85° C (no frost)
Time Value	Operate Time (at nominal voltage)		Maximum 15 ms (excluding bounce time)
	Release Time (at nominal voltage)		Maximum 10 ms (excluding bounce time)
Insulation	Resistance (initial)		Minimum 1,000 MΩ (at 500VDC)
	Dielectric Strength	Between open contacts	1,000 VAC (50/60 Hz) 1 minute
		Between coil and contacts	5,000 VAC (50/60 Hz) 1 minute
	Surge Strength		10,000 V at 1.2 x 50 μs (between coil and contacts)
Life	Mechanical		2 x 10^7 operations minimum
	Electrical	Contact Rating	10 x 10^4 operations minimum
Other	Vibration Resistance	Misoperation	10-55 Hz (double amplitude of 1.65mm)
		Endurance	10-55 Hz (double amplitude of 2.0mm)
	Shock Resistance	Misoperation	200m/s^2 (11±1ms)
		Endurance	1,000m/s^2 (6±1ms)
	Weight		Approximately 20g

*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.

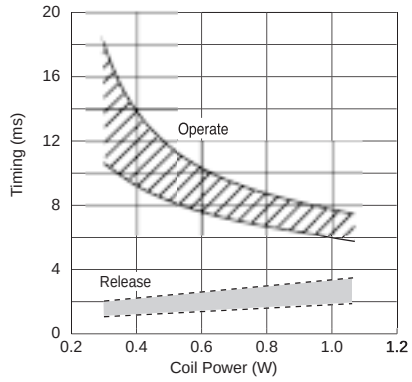
■ COIL DATA CHART

MODEL / FTR-JR Series	Nominal Voltage	Coil Resistance (± 10%)	Must Operate Voltage	Must Release Voltage	Nominal Power
FTR-JRJB 012W	12 VDC	270 Ω	9.0 VDC	0.6 VDC	530 mW
FTR-JRJB018W	18 VDC	610 Ω	13.5 VDC	0.9 VDC	530 mW
FTR-JRJB024W	24 VDC	1,100 Ω	18.0 VDC	1.2 VDC	530 mW

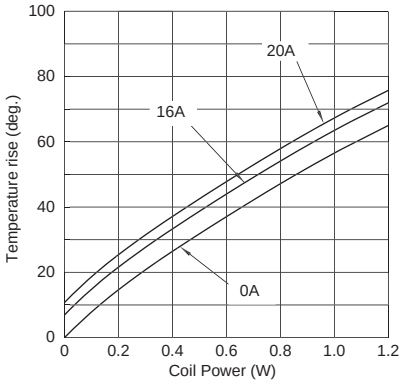
Note: All values in the table are measured at 20°C.

■ CHARACTERISTIC DATA

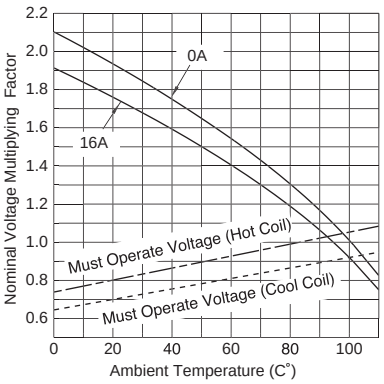
Timing



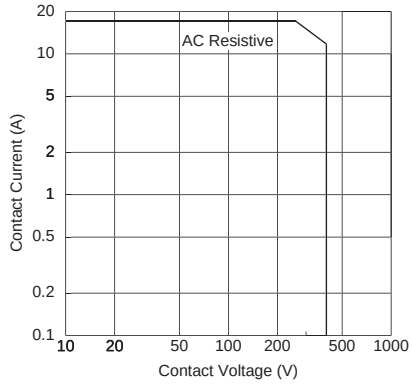
Coil Temperature Rise



Operating Range

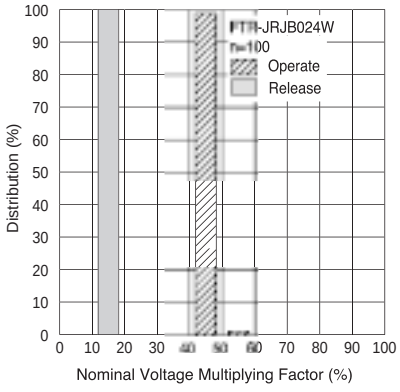


Maximum Switching Power

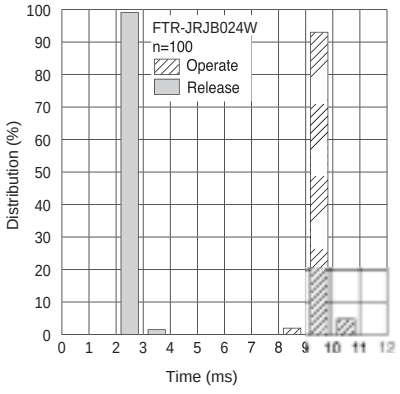


■ REFERENCE DATA

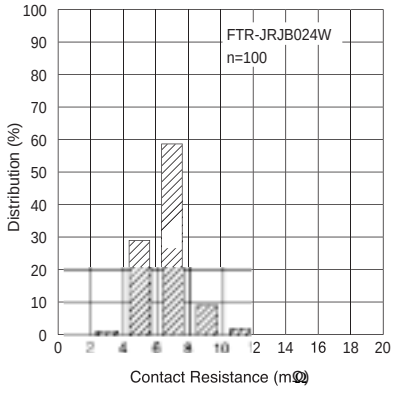
Distribution of Operate and Release Voltage



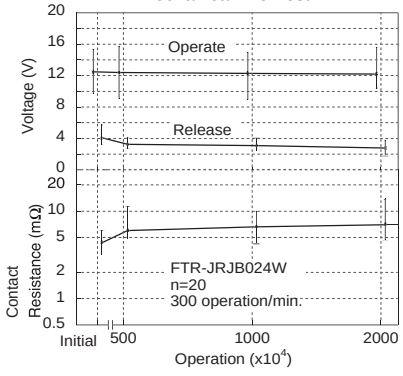
Distribution of Operate and Release Time



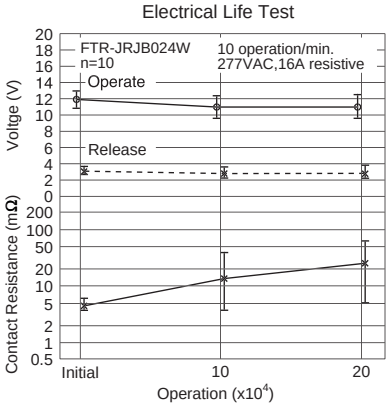
Distribution of Contact Resistance



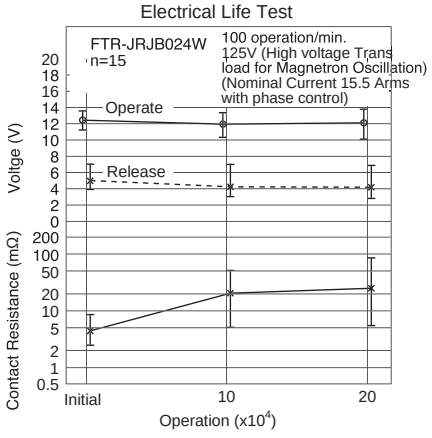
Mechanical Life Test



Electrical Life Test

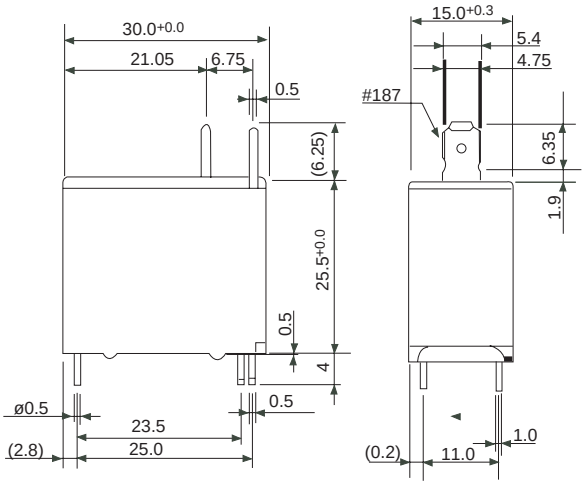


Electrical Life Test

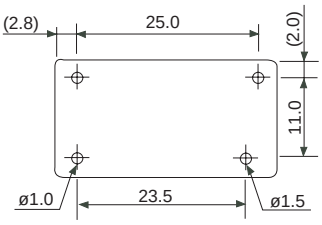


■ DIMENSIONS

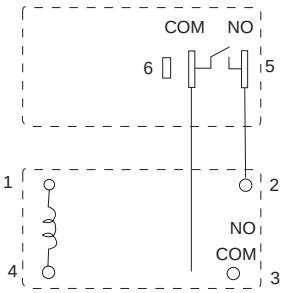
● **Dimensions**
FTR-JB type



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



● Schematics
(TOP VIEW)



Unit: mm

RoHS Compliance and Lead Free Relay Information

1. General Information

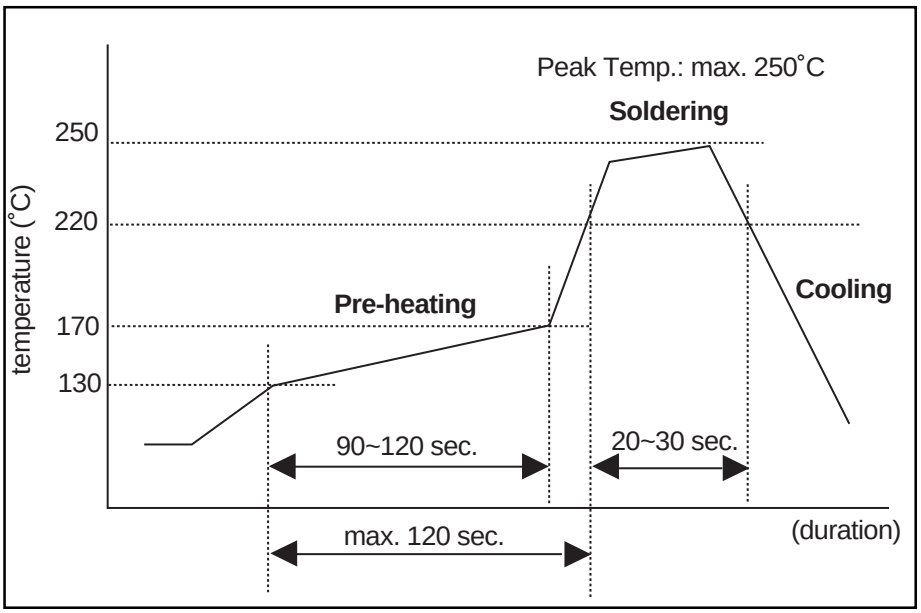
- Relays produced after the specific date code that is indicated on each data sheet are lead-free now. Most of our signal and power relays are lead-free. Please refer to Lead-Free Status Info. (http://www.fcai.fujitsu.com/pdf/LeadFreeLetter.pdf)
- Lead free solder paste currently used in relays is Sn-3.0Ag-0.5Cu. From February 2005 forward Sn-3.0Cu-Ni will be used for FTRB3 and FTR-B4 series relays.
- Most signal and some power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 6 hazardous materials that are restricted by RoHS directive (lead, mercury, cadmium, chromium IV, PBB, PBDE).
- It has been verified that using lead-free relays in leaded assembly process will not cause any problems (compatible).
- "LF" is marked on each outer and inner carton. (No marking on individual relays).
- To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.

We will ship leaded relays as long as the leaded relay inventory exists.

2. Recommended Lead Free Solder Profile

- Recommended solder paste Sn-3.0Ag-0.5Cu and Sn-3.0 Cu-Ni (only FTR-B3 and FTR-B4 from February 2005)

Reflow Solder condtion



Flow Solder condtion:

Pre-heating:	maximum 120˚C
Soldering:	dip within 5 sec. at 260˚C soler bath

Solder by Soldering Iron:

Soldering Iron Temperature:	maximum 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 realys.

4. Tin Whisker

- SnAgCu solder is known as low riskof tin whisker. No considerable length whisker was found by our in-house test.

5. Solid State Relays

- Each lead terminal will be changed from solder plating to Sn plating and Nickel plating. A layer of Nickel plating is between the terminal and the Sn plating to avoid whisker.

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