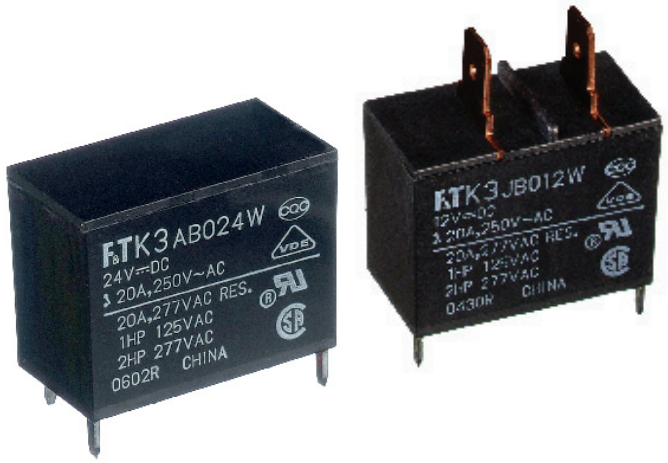
FUJITSU

POWER RELAY
1 POLE - 20A Heavy Load
FTR-K3 Series

■ FEATURES

- SPST 20A and #250 tab terminal type is also available
- Low coil power (780mW)
- Type of service: continuous duty
- Cadmium free contacts
- SAFETY STANDARDS
  UL, CSA, VDE,CQC approved
- RoHS compliant
  Please see page 6 for more information



■ PARTNUMBER INFORMATION

[Example] FTR-K3 (a) J (b) B (c) 012 (d) W (e) - HC (f)

(a)	Relay type	FTR-K3 : FTR-K3-Series
(b)	Contact configuration	A : 1 form A (SPST-NO) (PCB terminal) J : 1 form A (SPST-NO) (Tab terminal)
(c)	Coil type	B : Standard type (780mW)
(d)	Coil rated voltage	012 : 5.....48 VDC Coil rating table at page 3
(e)	Contact material	W : Silver alloy
(f)	Option	Nil : Standard type (20A) LS : High isolation type (20A) HC : High current type (25A)

Actual marking does not carry the type name : "FTR"
E.g.: Ordering code: FTR-K3AB012W Actual marking: K3AB012W

■ SPECIFICATION

Item			FTR-K3	FTR-K3-LS	FTR-K3-HC
Contact Data	Configuration		1 form A		
	Construction		Single		
	Material		Silver alloy		
	Resistance (initial)		Max. 100mΩ at 1A, 6VDC		
	Contact rating (resistive)		20A, 250VAC	20A, 250VAC	25A, 250VAC
	Max. carrying current		25A		
	Max. switching current *1		25A		
	Max. switching voltage		250VAC		
	Max. switching power		6,250VA		
	Min. switching load *2		100 mA, 5VDC		
Life	Mechanical		Min. 2 x 10^6 operations		
	Electrical	Resistive load	Min. 100 x 10^3 operations		
		Motor load	Min. 200 x 10^3 operations (250VAC inrush 80A cosφ=0.7 cut off 20A cosφ=0.9)	Min. 200 x 10^3 operations (250VAC inrush 80A cosφ=0.7 cut off 20A cosφ=0.9)	Min. 200 x 10^3 operations (250VAC inrush 80A cosφ=0.7 cut off 25A cosφ=0.9)
		Inverter load	Min. 30 x 10^3 operations 100VAC, inrush 200A / cut off 20A		
Coil Data	Rated power (at 20 ℃)		780 mW		
	Operate power (at 20 ℃)		380 mW		
	Operating temperature range		-40 ℃ to +60 ℃ (no frost)		
Timing Data	Operate (at nominal voltage)		Max. 20ms (without bounce)		
	Release (at nominal voltage)		Max. 10ms (no diode, without bounce)		
Insulation	Resistance		Min. 1,000MΩ at 500VDC		
	Dielectric strength	Open contacts	1,000VAC (50/60Hz) 1min		
		Contacts to coil	5,000VAC (50/60Hz) 1min		
	Surge strength	Coil to contacts	8,500V / 1.2 x 50μs standard wave		
	Clearance/creepage distance		6.4mm / 9.5mm	8.0mm / 9.5mm	6.4mm / 9.5mm
Other	Vibration resistance	Misoperation	10 to 55Hz double amplitude 1.5 mm		
		Endurance	10 to 55Hz double amplitude 1.5 mm		
	Shock	Misoperation	Min. 200m/s² (11 ± 1ms)		
		Endurance	Min. 1,000m/s² (6 ± 1ms)		
	Weight		Approximately 25 g		
	Sealing		Flux proof, RTII		

* 1 Need to consider the heat from PCB when max. current is more than 10A
* 2 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)
005	5	32	3.5	0.5	780
006	6	46	4.2	0.6	
009	9	105	6.3	0.9	
012	12	185	8.4	1.2	
018	18	415	12.6	1.8	
024	24	740	16.8	2.4	
048	48	2,955	33.6	4.8	

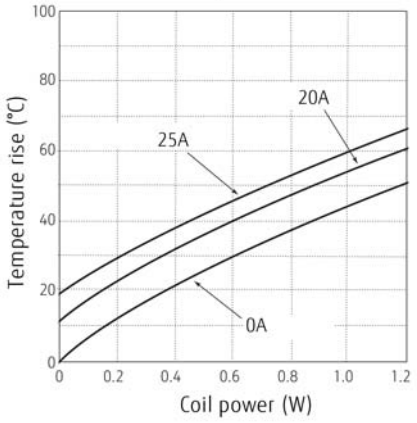
Note: All values in the table are valid for 20°C and zero contact current.
* Specified operate values are valid for pulse wave voltage.

■ SAFETY STANDARDS

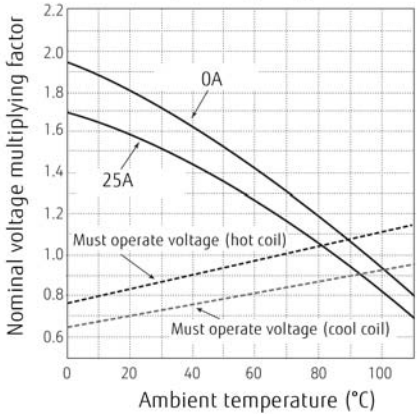
Type	Compliance	Contact rating		
		FTR-K3	FTR-K3-LS	FTR-K3-HC
UL	UL508 No. E63614	20A, 277VAC (resistive at 60 °C) 1hp, 125VAC (at 60 °C) 2hp, 277VAC (100,000 ops. at 60 °C)		25A, 277VAC (resistive at 60 °C) 1hp, 125VAC (at 60 °C) 2hp, 277VAC (100,000 ops. at 60 °C)
CSA	C22.2 No. 14 No. LR40304	20A, 277VAC (resistive) 1hp, 125VAC 2hp, 277VAC (100,000 ops.)	-	25A, 277VAC (resistive) 1hp, 125VAC 2hp, 277VAC (100,000 ops.)
VDE	IEC61810-1	20A, 250VAC (cos φ=1) 60 °C		25A, 250VAC (cos φ=1) 60 °C
CQC	GB15092-1 GB8898 GB/T21711.1 No. 04001009179	20A, 250VAC	-	25A, 250VAC
SEMKO	EN61058-1 EN61095	20A, 250VAC, 40T60/ 20 (13.33) A 250VAC, 40T60 20/200A 100VAC, 40T60	-	-
TUV	EN61810-1 IEC61810-1	-	20A, 250VAC (cos φ=1) 60 °C	-

■ CHARACTERISTIC DATA

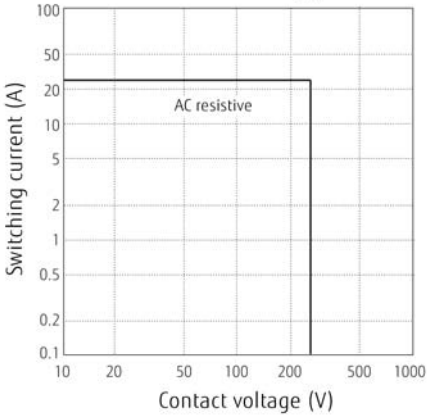
Coil temperature rise



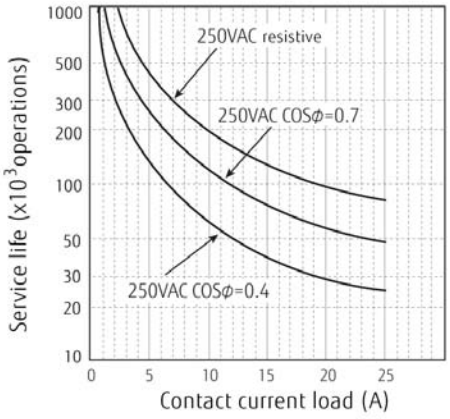
Operating range



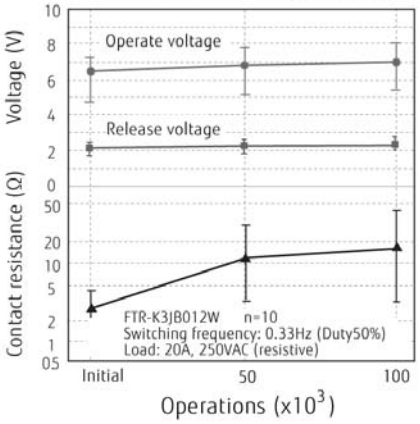
Maximum switching power



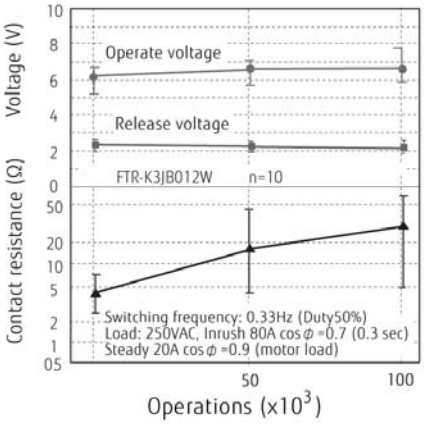
Life curve



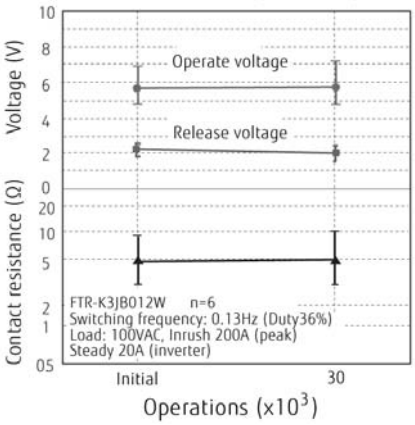
Electrical life test (resistive)



Electrical test (motor load)

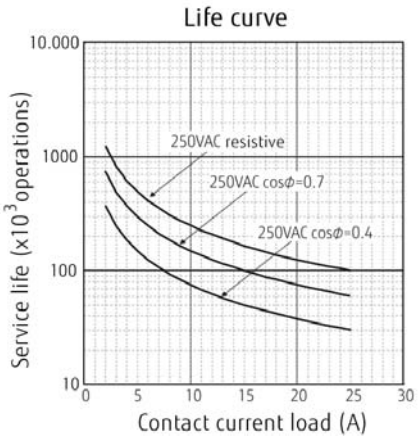


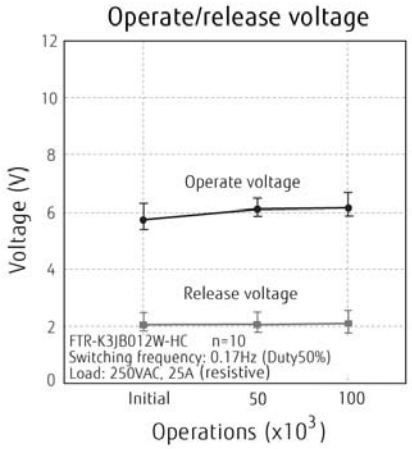
Electrical test (inverter)

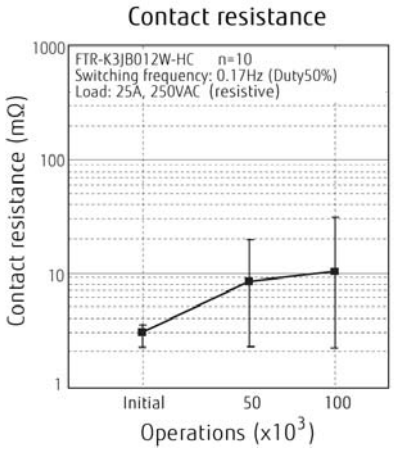


FTR-K3-HC type

Electrical life tests (resistive load)



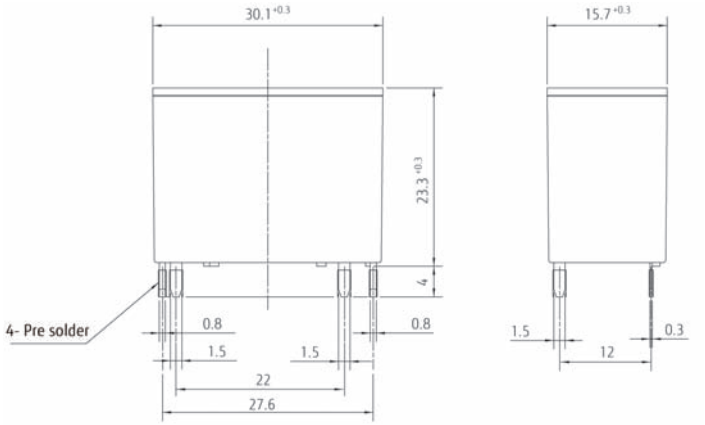




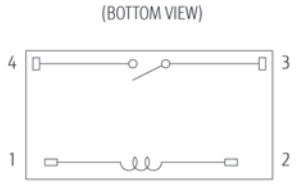
■ DIMENSIONS

FTR-K3 AB type

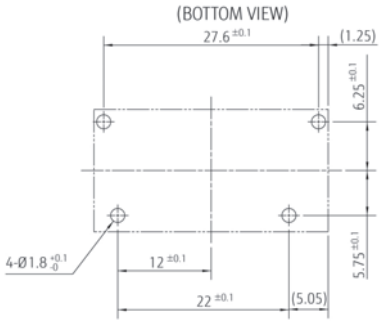
- **Dimensions**



- **Schematics**

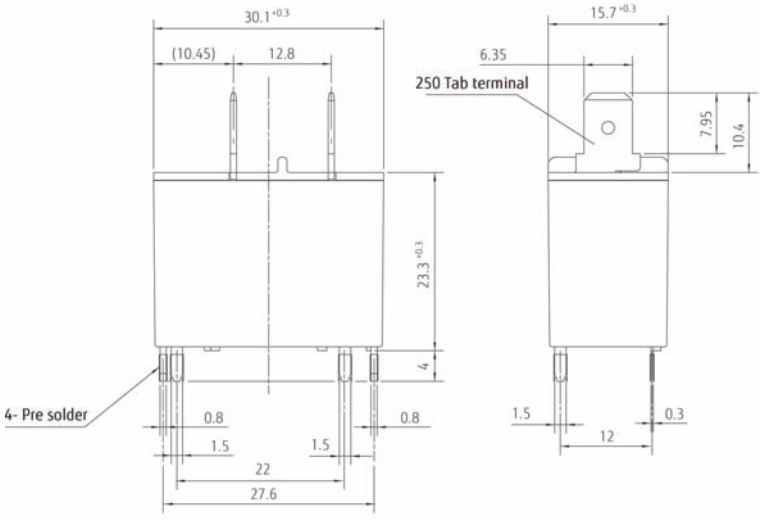


- **PC board mounting hole layout** (BOTTOM VIEW)



FTR-K3 JB type

- **Dimensions**



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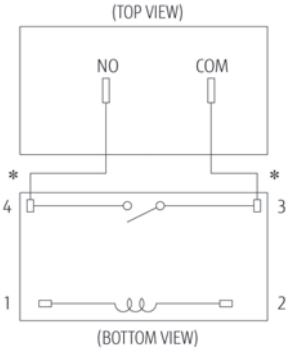

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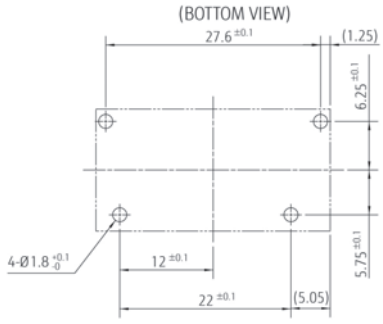

RoHS Compliance and Lead Free Information

1. General Information

- All signal and power relays produced by Fujitsu Components are compliant with RoHS directive 2002/95EC including amendments.
- Cadmium as used in electrical contacts is exempted from the RoHS directives on October 21st, 2005. (Amendment to Directive 2002/95/EC)
- All of our signal and power relays are lead-free. Please refer to Lead-Free Status Info for older date codes at: http://www.fujitsu.com/us/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 Profile

- **Recommended solder Sn-3.0Ag-0.5Cu.**

Flow Solder condition:	
Pre-heating:	maximum 120˚C
Soldering:	dip within 5 sec. at 260˚C solder 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 through hole mounted 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.

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