

# F49FD

# MINIATURE POWER RELAY



File No. : E133481



File No. : R50149334



File No.:CQC10002049162



## Features

- 5A switching capability
- 3kV dielectric strength (between coil and contacts)
- Slim size (width 5mm, height 12.5mm)
- High sensitive: Min. 120mW
- Sockets available
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (20.0 x 5.0 x 12.5) mm

## CONTACT DATA

Contact arrangement	1A
Contact Resistance	100mΩ max. (at 1A 6VDC)
Contact material	AgSnO <sub>2</sub> , AgNi
Contact rating (Res. load)	5A 250VAC/30VDC
Max. switching voltage	250VAC /30VDC
Max. switching current	5A
Max. switching power	1250VA / 150W
Min. contact load <sup>1)</sup>	No gold plated: 5VDC 10mA Gold plated: 5VDC 1mA
Mechanical endurance	2 x 10 <sup>7</sup> OPS
Electrical endurance <sup>2)</sup>	1 x 10 <sup>5</sup> OPS 3A 250VAC/30VDC 5 x 10 <sup>4</sup> OPS 5A 250VAC/30VDC

**Notes:** 1) Min. contact load is reference value. Please perform the confirmation test with the actual load before usage since reference value may change according to switching frequencies, environmental conditions and expected life cycles.

2) See approval reports for more details of electrical endurance test.

## CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	3000VAC 1min
	Between open contacts	1000VAC 1min
Operate time (at nomi.volt.)	10ms max.	
Release time (at nomi.volt.)	5ms max.	
Shock resistance	Functional	98m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Vibration resistance	10Hz to 55Hz 1.5mm DA	
Humidity	5% to 85% RH	
Ambient temperature	-40°C to 85°C	
Termination	PCB	
Unit weight	Approx. 3g	
Construction	Plastic sealed	

**Notes:** 1) The data shown above are initial values.

2) Please find coil temperature curve in the characteristic curves below.

3) UL insulation system: Class F, Class B, Class A.

## COIL

Coil power	Approx. 120mW (at 5VDC to 18VDC) Approx. 180mW (at 24VDC)
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## COIL DATA

at 23°C

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Allowable Voltage VDC at 85°C	Coil Resistance Ω
5	3.50	0.25	6.0	208 x (±10%)
6	4.20	0.30	7.2	300 x (±10%)
9	6.30	0.45	10.8	675 x (±10%)
12	8.40	0.60	14.4	1200 x (±10%)
18	12.6	0.90	21.6	2700 x (±15%)
24	16.8	1.20	28.8	3200 x (±15%)

**Notes:** 1) All above data are tested when the relays terminals are downward position. Other positions of the terminals, the pick-up and drop-out voltages will have 5% tolerance. For example, when the relay terminals are transverse position, the max. pick-up voltage change is 75% of nominal voltage.

2) The max. allowable voltage in the COIL DATA is coil overdrive voltage, it is the instantaneous max. voltage which the relay coil could endure in a very short time.

3) 24VDC 120mW type are also available, please see ordering information for more details.

## SAFETY APPROVAL RATINGS

UL/CUL	5A 30VDC L/R =0ms 3A 30VDC L/R =0ms 5A 250VAC COSØ=1 3A 250VAC COSØ=1
TÜV	5A 250VAC COSØ=1 5A 30VDC L/R =0ms

**Notes:** Only some typical ratings are listed above. If more details are required, please contact us.

## ORDERING INFORMATION

Type	F49FD / 012 -1H 1 2 G T F L (XXX)							
Coil voltage	5, 6, 9, 12, 18, 24VDC							
Contact arrangement	1H: 1 Form A							
Contact version	1: Single contact 2: Bifurcated contact(Only for gold plated)							
Space between terminals	(See the following) 1: 5.08mm 2: 7.62mm							
Contact plating	G: Gold plated Nil: No gold plated (Only for single contact)							
Contact material	T: AgSnO <sub>2</sub> (Only for single contact)				Nil: AgNi			
Insulation standard	F: Class F		B: Class B		Nil: Class A			
Coil power	L: Sensitive (Only for 24VDC)				Nil: Standard			
Customer special code								

Notes: 1) If the relay will be washed, coated, solidified with high-temperature after coating, or used in occasion with flammable and explosive gases, please contact us for suggestion about suitable parts.

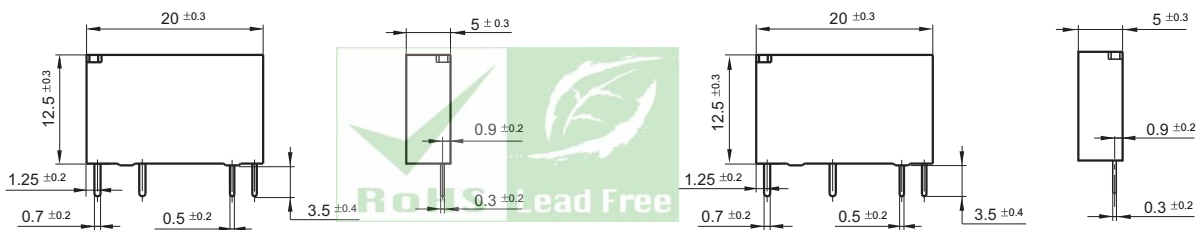
## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

### Outline Dimensions

F49FD/□□□ -1H□1(XXX)

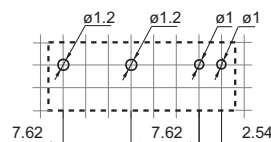
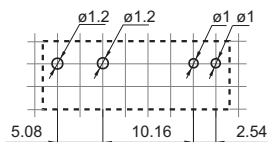
F49FD/□□□ -1H□2(XXX)



### PCB Layout (Bottom view)

F49FD/□□□ -1H□1(XXX)

F49FD/□□□ -1H□2(XXX)



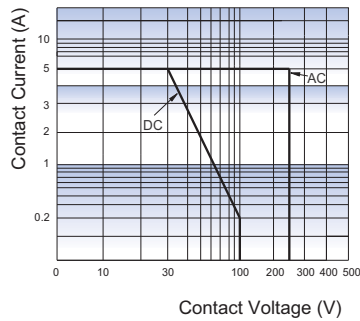
### Wiring Diagram (Bottom view)



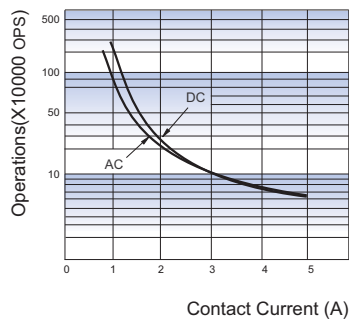
- Remark: 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1$ mm, tolerance should be  $\pm 0.2$ mm; outline dimension  $> 1$ mm and  $\leq 5$ mm, tolerance should be  $\pm 0.3$ mm; outline dimension  $> 5$ mm, tolerance should be  $\pm 0.4$ mm.  
 2) The tolerance without indicating for PCB layout is always  $\pm 0.1$ mm.  
 3) The width of the gridding is 2.54mm.

## CHARACTERISTIC CURVES

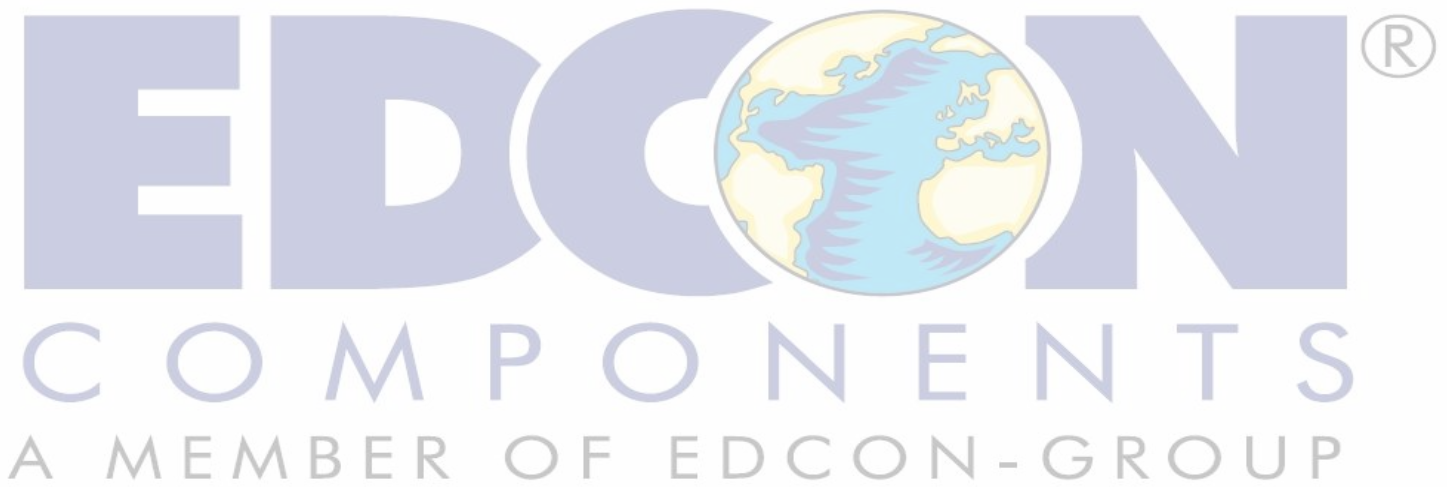
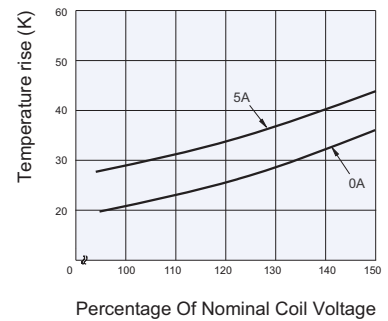
MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE



### Disclaimer

This datasheet is for the customers' reference. All the specifications are subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.