

HFD3

SUBMINIATURE SIGNAL RELAY



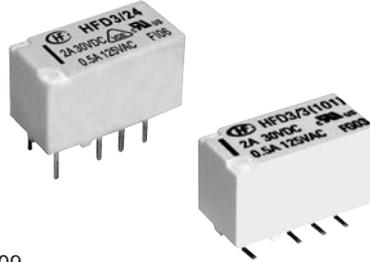
File No.:E133481



File No.:40018867



File No.:CQC1400207409



Features

- Surge withstand voltage up to 2500VAC, meets FCC Part 68 and Telecordia
- Meets EN60950 / EN41003
- SMT and DIP types available
- Bifurcated contacts
- Single side stable and latching type available

RoHS compliant

CONTACT DATA

Contact arrangement	2C
Contact resistance	100mΩ max.(at 10mA 30mVDC)
Contact material	AgNi + Au plated
Contact rating (Res. load)	2A 30VDC 3A 30VDC 0.5A 125VAC
Max. switching current	4A
Max. switching voltage	277VAC / 220VDC
Max. switching power	62.5VA / 90W
Min. applicable load ¹⁾	10mV 10μA
Mechanical endurance	1 x 10 ⁸ OPS
Electrical endurance ²⁾	1 x 10 ⁵ OPS (0.5A 125VAC, Resistive load, AgNi + Au plated, at 85°C, 1s on 9s off)

Notes: 1) Min. applicable load is reference value. Please perform the confirmation test with the actual load before production since reference value may change according to switching frequencies, environmental conditions and expected contact resistance and reliability.
2) Electric endurance data are collected in one pair CO contact test.

SAFETY APPROVAL RATINGS

UL/CUL	AgNi + Au plated	2A 30VDC at 85°C
		3A 30VDC at 85°C
		0.5A 125VAC at 85°C
VDE	AgNi + Au plated	2A 30VDC at 85°C
		3A 30VDC at 70°C
		0.5A 125VAC at 85°C

Notes: 1) All values unspecified are at room temperature.
2) Only typical loads are listed above. Other load specifications can be available upon request.

CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	2000VAC 1min
	Between open contacts	1000VAC 1min
	Between contact sets	1500VAC 1min
Surge withstand voltage		
Between open contacts (10/160μs)	1500VAC (FCC part 68)	
Between coil & contacts (2/10μs)	2500VAC (Telecordia)	
Operate time (Set time)	4ms max.	
Release time (Reset time)	4ms max.	
Ambient temperature	-40°C to 85°C	
Humidity	5% to 85% RH	
Vibration resistance	10Hz to 55Hz 3.3mm DA	
Shock resistance	Functional	735m/s ²
	Destructive	980m/s ²
Termination	DIP, SMT	
Unit weight	Approx. 2g	
Moisture sensitivity levels (Only for SMT type, JEDEC-STD-020)	MSL-3	
Construction	Plastic sealed	

Notes: 1) The data shown above are initial values.
2) UL insulation system: Class A

COIL

Coil power	Single side stable	Approx. 140mW
	1 coil latching	Approx. 100mW
	2 coils latching	Approx. 200mW
Temperature rise	50K max.	



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2022 Rev. 1.00

COIL DATA

at 23°C

Single side stable

Coil Code	Nominal Voltage VDC ⁽¹⁾	Set Voltage VDC max. VDC ⁽¹⁾	Reset Voltage VDC max.	Coil Resistance Ω	Nominal Power mW approx.	Max. Voltage VDC ⁽⁴⁾
HFD3/1.5	1.5	1.13	0.15	16 x (1±10%)	140	3.0
HFD3/2.4	2.4	1.8	0.24	41 x (1±10%)	140	4.8
HFD3/3	3	2.25	0.3	64.3 x (1±10%)	140	6.0
HFD3/4.5	4.5	3.38	0.45	145 x (1±10%)	140	9.0
HFD3/5	5	3.75	0.5	178 x (1±10%)	140	10
HFD3/6	6	4.5	0.6	257 x (1±10%)	140	12
HFD3/9	9	6.75	0.9	579 x (1±10%)	140	18
HFD3/12	12	9	1.2	1028 x (1±10%)	140	24
HFD3/24	24	18	2.4	4114 x (1±10%)	140	48
HFD3/48	48	36	4.8	8533 x (1±10%)	270	96

1 coil latching

Coil Code	Nominal Voltage VDC ⁽¹⁾	Set Voltage VDC max. VDC ⁽¹⁾	Reset Voltage VDC max. ⁽¹⁾	Coil Resistance Ω	Nominal Power mW approx.	Max. Voltage VDC ⁽⁴⁾
HFD3/1.5-L1	1.5	1.13	1.13	22.5 x (1±10%)	100	3.0
HFD3/2.4-L1	2.4	1.8	1.8	58 x (1±10%)	100	4.8
HFD3/3-L1	3	2.25	2.25	90 x (1±10%)	100	6.0
HFD3/4.5-L1	4.5	3.38	3.38	203 x (1±10%)	100	9.0
HFD3/5-L1	5	3.75	3.75	250 x (1±10%)	100	10
HFD3/6-L1	6	4.5	4.5	360 x (1±10%)	100	12
HFD3/9-L1	9	6.75	6.75	810 x (1±10%)	100	18
HFD3/12-L1	12	9	9	1440 x (1±10%)	100	24
HFD3/24-L1	24	18	18	5760 x (1±10%)	100	48

2 coils latching

Coil Code	Nominal Voltage VDC ⁽¹⁾	Set Voltage VDC max. VDC ⁽¹⁾	Reset Voltage VDC max. ⁽¹⁾	Coil Resistance Ω	Nominal Power mW approx.	Max. Voltage VDC ⁽⁴⁾
HFD3/1.5-L2	1.5	1.13	1.13	11.2 x (1±10%)	200	3.0
HFD3/2.4-L2	2.4	1.8	1.8	29 x (1±10%)	200	4.8
HFD3/3-L2	3	2.25	2.25	45 x (1±10%)	200	6.0
HFD3/4.5-L2	4.5	3.38	3.38	101 x (1±10%)	200	9.0
HFD3/5-L2	5	3.75	3.75	125 x (1±10%)	200	10
HFD3/6-L2	6	4.5	4.5	180 x (1±10%)	200	12
HFD3/9-L2	9	6.75	6.75	405 x (1±10%)	200	18
HFD3/12-L2	12	9	9	720 x (1±10%)	200	24
HFD3/24-L2	24	18	18	2880 x (1±10%)	200	48

Notes: (1) Energizing coil with rated voltage is basic for normal operation of a relay. Please make sure the energized voltage to relay coil have reached the rated voltage.

(2) In case 5V of transistor drive circuit, it is recommended to use 4.5V type relay, and 3V to use 2.4V type relay.

(3) For monostable relays, if you need to drop down voltage and hold mode after reliably operating, make sure that the effective value of holding voltage is not less than 60% of the rated voltage.

(4) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

(5) When user's requirements can't be found in the above table, special order allowed.

ORDERING INFORMATION

HFD3 / 24 -L2 S R (XXX)	
Type	
Coil voltage	1.5, 2.4, 3, 4.5, 5, 6, 9, 12, 24, 48VDC ¹⁾
Sort	L1: 1 coil latching Nil: Single side stable L2: 2 coils latching
Terminal type	S: Standard SMT S1: Short terminal SMT Nil: DIP
Packing style	R: Tape and reel packing (Only for SMT type) Nil: Tube packing(Only for DIP type)
Special code³⁾	XXX: Customer special requirement Nil: Standard

Notes: 1) 48VDC coil voltage is only for single side stable version.

2) R type (tape and reel) packing is moisture-proof which meets requirement of MSL-3. Please choose R type packing for SMT products. For R type, the letter "R" will only be printed on packing tag but not on relay cover. Tube packing is normally not available for SMT products unless specially requested by customer. But please note that tube packing is not moisture-proof so please bake the products before use according to description of Notice 11 herewith. In addition, tube packaging will be adopted when the ordering quantity of R type is equal to or less than 100 pieces unless otherwise specified.

3) When coil sort, terminal type or packing style are needed, please add "-" after coil voltage is selected. For instance, HFD3/12-SR.

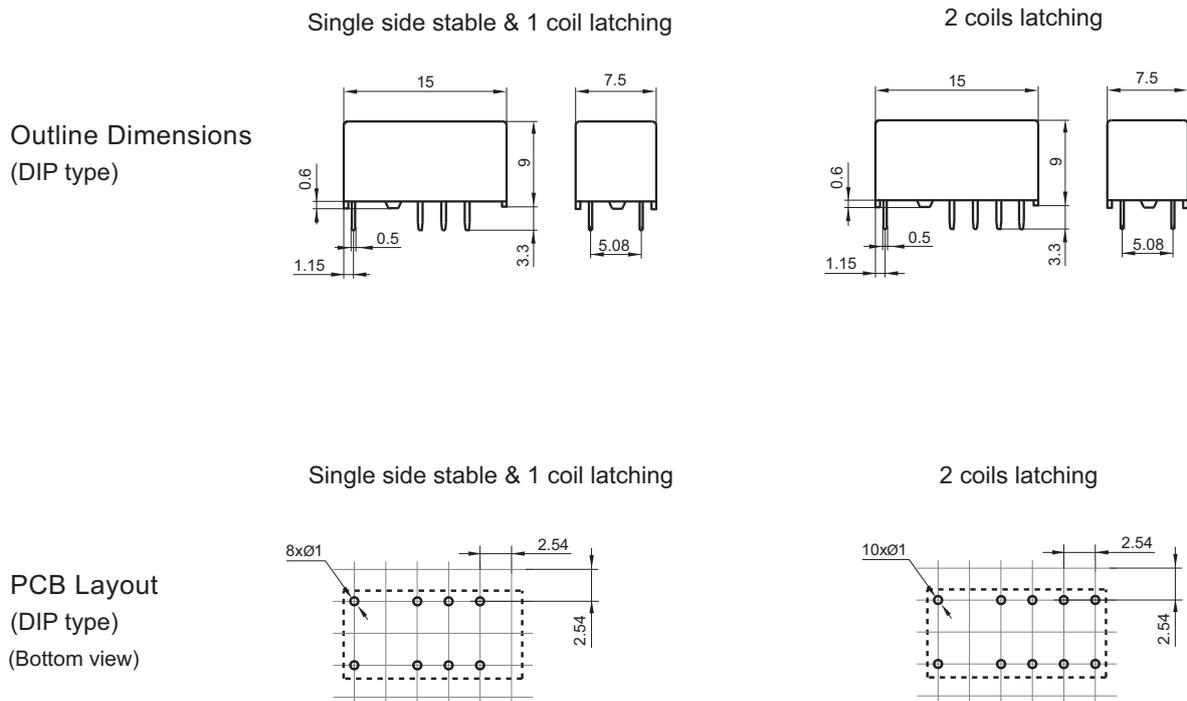
4) The customer special requirement express as special code after evaluating by Hongfa. e.g.(131): The Dielectric strength between coil & contacts is 3000VAC 1min for single side stable and 1 coil latching version.

5)The standard tube length is 624mm,Any special requirement needed, please contact us for more details.

6) For products that should meet the explosion-proof requirements of "IEC 60079 series",please note [Ex] after the specification while placing orders.Not all products have explosion-proof certification,so please contact us if necessary, in order to select the suitable products.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

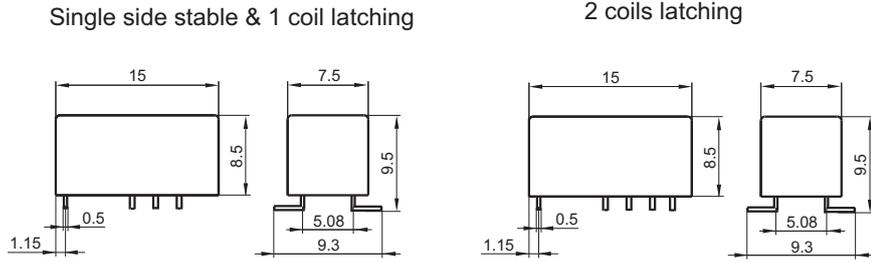
Unit: mm



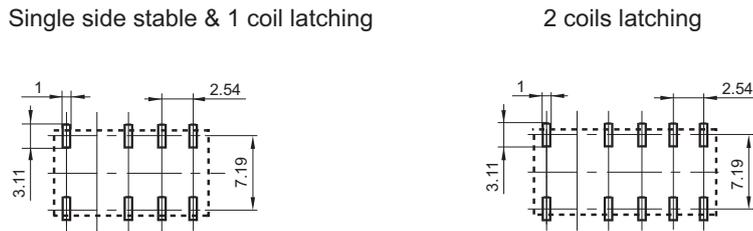
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

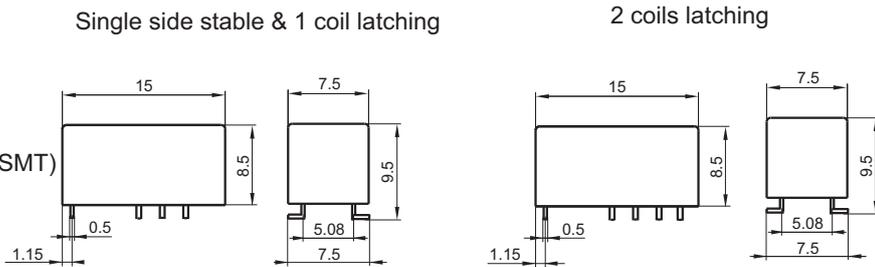
Outline Dimensions
(S type: Standard SMT)



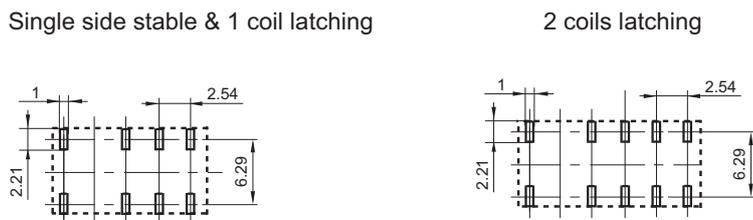
PCB Layout
(S type: Standard SMT)
(Bottom view)



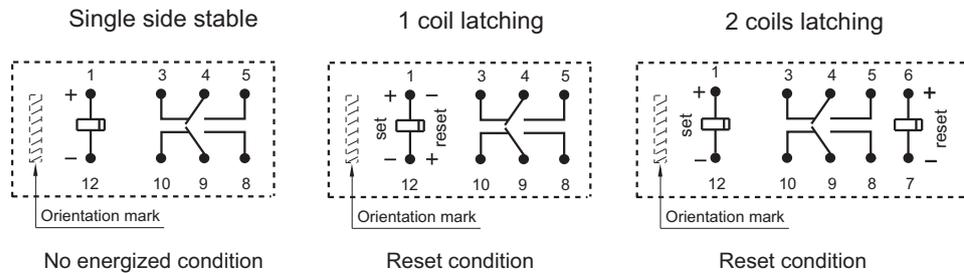
Outline Dimensions
(S1 type: Short terminal SMT)



PCB Layout
(S1 type: Short terminal SMT)
(Bottom view)

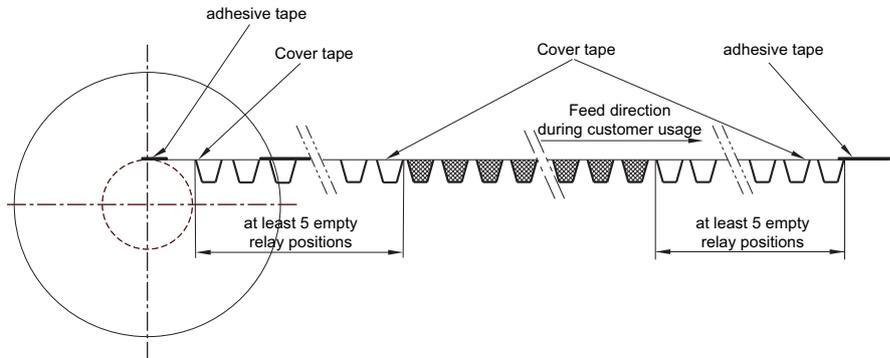
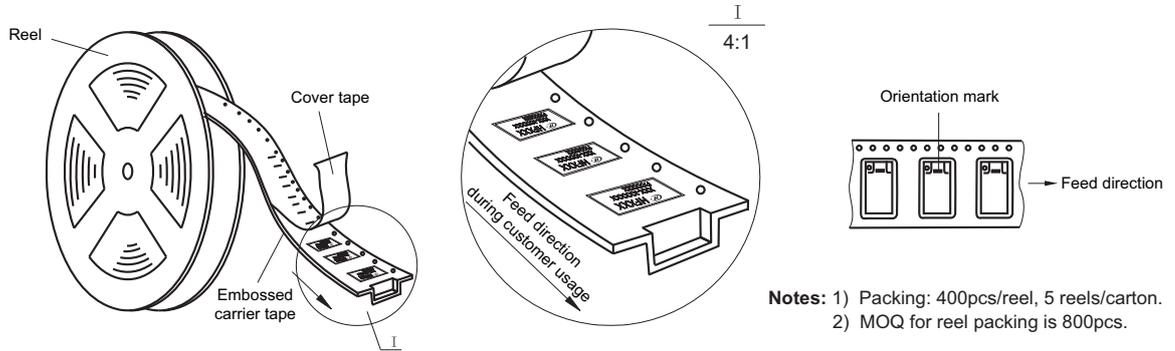


Wiring Diagram
(Bottom view)

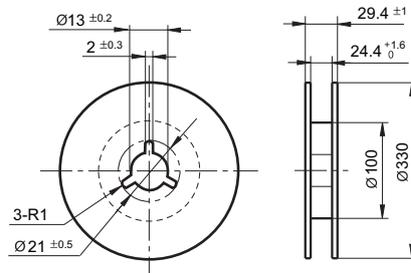


Remark: 1) In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$; outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.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

Direction of Relay Insertion



Reel Dimensions



Tape Dimensions (S type: Standard SMT)

