

HFD31

SUBMINIATURE SIGNAL RELAY



File No.:E133481



Features

- Offers excellent board space savings
- Surge withstand voltage up to 1500V, meets FCC Part 68
- High contact capacity 1A 30VDC
- Low power consumption
- Single side stable and latching type available
- Single or double coil winding type available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (14.0 x 9.0 x 5.0) mm

CONTACT DATA

Contact arrangement	2C
Contact resistance	100mΩ
Contact material	Silver alloy+Gold clad
Contact rating (Res. load)	1A 30VDC 0.5A 125VAC
Max. switching current	1A
Max. switching voltage	125VAC/110VDC
Max. switching power	62.5VA / 30W
Min. applicable load	10mV 10μA
Mechanical endurance	1 x 10 ⁸ OPS
Electrical endurance	2 x 10 ⁵ OPS (at 1A 30VDC) 1 x 10 ⁵ OPS (at 0.5A 125VAC)

CHARACTERISTICS

Insulation resistance	1000MΩ (at 500VDC)	
Dielectric strength	Between coil & contacts	1000VAC 1min
	Between open contacts	750VAC 1min
	Between contact sets	1000VAC 1min
Surge withstand voltage Between open contacts (10×160μs)	1500VAC (FCC part 68)	
Operate time (Set time)	3ms max.	
Release time (Reset time)	3ms max.	
Ambient temperature	-40°C to 70°C	
Humidity	98% RH, 40°C	
Vibration resistance	Functional	10Hz to 55Hz 3.0mm DA
	Destructive	10Hz to 55Hz 5.0mm DA
Shock resistance	Functional	490m/s ²
	Destructive	980m/s ²
Termination	DIP, SMT	
Unit weight	Approx. 1.5g	
Construction	Plastic sealed	

Notes: The data shown above are initial values.

COIL

Coil power	Single side stable	140mW (24VDC: 200mW)
	1 coil latching	100mW (24VDC: 150mW)
	2 coils latching	200mW (24VDC: 300mW)

SAFETY APPROVAL RATINGS

UL/CUL	1A 30VDC 0.5A 125VAC
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Notes: Only some typical ratings are listed above. If more details are required, please contact us.



HONGFA RELAY

ISO9001, ISO/TS16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2010 Rev. 1.00

COIL DATA

at 23°C

Single side stable

Order Number	Nominal Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil Resistance Ω	Nominal Power mW	Max. Allowable Voltage VDC
HFD31/1.5	1.5	1.13	0.15	16 x (1±10%)	140	2.25
HFD31/2.4	2.4	1.8	0.24	41.3 x (1±10%)	140	3.6
HFD31/3	3	2.25	0.3	64.3 x (1±10%)	140	4.5
HFD31/4.5	4.5	3.38	0.45	145 x (1±10%)	140	6.7
HFD31/5	5	3.75	0.5	178 x (1±10%)	140	7.5
HFD31/6	6	4.5	0.6	257 x (1±10%)	140	9
HFD31/9	9	6.75	0.9	579 x (1±10%)	140	13.5
HFD31/12	12	9	1.2	1028 x (1±10%)	140	18
HFD31/24	24	18	2.4	2880 x (1±10%)	200	36

1 coil latching

Order Number	Nominal Voltage VDC	Set Voltage VDC	Reset Voltage VDC	Coil Resistance Ω	Nominal Power mW	Max. Allowable Voltage VDC
HFD31/1.5-L1	1.5	1.13	1.13	22.5 x (1±10%)	100	2.25
HFD31/2.4-L1	2.4	1.8	1.8	58 x (1±10%)	100	3.6
HFD31/3-L1	3	2.25	2.25	90 x (1±10%)	100	4.5
HFD31/4.5-L1	4.5	3.38	3.38	203 x (1±10%)	100	6.7
HFD31/5-L1	5	3.75	3.75	250 x (1±10%)	100	7.5
HFD31/6-L1	6	4.5	4.5	360 x (1±10%)	100	9
HFD31/9-L1	9	6.75	6.75	810 x (1±10%)	100	13.5
HFD31/12-L1	12	9	9	1440 x (1±10%)	100	18
HFD31/24-L1	24	18	18	3840 x (1±10%)	150	36

2 coils latching

Order Number	Nominal Voltage VDC	Set Voltage VDC	Reset Voltage VDC	Coil Resistance Ω	Nominal Power mW	Max. Allowable Voltage VDC
HFD31/1.5-L2	1.5	1.13	1.13	11.3 x (1±10%)	200	2.25
HFD31/2.4-L2	2.4	1.8	1.8	29 x (1±10%)	200	3.6
HFD31/3-L2	3	2.25	2.25	45 x (1±10%)	200	4.5
HFD31/4.5-L2	4.5	3.38	3.38	101 x (1±10%)	200	6.7
HFD31/5-L2	5	3.75	3.75	125 x (1±10%)	200	7.5
HFD31/6-L2	6	4.5	4.5	180 x (1±10%)	200	9.0
HFD31/9-L2	9	6.75	6.75	405 x (1±10%)	200	13.5
HFD31/12-L2	12	9	9	720 x (1±10%)	200	18
HFD31/24-L2	24	18	18	1920 x (1±10%)	300	36

Notes: When user's requirements can't be found in the above table, please counsel with Hongfa for relay application support.

ORDERING INFORMATION

HFD31 /		24	-L	S	R	(XXX)
Type						
Coil voltage	1.5, 2.4, 3, 4.5, 5, 6, 9, 12, 24VDC					
Sort	L1: 1 coil latching Nil: Single side stable		L2: 2 coils latching			
Terminal type	S: Standard SMT		Nil: DIP			
Packing style	R: Tape and reel packing (Only for SMT type) ¹⁾				Nil: Tube packing	
Customer special code						

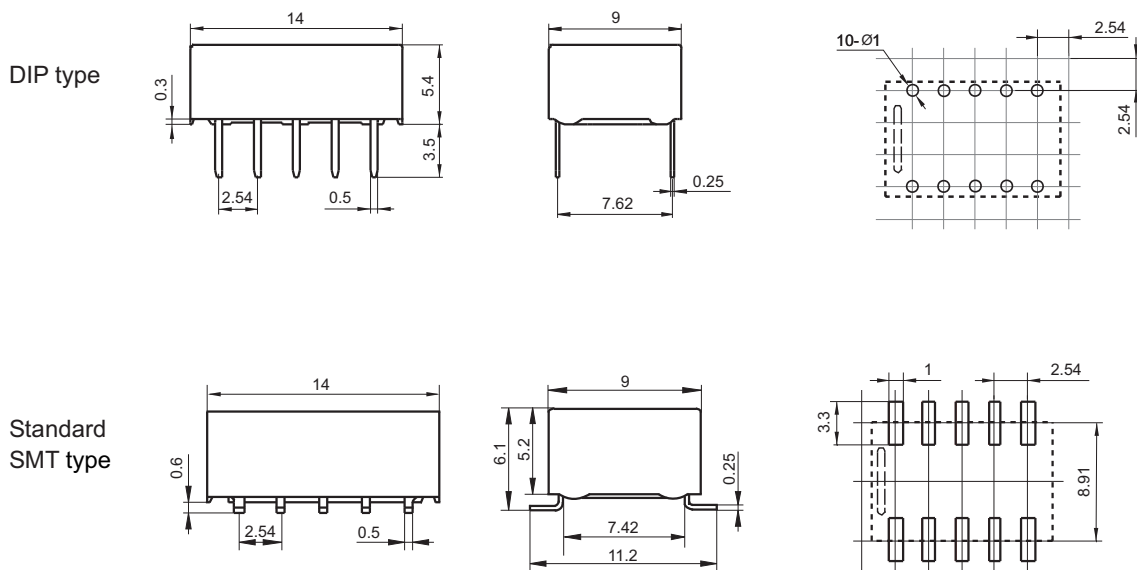
Notes: 1) For the R type, the letter "R" will only be printed on packing tag and will not appear on relay cover.
2) If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

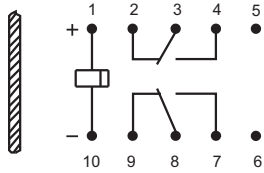
PCB Layout
(Bottom view)



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.

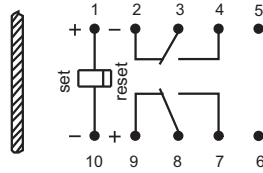
Wiring Diagram
(Bottom view)

Single side stable



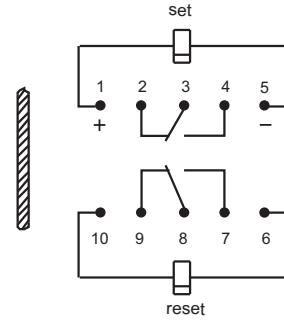
Deenergized condition

1 coil latching



Reset condition

2 coils latching



Reset condition

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.