SUBMINIATURE DIP RELAYS
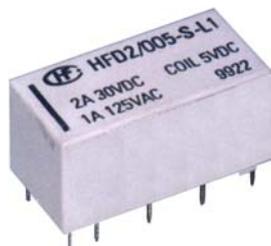
2 Form C   150mW

HFD2

- 2 Form C contact
- High sensitivity 150 mW
- Fits standard 16 pin IC socket
- High switching capacity 60W,125VA
- Epoxy sealed for automatic wave soldering and cleaning
- Single side stable and latching type is available

■ CONTACT DATA

Arrangement	2 Form C
Initial Contact Resistance Max. (at 10mA 6VDC)	50mΩ
Contact Material	Silver alloy, gold clad
Contact Rating (Res. Load)	2A,30VDC 1A 125VAC
Max. switching voltage	220VDC,250VAC
Max. switching current	5 A
Max. switching power	60W,125VA
UL/CUR rating	2A at 30 VDC Resistive 1A at 120VAC Resistive

Expected Life min. operations	Mechanical	10^8
	Electrical	1×10^5 ops 2A 30VDC
		5×10^5 ops 1A 30VDC

COIL

Nominal coil power	150mW to 200mW single side stable 75mW to 100mW, latching 1 Coil

■ SPECIFICATION

Initial Insulation Resistance	1,000MΩ 500VDC
Dielectric Strength Between coil and Contacts	1,500VAC, 1min(1coil) 1,000VAC,1min(2coil)
Between open contacts	1,000VAC,1min
Surge Voltage between Contacts and coil	1500VAC
Operate time (at nomi. Vot.)	4ms
Release time (at nomi. Vot.)	3ms
Temperature rise (at nominal voltage)	Max. 65℃

Shock Resistance	Functional	490m/s^2
	Destructive	980m/s^2

Vibration Resistance	196m/s^2
Humidity	98% +40℃
Ambient temperature	-40 to +85℃
Termination	PCB
Unit weight	Approx. 8g
Construction	Sealed

■ ORDER DESIGNATION

HFD2   /   012   ——   S   L2

Coil Voltage	Sensitivity	Sort
3、5、6、9、12 15、24、48VDC	S: Sensitive	Nil: Single side stable
	M: Standard	L1: Latching 1 coil
		L2: Latching 2 coil

- **COIL TABLE**

Single side stable Standard (200mW) 20℃

Order Number	Coil Voltage VDC	Pick-up Voltage VDC (max)	Drop-out Voltage VDC (min)	Coil Resist. Ω 10%	Max. allow Voltage VDC
003-M	3	2.3	0.3	45	6
005-M	5	3.8	0.5	125	10
006-M	6	4.5	0.6	180	12
009-M	9	6.8	0.9	405	18
012-M	12	9.0	1.2	720	24
015-M	15	11.3	1.5	1125	30
024-M	24	18.0	2.4	2880	48
048-M	48	36.0	4.8	11520	96

Single side stable Sensitive (150mW) 20℃

Order Number	Coil Voltage VDC	Pick-up Voltage VDC (max)	Drop-out Voltage VDC (min)	Coil resist. Ω 10%	Max. allow Voltage VDC
003-S	3	2.4	0.3	60	7.0
005-S	5	4.0	0.5	167	11.5
006-S	6	4.8	0.6	240	13.8
009-S	9	7.2	0.9	540	20.8
012-S	12	9.6	1.2	960	27.7
015-S	15	12.0	1.5	1500	34.6
024-S	24	19.2	2.4	3840	55.4

Latching（2 coil）standard (200mW) 20℃

Order Number	Coil Voltage VDC	Set、Reset Voltage VDC (max)	Coil Resist. Ω 10%	Max. allow Voltage VDC
003-M-L2	3	2.25	45	6
005-M-L2	5	3.75	125	10
006-M-L2	6	4.5	180	12
009-M-L2	9	6.75	375	18
012-M-L2	12	9.0	720	24
015-M-L2	15	11.25	1125	30
024-M-L2	24	18.0	2040	48

Latching（2 coil）sensitive (150mW) 20℃

Order Number	Coil Voltage VDC	Set、Reset Voltage VDC (max)	Coil Resist. Ω 10%	Max. allow Voltage VDC
005-S-L2	5	4.0	167	11.5
006-S-L2	6	4.8	240	13.8
009-S-L2	9	7.2	540	20.8
012-S-L2	12	9.6	960	27.7
015-S-L2	15	12.0	1500	34.6
024-S-L2	24	19.2	3840	55.4

Latching（1 coil）standard (100mW) 20℃

Order number	Coil Voltage VDC	Set、Reset Voltage VDC (max)	Coil resist. Ω 10%	Max. allow Voltage VDC
003-M-L1	3	2.25	90	8.4
005-M-L1	5	3.75	250	14
006-M-L1	6	4.5	360	17
009-M-L1	9	6.75	810	25
012-M-L1	12	9.0	1440	34

Latching（1 coil）sensitive (75mW) 20℃

Order number	Coil Voltage VDC	Set、Reset Voltage VDC (max)	Coil resist. Ω 10%	Max. allow Voltage VDC
005-S-L1	5	4.0	330	16
006-S-L1	6	4.8	480	19
009-S-L1	9	7.2	1080	29
012-S-L1	12	9.6	1920	39
015-S-L1	15	12.0	3000	43

015-M-L1	15	11.25	2220	42
024-M-L1	24	18.0	4000	56

024-S-L1	24	19.2	7680	78

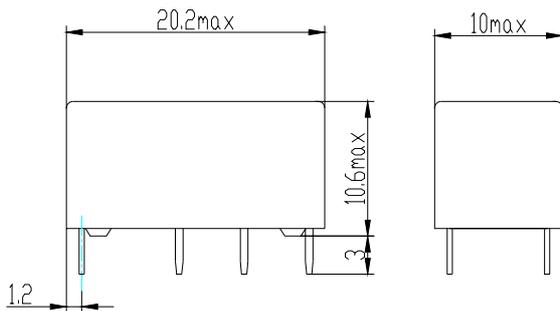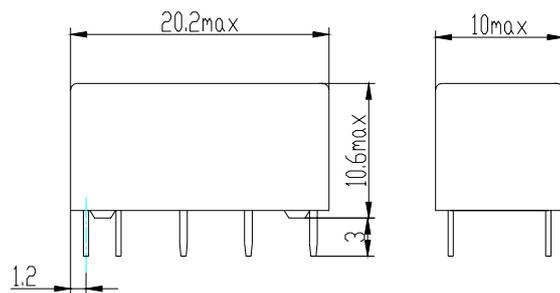■ **OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT**

Outline Dimensions

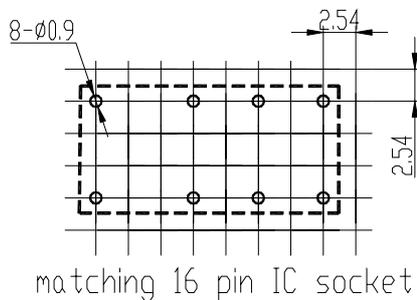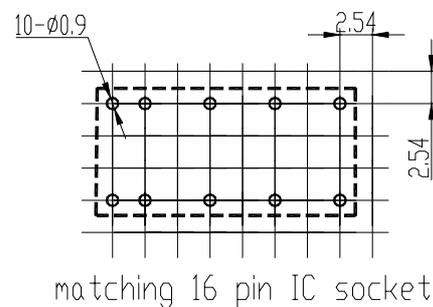Single side stable or Latching (1 coil)   Latching (2 coil)
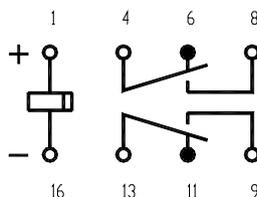

PC Board layout

Single side stable or Latching (1 coil)   Latching (2 coil)

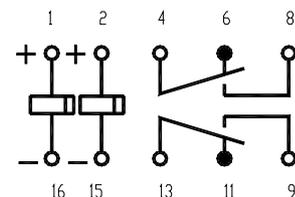matching 16 pin IC socket   matching 16 pin IC socket

Wiring diagram (bottom view)

Single side stable or Latching (1 coil)   Latching (2 coil)

For latching, diagram shows the "reset" position   Diagram shows the "reset" position
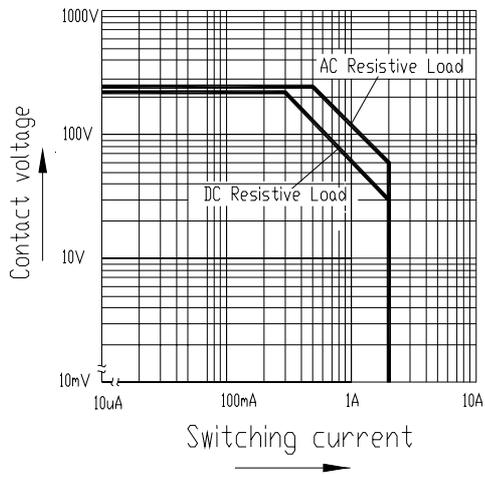Energize terminals 1 and 16 to "set"   Energize terminals 1 and 16 to "set"
Reverse energize terminals 1 and 16 to "reset"   Energize terminals 2 and 15 to "reset"

■ **TYPICAL CONTACT LIFE EXPECTANCY**

voltage	Power	Number of operations	
		Resistive Load	Inductive Load $\cos\varphi = 0.7$
50mV	50uW	5×10^7	5×10^7
30VDC	20W	3×10^6	1×10^6
30VDC	30W	5×10^5	3×10^5
30VDC	60W	1×10^5	1.5×10^4
60VDC	20W	3×10^6	--
60VDC	30W	5×10^5	--
60VDC	60W	1×10^5	--
30VAC	40VA	3×10^6	1×10^6
30VAC	80VA	1×10^6	3×10^5
30VAC	120VA	1×10^5	1.5×10^4
60VAC	40VA	3×10^6	1×10^6
60VAC	80VA	1×10^6	3×10^5
60VAC	120VA	1×10^5	1.5×10^4
125VAC	40VA	3×10^6	1×10^6
125VAC	80VA	1×10^6	3×10^5
125VAC	125VA	1×10^5	1.5×10^4

■ USEFUL CURVES

Maximum switching power

Coil Temperature Rise