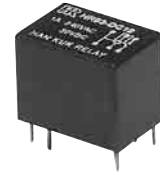


Small 1 pole signal switching relay

Features

- Gold overlay contacts, superior reliability (F type)
- Basic grid (one inch) terminal layout
- FCC part68 surge strength 1,500V (F type)



Applications

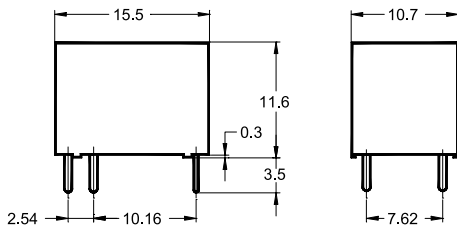
- Telecommunication
- Office machines
- Vending machines
- Audio equipments

Approvals



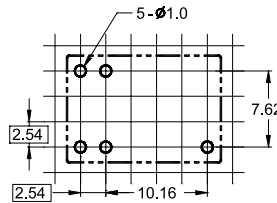
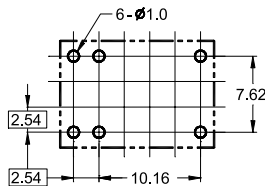
Dimensions (mm)

To convert into inches, multiply by 0.03937



PC Board Layout

Copper-side view

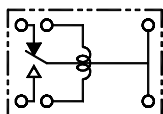


Schematic

Copper-side view

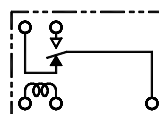
1 Form C (SPDT)

Double movable terminal



1 Form C (SPDT)

Single movable terminal



Contact data

Arrangement	1 Form C (SPDT)	
Contact material	Au-clad Ag	
Initial contact resistance	100mΩ max.	
Rated load, resistive	1A 24VDC 1A 120VAC	
Maximum switching current	2A	
Maximum switching capacity	with DC voltage: with AC voltage:	30W 120VA
Maximum switching voltage	60VDC 125VAC	
Minimum switching rating ¹⁾	1mA 5VDC	

¹⁾ Min. Switching Load mentioned above are reference values. Therefore it is recommended to perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

Coil data

Nominal voltage	3VDC to 24VDC	
Nominal power consumption ²⁾	200mW , 450mW	
Operate voltage ³⁾	Standard coil: Sensitive coil:	70% of nominal voltage 80% of nominal voltage
Release voltage ⁴⁾	10% of nominal voltage	

^{2), 3), 4)} The values depend on coil voltage, see Part selection chart

General data

Operate time	5ms max. at nominal voltage	
Release time	5ms max. at nominal voltage	
Initial insulation resistance	100 MΩ min. (500VDC)	
Dielectric strength	Between open contacts: Between contacts and coil:	500VAC _{rms} for 1 minute Double movable terminal type : 500VAC _{rms} for 1 minute Single movable terminal type: 1,000VAC _{rms} for 1 minute
Surge strength	Between contacts and coil:	1,500V (single movable terminal type)
Expected life	Mechanical: Electrical:	More than 10,000,000 operations More than 100,000 operations at rated load
Vibration resistance	Functional: Destructive:	10 ~ 55Hz Dual amplitude: 1.5mm 10 ~ 55Hz Dual amplitude: 1.5mm
Shock resistance	Functional: Destructive:	10G min. 100G min.
Ambient temperature	- 25°C to + 55°C (with no icing)	
Humidity	35% to 85% RH	
Weight	4g approx.	

Note: The above figures are initial values

Part number description



HR93

Terminal structure

None: Double Movable terminal
F: Single Movable terminal (see schematic)

Coil Voltage

DC03: 3VDC DC09: 9VDC
DC05: 5VDC DC12: 12VDC
DC06: 6VDC DC24: 24VDC

Coil sensitivity

None: Standard (450mW)
H: High sensitive (200mW)

Part number description is provided for reference, part number can not be arbitrarily composed. Refer to the part numbers shown in the table below. Special designs to customer specifications are possible; please contact HR.

Part selection

Part number	Nominal voltage (VDC)	Coil resistance ($\Omega \pm 10\%$)	Nominal current (mA)	Must operate voltage (VDC)	Must release voltage (VDC)	Max voltage (VDC)	Nominal power (mW)
Double movable terminal, Standard coil							
HR93 DC03	3	20	150	2.1	0.3	3.3	450
HR93 DC05	5	56	90	3.5	0.5	5.5	
HR93 DC06	6	80	75	4.2	0.6	6.6	
HR93 DC09	9	180	50	6.3	0.9	9.9	
HR93 DC12	12	320	37.5	8.4	1.2	13.2	
HR93 DC24	24	1,280	18.75	16.8	2.4	26.4	
Double movable terminal, Sensitive coil							
HR93 DC03H	3	45	66.6	2.4	0.3	3.3	200
HR93 DC05H	5	125	40.0	4.0	0.5	5.5	
HR93 DC06H	6	180	33.3	4.8	0.6	6.6	
HR93 DC09H	9	400	22.5	7.2	0.9	9.9	
HR93 DC12H	12	720	16.6	9.6	1.2	13.2	
HR93 DC24H	24	2,880	8.3	19.2	2.4	26.4	

Note: All values in the chart are measured at 23°C

Part number	Nominal voltage (VDC)	Coil resistance ($\Omega \pm 10\%$)	Nominal current (mA)	Must operate voltage (VDC)	Must release voltage (VDC)	Max voltage (VDC)	Nominal power (mW)
Single movable terminal, Standard coil							
HR93F DC03	3	20	150	2.1	0.3	3.3	450
HR93F DC05	5	56	90	3.5	0.5	5.5	
HR93F DC06	6	80	75	4.2	0.6	6.6	
HR93F DC09	9	180	50	6.3	0.9	9.9	
HR93F DC12	12	320	37.5	8.4	1.2	13.2	
HR93F DC24	24	1,280	18.75	16.8	2.4	26.4	
Single movable terminal, Sensitive coil							
HR93F DC03H	3	45	66.6	2.4	0.3	3.3	200
HR93F DC05H	5	125	40.0	4.0	0.5	5.5	
HR93F DC06H	6	180	33.3	4.8	0.6	6.6	
HR93F DC09H	9	400	22.5	7.2	0.9	9.9	
HR93F DC12H	12	720	16.6	9.6	1.2	13.2	
HR93F DC24H	24	2,880	8.3	19.2	2.4	26.4	

Note: All values in the chart are measured at 23°C