

HR90	HR92	HR92N	HR93
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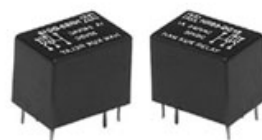
Small 1 pole signal switching relay

» Features

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

» Applications

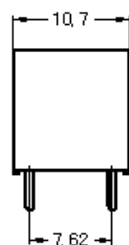
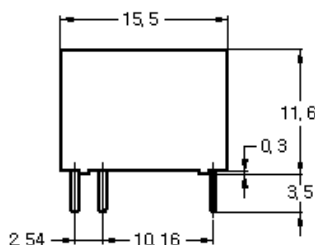
1. Telecommunication
2. Office machines
3. Vending machines
4. Audio equipments



Approx. the actual size

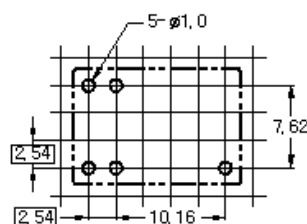
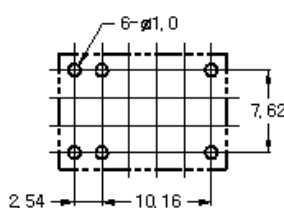
» Dimensions (mm)

To convert into inches, multiply by 0.03937



» PC Board Layout

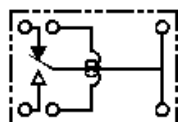
Copper-side view



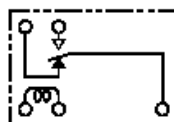
» Schematic

Copper-side view

1 Form C (SPDT)
Double movable terminal



1 Form C (SPDT)
Single movable terminal



» Contact data

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

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

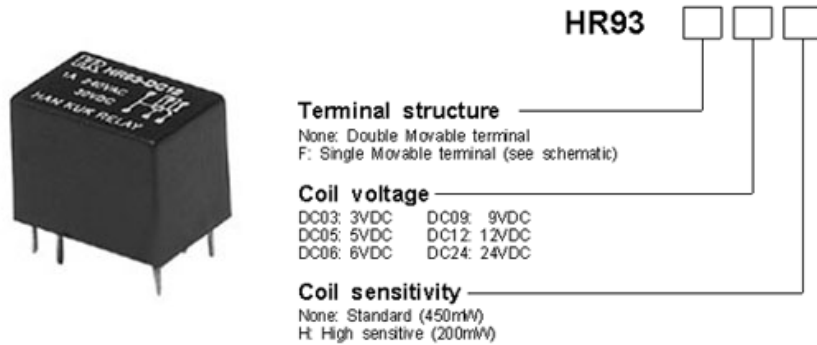
» General data

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 & coil:	500VACrms for 1 minute Double movable terminal type : 500VACrms for 1 minute Single movable terminal type: 1,000VACrms for 1 minute
Surge strength	Between contacts & 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.
		- 25℃ to +55℃ (with no

Ambient temperature	icing)
Humidity	35% to 85% RH
Weight	4g approx.

Note: The above figures are initial values

» Part number description



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 (Ω± 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	
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℃