Miniature High Power Latching Relay	NSL

Features

- Magnetic latching relay
- Low coil power
  1 coil magnetic latching relay: approx. 250mW
  2 coils magnetic latching relay: approx. 500mW
- High contact switching capability: 10A 250VAC
- 1 Form A configuration
- Plastic sealed type
- UL insulation: Class F

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(File No.:E122258)

1. COIL DATA (at 23°C)

1) 1 coil latching

Nominal Voltage (VDC)	Pick-up Voltage (VDC) max.[1)]	Drop-out Voltage (VDC) max.	Pulse Width (ms) min.	Coil Resistance (Ω) (1±10%)	Coil Power (mW)
3	2.25	2.25	100	36	Approx. 250
5	3.75	3.75	100	100	
6	4.50	4.50	100	144	
9	6.75	6.75	100	324	
12	9.00	9.00	100	576	
18	13.5	13.5	100	1296	
24	18.0	18.0	100	2304	
48	36.0	36.0	100	9216	

2) 2 coils latching

Nominal Voltage (VDC)	Pick-up Voltage (VDC) max.[1)]	Drop-out Voltage (VDC) max.	Pulse Width (ms) min.	Coil Resistance (Ω) (1±10%)	Coil Power (mW)
3	2.25	2.25	100	18	Approx. 500
5	3.75	3.75	100	50	
6	4.50	4.50	100	72	
9	6.75	6.75	100	162	
12	9.00	9.00	100	288	
18	13.5	13.5	100	648	
24	18.0	18.0	100	1152	
48	36.0	36.0	100	4608	

Notes: 1) The data shown above are initial values.

2. CONTACT DATA

Contact Arrangement		1 Form A
Contact Resistance[1)]		100mΩ max. (at 1A 6VDC)
Contact Material		$AgSnO_2$
Contact Ratings (Resistive load)		10A 250VAC
Max. Switching Voltage		277VAC
Max. Switching Current		10A
Max. Switching Power		2770VA
Life Expectancy	Electrical[2)]	100,000 operations
	Mechanical	1,000,000 operations

Notes:

1) The data shown above are initial values.

2) For plastic sealed type, the venting-hole should be excised in test.

3. CHARACTERISTICS

Insulation Resistance		1000MΩ (at 500VDC)
Dielectric Strength	Open Contacts	1000VAC 1min
	Coil and Contacts	2500VAC 1min
Operate Time (at nominal voltage)		10ms max.
Release Time (at nominal voltage)		10ms max.
Temperature Range		-40℃ ~ 85℃
Shock Resistance	Functional	$98m/s^2$
	Destructive	$980m/s^2$
Vibration Resistance		10 ~ 55Hz 1.5mm DA
Humidity		5 ~ 85% RH
Termination		PCB
Weight		Approx. 7g
Construction		Plastic sealed
Outline Dimension (L x W x H)		20.5 x 10.2 x 15.7mm

Notes: The data shown above are initial values.

4. SAFETY APPROVAL

UL / cUL	10A 250VAC, Resistive & General use at 85℃ TV-5 125VAC at 40℃ 1/2HP 250VAC at 85℃ 1/3HP 120VAC at 85℃ 3A, 277VAC, Electronic Ballast at 85℃ 5A, 120VAC, Electronic Ballast at 85℃ 8A, 120VAC, Tungsten at 40℃

5. ORDERING INFORMATION

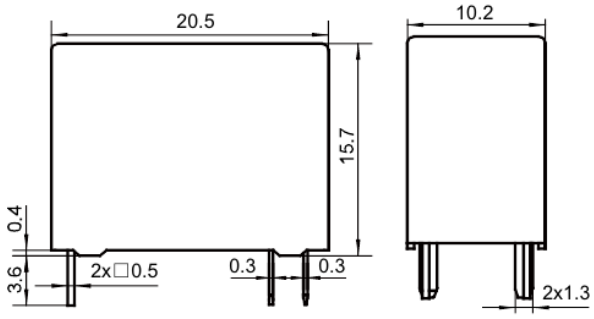
NSL ①	11 ②	-	12 ③	S ④	L1 ⑤	T ⑥	F ⑦

① Relay Model	NSL
② Contact Arrangement	11: 1 Form A
③ Coil Voltage	3=3VDC, 5=5VDC, 6=6VDC, 9=9VDC, 12=12VDC, 18=18VDC, 24=24VDC, 48=48VDC
④ Construction	S: Sealed type
⑤ Sort	L1: 1 coil latching L2: 2 coils latching
⑥ Contact Material	T: $AgSnO_2$
⑦ Insulation Standard	F: Class F

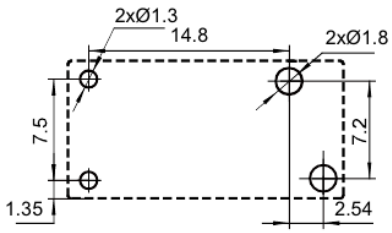
6. DIMENSIONS (Unit: mm)

1 coil latching

Outline Dimensions



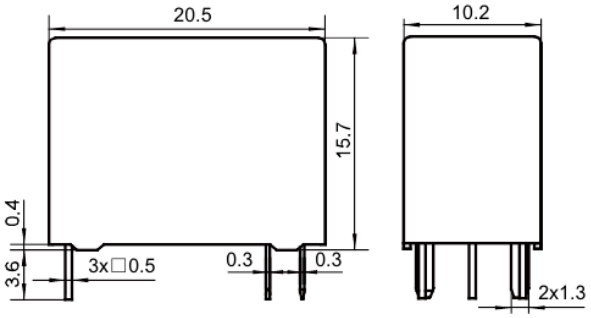
PCB Layout
(Bottom view)



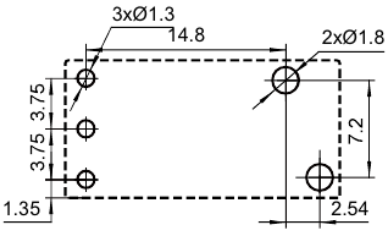
Wiring Diagram
(Bottom view)

2 coils latching

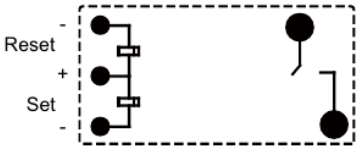
Outline Dimensions



PCB Layout
(Bottom view)



Wiring Diagram
(Bottom view)



Remark:

1) The pin dimension of the product outline drawing is the size before tinning (It will become larger after tinning), and the mounting hole size is the recommended design size of the PCB board hole. The specific PCB board hole design size can be mapped and adjusted according to the actual product.
2) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
3) The tolerance without indicating for PCB layout is always ±0.1mm

Notice:

1. Relay is on the “reset” status when being released from stock, with the consideration of shock risen from transit and relay mounting, relay would be changed to “set” or “reset” status, therefore, when application (connecting the power supply), please reset the relay to “set” or “reset” status on request.
2. In order to maintain “set” or “reset” status, energized voltage to coil should reach the rated voltage, impulse width should be 5 times more than “set” or “reset” time. Do not energized voltage to “set” coil and “reset” coil simultaneously. And also long energized time (more than 1 min) should be avoided.
3. Keep the product away from strong magnetic field during transportation, storage and application, to avoid change of set/reset voltage.
4. The recommended soldering temperature range is 240~260℃ with the duration of 2~5s for PCB termination. It is not suggested to apply reflow soldering method, if it is required indeed, please contact with our technicians. It is general required that the wave soldering temperature at 250℃ shall not more than 2s. The below chart is the wave soldering temperature distribution chart we recommended for your reference.

Wave soldering temperature distribution chart