Subminiature High Power Latching Relay	NKBL

Features

- Subminiature high power latching relay
- Low coil power
  1 coil latching: approx. 0.4W
  2 coils latching: approx. 0.8W
- 15A switching capability
- 1 Form A and 1 Form C configuration
- Subminiature, standard PCB layout
- Plastic sealed type

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(File No.:E134581)

1. COIL DATA (at 23°C)

1) 1 coil latching

Nominal Voltage (VDC)	Set Voltage (VDC) max.	Reset Voltage (VDC) max.	Pulse Width (ms) min.	Max.Voltage (VDC)	Coil Resistance (Ω) (1±10%)	Coil Power (W)
3	2.40	2.40	100	4.5	22.5	Approx. 0.4
5	4.00	4.00	100	7.5	62.5	
6	4.80	4.80	100	9.0	90	
9	7.20	7.20	100	13.5	202.5	
12	9.60	9.60	100	18	360	
24	19.2	19.2	100	36	1440	
48	38.4	38.4	100	72	5760	

2) 2 coils latching

Nominal Voltage (VDC)	Set Voltage (VDC) max.	Reset Voltage (VDC) max.	Pulse Width (ms) min.	Max.Voltage (VDC)	Coil Resistance (Ω) (1±10%)	Coil Power (W)
3	2.40	2.40	100	4.5	11.25	Approx. 0.8
5	4.00	4.00	100	7.5	31.5 + 31.5	
6	4.80	4.80	100	9.0	45 + 45	
9	7.20	7.20	100	13.5	101.5 + 101.5	
12	9.60	9.60	100	18	180 + 180	
24	19.2	19.2	100	36	720 + 720	
48	38.4	38.4	100	72	2880 + 2880	

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

2) The maximum allowable voltage refers to the maximum voltage which relay coil could endure in a very short time.

2. CONTACT DATA

Contact Arrangement		1 Form A	1 Form C
Contact Resistance		100mΩ max. (at 1A 6VDC)	
Contact Material		$AgSnO_2$	
Contact Ratings (Resistive load)		10A 277VAC / 30VDC	
Max. Switching Voltage		277VAC / 30VDC	
Max. Switching Current		15A	10A
Max. Switching Power		2770VA / 300W	
Life Expectancy	Electrical	6,000 operations (1 Form A, 15A 120VAC, Incandescent lamp, at 60℃, 1s on 59s off)	
		10,000 operations (10A 277VAC, Resistive load, at 60℃, 1s on 9s off)	
		20,000 operations (12A 277VAC, General use, at 70℃, 1s on 9s off)	
	Mechanical	10,000,000 operations	

Notes: The data shown above are initial values.

3. CHARACTERISTICS

Insulation Resistance		100MΩ (at 500VDC)
Dielectric Strength	Open Contacts	750VAC 1min
	Coil and Contacts	2000VAC 1min
Set Time (at nominal voltage)		8ms max.
Reset Time (at nominal voltage)		5ms 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. 9g
Construction		Plastic sealed
Outline Dimension (L x W x H)		19.0 x 15.2 x 15.5mm

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

2) For sealed type, the vent-hole cover should be excised.

4. SAFETY APPROVAL

UL / cUL	NO: 10A 277/250/125VAC, Resistive at 60℃ NO: 12A 277/250/125VAC, General use at 70℃ NO: Standard ballast 5.5A 277/220/120VAC at 60℃ NO: Electronic ballast 5A, 120VAC at 60℃ NO: Electronic ballast 5A, 277VAC at 70℃ NO: Tungsten (incandescent) 15A 120VAC at 60℃ NO: Tungsten (incandescent) 5A 277VAC at 60℃ NO: 1/6HP 240/120VAC at 85℃ NO: TV-10 125VAC at 70℃

Notes: 1) All values unspecified are at room temperature.

2) Only typical loads are listed above. Other load specifications can be available upon request.

3) These ratings are tested with zero crossing device.

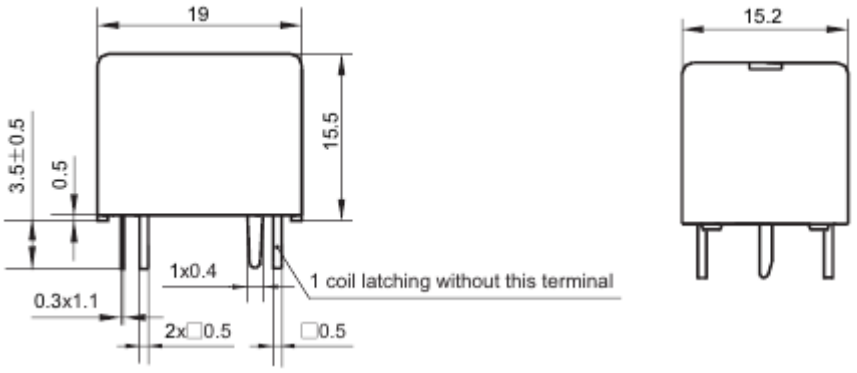
5. ORDERING INFORMATION

NKBL ①	11 ②	-	12 ③	S ④	L1 ⑤	R ⑥

① Relay Model	NKBL
② Contact Arrangement	11: 1 Form A 1: 1 Form C
③ Coil Voltage	3=3VDC, 5=5VDC, 6=6VDC, 9=9VDC, 12=12VDC, 24=24VDC, 48=48VDC
④ Construction	S: Sealed type
⑤ Sort	L1: 1 coil latching L2: 2 coils latching
⑥ Polarity	Nil: Standard polarity R: Reverse polarity

6. DIMENSIONS (Unit: mm)

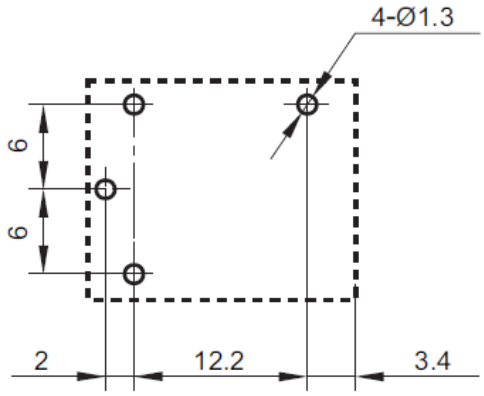
Outline Dimensions



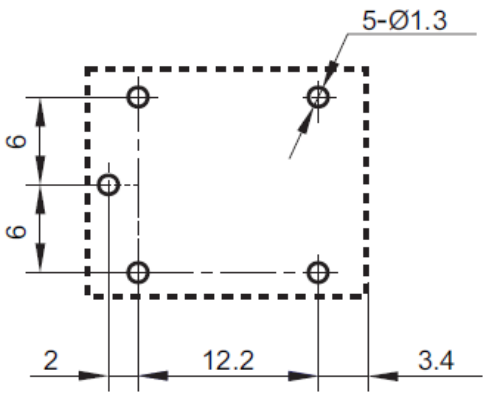
PCB Layout (Bottom view)

1 coil latching

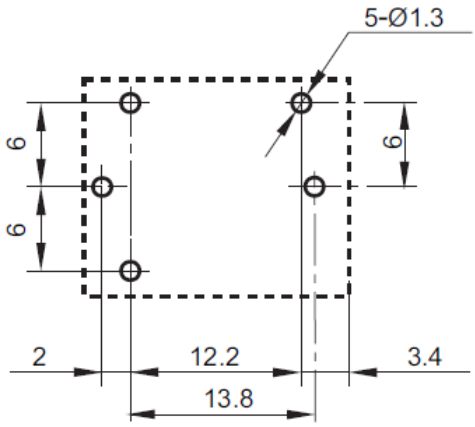
1 Form A

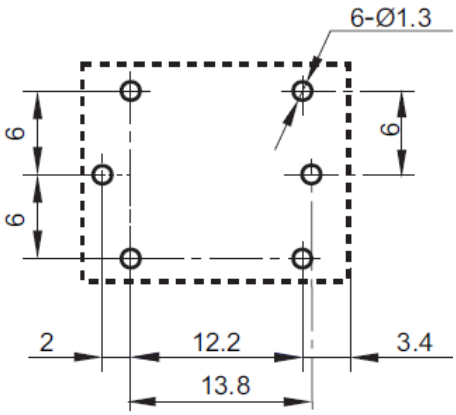


1 Form C



2 coils latching





Remark: 1) 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.

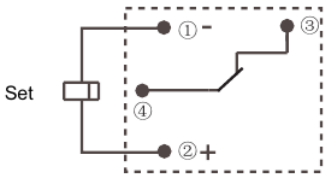
2) The tolerance without indicating for PCB layout is always ±0.1mm

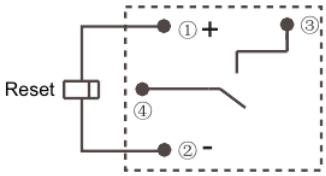
Wiring Diagram (Bottom view)

1 coil latching

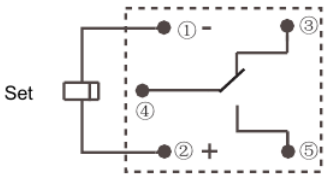
Standard Polarity

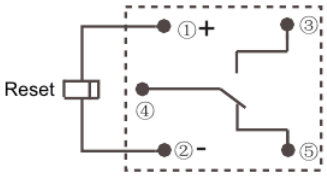
1 Form A





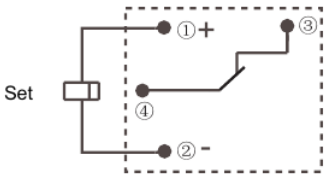
1 From C

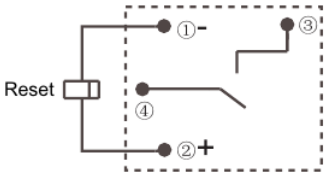




Reverse Polarity

1 Form A





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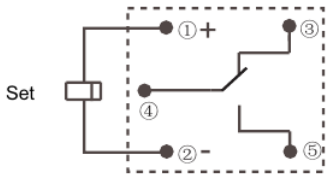
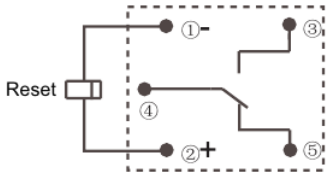
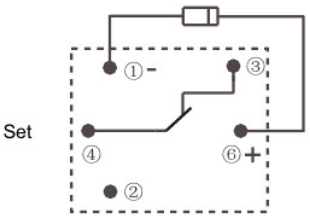


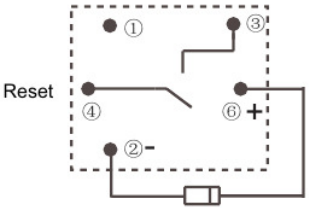


2 coils latching

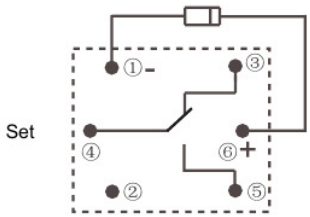
Standard Polarity

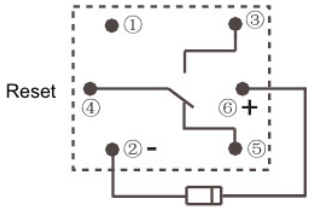
1 Form A





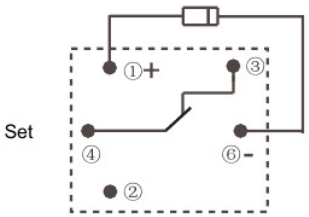
1 From C

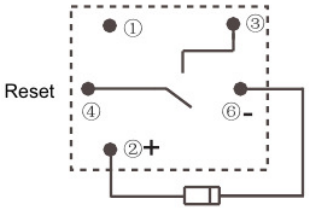




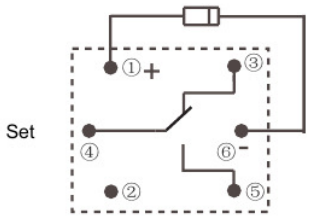
Reverse Polarity

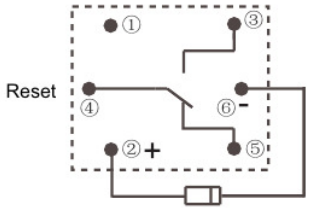
1 Form A





1 From C





Notice:

1. Relay is on the “reset” or “set” 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.