Subminiature Signal Relay	TY

Features

- 1 Form C (SPDT-NO) configuration
- Max. 2A switching capability
- High sensitive: 150mW
- Gold plated contact
- Subminiature, Plastic sealed type
- Coil power at 100mW and Higher dielectric strength (Between coil and contact) at 1100VAC are available
- 90℃ high temperature specification for selection.

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(File No.:E122258)

1. COIL DATA (at 23℃)

1) Standard Type

Nominal Voltage (VDC)	Pick-up Voltage (VDC)	Drop-out Voltage (VDC)	Max Allowable Voltage (VDC)	Coil Current (mA)(±10%)	Coil Resistance (Ω)	Coil Power (mW)
1.5	1.13	0.15	3.0	133	11.3 x (1±10%)	200
2.4	1.80	0.24	4.8	83.3	28.8 x (1±10%)	
3	2.25	0.30	6	66.7	45 x (1±10%)	
4.5	3.38	0.45	9	57.1	101.3 x (1±10%)	
5	3.75	0.50	10	40.0	125 x (1±10%)	
6	4.50	0.60	12	33.3	180 x (1±10%)	
9	6.75	0.90	18	22.2	405 x (1±10%)	
12	9	1.20	24	16.7	720 x (1±10%)	
24	18	2.40	48	8.33	2880 x (1±15%)	

2) Sensitive Type

Nominal Voltage (VDC)	Pick-up Voltage (VDC)	Drop-out Voltage (VDC)	Max Allowable Voltage (VDC)	Coil Current (mA)(±10%)	Coil Resistance (Ω)	Coil Power (mW)
1.5	1.13	0.15	3.0	100	15 x (1±10%)	150
2.4	1.80	0.24	4.8	62.5	38.4 x (1±10%)	
3	2.25	0.30	6	50.0	60 x (1±10%)	
4.5	3.38	0.45	9	33.3	135 x (1±10%)	
5	3.75	0.50	10	30.0	167 x (1±10%)	
6	4.50	0.60	12	25.0	240 x (1±10%)	
9	6.75	0.90	18	16.7	540 x (1±10%)	
12	9.00	1.20	24	12.5	960 x (1±10%)	
24	18	2.40	48	6.25	3840 x (1±15%)	

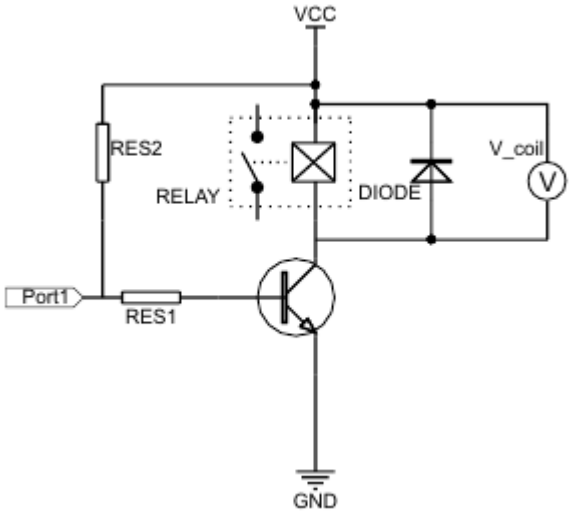
Note:

1) The data shown above are initial values.

2) To supply rated step voltage to coil is the foundation of relay proper operation.

Please make sure the applied voltage to the coil reach at rated values.

Please refer to the typical diagram below for single side stable relay. The “V_coil” is the rated voltage:



3) In case 5V of transistor drive circuit, it is recommended to use 4.5V type relay, and 3V to use 2.4V type relay.

4) For monostable relays, if you need to drop down voltage and hold mode after reliably operating, make sure that the effective value of holding voltage is not less than 60% of the rated voltage.

5) The maximum allowable voltage refers to the maximum voltage which relay coil could endure in a short period of time.

6) When user’s requirements can’t be found in the above table, special order allowed.

7) During the relay pick-up or drop-out processes, there are stages of contact pressure change, contact vibration and unstable contact etc.

When the voltage applied to coil is gradually changed. It will lengthen the unstable stage and affect relay endurance. To reduce this influence, please apply step voltage(switching circuit) to relay coil.

2. CONTACT DATA

Contact Arrangement		1 Form C
Contact Resistance		100mΩ max. (at 10mA 30mVDC)
Contact Material		AgNi + Au plated
Contact Ratings (Resistive Load)		0.5A 125VAC / 1A 30VDC
Max. Switching Voltage		125VAC / 60VDC
Max. Switching Current		2A
Max. Switching Power		62.5VA / 30W
Min. Applicable Load[1)]		1mA 5V
Life Expectancy[2)]	Electrical	90,000 operations (at 0.5A 125VAC)
	Mechanical	10,000,000 operations

Notes:

1) Minimum applicable load is reference value. Please perform the confirmation test with the actual load before production since reference value may change according to switching frequencies, environmental conditions, expected contact resistance and reliability.

2) Life expectancy data are collected in the NO or NC contact test.

3. CHARACTERISTICS

Insulation Resistance		1000MΩ (at 500VDC)
Dielectric Strength	Open Contacts	500VAC 1min
	Coil and Contacts	1000VAC 1min
Operate Time (at rated voltage)		5ms max.
Release Time (at rated voltage)		5ms max.
Temperature Rise (at rated voltage)		65K max.
Temperature Range		-40℃ ~ 70℃ -40℃ ~ 90℃ (high temperature)[3)]
Shock Resistance	Functional	196 m/s^2
	Destructive	980 m/s^2
Vibration Resistance		10 ~ 55Hz, 3.3mm DA
Humidity		5 ~ 98% RH
Termination		PCB (DIP)
Weight		Approx. 2.2g
Outline Dimension (L x W x H)		12.5 x 7.5 x 10.0mm

Notes:

1) The data shown above are initial values.

2) UL insulation system: Class A

3) 90℃ High temperature special for selection
Please contact to us.

4. SAFETY APPROVAL RATINGS

Safety Standard	Contact Form	Contact Rating
UL/cUL	1 Form C	1A 30VDC 70℃ 0.5A 48VDC 70℃ 0.5A 125VAC 70℃ 1A 30VDC 90℃ 0.5A 125VAC 90℃

Notes:

1) All values unspecified are at room temperature

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

5. ORDERING INFORMATION

TY - 12 S H ① ② ③ ④	
① Relay Model	TY
② Coil Voltage	1.5=1.5VDC, 2.4=2.4VDC 3=3VDC, 4.5=4.5VDC, 5=5VDC, 6=6VDC, 9=9VDC, 12=12VDC, 24=24VDC
③ Construction	S: Sealed Type
④ Coil Power	Nil: Standard Type (200mW) H: Sensitive Type (150mW)

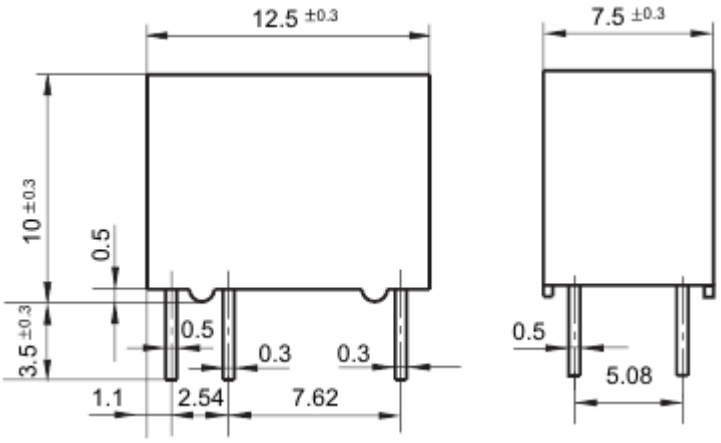
Notes:

1) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.

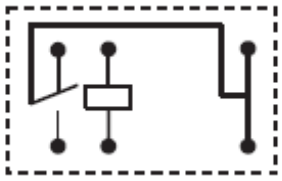
2) The high temperature type indicates the maximum temperature range 90℃. It is only suitable for sensitive specification.

6. DIMENSIONS (Unit: mm)

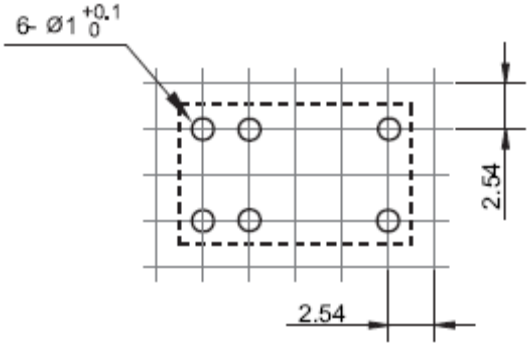
Outline Dimensions



Wiring Diagram
(Bottom View)



PCB Layout
(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 can be mapped and adjusted according to the actual product.

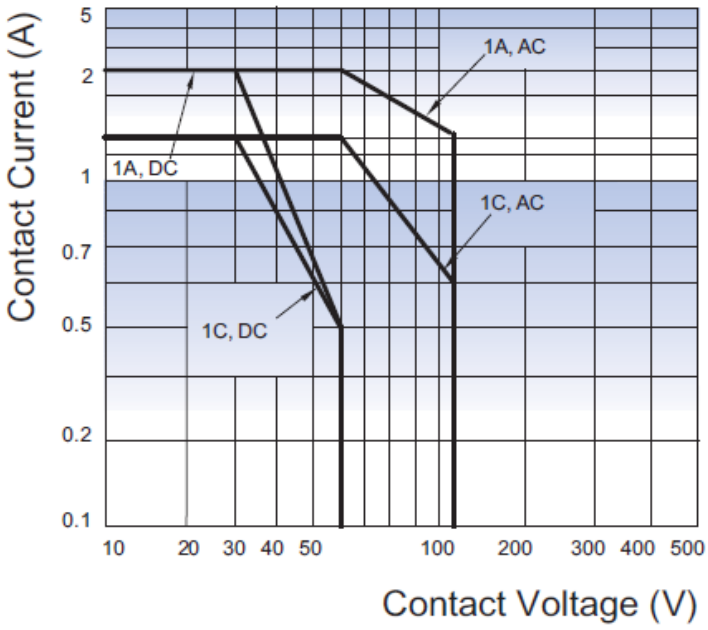
2) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.

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

4) The width of the gridding is 2.54mm.

7. CHARACTERISTIC CURVES

Maximum Switching Power



Endurance Curve