Automotive Relay	SP

Features

- 40A continuous rating at 85℃
- Inrush current 100A
- Open and sealed version available
- PCB terminals
- I Form A and 1 Form C contact arrangement

1. COIL DATA (at 20°C)

1) Coil Power "L" 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 (W)
3	1.95	0.3	3.9	533	6 x (1±10%)	1.6
5	3.25	0.5	6.5	320	16 x (1±10%)	
6	3.90	0.6	7.8	267	23 x (1±10%)	
9	5.85	0.9	11.7	178	50 x (1±10%)	
12	7.80	1.2	15.6	133	90 x (1±10%)	
24	15.6	2.4	31.2	67	360 x (1±10%)	

2) Coil Power "D" 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 (W)
3	1.95	0.3	3.9	633	5 x (1±10%)	1.9
5	3.25	0.5	6.5	380	13 x (1±10%)	
6	3.90	0.6	7.8	317	19 x (1±10%)	
9	5.85	0.9	11.7	211	43 x (1±10%)	
12	7.80	1.2	15.6	158	76 x (1±10%)	
24	15.6	2.4	31.2	79	300 x (1±10%)	

2. CONTACT DATA

Contact Arrangement		1 Form A, 1 Form C
Contact Resistance		100mΩ max. (at 1A 6VDC)
Contact Material		$AgSnO_2$
Load		Resistive load (COSΦ=1)
Contact Ratings		NO: 40A 14VDC NC: 30A 14VDC
Max. Switching Voltage		60VDC
Max. Switching Current		40A
Max. Switching Power		560W
Life Expectancy	Electrical	100,000 operations (at 30 operations/minute)
	Mechanical	10,000,000 operations (at 300 operations/minute)

3. CHARACTERISTICS

Insulation Resistance		100MΩ Min. (at 500VDC)
Dielectric Strength	Open Contacts	500VAC 1min
	Coil and Contacts	500VAC 1min
Operate Time		6ms
Release Time		4ms
Temperature Range		-40℃ ~ 85℃
Shock Resistance	Operating Extremes	20G
	Damage Limits	100G
Vibration Resistance		10 ~ 55Hz, 1.5mm
Max. switching frequency	Mechanical	18,000 operations/hr
	Electrical	1,800 operations/hr
Humidity		40 ~ 85%
Termination		PCB
Weight		Approx. 21g
Outline Dimension (L x W x H)		Sealed type: 26.2 x 21.0 x 21.0mm Open type: 23.5 x 19.2 x 18.5mm

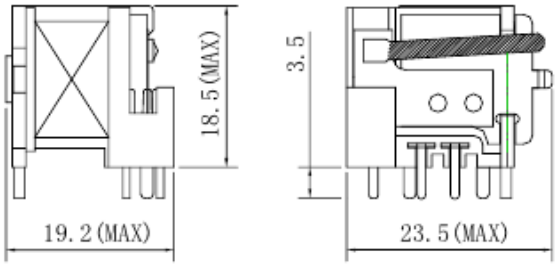
4. ORDERING INFORMATION

SP 1 - L U 12 S ① ② ③ ④ ⑤ ⑥	
① Relay Model	SP
② Contact Arrangement	11: 1 Form A (SPST-NO) 1: 1 Form C (SPDT)
③ Coil Power	L: 1.6W D: 1.9W
④ Type	E: Europe type U: USA type
⑤ Coil Voltage	3=3VDC, 5=5VDC, 6=6VDC, 9=9VDC, 12=12VDC, 24=24VDC
⑥ Construction	S: Sealed type Nil: Open type

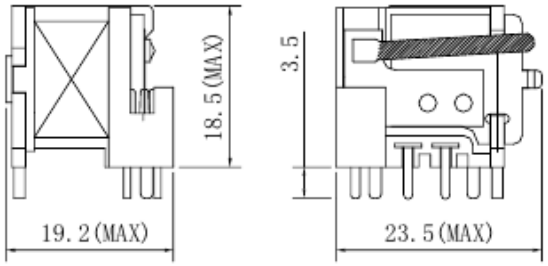
5. DIMENSIONS (Unit: mm)

Outline Dimensions

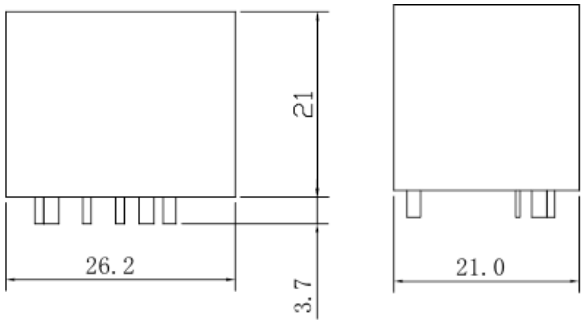
USA open type



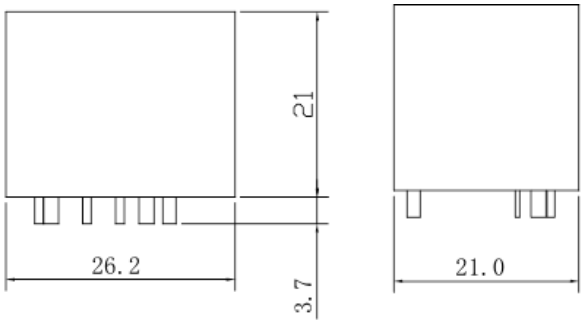
EUROPE open type



USA sealed type

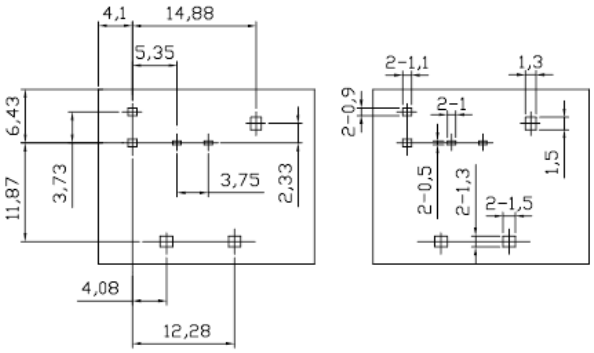


EUROPE sealed type



PCB Layout (Bottom view)

USA type



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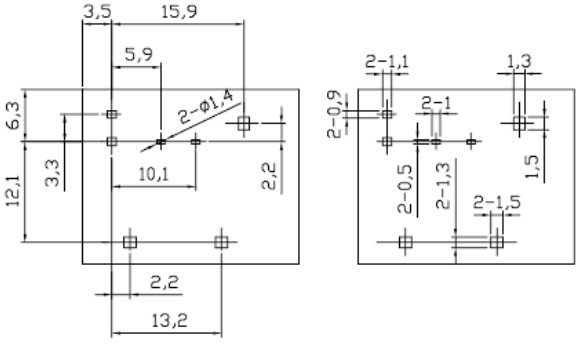
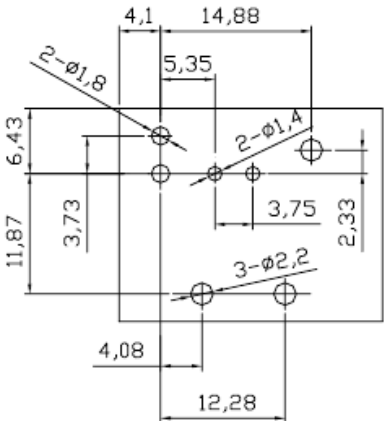
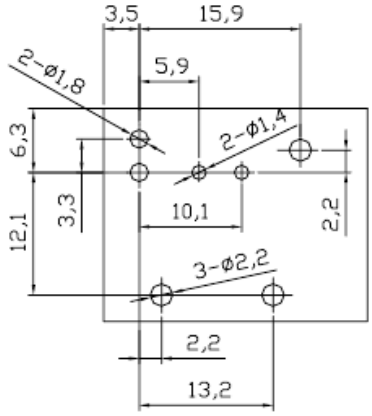


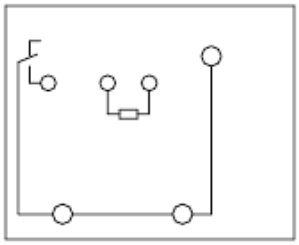
USA type



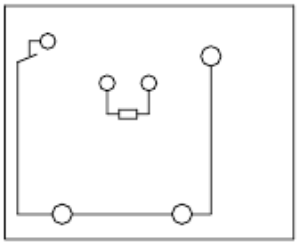
EUROPE type



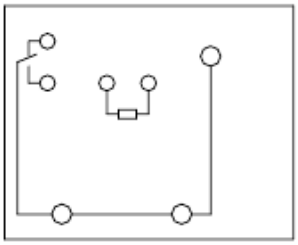
Wiring Diagram (Bottom View)



1 Form A



1 Form B



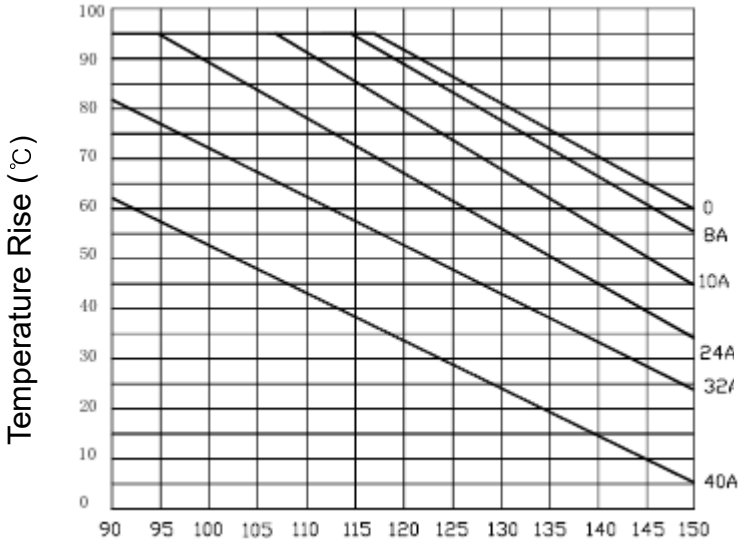
1 Form C

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

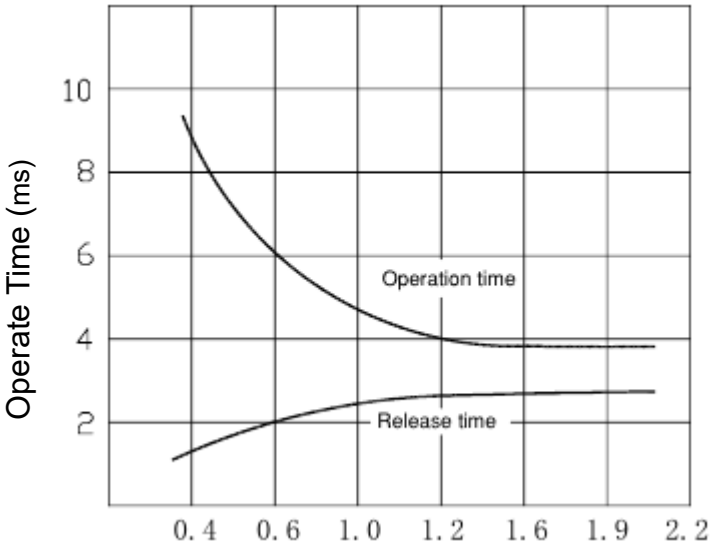
6. CHARACTERISTIC CURVES

Max. Allowable Ambient Temperature (℃)



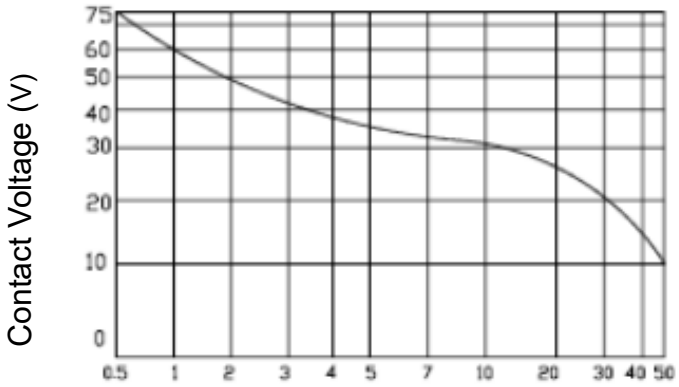
Percentage of coil voltage rating (20℃)

Operate time VS. Coil Power



Coil Power (W)

Max. Switching Power



Contact Current (A)