SPR-L SERIES

POWER RELAY

c UL us
File No.:E75887

File No.:R50311399

RoHS Compliant

FEATURES

- Small size for high density mounting
- Up to 5000VAC Dielectric strength
- For inrush peak currents up to 80A

CONTACT RATINGS

Contact Arrangement	1A, 1C	2A, 2C
Contact Resistance	≤100mΩ (at 1A 24VDC)	
Contact Material	AgSnO	
Contact Rating(Resistive)	20A/277VAC 16A/24VDC	12A/240VAC 8A/24VDC
Max. Switching Voltage	440VAC/300VDC	
Max. Switching Current	20A	12A
Max. Switching Power	5540VA	2880VA
Mechanical Life	1×10^7 operations	
Electrical Life	See more details at "safety approval ratings"	

CHARACTERISTICS

Insulation Resistance		1000MΩ（at 500VDC）
Dielectric Strength	Between coil & contacts	5000VAC 1min
	Between open contacts	1000VAC 1min
	Between contacts sets	2500VAC 1min
Reacting time (at nomi. volt.)		≤10ms
Resetting time (at nomi. volt.)		≤10ms
Humidity		35% ~ 85% RH
Operation temperature		-55°C~+85°C
UL Class B/F		Insulation System Class B/F
Shock Resistance	Functional	29.4m/s²
	Destructive	980m/s²
Vibration resistance		10Hz ~ 150Hz 10g/5g
Unit weight		Approx.13.5g
Construction		Sealed Type, Flux Tight Type

Notes: The data shown above are initial values.

ORDERING INFORMATION

SPR F 1C 16 DC12 K - E - 2 L - W - XXXX

- Model
- F=Class F / Blank=Class B
- Contact arrangement: 1A:1 Form A 2A:2 Form A 1C:1 From C 2C:2 Form C
- Contact Rating:16=1 Form 16A; 20=1 Form 20A;8=2 Form 8A
- Coil Voltage
- Pole Distance:K=5mm
- E:Flux Tight Type Blank:Sealed Type
- 2: 2 coils Blank:1 coil
- L:Latching LR:Reverse Polarity
- W:Pre-make Type
- Customer Code

Notes:
1. PC board assembled with dust cover type and flux tight type relays can not be washed and/or coated.
2. Dust cover type and flux tight type relays can not be used in the environment with dust, or H_2S, SO_2, NO_2 or similar gaseous environment etc.

COIL DATA at 25°C

Nominal Voltage VDC	Action/Reset Voltage VDC	*Impulse Width ms	Coil Resistance Ω±10%	
			1 Coil	2 Coils
5	3.75	≥30	62	42
6	4.50	≥30	90	55
12	9.00	≥30	360	240
24	18.00	≥30	1440	886
48	36.00	≥30	5760	—
60	45.00	≥30	7500	—
110	82.50	≥30	25200	—

* For the Set time/Reset time it is recommended to use a minimum 30 ms pulse duration for the nominal coil voltage to compensate for varying ambient temperature and relay aging.

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COIL

Coil Power	1 Coil: 400mW(60V、110V:480mW) 2 Coils: 5V:595mW 6V:655mW 12V:600mW 24:650mW

SAFETY APPROVAL RATINGS

UL&CUL	1 Form	N.O./N.C.:20A 277VAC(85°C), 6×10^3OPS N.O./N.C.:15 FLA 120VAC, Horse Power, 6×10^3OPS N.O./N.C.:15A/120VAC, Tunsgten, 6×10^3OPS N.O./N.C.:15A/120VAC, Ballast, 6×10^3OPS N.O.:10A 277VAC, Ballast, 6×10^3OPS
	-W	N.O.:10A 250VAC, 6×10^3OPS N.O.:20A 120VAC, 6×10^3OPS N.O.:8A 120VAC, Tunsgten, 6×10^3OPS N.O.:7.2 FLA, 43LRA, 120VAC, Motor, 6×10^3OPS N.O.:4.9 FLA, 29LRA, 240VAC, Motor, 6×10^3OPS N.O.:8A 120VAC, Ballast, 6×10^3OPS N.O.:5A 240VAC, Ballast, 6×10^3OPS N.O.:8A 120VAC, Electronic Ballast, 6×10^3OPS
	2 Form	N.O./N.C.:12A 240VAC, 6×10^3OPS
TüV	1 Form	N.O.:20A 277VAC, 6×10^3OPS N.O.:16A 277VAC, 5×10^4OPS N.O.:16A 24VDC, 5×10^4OPS N.C.:12A 277VAC, 2×10^4OPS N.O./N.C.:16A/8A 277VAC, 1×10^4OPS N.O./N.C.:16A/8A 24VDC, 1×10^4OPS
	2 Form	N.O./N.C.:8A/6A 240VAC, 2×10^4OPS N.O./N.C.:8A/6A 24VDC, 2×10^4OPS

NOTES:

1. All values without specified temperature are at 25°C.
2. The above lists the typical loads only. Other loads may be available upon request.

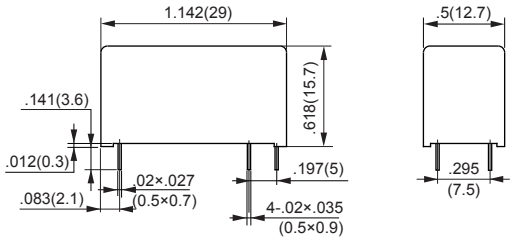
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

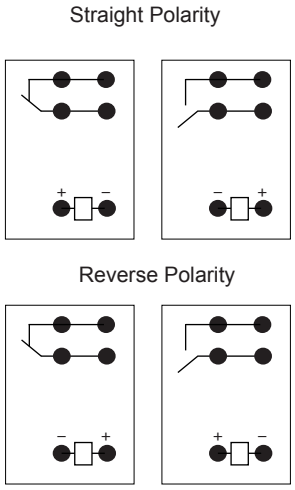
Unit: inch (mm)

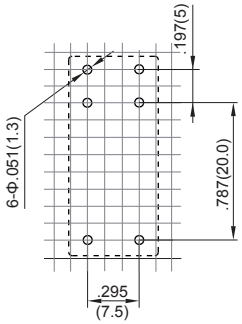
Outline Dimensions	Wiring Diagram (Bottom view)	PCB Layout (Bottom view)

1 coil K Type

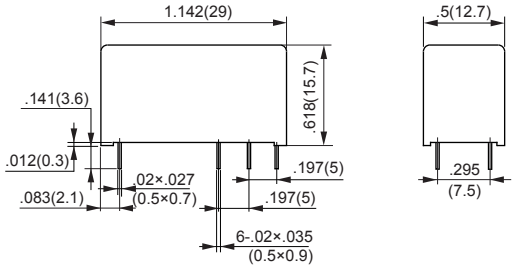
1A

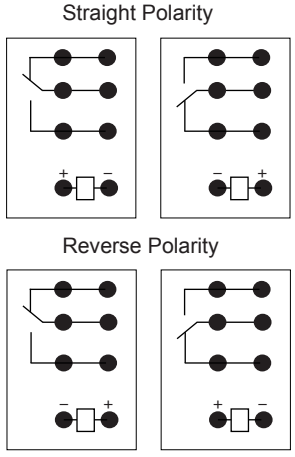


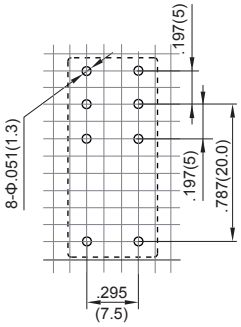




1C







Unless otherwise specified tolerances are:		
≤1mm	＞1mm and ≤5mm	＞5mm
±0.2mm	±0.3mm	±0.4mm

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

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OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

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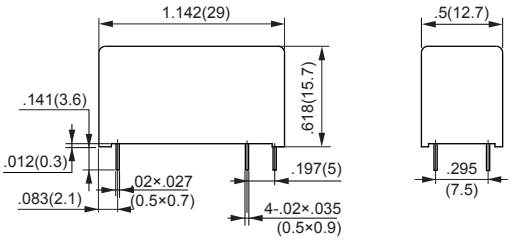
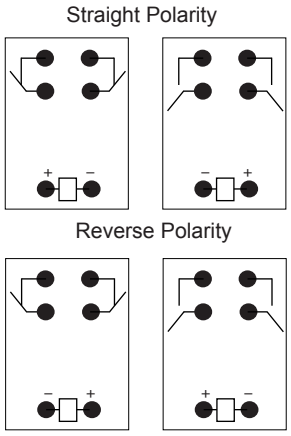
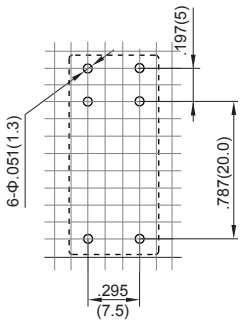
Outline Dimensions	Wiring Diagram (Bottom view)	PCB Layout (Bottom view)

1 coil K Type

2A







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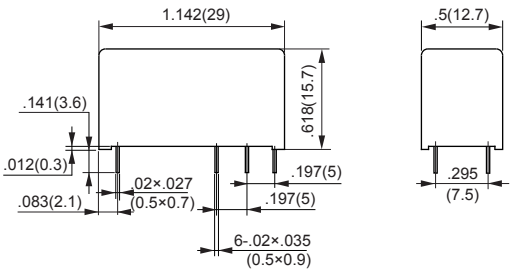

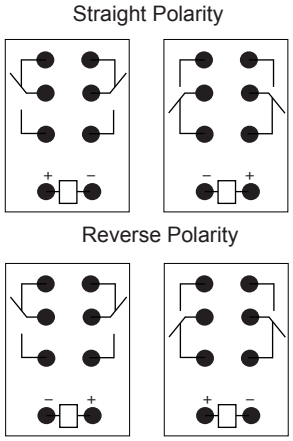

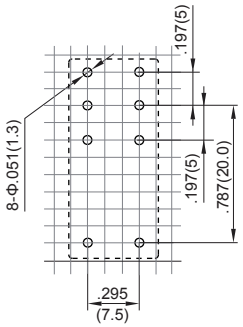

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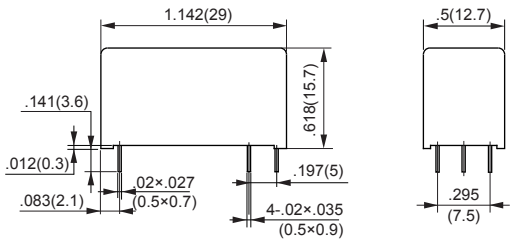
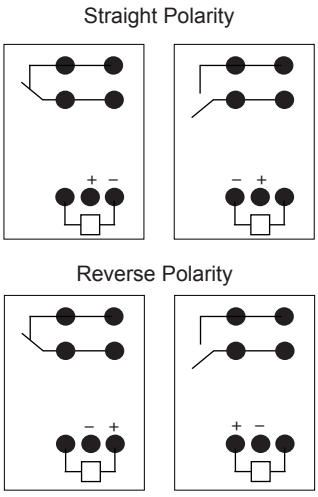
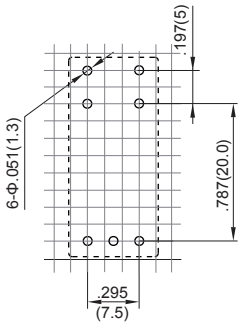
2 coils K Type

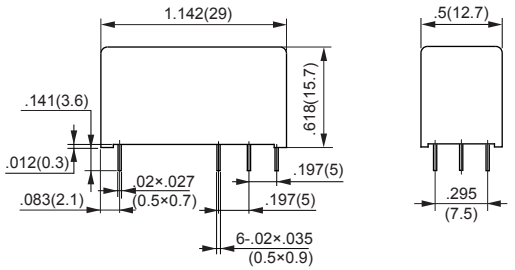
1A

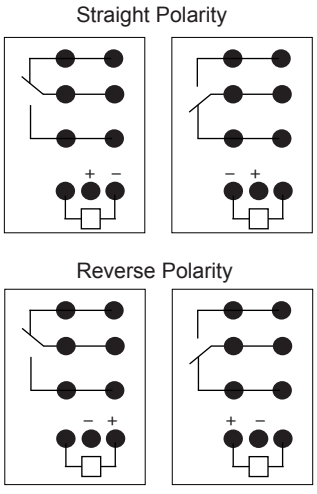


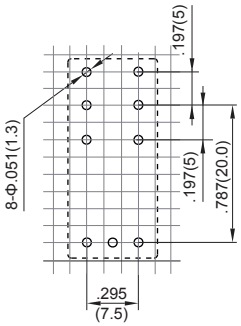




1C







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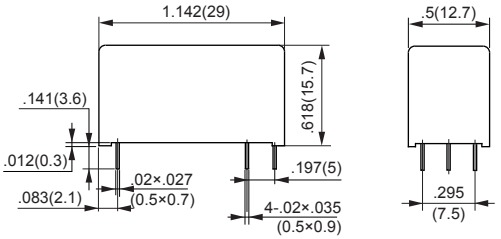
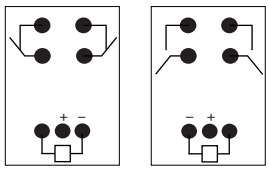
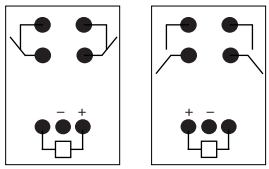
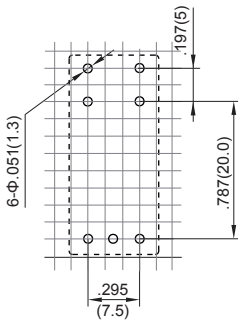


Straight Polarity



Reverse Polarity





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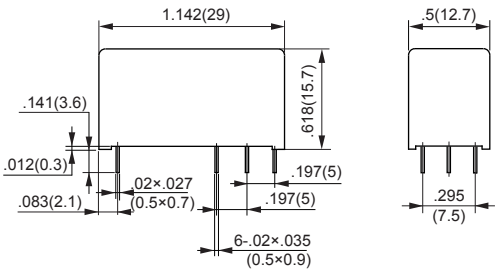

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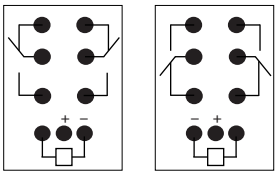

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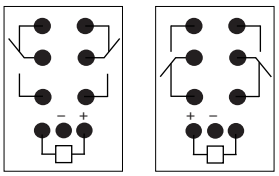

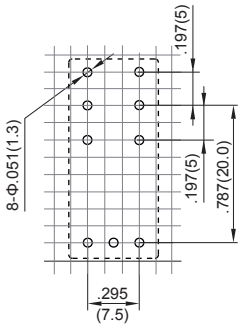

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Notice

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 as required.
2. Do not energize voltage to “set” coil and “reset” coil simultaneously. And also long energized time (more than 1 min) should be avoided.

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POWER RELAY

PACKAGING SPECIFICATION

TUBE	INNER CARTON	OUTER CARTON	OUTER CARTON SIZE
40PCS	1000PCS	2000PCS	L580mm*W400mm*H175mm

APPLICATION GUIDELINES

Automatic Soldering

* Flow solder is the optimum method for soldering.
* Adjust the level of solder so that it does not overflow onto the top of the PC board.
* Unless otherwise specified, solder under the following conditions depending on the type of relay.

Preheat time 20°C-100°C	Rising slope 20°C-120°C	Decreasing slope Peak-150°C	Welding temperature 255°C-265°C
90±5 seconds	＜3°C/s	＜4°C/s	3~5s

Hand Soldering

* Keep the tip of the soldering iron clean.

Solder Iron	30W or 60W
Iron Tip Temperature	Approx. 350°C 662°F
Solder Time	Within approx. 3 seconds

* Immediate air cooling is recommended to prevent deterioration of the relay and surrounding parts due to soldering heat.
* Although the sealed type relay can be cleaned, avoid immersing the relay into cold liquid (such as washing solvent) immediately after soldering. Doing so may deteriorate the sealing performance.

Discard the dropped product