

# S20 RELAY

## SHORI

### ◆ Features

- High rating miniature PCB relay.
- Low power consumption 400mW coil.
- Low height 15.7mm.
- 20A 277VAC/SPDT, 10A 277VAC/DPDT rating are approved.



### ◆ Coil Data [at 20°C]

#### ➤ Standard Type

Rated voltage ( V )	Coil Resistance ±10% (Ω)	Rated Current ±10% (mA)	Pick up Voltage (Max)	Drop out Voltage (Min)	Max continuous Voltage	Power consumption At rated Voltage
3	16.6	180	70% of rated voltage	10% of rated voltage	160% Max of Rated voltage	Approx.0.54W
5	46	108				
6	67	90				
9	150	60				
12	270	45				
18	600	30				
24	1060	22				
36	2400	15				
48	4360	11				

#### ➤ High sensitivity type (B)

Rated voltage ( V )	Coil Resistance ±10% (Ω)	Rated Current ±10% (mA)	Pick up Voltage (Max)	Drop out Voltage (Min)	Max continuous Voltage	Power consumption At rated Voltage
3	22.5	133	70% of rated voltage	10% of rated voltage	160% Max of Rated voltage	Approx.0.4W
5	62	80				
6	90	67				
9	203	44				
12	360	33				
18	771	23				
24	1440	17				
36	3240	11.1				
48	5520	9				

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➤ Ultra-sensitivity type (B1)

Rated voltage (V)	Coil Resistance ±10% (Ω)	Rated Current ±10% (mA)	Pick up Voltage (Max)	Drop out Voltage (Min)	Max continuous Voltage	Power consumption At rated Voltage
3	36	83	70% of rated voltage	10% of rated voltage	160% Max of Rated voltage	Approx.0.25W
5	100	50				
6	144	42				
9	324	28				
12	576	21				
18	1296	14				
24	2304	10				
36	5184	7				

➤ Coil Rating (AC)

Rated voltage (V)	Coil Resistance ±10% (Ω)	Rated Current ±10% (mA)	Pick up Voltage (Max)	Drop out Voltage (Min)	Max continuous Voltage	Power consumption At rated Voltage
6	18.8	124	80% of rated voltage	15% of rated voltage	150% Max of Rated voltage	Approx.0.75VA
12	79.8	62.5				
24	334	31.2				
42	966	17.9				
48	1340	15.5				
100/110	6840	7.53				
110/120	7360	6.7				
200/220	23800	3.75				
220/240	27400	3.4				

◆ Safety Approval

Certified	UL/CUL	VDE
File No.	E188091	

◆ Safety Approval Rating

UL/CUL	
S20E	NO/NC:20A/277VAC 16A/277VAC 16A/250VAC 12A/30VDC NO:1HP/480VAC TV-8/125VAC NC:1/2HP 120V/240V/480VAC
S20H	NO/NC:17A/277VAC 12A/277VAC 10A/250VAC 10A/30VDC NO:1HP/480VAC TV-5/125VAC NC:1/2HP 120V/240V/480VAC
S20M	NO/NC:12A/277VAC 10A/277VAC 8A/250VAC 10A/30VDC 8A/30VDC NO:1/2HP 120/240VAC TV-5/125VAC NC:1/3HP 120/240VAC

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### ◆ Type List

Terminal style	Contact form	Designation(provided with)	
		Sealed type	Sealed type washable
PCB terminal	1A(SPNO)	S20E-12-1A	S20E-12-1AS
	1B(SPNC)	S20E-12-1B	S20E-12-1BS
	1C(SPDT)	S20E-12-1C	S20E-12-1CS
	1A(SPNO)	S20H-12-1A	S20H-12-1AS
	1B(SPNC)	S20H-12-1B	S20H-12-1BS
	1C(SPDT)	S20H-12-1C	S20H-12-1CS
	2A(DPNO)	S20M-12-2A	S20M-12-2AS
	2B(DPNC)	S20M-12-2B	S20M-12-2BS
	2C(DPDT)	S20M-12-2C	S20M-12-2CS

### ◆ Ordering information

S20 E - 12 - 1A S - F  
 1 2 3 4 5 6

1.S20 -- Basic series designation

3.12 -- Coil Voltage (3V~48VDC)

12B -- High sensitivity Type(0.40W)

12B1 -- Ultra-sensitivity Type(0.25W)

(Only for 1P type)

12VAC – Coil Voltage (6V~240VAC)

5. Blank -- Sealed type

S -- Sealed type washable

6. Blank – Standard type

F – Class F

2. E:20A H:12A M:10A

4. 1A -- Single pole normally open

1B -- Single pole normally closed

1C -- Single pole double throw

2A -- Double pole normally open

2B -- Double pole normally closed

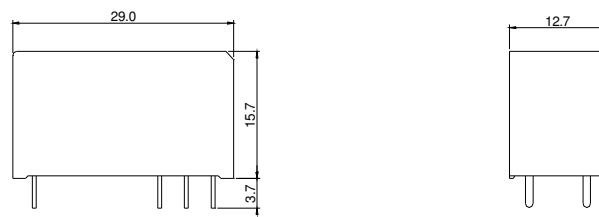
2C -- Double pole double throw

### ◆ Specification

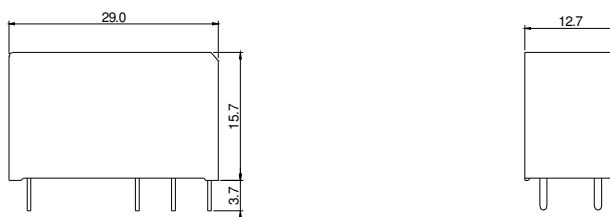
Contact material	Silver Alloy	
Contact resistance	100 mΩ Max	
Operate time	20 ms Max	
Release time	10 ms Max	
Insulation resistance	1000MΩ Min. (DC 500V)	
Dielectric strength	Between open contact : AC 1000V ,50/60Hz 1 min.	
	Between contact and coil : AC 5000V, 50/60Hz 1 min.	
	Between contact circuits : AC 3000V, 50/60Hz 1 min.(for 2P DC type) AC 2500V, 50/60Hz 1 min.(for 2P AC type)	
Vibration resistance	Operating extremes	10~50Hz, amplitude 1.5 mm
	Damage limits	10~50Hz, amplitude 1.5 mm
Shock resistance	Operating extremes	10G
	Damage limits	100G
Life expectancy	Mechanical	30,000,000 operations (frequency 72,000 operations/hr) 5,000,000 operations (for 2P AC type) (frequency 18,000 operations/hr)
	Electrical	100,000 operations (360 cycles/hr) (frequency 360 operations/hr)
Operating ambient temperature	DC coil: -40~+85°C (no freezing)	
	AC coil: -40~+70°C (no freezing)	
Weight	Approx .10 g	

### ◆ Outline Dimension

#### ➤ S20(1P)



#### ➤ S20(2P)



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### ◆ Wiring Diagram

#### ➤ S20E (1P) BOTTOM VIEW



#### ➤ S20H(1P) BOTTOM VIEW

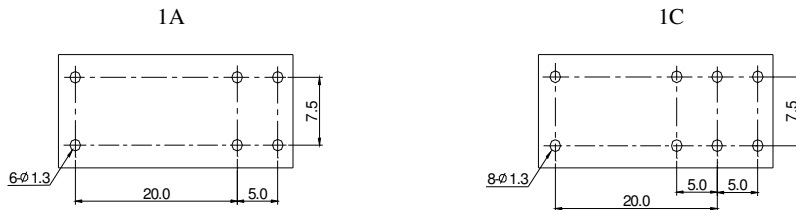


#### ➤ S20M(2P) BOTTOM VIEW

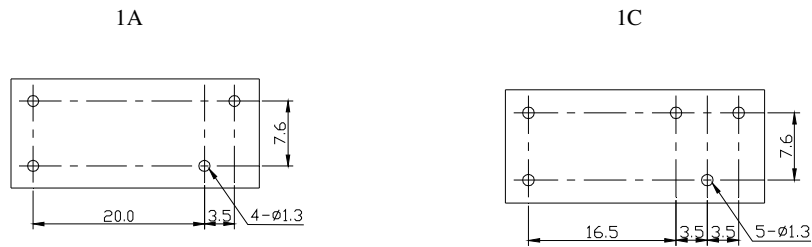


### ◆ PC BOARD LAYOUT

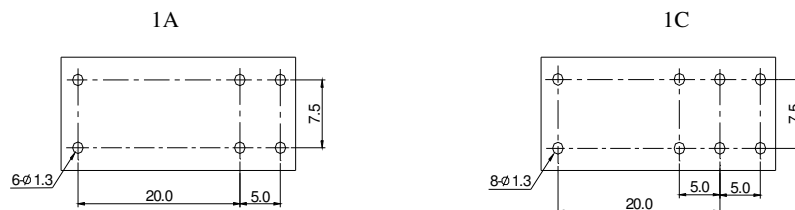
#### ➤ S20E(1P) BOTTOM VIEW



#### ➤ S20H(1P) BOTTOM VIEW

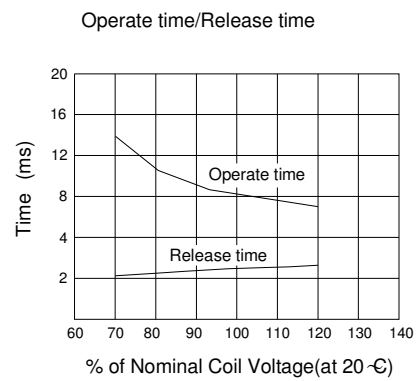
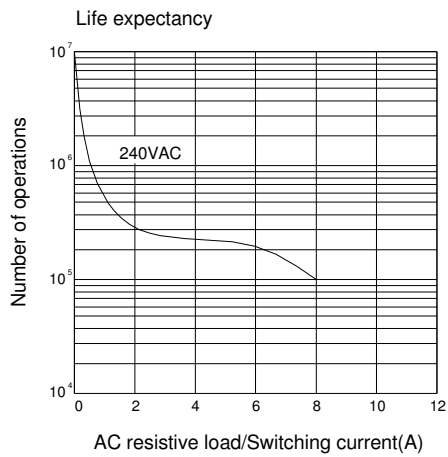
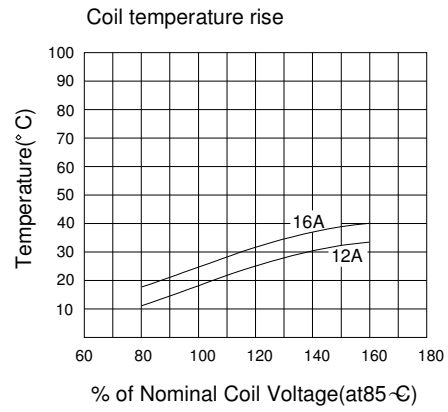
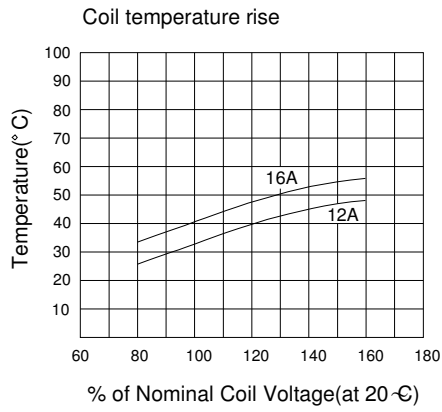


#### ➤ S20M(2P) BOTTOM VIEW



### ◆ Engineering Data

#### ➤ 1P

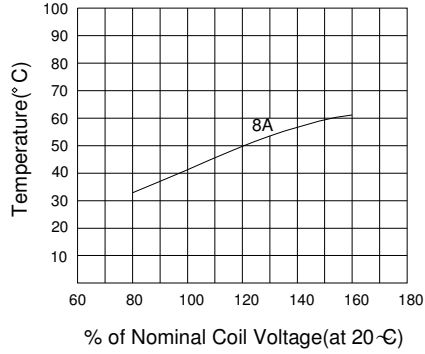


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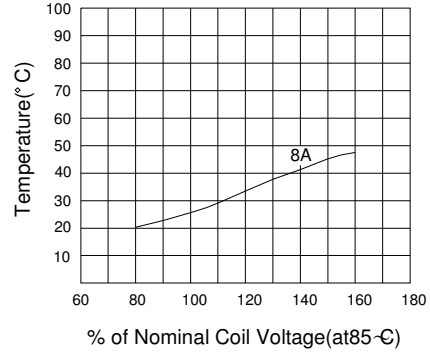
## SHORI

➤ 2P

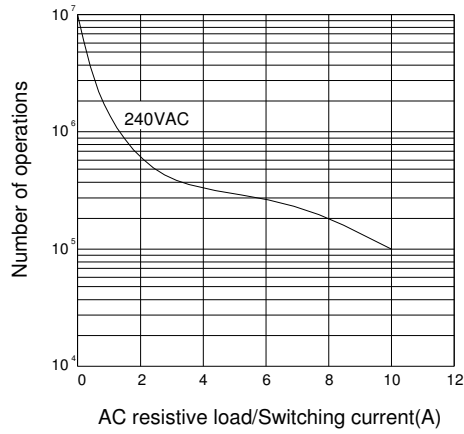
Coil temperature rise



Coil temperature rise



Life expectancy



Operate time/Release time

