

## ● Features

- 40A switching capability
- Compact structure
- PCB coil terminals, ideal for heavy duty load
- 1 Form A, 1 Form B and 1 Form C configurations
- Maximum 4kV dielectric strength (between coil and contacts)
- Sealed and flux tight type available
- Environmental friendly product (RoHS compliant)
- Dimensions: 32 x 27.2 x 20 mm



## ● Application

- Air Conditioner / Air Compressor / Home appliances / Heating controller / Automotive application / Refrigerator / Fan, etc.

## ● Contact Data

Contact Arrangement	1A, 1B, 1C	
Contact Material	Ag Alloy	
	40A Type:	40A 240VAC/277VAC/30VDC 2HP/1.5HP 240VAC TV-5 TV-15
	30A Type:	30A/20A 240VAC/277VAC/30VDC 1/2HP/1HP 240VAC TV-5
Max. Switching Power	13850VA / 1500W	
Max. Switching Voltage	277VAC / 30VDC	
Max. Switching Current	40A	
Contact Resistance	$\leq 50\text{m}\Omega$ (1A, 24VDC)	
Electrical Endurance	40A: $5 \times 10^4$ 30A: $1 \times 10^5$	
Mechanical Endurance	$1 \times 10^7$	

## ● Coil Parameter

Coil Voltage (VDC)		Coil Resistance ( $\Omega \pm 10\%$ )	Pickup Voltage(max) (VDC)	Release Voltage(min) (VDC)	Coil Power Consumption (W)
Rated	Max.				
5	6.5	28	3.75	0.5	0.90
6	7.8	40	4.50	0.6	
9	11.7	90	6.75	0.9	
12	15.6	160	9.00	1.2	
15	19.5	250	11.25	1.5	
18	23.4	360	13.50	1.8	
24	31.2	640	18.00	2.4	
48	62.4	2560(1 $\pm$ 15%)	36.00	4.8	
110	143	13445(1 $\pm$ 15%)	82.50	11.0	

## ● Operation Condition

Insulation Resistance		1000M $\Omega$ min (at 500VDC)
Dielectric Strength	Between Contacts	1500VAC, 50/60Hz 1min; Max. 4000VAC, 50/60Hz (Customized)
	Between Coil and Contact	2500VAC, 50/60Hz 1min; Max. 4000VAC, 50/60Hz without Pin#6 (Customized)
Shock Resistance	Functional	98m/s <sup>2</sup>
	Endurance	980m/s <sup>2</sup>
Vibration Resistance		10~55Hz double amplitude 1.5mm
Ambient Temperature		-55 ~ +85 $^{\circ}$ C
Operate Time		$\leq$ 15ms
Release Time		$\leq$ 10ms
Relative Humidity		5%~85%
Weight		Approx. 27g

## ● Ordering Information

	HA1	S	-12D	-A	30	-S	(XXX)
<b>Model</b>							
<b>Termination</b>	<b>Nil:</b> With Pin No.6 <b>S:</b> Without Pin No.6						
<b>Coil Voltage</b>	5, 6, 9, 12, 15, 18, 24, 48, 110VDC						
<b>Contact Arrangement</b>	<b>A:</b> 1 Form A <b>B:</b> 1 Form B <b>C:</b> 1 Form C						
<b>Contact Current</b>	<b>Nil:</b> 40A <b>30:</b> 30A						
<b>Construction</b>	<b>Nil:</b> Flux tight <b>S:</b> Sealed						
<b>Special Code</b>	<b>Nil:</b> Standard <b>XXX:</b> Customer special requirement						

Notes: 1) We recommend flux tight types for a clean environment (free from contaminations like H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, dust, etc.). We suggest to choose plastic sealed types and validate it in real application for an unclean environment (with contaminations like H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, dust, etc.).

2) Please inform us if water cleaning or surface treatment will involve after the relays installed on PCB.

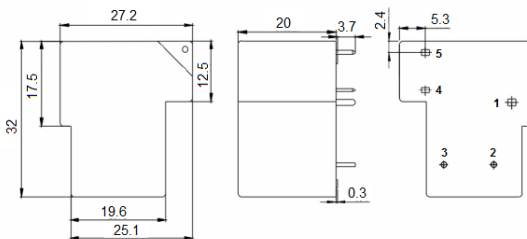
3) Please inform us if dielectric strength between coil and contact exceed 2500VAC.

4) Avoid using relays under strong magnetic or shock conditions, or technical ratings will change.

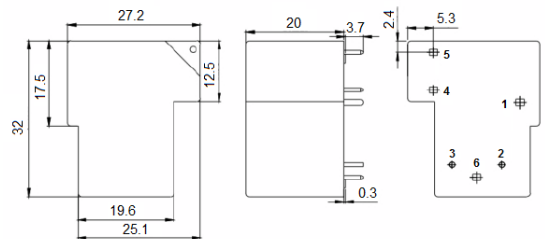
## ● Dimensions (UNIT: mm)

### Outline Dimensions

#### HA1S type (Without Pin No.6)



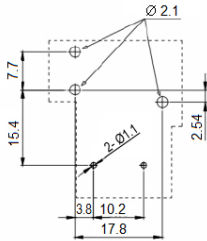
#### HA1 type (With Pin No.6)



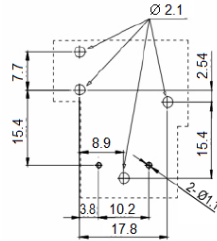
## ● Dimensions (UNIT: mm)

Mounting (Bottom views)

HA1S type  
(Without Pin No.6)



HA1 type  
(With Pin No.6)



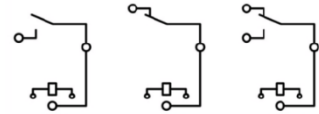
Wiring Diagram (Bottom views)

HA1S type (Without Pin No.6)



1 Form A 1 Form B 1 Form C

HA1 type (With Pin No.6)



1 Form A 1 Form B 1 Form C

Notes: 1) In case of no tolerance shown in outline dimension: outline dimension  $\leq 1\text{mm}$ , tolerance should be  $\pm 0.2\text{mm}$ ; outline dimension  $>1\text{mm}$  and  $\leq 5\text{mm}$ , tolerance should be  $\pm 0.3\text{mm}$ ; outline dimension  $>5\text{mm}$ , tolerance should be  $\pm 0.4\text{mm}$ .

2) The tolerance without indicating for PCB layout is always  $\pm 0.1\text{mm}$ .

## ● Engineering Data

