

UL (60950-1) reinforced insulation compliant  

**Load current 15 to 40A  
Small Screw Terminal SSR**

## AQ-A RELAYS (AC only)



RoHS compliant

### FEATURES

- 1. Compact Size**  
W 40 × L 58 × H 25.5 mm  
W 1.575 × L 2.283 × H 1.004 inch
- 2. With terminal cover for safety (output side only).**  
\* Cover on input side available as option.
- 3. Mounting pitch 47.5 mm 1.870 inch**
- 4. Built in varistor for excellent surge absorption**
- 5. With LED indication for operation status verification**

### TYPICAL APPLICATIONS

- Heater control
- **Business use:**  
Cooking machine, Vending machine, Freezer and Refrigerator
  - **Industrial use:**  
Molding machine, Temperature controlled bath, Printing machine and Packing machine

## ORDERING INFORMATION

AQA

Output current

- 2: 15A
- 4: 25A
- 6: 40A

Load voltage, Type

- 1: 75 V to 250 V AC, Screw terminal, Zero-cross
- 2: 75 V to 250 V AC, Screw terminal, Random\*

Input voltage

- 1: 4 to 32 V DC

Functions

- VL: Built-in varistor and LED indication

\* Random type is available by custom order.

## TYPES

### 1. AQ-A Solid State Relays

Type	Load current	Load voltage	Input voltage	Part No.
Zero-cross	15A	75V to 250V AC	4 to 32V DC	AQA211VL
	25A			AQA411VL
	40A			AQA611VL

Standard Packing; carton: 2 pcs., case: 60 pcs.  
Note: Random type also available. Please inquire.

### 2. Accessories

Type	Part No.	Packaged quantity
Standard heat sink (15A)	AQP-HS-J10A	5 in a carton, 20 in a case
Standard heat sink (25A)	AQP-HS-30/40A	5 in a carton, 20 in a case
Standard heat sink (40A)	AQP-HS-J25A	No carton, 5 in a case
Slim heat sink (45mm wide) (Mountable on a DIN rail)	AQP-HS-SJ20A	No carton, 8 in a case
DIN rail mounting plate	AQP-DPJ	No carton, 50 in a case
Terminal cover	AQA801	—
Mounting rail	AT8-DLA1	1 in a carton, 100 in a case
Fastening plate	AT8-DLE	1 in a carton, 200 in a case

# RATING

## 1. Ratings (Measurement condition: at 20°C 68°F, Input ripple: 1% or less)

Item	Part No.	AQA211VL	AQA411VL	AQA611VL	Remarks
Input side	Input voltage		4 to 32V DC		
	Input current		Max. 20mA		
	Drop-out voltage		Min. 1V		
Output side	Max. load current	15A	25A	40A	
	Load voltage		75 to 250V AC		
	Frequency		45 to 65Hz		
	Non-repetitive surge current	150A	250A	400A	In one cycle at 60Hz
	"OFF-state" leakage current		Max. 10mA		at 60Hz
	"ON-state" voltage drop		Max. 1.6V		at Max. carrying current
	Min. load current*		100mA		

Note: \* When the load current is less than the rated minimum load current, please refer to "Cautions for Use".

## 2. Characteristics (Measurement condition: at 20°C 68°F, Input ripple: 1% or less)

Item	AQA211VL	AQA411VL	AQA611VL	Remarks
Operate time	Max. 1/2 cycle of voltage sine wave + 1ms			
Release time	Max. 1/2 cycle of voltage sine wave + 1ms			
Insulation resistance	Min. 100MΩ between input and output			at 500 V DC
Breakdown voltage	4,000 Vrms between input and output 2,500 Vrms between input, output and case			for 1min.
Vibration resistance (Functional)	10 to 55Hz double amplitude of 1.5mm			X, Y, Z axes
Shock resistance (Functional)	Min. 980 m/s <sup>2</sup>			X, Y, Z axes
Ambient temperature	-20°C to +80°C -4°F to +176°F			Non-condensing at low temperatures
Storage temperature	-20°C to +85°C -4°F to +185°F			Non-condensing at low temperatures
Operational method	Zero-cross (Turn ON and Turn OFF)			

# REFERENCE DATA

## 1. Load current vs. ambient temperature

Use load current within range specified in the figure below.

Tested condition

### With external heat sink

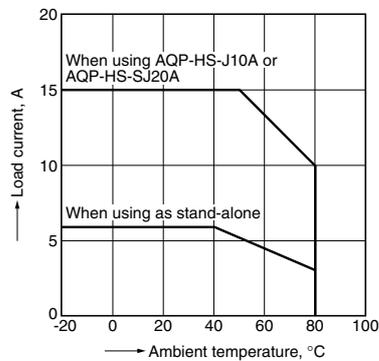
When using standard heat sink (AQP-HS-J25A, AQP-HS-30/40A, AQP-HS-J10A, AQP-HS-SJ20A)

1) If attached to a heat sink, use a heat conductive compound (Ex. Momentive Performance Materials Inc. YG6111 or TSK5303) of similar coating to improve cooling.

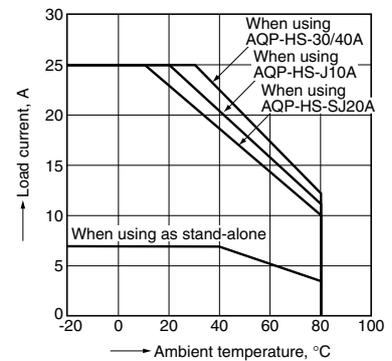
### Without external heat sink

If the mounting surface is not metallic and a heat sink is not used, expose the bottom surface and plate surface to improve heat dissipation.

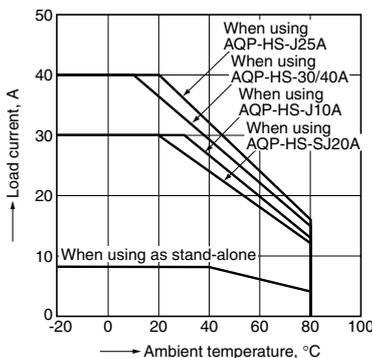
(1) 15A type (AQA211VL)



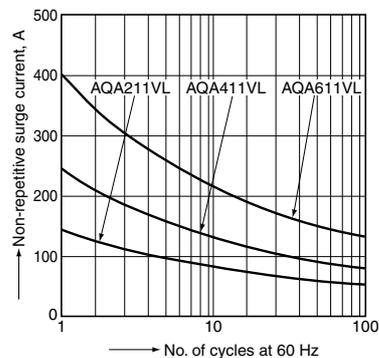
(2) 25A type (AQA411VL)



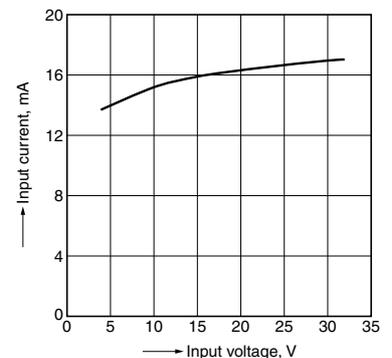
(3) 40A type (AQA611VL)



2. Non-repetitive surge current vs. carrying time characteristics



3. Input current vs. input voltage characteristics



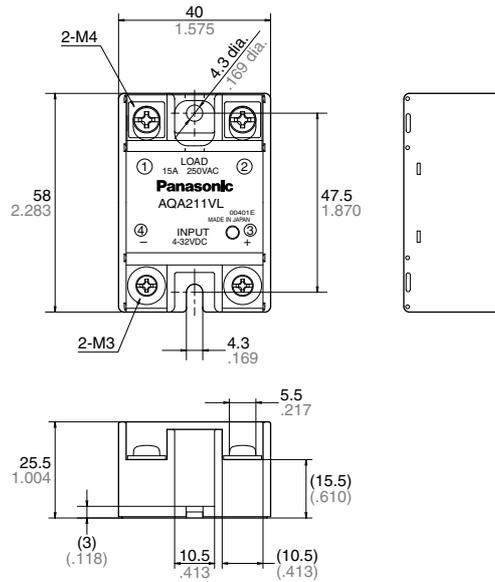
**DIMENSIONS** (mm inch)

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>

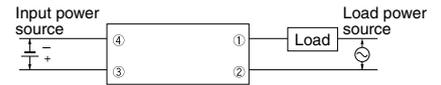
**CAD Data**



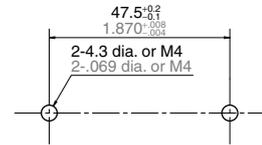
**External dimensions**



**Schematic**



**Mounting dimensions**



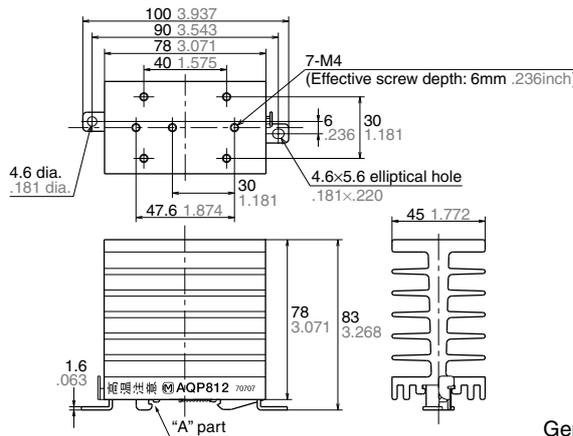
**ACCESSORIES** (mm inch)

**AQP-HS-SJ20A Slim Heat Sink**

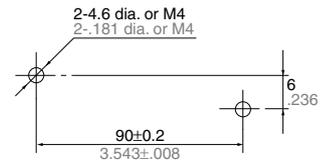
**CAD Data**



**External dimensions**



**Mounting dimensions**



Note: When using on a DIN rail, please install so that the "A" part is on top.

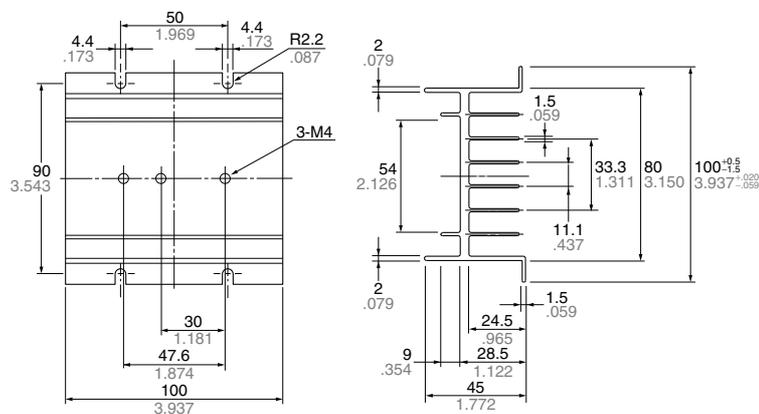
General tolerance: ±1.0 ±.039

**AQP-HS-J10A Standard Heat Sink**

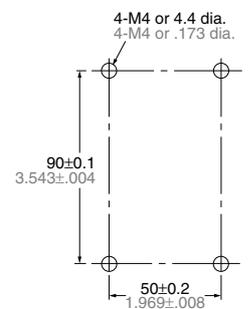
**CAD Data**



**External dimensions**



**Mounting dimensions**



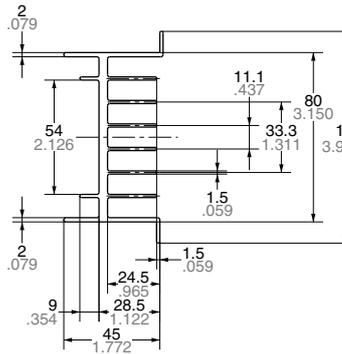
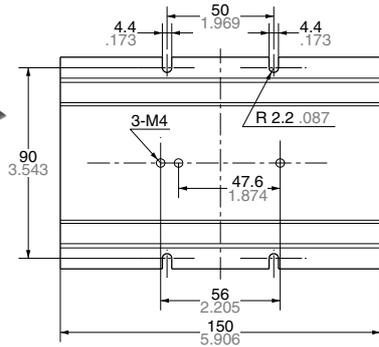
# AQ-A (AQA2, 4, 6)

## AQP-HS-30/40A Standard Heat Sink

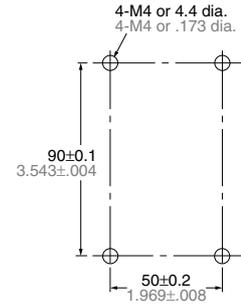
**CAD Data**



External dimensions



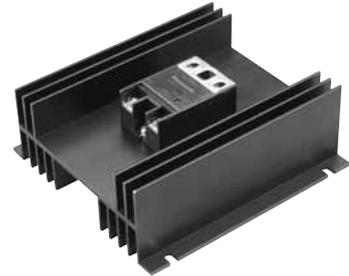
Mounting dimensions



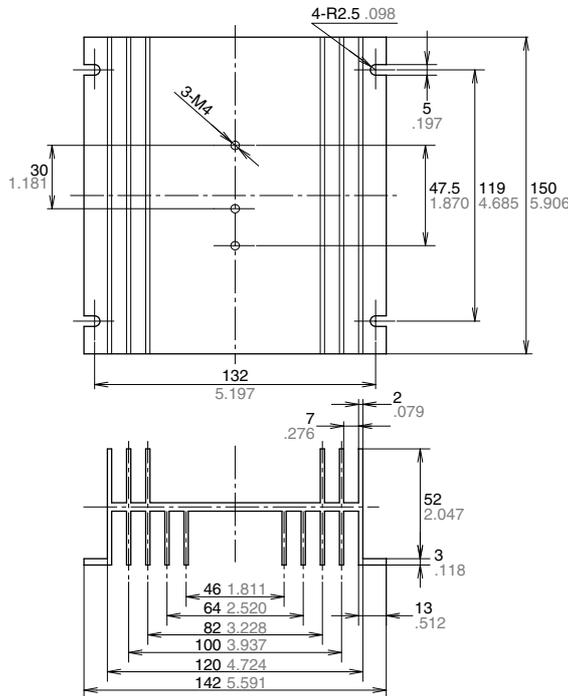
General tolerance:  $\pm 0.5 \pm 0.020$

## AQP-HS-J25A Standard Heat Sink

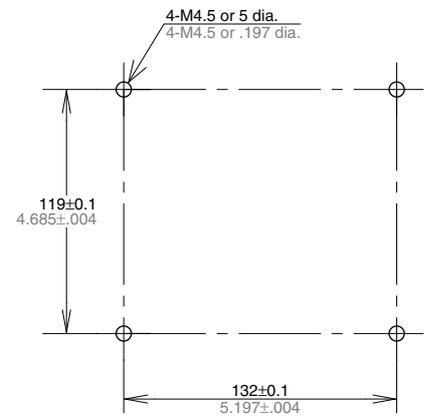
**CAD Data**



External dimensions

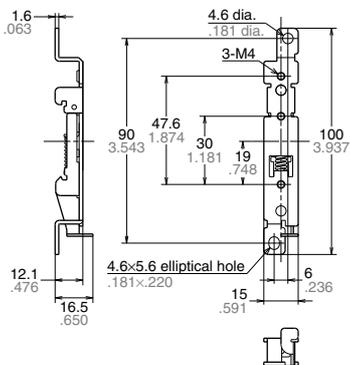


Mounting dimensions



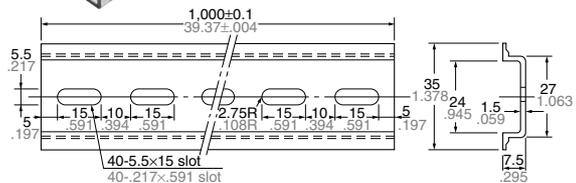
## AQP-DPJ DIN Rail Mounting Plate

**CAD Data**



## AT8-DLA1 Mounting Rail

**CAD Data**



AT8-DLE Fastening plate

**CAD Data**

