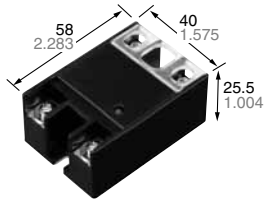
UL (60950-1) reinforced insulation compliant

Load current 15 to 40 A
Small Screw Terminal SSR

AQ-A (AC output type) Solid State Relays



mm inch

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: 15 A
4: 25 A
6: 40 A

Load voltage, Type
1: 75 to 250 Vrms, Screw terminal, Zero-cross
2: 75 to 250 Vrms, Screw terminal, Random*

Control 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	Control voltage	Part No.
Zero-cross	15 A	75 to 250 Vrms	4 to 32 V DC	AQA211VL
	25 A			AQA411VL
	40 A			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 (15 A)	AQP-HS-J10A	5 in a carton, 20 in a case
Standard heat sink (25 A)	AQP-HS-30/40A	5 in a carton, 20 in a case
Standard heat sink (40 A)	AQP-HS-J25A	No carton, 5 in a case
Slim heat sink (45 mm 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	Control voltage	4 to 32 V DC			
	Input current	Max. 20 mA			
	Drop-out voltage	Min. 1 V			
Output side	Max. load current	15 A	25 A	40 A	
	Load voltage	75 to 250 Vrms			
	Frequency	45 to 65 Hz			
	Non-repetitive surge current	150 A	250 A	400 A	In one cycle at 60 Hz
	"OFF-state" leakage current	Max. 10 mA			at 60 Hz
	"ON-state" voltage drop	Max. 1.6 V			at Max. carrying current
	Min. load current*	100 mA			

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	Part No. AQA211VL	AQA411VL	AQA611VL	Remarks
Operate time	Max. 1/2 cycle of voltage sine wave +1 ms			
Release time	Max. 1/2 cycle of voltage sine wave +1 ms			
Insulation resistance	Min. 100 MΩ 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 1 minute
Vibration resistance (Functional)	10 to 55 Hz double amplitude of 1.5 mm			X, Y, Z axes
Shock resistance (Functional)	Min. 980 m/s²			X, Y, Z axes
Ambient temperature	–20 to +80°C –4 to +176°F			Non-condensing at low temperatures
Storage temperature	–20 to +85°C –4 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

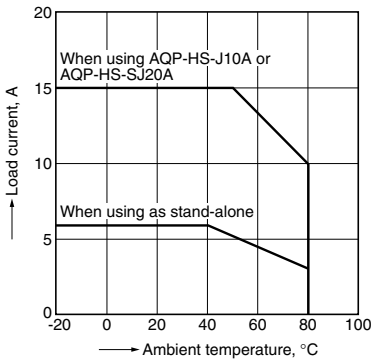
When using standard heat sink (AQP-HS-J25A, AQP-HS-30/40A, AQP-HS-J10A, AQP-HS-SJ20A)

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.

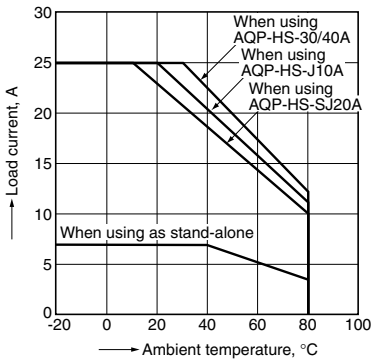
Without external heat sink

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.

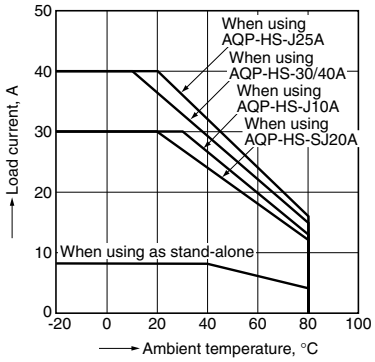
(1) 15 A type (AQA211VL)



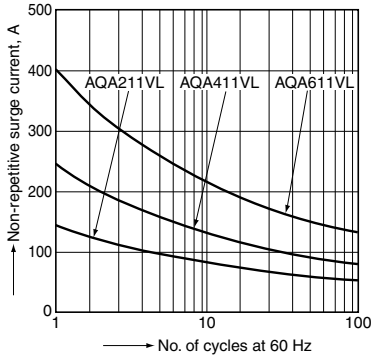
(2) 25 A type (AQA411VL)



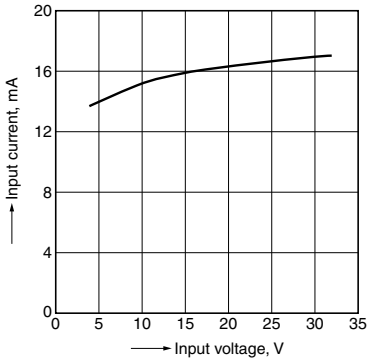
(3) 40 A type (AQA611VL)



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



3. Input current vs. input voltage characteristics



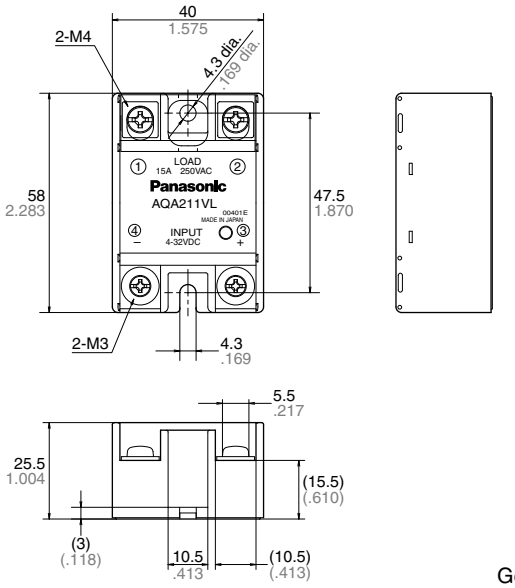
Note: * The above chart shows non-repetitive maximum rating. If a surge current is applied repeatedly, please keep it approximately 50% or less than the values shown in the above graph.

DIMENSIONS (mm inch)

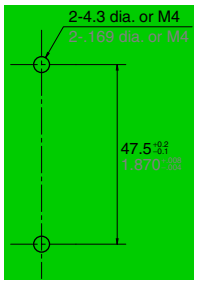
The CAD data of the products with a CAD mark can be downloaded from: https://industrial.panasonic.com/ac/e/

CAD

External dimensions



Mounting dimensions



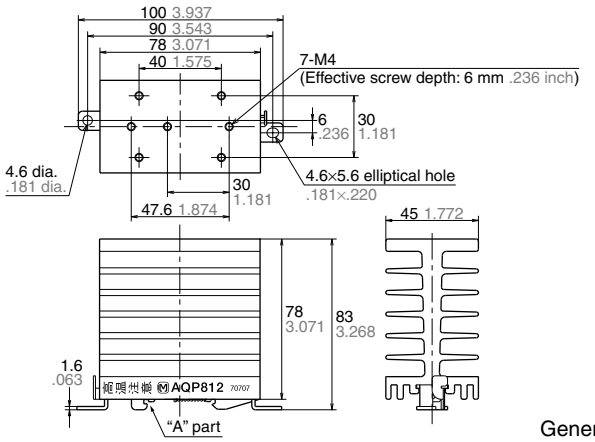
General tolerance: ±1.0 ±.039

ACCESSORIES (mm inch)

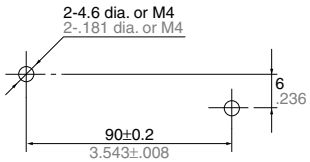
AQP-HS-SJ20A Slim Heat Sink

CAD

External dimensions



Mounting dimensions



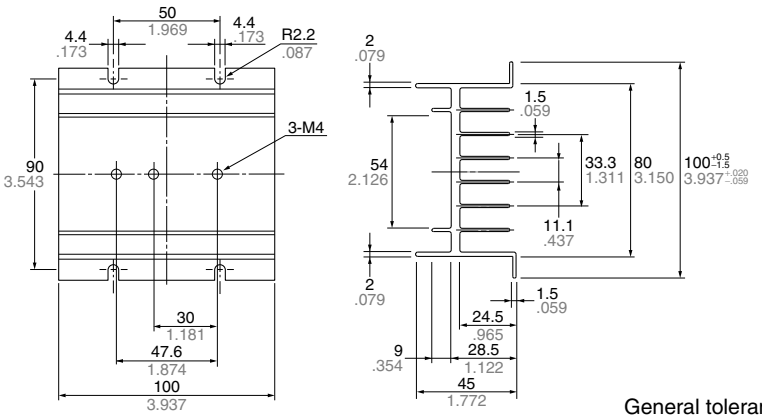
Note: When using on a DIN rail, please install so that the "A" part is on top.

General tolerance: ±1.0 ±.039

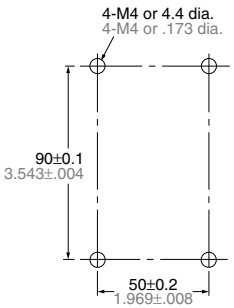
AQP-HS-J10A Standard Heat Sink

CAD

External dimensions



Mounting dimensions

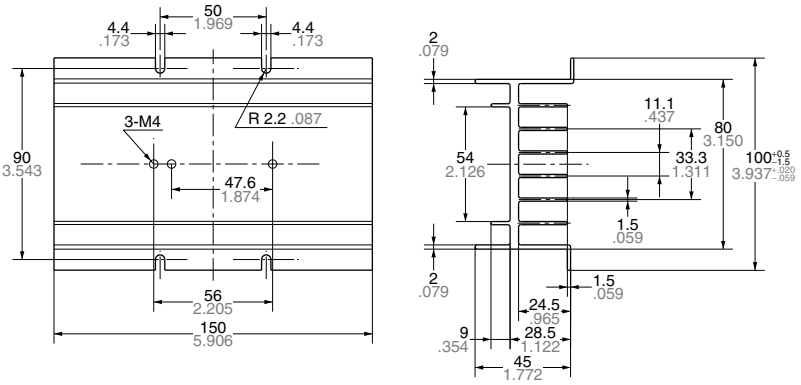


General tolerance: ±1.0 ±.039

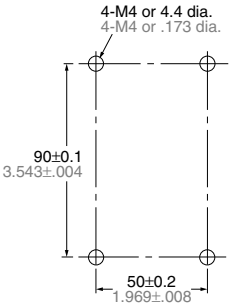
AQP-HS-30/40A Standard Heat Sink

CAD

External dimensions



Mounting dimensions

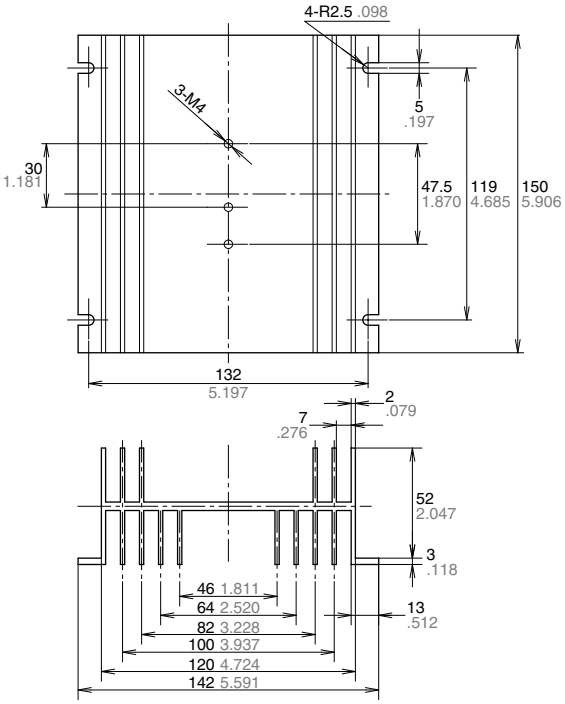


General tolerance: ±0.5 ±.020

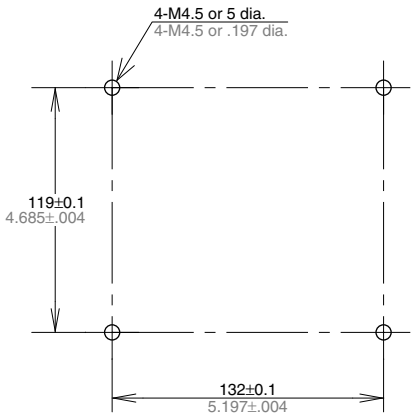
AQP-HS-J25A Standard Heat Sink

CAD

External dimensions



Mounting dimensions

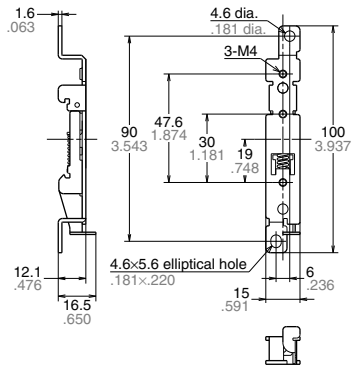


General tolerance: ±1.0 ±.039

AQP-DPJ DIN Rail Mounting Plate

CAD

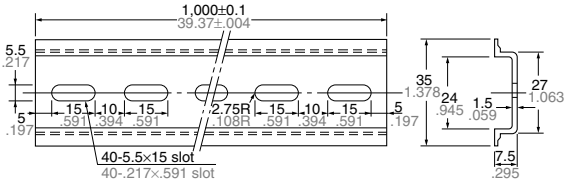
External dimensions



General tolerance: ±1.0 ±.039

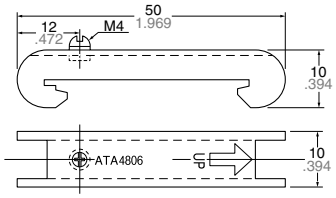
AT8-DLA1 Mounting Rail

CAD



AT8-DLE Fastening plate

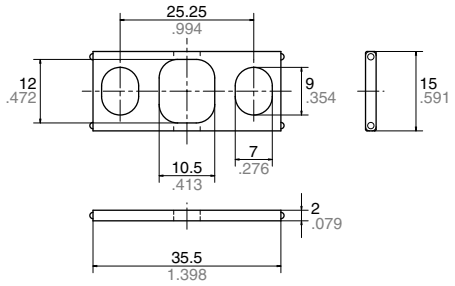
CAD



General tolerance: ±0.5 ±.020

AQA801 Terminal cover

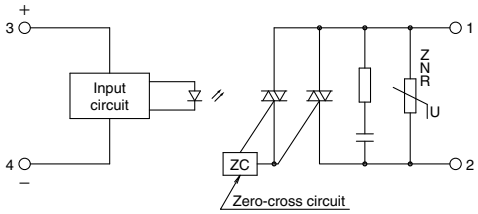
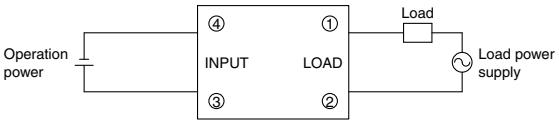
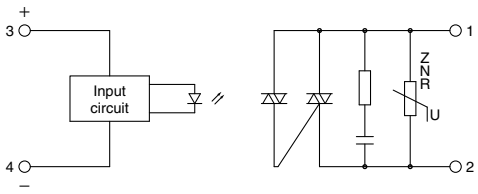
CAD



Use this product as a protective terminal cover for AQ-A/SSR.
It can be used for either the input or output side.

General tolerance: ±1.0 ±.039

SCHEMATIC AND WIRING DIAGRAMS

Schematic	Output configuration	Load	Wiring diagram
	1 Form A	AC	
			

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