

mm inch

FEATURES

1. Space saving, Vertical size with a maximum thickness of 4.5 mm.

Mounting space has been reduced to 30% (compared to conventional SSR's) while meeting high density PC board mounting requirements.

2. 1A and 2A load types available

3. Zero-cross type and Non zero-cross type available

4. High dielectric strength of 3,000V AC

(between input and output)

5. Snubber circuit integrated

The snubber circuit is integrated to prevent malfunction caused by the rapid rise of voltage on the output side, such as inductive load and current.

TYPES

| Type | Load current | Load voltage | Input voltage | Part No. |
|----------------|--------------|----------------|---------------|----------|
| Zero-cross | 1A | 75 to 264 V AC | 5 V DC | AQG12105 |
| | | | 12 V DC | AQG12112 |
| | | | 24 V DC | AQG12124 |
| | 2A | 75 to 264 V AC | 5 V DC | AQG22105 |
| | | | 12 V DC | AQG22112 |
| | | | 24 V DC | AQG22124 |
| Non zero-cross | 1A | 75 to 264 V AC | 5 V DC | AQG12205 |
| | | | 12 V DC | AQG12212 |
| | | | 24 V DC | AQG12224 |
| | 2A | 75 to 264 V AC | 5 V DC | AQG22205 |
| | | | 12 V DC | AQG22212 |
| | | | 24 V DC | AQG22224 |

TYPICAL APPLICATIONS

- **Manufacturing equipment**
 - NC machines
 - Injection molders
 - Robots
- **Air conditioners**
- **Computers**

ORDERING INFORMATION

Ex. AQG 1 2 1 0 5

| Load current | Load voltage | Type | Input voltage |
|------------------|-------------------|--------------------------------------------------------|------------------------------------------|
| 1: 1 A 2: 2 A | 2: 75 to 264 V AC | 1: Zero-cross (3,000 V) 2: Non zero-cross (3,000 V) | 05: 5 V DC 12: 12 V DC 24: 24 V DC |

(Note) Standard packing: Carton 20 pcs., Case 500 pcs.

SPECIFICATIONS

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

1) Zero-cross type

| Item | Type | Part No. | | | | | | Remarks |
|------------|----------------------------------|------------------------|------------------|-------------------|----------------|------------------|-------------------|--------------------------|
| | | AQG12105 | AQG12112 | AQG12124 | AQG22105 | AQG22112 | AQG22124 | |
| Input side | Input voltage | 4 to 6 V DC | 9.6 to 14.4 V DC | 19.2 to 28.8 V DC | 4 to 6 V DC | 9.6 to 14.4 V DC | 19.2 to 28.8 V DC | |
| | Input impedance | Approx. 0.3k Ω | Approx. 0.8k Ω | Approx. 1.6k Ω | Approx. 0.3k Ω | Approx. 0.8k Ω | Approx. 1.6k Ω | |
| | Drop-out voltage, min. | 1 V | | | | | | |
| | Reverse voltage | 3 V | | | | | | |
| Load side | Max. load current | 1 A AC | | | 2 A AC | | | |
| | Load voltage | 75 to 264 V AC | | | | | | |
| | Frequency | 45 to 65 Hz | | | | | | |
| | Non-repetitive surge current | 8 A | | | 30 A | | | In one cycle at 60 Hz |
| | Max. "OFF-state" leakage current | 1.5 mA (applied 200 V) | | | | | | |
| | Max. "ON-state" voltage drop | 1.6 V | | | | | | at Max. carrying current |
| | Min. load current | 20 mA | | | | | | |

2) Non zero-cross type

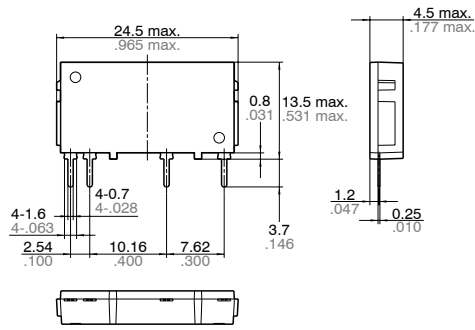
| Item | Type | Part No. | | | | | | Remarks |
|------------|----------------------------------|------------------------|------------------|-------------------|----------------|------------------|-------------------|--------------------------|
| | | AQG12205 | AQG12212 | AQG12224 | AQG22205 | AQG22212 | AQG22224 | |
| Input side | Input voltage | 4 to 6 V DC | 9.6 to 14.4 V DC | 19.2 to 28.8 V DC | 4 to 6 V DC | 9.6 to 14.4 V DC | 19.2 to 28.8 V DC | |
| | Input impedance | Approx. 0.3k Ω | Approx. 0.8k Ω | Approx. 1.6k Ω | Approx. 0.3k Ω | Approx. 0.8k Ω | Approx. 1.6k Ω | |
| | Drop-out voltage, min. | 1 V | | | | | | |
| | Reverse voltage | 3 V | | | | | | |
| Load side | Max. load current | 1 A AC | | | 2 A AC | | | |
| | Load voltage | 75 to 264 V AC | | | | | | |
| | Frequency | 45 to 65 Hz | | | | | | |
| | Non-repetitive surge current | 8 A | | | 30 A | | | In one cycle at 60 Hz |
| | Max. "OFF-state" leakage current | 1.5 mA (applied 200 V) | | | | | | |
| | Max. "ON-state" voltage drop | 1.6 V | | | | | | at Max. carrying current |
| | Min. load current | 20 mA | | | | | | |

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

| Item | Zero-cross type | Non zero-cross type | Remarks |
|-----------------------------|--------------------------------------------|------------------------------------------------|------------------------------------|
| Operate time max. | (1/2 cycle of voltage sine wave) + 1 ms | 1 ms | |
| Release time, max. | (1/2 cycle of voltage sine wave) + 1 ms | | |
| Insulation resistance, min. | 10 ⁹ Ω between input and output | | Using 500 V DC megger |
| Breakdown voltage | 3,000 Vrms between input and output | | Initial for 1 min. |
| Vibration resistance | 10 to 55 Hz double amplitude of 0.75 mm | | X, Y, Z axes |
| Shock resistance | 1,000 m/s ² | | X, Y, Z axes |
| Ambient temperature | -30°C to +80°C -22°F to +176°F | | Non-condensing at low temperatures |
| Storage temperature | -30°C to +100°C -22°F to +212°F | | |
| Operational method | Zero-cross (Turn-ON and Turn-OFF) | Non zero-cross turn ON, Zero-cross turn OFF | |

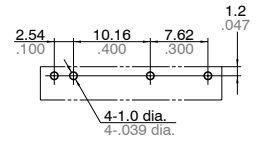
DIMENSIONS

1. 1A type



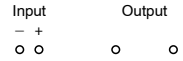
General tolerance: $\pm 0.2 \pm .008$

PC board pattern (Bottom view)

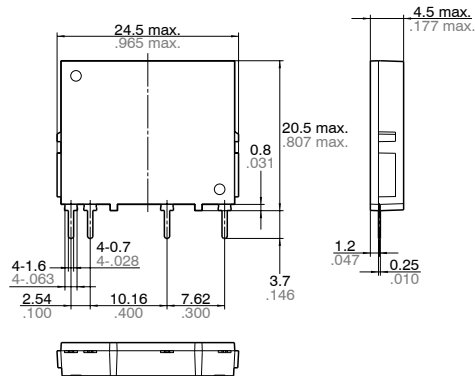


Tolerance: $\pm 0.1 \pm .004$

Schematic AC type

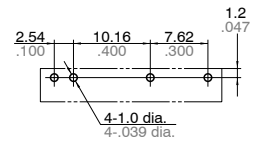


2. 2A type



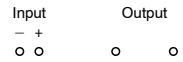
General tolerance: $\pm 0.2 \pm .008$

PC board pattern (Bottom view)



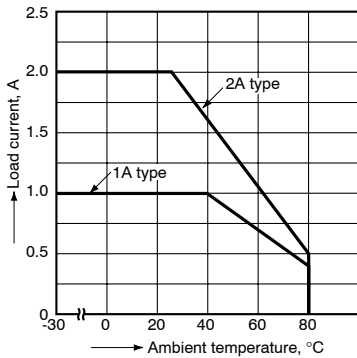
Tolerance: $\pm 0.1 \pm .004$

Schematic AC type

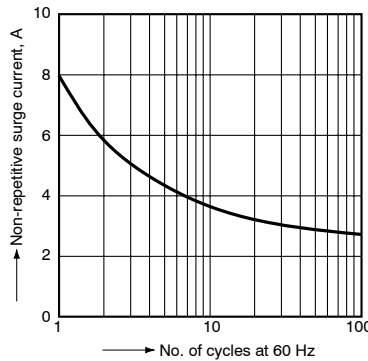


REFERENCE DATA

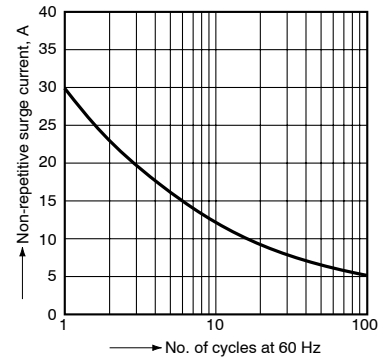
1. Load current vs. ambient temperature



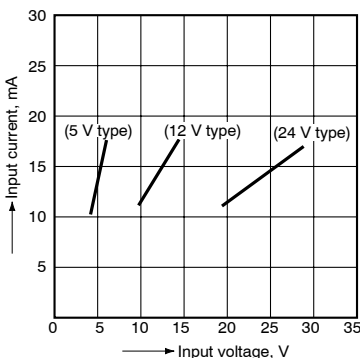
2.-(1) Non-repetitive surge current vs. carrying time (1A type)



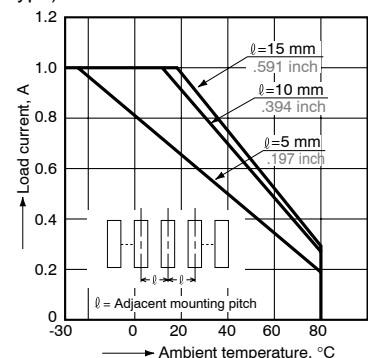
2.-(2) Non-repetitive surge current vs. carrying time (2A type)



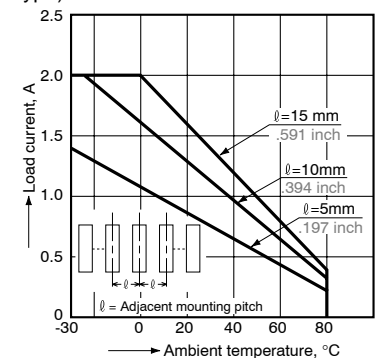
3. Input current vs. input voltage characteristics



4.-(1) Load current vs. ambient temperature characteristics for adjacent mounting (1A type)



4.-(2) Load current vs. ambient temperature characteristics for adjacent mounting (2A type)



Cautions for Use