



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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**Slim type SSR for
1A and 2A control**

AQ-G RELAYS



RoHS compliant

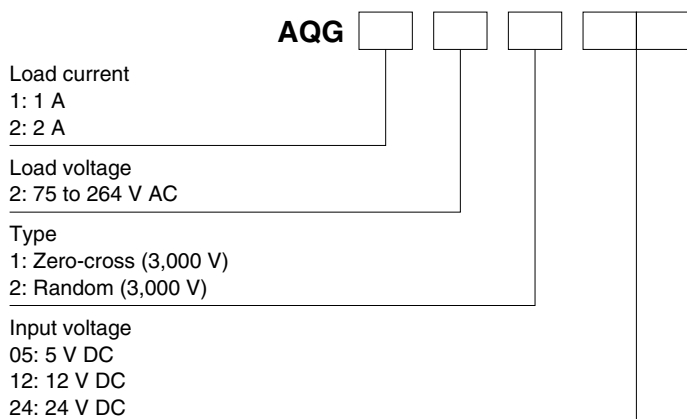
FEATURES

- 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. Snubber circuit preventing malfunction**
- 3. Zero-cross type and Random 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.

TYPICAL APPLICATIONS

- Household appliances such as air conditioners, refrigerators and humidifiers
- Healthcare and medical equipment
- Industrial machinery such as NC machines, mounters, injection molders, and robots
- Microcomputer boards
- Amusement and amenity related equipment

ORDERING INFORMATION



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
Random	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

Standard packing: Carton 20 pcs., Case 500 pcs.

RATING

1. Ratings (Ambient temperature: 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	*1
	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			2 A AC*2			1A: Ta = Max. 40°C 104°F 2A: Ta = Max. 25°C 77°F
	Load voltage	75 to 264 V AC						
	Frequency	45 to 65 Hz						
	Non-repetitive surge current	8 A*3			30 A*3			In one cycle at 60 Hz
	Max. "OFF-state" leakage current	1.5 mA						at 60 Hz at 200 V AC
	Max. "ON-state" voltage drop	1.6 V						at Max. carrying current
	Min. load current	20 mA*4						

2) Random 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	*1
	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			2 A AC*2			1A: Ta = Max. 40°C 104°F 2A: Ta = Max. 25°C 77°F
	Load voltage	75 to 264 V AC						
	Frequency	45 to 65 Hz						
	Non-repetitive surge current	8 A*3			30 A*3			In one cycle at 60 Hz
	Max. "OFF-state" leakage current	1.5 mA						at 60 Hz at 200 V AC
	Max. "ON-state" voltage drop	1.6 V						at Max. carrying current
	Min. load current	20 mA*4						

Notes: *1. Refer to REFERENCE DATA "3. Input current vs. input voltage characteristics".

*2. Refer to REFERENCE DATA "1. Load current vs. ambient temperature".

*3. Refer to REFERENCE DATA "2. Non-repetitive surge current vs. carrying time".

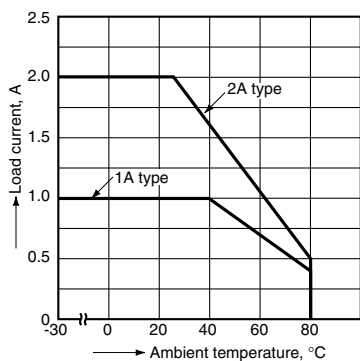
*4. When the load current is less than the rated minimum load current, please refer to "Cautions for Use of SSR".

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

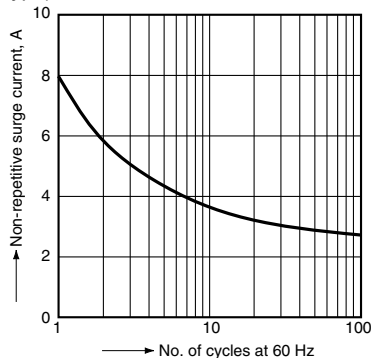
Item	Zero-cross type	Random type	Remarks
Operate time max.	1/2 cycle of voltage sine wave + 1 ms	1 ms	
Release time, max.	1/2 cycle of voltage sine wave + 1 ms		
Insulation resistance, min.	10 ⁹ Ω between input and output		at 500 V DC
Breakdown voltage	3,000 Vrms between input and output		for 1 min.
Vibration resistance	10 to 55 Hz double amplitude of 0.75 mm		X, Y, Z axes
Shock resistance	Min. 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)	Random turn ON, zero-cross turn OFF	

REFERENCE DATA

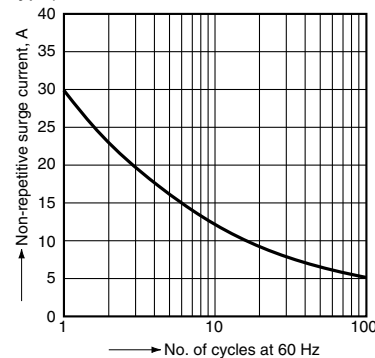
1. Load current vs. ambient temperature



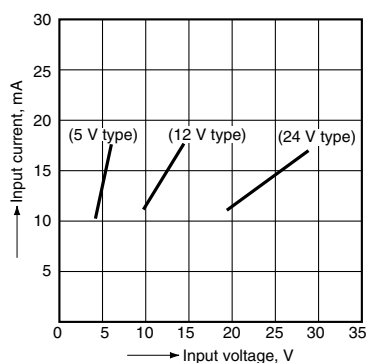
2.-(1) Non-repetitive surge current vs. carrying time (1A type)



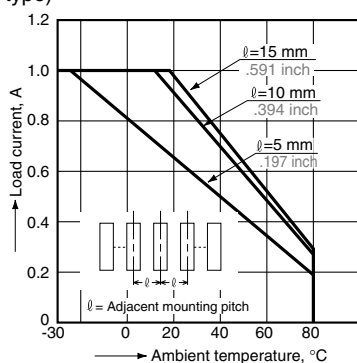
2.-(2) Non-repetitive surge current vs. carrying time (2A type)



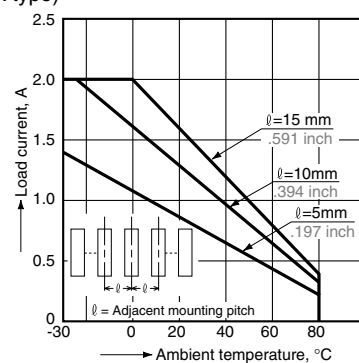
3. Input current vs. input voltage characteristics



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)



DIMENSIONS (mm inch)

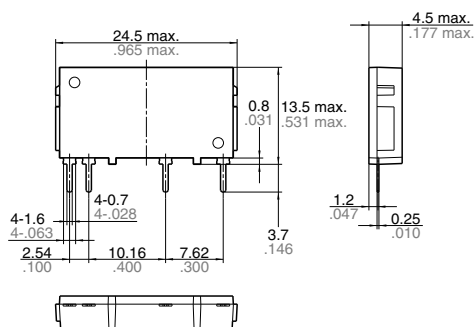
1. 1A type

CAD Data



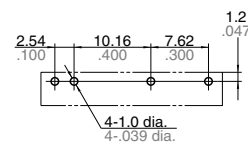
The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>

External dimensions



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

PC board pattern (Bottom view)



Tolerance: $\pm 0.1 \pm .004$

Schematic

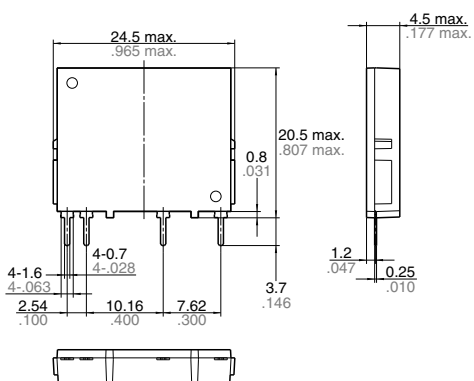


2. 2A type

CAD Data

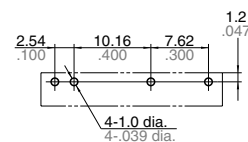


External dimensions



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

PC board pattern (Bottom view)



Tolerance: $\pm 0.1 \pm .004$

Schematic



Recommended Temperature Controllers



<KT4H Temperature Controller>

Our temperature controller is recommended for use with our Solid State Relays.

Features

- Space saving requiring only a depth of 65 mm
- Data collection possible through a PLC using RS485 communication
- Tool port is standard for easy data setting
- Inverted LCD + backlight for good legibility with large characters
- Excellent operability and rich optional control functions

Substitute part numbers

Power supply	Control output	Part No.
100 to 240 V AC	Non-contact voltage output	AKT4H112100

* For detailed product information about temperature controllers, please refer to our website:
<http://industrial.panasonic.com/ac/e/>