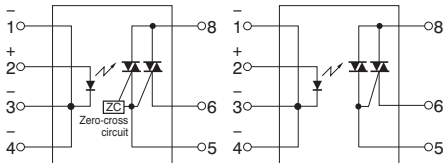


# Panasonic

## Compact DIP type SSR Ideal for AC load control

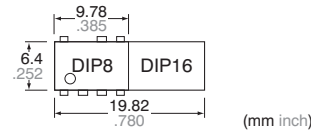
# AQ-H RELAYS



### FEATURES

1. Supports 0.3 A, 0.6 A, 0.9 A and 1.2 A ON-state RMS currents.
2. The 1.2 A type saves space with a DIP 8-pin package.

4. High dielectric strength: 5,000 V AC (between input and output)
6. Two types available: Zero-cross type and Random type



3. Handles both 100 and 200 V AC loads  
This relay handles both voltages in a single product. It is not necessary for users that use both types to manage separate part numbers.

### TYPICAL APPLICATIONS

1. Home appliances (air conditioner, microwave oven, washing machine, personal hygiene system, refrigerator, fan heater, inductive heating cooker, rice cooker and humidifier, etc.)
2. Industrial equipment

### TYPES

Type	Output rating*		Type	Part No.				Packing quantity		
				Through hole terminal	Surface-mount terminal		Tube	Tape and reel		
	Tube packing style				Tape and reel packing style					
AC type	600 V	ON-state RMS current	Zero-cross	AQH0213	AQH0213A	AQH0213AX	AQH0213AZ	1 tube contains 50 pcs. 1 batch contains 500 pcs.	1,000 pcs.	
				0.3 A	AQH1213	AQH1213A	AQH1213AX			AQH1213AZ
				0.6 A	AQH2213	AQH2213A	AQH2213AX			AQH2213AZ
				0.9 A	AQH3213	AQH3213A	AQH3213AX			AQH3213AZ
				1.2 A	AQH0223	AQH0223A	AQH0223AX			AQH0223AZ
		Random	0.3 A	AQH1223	AQH1223A	AQH1223AX	AQH1223AZ			
			0.6 A	AQH2223	AQH2223A	AQH2223AX	AQH2223AZ			
			0.9 A	AQH3223	AQH3223A	AQH3223AX	AQH3223AZ			
			1.2 A							

\*Indicate the repetitive peak OFF-state voltage and ON-state RMS current: peak AC.  
Note: For space reasons, the SMD terminal shape indicator "A" and the package type indicator "X" and "Z" are omitted from the seal.

### RATING

#### 1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

Item		Symbol	AQH0213, AQH0223	AQH1213, AQH1223	AQH2213, AQH2223	AQH3213, AQH3223	Remarks
Input	LED forward current	$I_F$	50 mA				
	LED reverse voltage	$V_R$	6 V				
	Peak forward current	$I_{FP}$	1 A				f = 100 Hz, Duty Ratio = 0.1%
Output	Repetitive peak OFF-state voltage	$V_{DRM}$	600 V				
	ON-state RMS current	$I_{T(RMS)}$	0.3 A	0.6 A	0.9 A	1.2 A	
	Non-repetitive surge current	$I_{TSM}$	3 A	6 A	9 A	12 A	60Hz, 1 cycle
I/O isolation voltage		$V_{iso}$	5,000 V AC				
Temperature limits	Operating	$T_{opr}$	-30°C to +85°C -22°F to +185°F				Non-condensing at low temperatures
	Storage	$T_{stg}$	-40°C to +125°C -40°F to +257°F				

Note: "A", "AX" and "AZ" at the end of the part numbers have been omitted.

## 2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item		Symbol	AQH0213, AQH1213, AQH2213, AQH3213	AQH0223, AQH1223, AQH2223, AQH3223	Condition
Input	LED dropout voltage	Typical	1.21 V		$I_F = 20 \text{ mA}$
		Maximum	1.3 V		
	LED reverse current	Typical	—		$V_R = 6 \text{ V}$
		Maximum	10 $\mu\text{A}$		
Output	Peak OFF-state current	Typical	—		$I_F = 0 \text{ mA}$ $V_{DRM} = 600 \text{ V}$
		Maximum	100 $\mu\text{A}$		
	Peak ON-state voltage	Typical	—		$I_F = 10 \text{ mA}$ $I_{TM} = \text{Max.}$
		Maximum	2.5 V		
	Holding current	Typical	—		
		Maximum	25 mA		
Critical rate of rise of OFF-state voltage	Minimum	dv/dt	200 V/ $\mu\text{s}$		$V_{DRM} = 600 \text{ V} \times 1/\sqrt{2}$
Transfer characteristics	Trigger LED current	Maximum	$I_{FT}$	10 mA	$V_D = 6 \text{ V}$ $R_L = 100 \Omega$
	Zero-cross voltage	Maximum	$V_{ZC}$	50 V	— $I_F = 10 \text{ mA}$
	Turn on time*	Maximum	$T_{ON}$	100 $\mu\text{s}$	$I_F = 20 \text{ mA}$ $V_D = 6 \text{ V}$ $R_L = 100 \Omega$
	I/O isolation resistance	Minimum	$R_{iso}$	50 G $\Omega$	500 V DC

Notes: 1. For type of connection, see page 3.

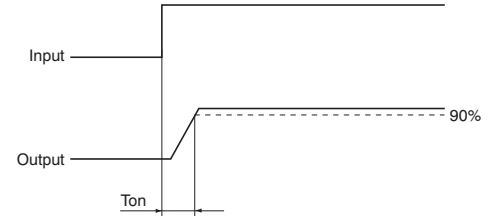
2. "A", "AX" and "AZ" at the end of the part numbers have been omitted.

### RECOMMENDED OPERATING CONDITIONS

Please follow the conditions below in order to ensure accurate operation and release of the phototriac coupler.

Item	Symbol	Value	Unit
Input LED current	$I_F$	20	mA

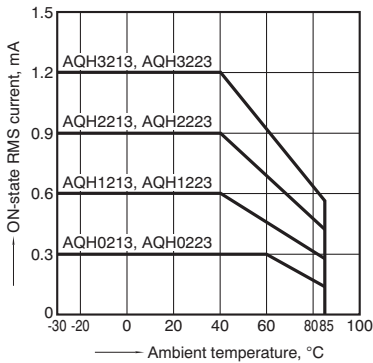
\*Turn on time



## REFERENCE DATA

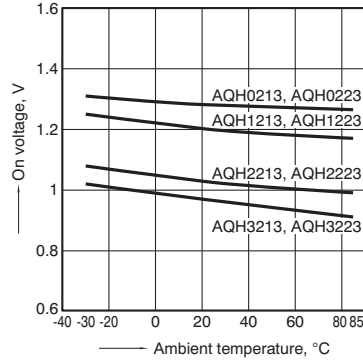
### 1. ON-state RMS current vs. Ambient temperature characteristics

Allowable ambient temperature:  
-30°C to +85°C -22°F to +185°F



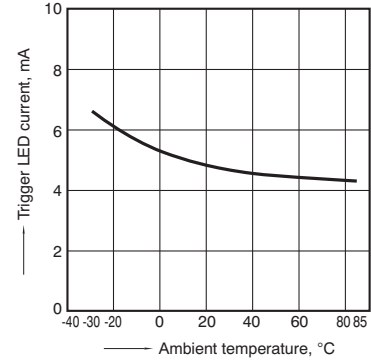
### 2. On voltage vs. Ambient temperature characteristics

LED current: 10 mA; ON current: Max.  
Measured portion: between terminals 6 and 8



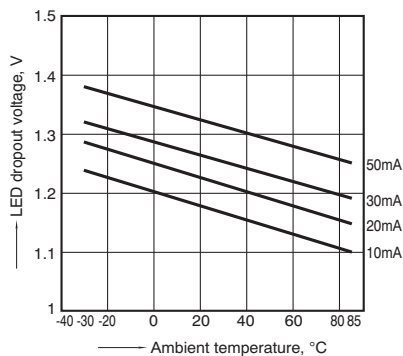
### 3. Trigger LED current vs. Ambient temperature characteristics

Load voltage: 6 V DC;  
Load resistance: 100 $\Omega$



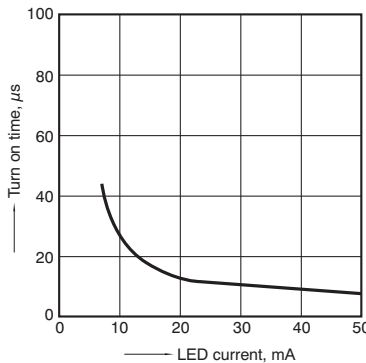
### 4. LED dropout voltage vs. Ambient temperature characteristics

LED current: 10 to 50 mA



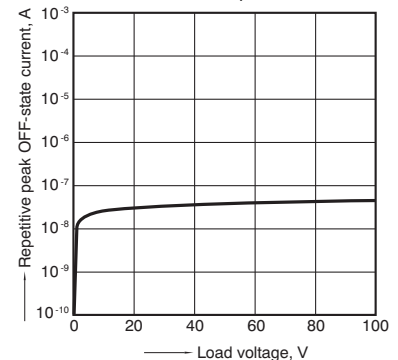
### 5. Turn on time vs. LED current characteristics

Load voltage: 6 V DC; Load resistance: 100 $\Omega$   
Measured portion: between terminals 6 and 8

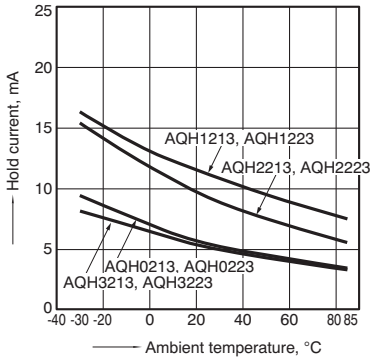


### 6. Repetitive peak OFF-state current vs. Load voltage characteristics

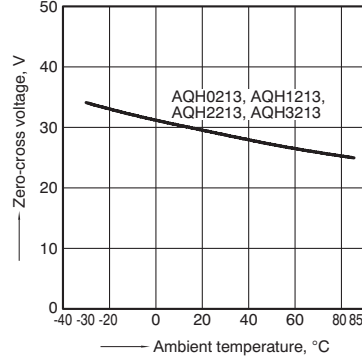
LED current: 0 mA; Measured portion: between terminals 6 and 8; Ambient temperature: 25°C 77°F



7. Hold current vs. Ambient temperature characteristics



8. Zero-cross voltage vs. Ambient temperature characteristics  
LED current: 10 mA

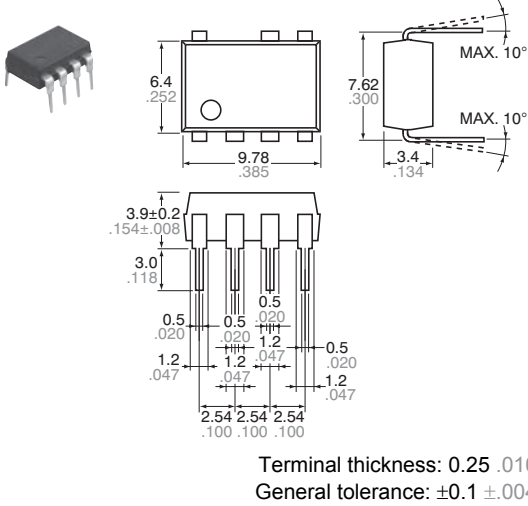


**DIMENSIONS (mm inch)**

Download [CAD Data](#) from our Web site.

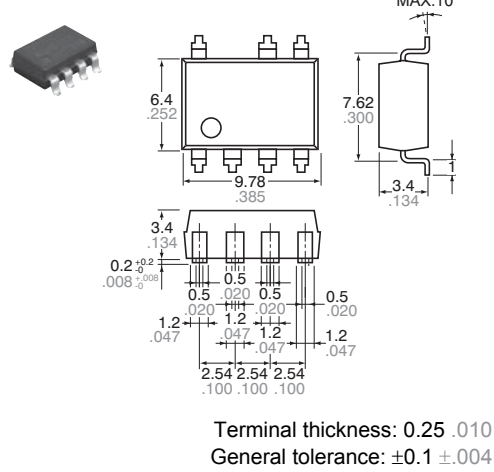
Through hole terminal type

[CAD Data](#)

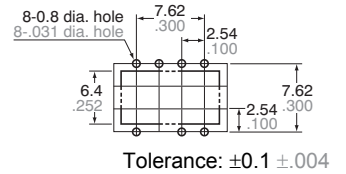


Surface mount terminal type

[CAD Data](#)



PC board pattern (BOTTOM VIEW)

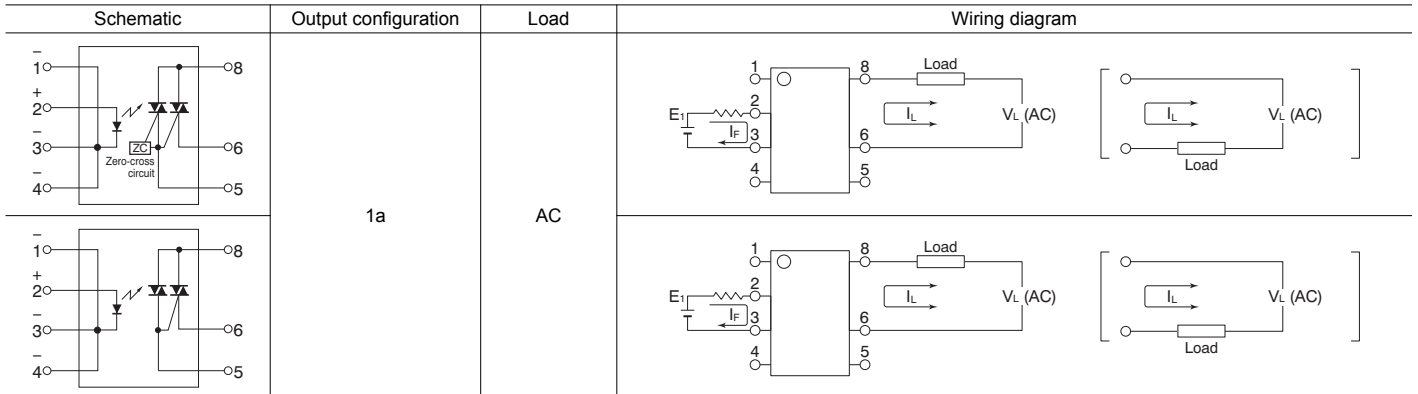


Recommended mounting pad (TOP VIEW)



**SCHEMATIC AND WIRING DIAGRAMS**

Notes: E<sub>I</sub>: Power source at input side; I<sub>F</sub>: Trigger LED forward current; V<sub>L</sub>: Load voltage; I<sub>L</sub>: Load current;



See special section on AQ-H in Cautions for Use

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Solid State Relays - PCB Mount](#) category:*

*Click to view products by [Panasonic](#) manufacturer:*

Other Similar products are found below :

[M90F-2W](#) [G2-1A07-ST](#) [G2-1A07-TT](#) [G2-1B02-TT](#) [G2-DA06-ST](#) [G3CN-202PL-3-US DC12](#) [G3CN-203P DC3-28](#) [G3RDX02SNUSDC12](#)  
[PLA134S](#) [DMP6202A](#) [DS11-1005](#) [AQ3A2-ZT432VDC](#) [AQV212J](#) [AQV214SD02](#) [AQV252GAJ](#) [AQY212SXT](#) [AQY221R2SJ](#)  
[EFR1200480A150](#) [LCA220](#) [LCB110S](#) [1618400-5](#) [SR75-1ST](#) [AQV212AJ](#) [AQV238AD01](#) [AQV252GAXJ](#) [AQW414TS](#) [AQY210SXT](#)  
[AQY212ST](#) [AQY221N2V1YJ](#) [AQY275AXJ](#) [G2-1A02-ST](#) [G2-1A02-TT](#) [G2-1A03-ST](#) [G2-1A03-TT](#) [G2-1A05-ST](#) [G2-1A06-TT](#) [G2-1A23-](#)  
[TT](#) [G2-1B01-ST](#) [G2-1B01-TT](#) [G2-1B02-ST](#) [G2-DA03-ST](#) [G2-DA03-TT](#) [G2-DA06-TT](#) [G3M-203PL-UTU-1 DC24](#) [CPC2330N](#) [3-1617776-](#)  
[2](#) [CTA2425](#) [TS190](#) [LBB110S](#) [LCB126S](#)