



# 4-pin high capacity of 1.1A, I/O isolation voltage of 5,000V

# Photo MOS<sup>®</sup> GU 1 Form A High Capacity (AQY212GH)

### 4.78 6.4 4.78 6.4 .188 252 .188 252 2.9 .126 252 2.9 .114

#### **FEATURES**

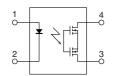
1. Greatly increased capacity Continuous load current: 1.1A

**2. Reinforced insulation** I/O isolation voltage: 5,000 V AC

- 3. Compact 4-pin DIP type
- 4. The improved performance relative to mercury or mechanical relays

#### TYPICAL APPLICATIONS

- Measuring instruments
- Security and disaster-preventing system: use in I/O for alarm and security devices, etc.



**RoHS** compliant

#### **TYPES**

	Output rating*			Par	Packing quantity			
			Through hole terminal	Surface-mount terminal				
		d Load			Tape and reel packing style			
			current	Tube pac	king style	Picked from the 1/2-pin side	Picked from the 3/4-pin side	Tube
AC/DC dual use	60 V	1.1 A	AQY212GH	AQY212GHA	AQY212GHAX	AQY212GHAZ	1 tube contains 100 pcs. 1 batch contains 1,000 pcs.	1,000 pcs.

<sup>\*</sup>Indicate the peak AC and DC values.

Note: For space reasons, the three initial letters of the part number "AQY", the surface mount terminal shape indicator "A" and the packing style indicator "X" or "Z" are not marked on the device.

#### **RATING**

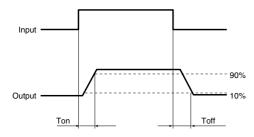
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

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	Item	Symbol	AQY212GH(A)	Remarks
	LED forward current	lF	50 mA	
lmmust	LED reverse voltage	VR	5 V	
Input	Peak forward current	IFP	1 A	f = 100 Hz, Duty factor = 0.1%
	Power dissipation	Pin	75 mW	
	Load voltage (peak AC)	VL	60 V	
Outnut	Continuous load current	Iι	1.1 A	Peak AC, DC
Output	Peak load current	Ipeak	3.0 A	100ms (1 shot), V <sub>L</sub> = DC
	Power dissipation	Pout	500 mW	
Total power dissipation		P⊤	550 mW	
I/O isolation voltage		Viso	5,000 V AC	
Temperature limits	Operating	Topr	-40°C to +85°C -40°F to +185°F	Non-condensing at low temperatures
	Storage	Tstg	-40°C to +100°C -40°F to +212°F	

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

	Item		Symbol	AQY212GH(A)	Condition	
Input	LED operate current	Typical	Fon	1.1 mA	I <sub>L</sub> = 100mA	
		Maximum	IFon F	3 mA		
	LED turn off current	Minimum	Foff	0.3 mA	I∟= 100mA	
		Typical		1.0 mA	IL = TOUMA	
	LED dropout voltage	Typical	VF	1.32 V (1.14 V at I <sub>F</sub> = 5 mA)	I <sub>F</sub> = 50 mA	
		Maximum	۷F	1.5 V		
Output	On resistance	Typical	0	0.34 Ω	I <sub>F</sub> = 5 mA I <sub>L</sub> = Max. Within 1 s on tim	
		Maximum	Ron	0.7 Ω		
	Off state leakage current	Maximum	Leak	1 μΑ	IF = 0 mA VL = Max.	
Transfer characteristics	Turn on time*	Typical	Ton	1.3 ms	I <sub>F</sub> = 5 mA I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V	
		Maximum	Ion	5.0 ms		
	Turn off time*	Typical	_	0.1 ms	I <sub>F</sub> = 5 mA I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V	
		Maximum	Toff -	0.5 ms		
	1/0	Typical	( Ciso	0.8 pF	f = 1 MHz	
	I/O capacitance	Maximum		1.5 pF	V <sub>B</sub> = 0 V	
	Initial I/O isolation resistance	Minimum	Riso	1,000 ΜΩ	500 V DC	

<sup>\*</sup>Turn on/Turn off time



#### RECOMMENDED OPERATING CONDITIONS

Please obey the following conditions to ensure proper device operation and resetting.

Item	Symbol	Recommended value	Unit	
Input LED current	lF	5 to 10	mA	

- **■** For Dimensions.
- **■** For Schematic and Wiring Diagrams.
- **■** For Cautions for Use.
- These products are not designed for automotive use.

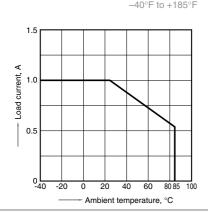
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

For more information.

#### REFERENCE DATA

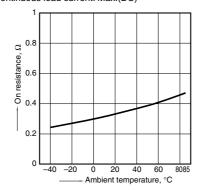
1. Load current vs. ambient temperature characteristics

Allowable ambient temperature:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ 



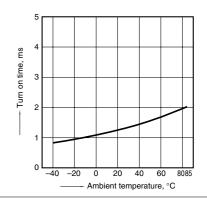
2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4; LED current: 5 mA; Load voltage: Max. (DC) Continuous load current: Max.(DC)



3. Turn on time vs. ambient temperature characteristics

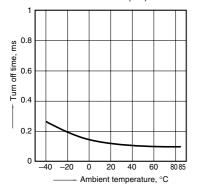
LED current: 5 mA; Load voltage: 10 V (DC); Continuous load current: 100 mA (DC)



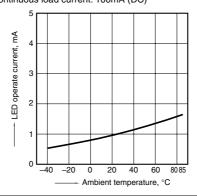
## GU 1 Form A High Capacity (AQY212GH)

4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10 V (DC); Continuous load current: 100 mA (DC)



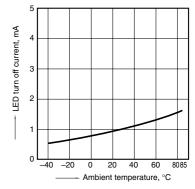
5. LED operate current vs. ambient temperature characteristics Load voltage: 10 V (DC); Continuous load current: 100mA (DC)



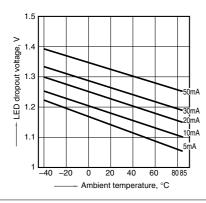
6. LED turn off current vs. ambient temperature characteristics

Load voltage: 10 V (DC);

Continuous load current: 100mA (DC)

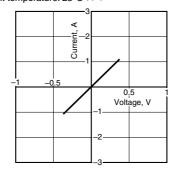


7. LED dropout voltage vs. ambient temperature characteristics LED current: 5 to 50 mA



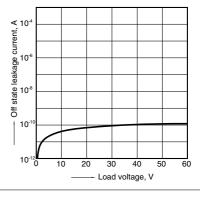
8. Current vs. voltage characteristics of output at MOS portion

Measured portion: between terminals 3 and 4; Ambient temperature: 25°C 77°F



Off state leakage current vs. load voltage characteristics

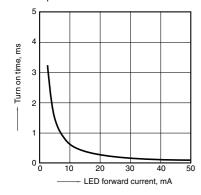
Measured portion: between terminals 3 and 4; Ambient temperature:  $25^{\circ}C$   $77^{\circ}F$ 



 Turn on time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4; Load voltage: 10 V (DC);

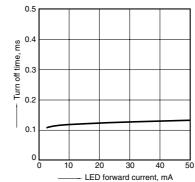
Continuous load current: 100 mA (DC); Ambient temperature: 25°C 77°F



11. Turn off time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4; Load voltage: 10 V (DC);

Continuous load current: 100 mA (DC); Ambient temperature: 25°C 77°F



12. Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 3 and 4;

Frequency: 1 MHz;

Ambient temperature: 25°C 77°F

