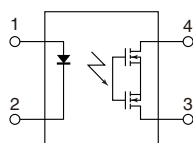
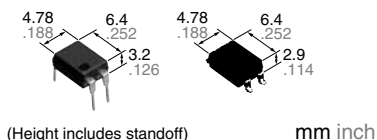




**4-pin high capacity of 1.1A,  
I/O isolation voltage of  
5,000V**

**PhotoMOS®  
GU 1 Form A High Capacity  
(AQY212GH)**



**RoHS compliant**

### 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.

### TYPES

	Output rating*		Part No.				Packing quantity	
			Through hole terminal	Surface-mount terminal			Tube	Tape and reel
	Load voltage	Load current	Tube packing style		Tape and reel packing style			
					Picked from the 1/2-pin side	Picked from the 3/4-pin side		
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.

\*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)

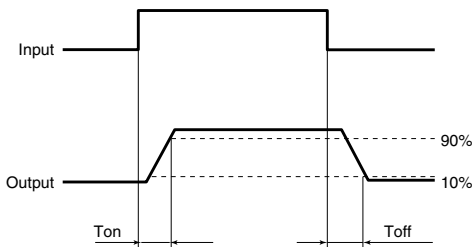
	Item	Symbol	AQY212GH(A)	Remarks
Input	LED forward current	$I_F$	50 mA	
	LED reverse voltage	$V_R$	5 V	
	Peak forward current	$I_{FP}$	1 A	$f = 100 \text{ Hz}$ , Duty factor = 0.1%
	Power dissipation	$P_{in}$	75 mW	
Output	Load voltage (peak AC)	$V_L$	60 V	
	Continuous load current	$I_L$	1.1 A	Peak AC, DC
	Peak load current	$I_{peak}$	3.0 A	100ms (1 shot), $V_L = \text{DC}$
	Power dissipation	$P_{out}$	500 mW	
Total power dissipation		$P_T$	550 mW	
I/O isolation voltage		$V_{iso}$	5,000 V AC	
Temperature limits	Operating	$T_{opr}$	-40°C to +85°C -40°F to +185°F	Non-condensing at low temperatures
	Storage	$T_{stg}$	-40°C to +100°C -40°F to +212°F	

# GU 1 Form A High Capacity (AQY212GH)

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

Item		Symbol	AQY212GH(A)	Condition
Input	LED operate current	Typical	1.1 mA	$I_L = 100\text{mA}$
		Maximum	3 mA	
	LED turn off current	Minimum	0.3 mA	$I_L = 100\text{mA}$
		Typical	1.0 mA	
LED dropout voltage	Typical	1.32 V (1.14 V at $I_F = 5\text{ mA}$ )		$I_F = 50\text{ mA}$
	Maximum	1.5 V		
Output	On resistance	Typical	0.34 $\Omega$	$I_F = 5\text{ mA}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum	0.7 $\Omega$	
	Off state leakage current	Maximum	1 $\mu\text{A}$	$I_F = 0\text{ mA}$ $V_L = \text{Max.}$
Transfer characteristics	Turn on time*	Typical	1.3 ms	$I_F = 5\text{ mA}$ $I_L = 100\text{ mA}$ $V_L = 10\text{ V}$
		Maximum	5.0 ms	
	Turn off time*	Typical	0.1 ms	$I_F = 5\text{ mA}$ $I_L = 100\text{ mA}$ $V_L = 10\text{ V}$
		Maximum	0.5 ms	
	I/O capacitance	Typical	0.8 pF	$f = 1\text{ MHz}$ $V_B = 0\text{ V}$
Maximum		1.5 pF		
Initial I/O isolation resistance	Minimum	$R_{\text{iso}}$	1,000 M $\Omega$	500 V DC

\*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	$I_F$	5 to 10	mA

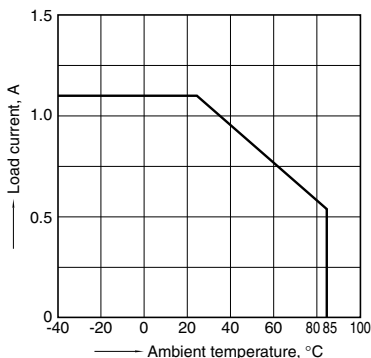
■ These products are not designed for automotive use.

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

## REFERENCE DATA

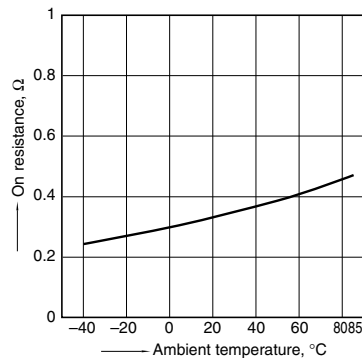
1. Load current vs. ambient temperature characteristics

Allowable ambient temperature:  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$   
 $-40^\circ\text{F}$  to  $+185^\circ\text{F}$



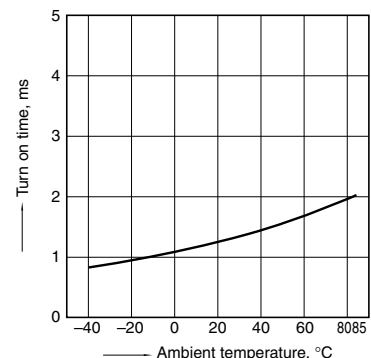
2. On resistance vs. ambient temperature characteristics

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



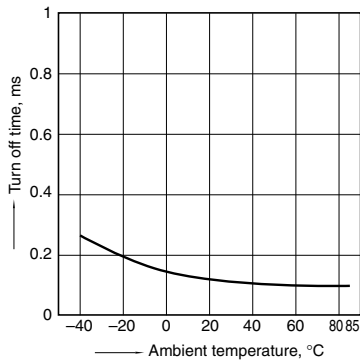
3. Turn on time vs. ambient temperature characteristics

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



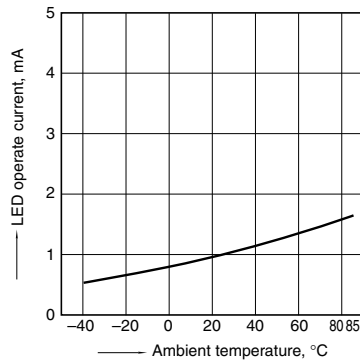
## 4. Turn off time vs. ambient temperature characteristics

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



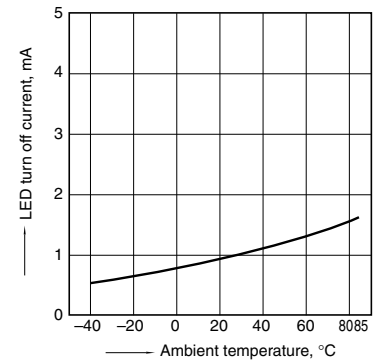
## 5. LED operate current vs. ambient temperature characteristics

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



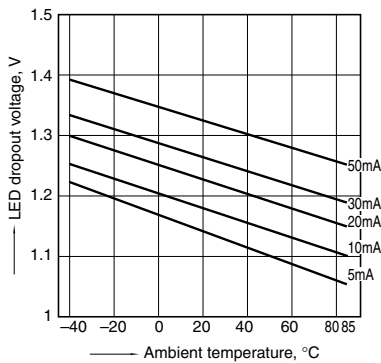
## 6. LED turn off current vs. ambient temperature characteristics

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



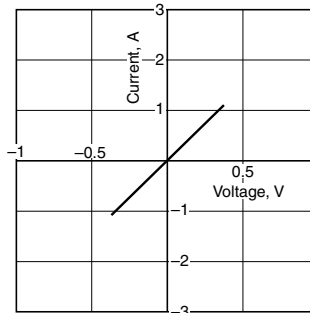
## 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



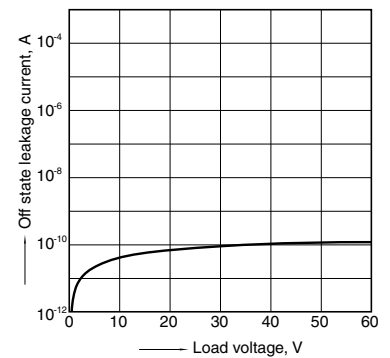
## 8. Current vs. voltage characteristics of output at MOS portion

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



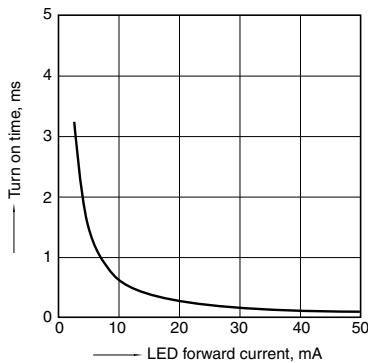
## 9. Off state leakage current vs. load voltage characteristics

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



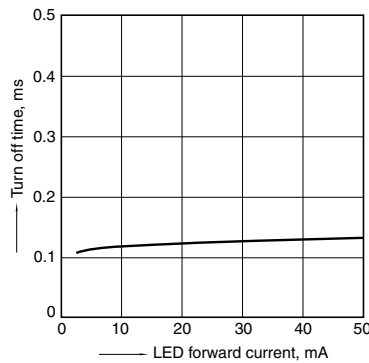
## 10. Turn on time vs. LED forward current characteristics

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

