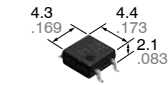
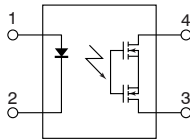


Load current greatly increased using next-generation MOSFET High Capacity 4-pin Type

**GU PhotoMOS**  
(AQY212GS, AQY212G2S)



mm inch



**FEATURES**

1. Greatly increased load current in the same, miniature, 4-pin SO package (1.25A high capacity type added).
2. Greatly improved specs allow you to use this in place of mercury and mechanical relays.

**TYPICAL APPLICATIONS**

- Measuring instrument market
- Crime and fire prevention market (use in I/O for alarm and security devices, etc.)

**TYPES**

Type	Output rating*		Package size	Part No.			Packing quantity	
	Load voltage	Load current		Tube packing style	Tape and reel packing style		Tube	Tape and reel
					(Picked from the 1/2-pin side)	(Picked from the 3/4-pin side)		
AC/DC type	60V	1.0A	SOP4pin	AQY212GS	AQY212GSX	AQY212GSZ	1 tube contains: 100 pcs. 1 batch contains: 2,000 pcs.	1,000 pcs.
		1.25A		AQY212G2S	AQY212G2SX	AQY212G2SZ		

\* Indicate the peak AC and DC values.

Note: For space reasons, the initial letters of the part number "AQY", the SMD terminal shape indicator "S" and the packaging style indicator "X" or "Z" are not marked on the relay.

**RATING**

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

Item		Symbol	AQY212GS	AQY212G2S	Remarks
Input	LED forward current	I <sub>F</sub>	50 mA		
	LED reverse voltage	V <sub>R</sub>	5 V		
	Peak forward current	I <sub>FP</sub>	1 A		f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P <sub>in</sub>	75 mW		
Output	Load voltage (peak AC)	V <sub>L</sub>	60 V		
	Continuous load current (peak AC)	I <sub>L</sub>	1.0 A	1.25 A	
	Peak load current	I <sub>peak</sub>	3 A		100ms (1 shot), V <sub>L</sub> = DC
	Power dissipation	P <sub>out</sub>	300 mW		
Total power dissipation		P <sub>T</sub>	350 mW		
I/O isolation voltage		V <sub>iso</sub>	1,500 V AC		
Temperature limits	Operating	T <sub>opr</sub>	-40°C to +85°C -40°F to +185°F		Non-condensing at low temperatures
	Storage	T <sub>stg</sub>	-40°C to +100°C -40°F to +212°F		

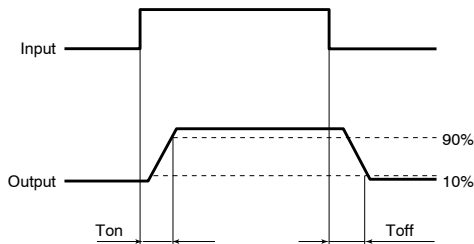
# GU PhotoMOS (AQY212GS, AQY212G2S)

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

Item		Symbol	AQY212GS	AQY212G2S	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 $\Omega$	0.2 $\Omega$	$I_F = 5\text{ mA}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum	0.7 $\Omega$	0.5 $\Omega$	
	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	$R_{iso}$	1,000 M $\Omega$		500 V DC
Max. switching frequency	Maximum	—	—	5 times/s	$I_F = 5\text{ mA}$ duty = 50% $V_L \times I_L = 75\text{ V}\cdot\text{A}$

Notes: 1. [Type of connection](#)  
2. Recommendable LED forward current  $I_F = 5$  to 10 mA.

\*Turn on/Turn off time

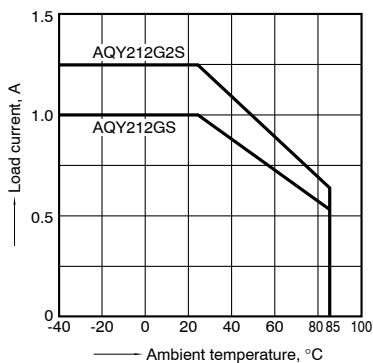


- [Dimensions](#)
- [Schematic and Wiring Diagrams](#)
- [Cautions for Use](#)

## REFERENCE DATA

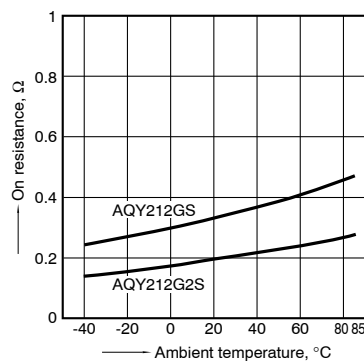
### 1. Load current vs. ambient temperature characteristics

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: Max. (DC)

