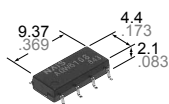


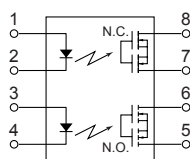
**Panasonic**  
ideas for life

**Super miniature design,  
SOP (1Form A/1Form B)  
8-pin type.  
Controls load voltage 60V,  
350V.**

**GU PhotoMOS  
(AQW610S)**

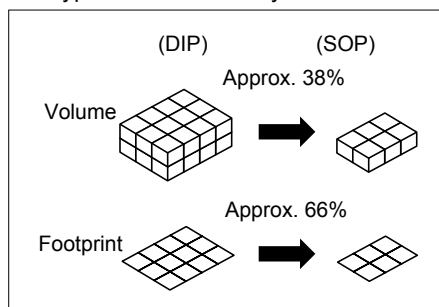


mm inch



**2. 2 channels in super miniature design**

The device comes in a super-miniature SO package measuring (W) 4.4 × (L) 9.37 × (H) 2.1 mm (W) .173× (L) .369× (H) .083 inch —approx. 38% of the volume and 66% of the footprint size of DIP type PhotoMOS relays.



**Controls low-level analog signals**

PhotoMOS relays feature extremely low closed-circuit offset voltage to enable control of low-level analog signals without distortion

**4. Low-level off-state leakage current**

**FEATURES**

**1. 60V type couples high capacity (0.45A) with low on-resistance (1Ω).**

Item	GU SOP (1 Form A/ 1 Form B type) type	
Part No.	AQW610S	AQW612S <b>NEW</b>
Load voltage	350V	60V
Continuous load current	0.1A	0.45A
ON resistance (typ.)	18Ω	1Ω

**3. Tape and reel**

The device comes standard in a tape and reel (1,000 pcs./reel) to facilitate automatic insertion machines.

**Applicable for 1 Form A 1 Form B use as well as two independent 1 Form A and 1 Form B use**

**TYPICAL APPLICATIONS**

- Power supply
- Measuring equipment
- Security equipment
- Telephone equipment
- Computer input machine
- Industrial robots
- High-speed inspection machines

**TYPES**

**1. AC/DC type**

Output rating*		Part No.		Packing quantity in tape and reel
Load voltage	Load current	Picked from the 1/2/3/4-pin side	Picked from the 5/6/7/8-pin side	
60 V	450 mA	AQW612SX	AQW612SZ	1,000 pcs.
350 V	100 mA	AQW610SX	AQW610SZ	1,000 pcs.

\*Indicate the peak AC and DC values.

Notes: (1) Tape package is the standard packing style. Also available in tube. (Part No. suf x "X" or "Z" is not needed when ordering; Tube: 50 pcs.; Case: 1,000 pcs.)

(2) For space reasons, the package type indicator "X" and "Z" are omitted from the seal.

**RATING**

**1. AC/DC type**

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

Item	Symbol	AQW612S	AQW610S	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	350 V	
	Continuous load current	I <sub>L</sub>	0.45 A (0.55 A)	0.1 A (0.13 A)	Peak AC, DC ( ): in case of using only 1a or 1b, 1 channel
	Peak load current	I <sub>peak</sub>	1.5 A	0.3 A	100 ms (1 shot), V <sub>L</sub> = DC
	Power dissipation	P <sub>out</sub>	600 mW		
Total power dissipation	P <sub>T</sub>	650 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		

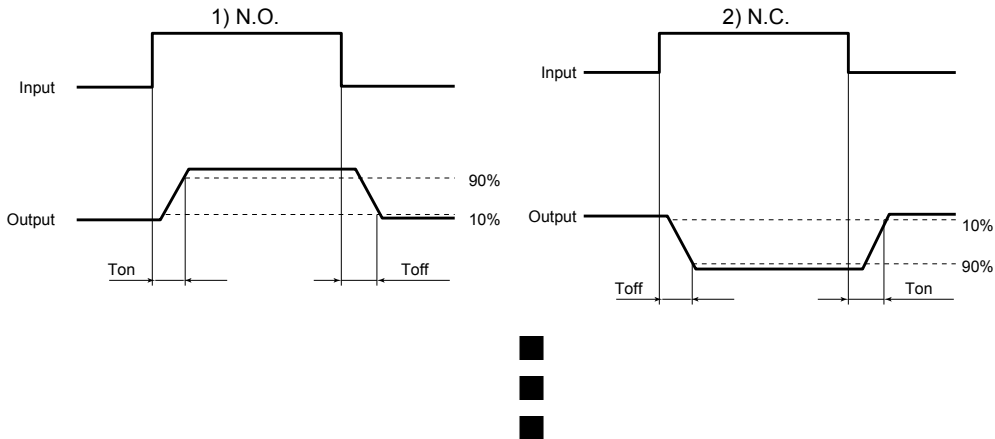
# GU PhotoMOS (AQW610S)

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

Item		Symbol	AQW612S	AQW610S	Condition
Input	LED operate current	Typical	0.9 mA		$I_L = \text{Max.}$
		Maximum	3 mA		
	LED reverse current	Minimum	0.4 mA		$I_L = \text{Max.}$
		Typical	0.8 mA		
LED dropout voltage	Typical	1.25 V (1.14 V at $I_F = 5 \text{ mA}$ )			$I_F = 50 \text{ mA}$
	Maximum	1.5 V			
Output	On resistance	Typical	1 $\Omega$	18 $\Omega$	$I_F = 5 \text{ mA (N.O.)}$ $I_F = 0 \text{ mA (N.C.)}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum	2.5 $\Omega$	25 $\Omega$	
	Off state leakage current	Maximum	1 $\mu\text{A}$		
Transfer characteristics	Operate time*	Typical	0.65 ms (N.O.), 0.9 ms (N.C.)		$I_F = 0 \text{ mA} \rightarrow 5 \text{ mA}$ $I_L = \text{Max.}$
		Maximum	3.0 ms		
	Reverse time*	Typical	0.08 ms (N.O.), 0.2 ms (N.C.)		$I_F = 5 \text{ mA} \rightarrow 0 \text{ mA}$ $I_L = \text{Max.}$
		Maximum	1.0 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

Note: Recommendable LED forward current  $I_F = 5 \text{ mA}$ .

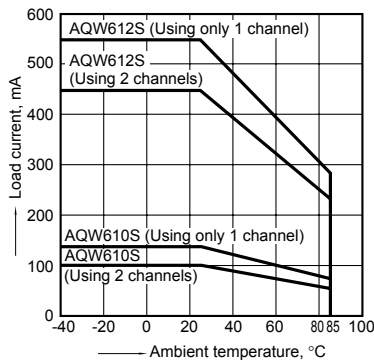
\*Operate/Reverse time



## REFERENCE DATA

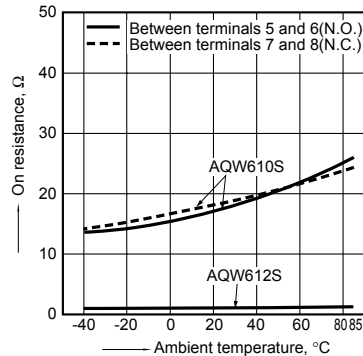
### 1. Load current vs. ambient temperature characteristics

Allowable ambient temperature: -40°C to +85°C  
-40°F to +185°F



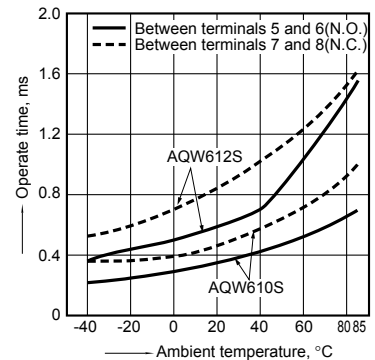
### 2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 5 and 6, 7 and 8; LED current: 5 mA; Load voltage: Max. (DC); Continuous load current: Max. (DC)



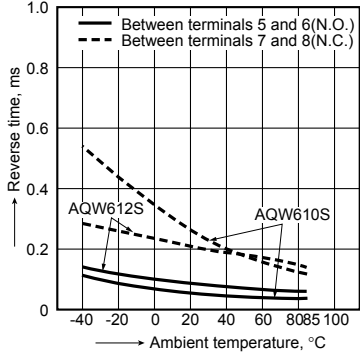
### 3. Operate time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: Max. (DC); Continuous load current: Max. (DC)



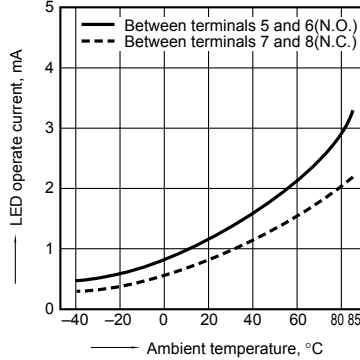
### 4. Reverse time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: Max. (DC); Continuous load current: Max. (DC)



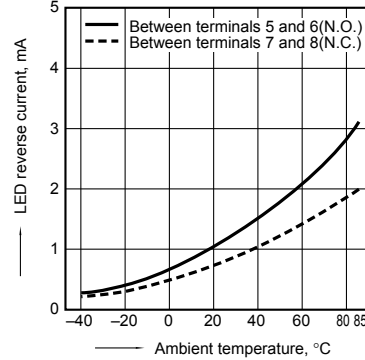
### 5. LED operate current vs. ambient temperature characteristics

Load voltage: Max. (DC); Continuous load current: Max. (DC)



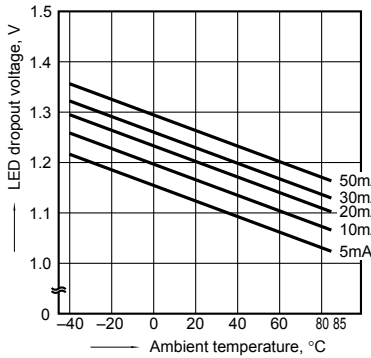
### 6. LED reverse current vs. ambient temperature characteristics

Load voltage: Max. (DC); Continuous load current: Max. (DC)



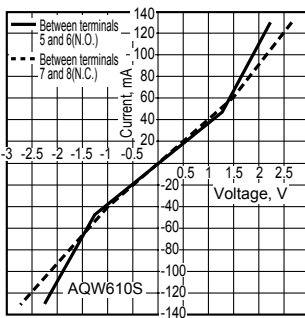
### 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



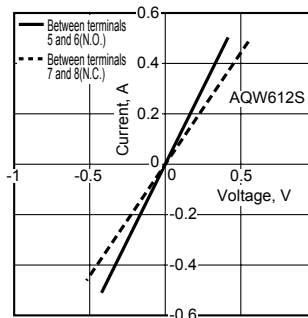
### 8-(1). Current vs. voltage characteristics of output at MOS portion

Measured portion: between terminals 5 and 6, 7 and 8; Ambient temperature: 25°C 77°F



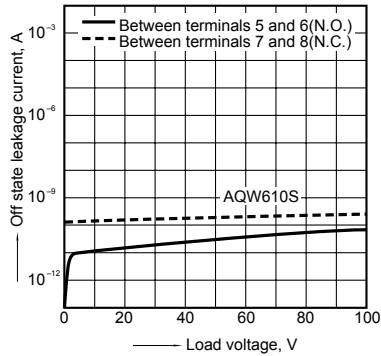
### 8-(2). Current vs. voltage characteristics of output at MOS portion

Measured portion: between terminals 5 and 6, 7 and 8; Ambient temperature: 25°C 77°F



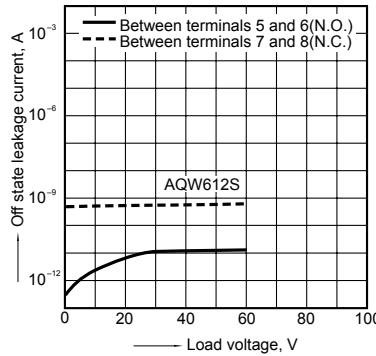
### 9-(1). Off state leakage current vs. load voltage characteristics

Measured portion: between terminals 5 and 6, 7 and 8; Ambient temperature: 25°C 77°F



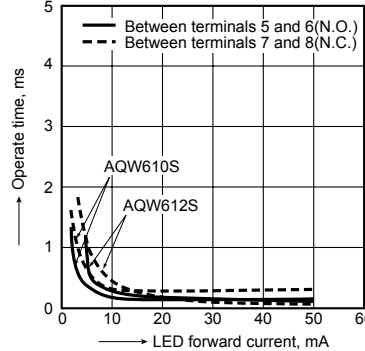
### 9-(2). Off state leakage current vs. load voltage characteristics

Measured portion: between terminals 5 and 6, 7 and 8; Ambient temperature: 25°C 77°F



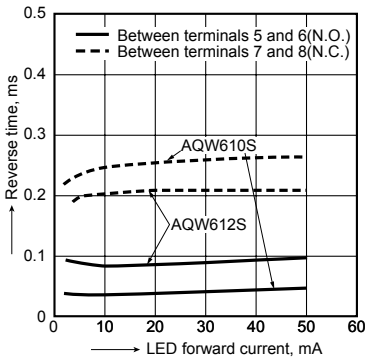
### 10. Operate time vs. LED forward current characteristics

Measured portion: between terminals 5 and 6, 7 and 8; Load voltage: Max. (DC); Continuous load current: Max. (DC); Ambient temperature: 25°C 77°F



### 11. Reverse time vs. LED forward current characteristics

Measured portion: between terminals 5 and 6, 7 and 8; Load voltage: Max. (DC); Continuous load current: Max. (DC); Ambient temperature: 25°C 77°F



### 12. Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 5 and 6, 7 and 8; Frequency: 1 MHz; Ambient temperature: 25°C 77°F

