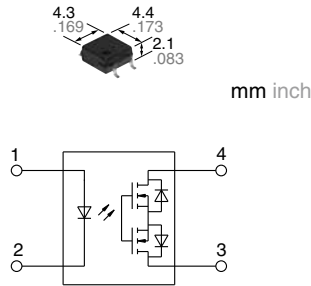




**Miniature SOP4-pin type with high capacity up to 1.6A**

**PhotoMOS®  
GU SOP 1 Form A High Capacity  
(AQY210GS)**



**RoHS compliant**

### FEATURES

1. Continuous load current: Max. 1.6A high capacity (AQY211G2S)
2. Low on resistance: Typ. 0.1  $\Omega$  (AQY211G2S)
3. Broad lineup of high capacity types

### TYPICAL APPLICATIONS

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

### TYPES

	Output rating*		Package	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 dual use	40V	1.6A	SOP4-pin	AQY211G2S	AQY211G2SX	AQY211G2SZ	1 tube contains: 100 pcs. 1 batch contains: 2,000 pcs.	1,000 pcs.
	60V	1.25A		AQY212G2S	AQY212G2SX	AQY212G2SZ		
		1.0A		AQY212GS	AQY212GSX	AQY212GSZ		

\* 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 "S" and the packing style indicator "X" or "Z" are not marked on the device. (Ex. the label for product number AQY212G2SX is 212G2.)

### RATING

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

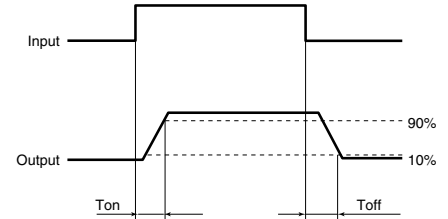
Item		Symbol	AQY211G2S	AQY212G2S	AQY212GS	Remarks
Input	LED forward current	$I_F$	50 mA			
	LED reverse voltage	$V_R$	5 V			
	Peak forward current	$I_{FP}$	1 A			$f = 100 \text{ Hz}$ , Duty factor = 0.1%
	Power dissipation	$P_{in}$	75 mW			
Output	Load voltage (peak AC)	$V_L$	40 V	60 V		
	Continuous load current	$I_L$	1.6 A	1.25 A	1.0 A	Peak AC, DC
	Peak load current	$I_{peak}$	4 A	3 A		100ms (1 shot), $V_L = \text{DC}$
	Power dissipation	$P_{out}$	400 mW			
Total power dissipation		$P_T$	450 mW			
I/O isolation voltage		$V_{iso}$	1,500 Vrms			
Ambient temperature	Operating	$T_{opr}$	-40 to +85°C -40 to +185°F			(Non-icing at low temperatures)
	Storage	$T_{stg}$	-40 to +100°C -40 to +212°F			

# GU SOP 1 Form A High Capacity (AQY210GS)

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

Item		Symbol	AQY211G2S	AQY212G2S	AQY212GS	Condition
Input	LED operate current	Typical	0.9 mA	1.1 mA		I <sub>L</sub> = 100mA
		Maximum	3 mA			
	LED turn off current	Minimum	0.2 mA	0.3 mA		I <sub>L</sub> = 100mA
		Typical	0.8 mA	1.0 mA		
LED dropout voltage	Typical	1.32 V (1.14 V at I <sub>F</sub> = 5 mA)			I <sub>F</sub> = 50 mA	
	Maximum	1.5 V				
Output	On resistance	Typical	0.1 Ω	0.2 Ω	0.34 Ω	I <sub>F</sub> = 5 mA I <sub>L</sub> = Max. Within 1 s
		Maximum	0.15 Ω	0.5 Ω	0.7 Ω	
	Off state leakage current	Maximum	1 μA			I <sub>F</sub> = 0 mA V <sub>L</sub> = Max.
Transfer characteristics	Turn on time*	Typical	1.0 ms	1.3 ms		I <sub>F</sub> = 5 mA I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V
		Maximum	3.0 ms	5.0 ms		
	Turn off time*	Typical	0.12 ms	0.1 ms		I <sub>F</sub> = 5 mA I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V
		Maximum	0.5 ms			
	I/O capacitance	Typical	0.8 pF			f = 1 MHz V <sub>B</sub> = 0 V
		Maximum	1.5 pF			
Initial I/O isolation resistance	Minimum	1,000 MΩ			500 V DC	
Max. operating frequency	Maximum	—	10 cps	5 cps	—	I <sub>F</sub> = 5 mA duty = 50% V <sub>L</sub> = Max. I <sub>L</sub> = Max.

\*Turn on/Turn off time



## 3. Recommended operating conditions (Ambient temperature: 25°C 77°F)

Please use under recommended operating conditions to obtain expected characteristics.

Item		Symbol	Min.	Max.	Unit
LED current		I <sub>F</sub>	5	30	mA
AQY211G2S	Load voltage (Peak AC)	V <sub>L</sub>	—	32	V
	Continuous load current	I <sub>L</sub>	—	1.6	A
AQY212G2S	Load voltage (Peak AC)	V <sub>L</sub>	—	48	V
	Continuous load current	I <sub>L</sub>	—	1.25	A
AQY212GS	Load voltage (Peak AC)	V <sub>L</sub>	—	48	V
	Continuous load current	I <sub>L</sub>	—	1.0	A

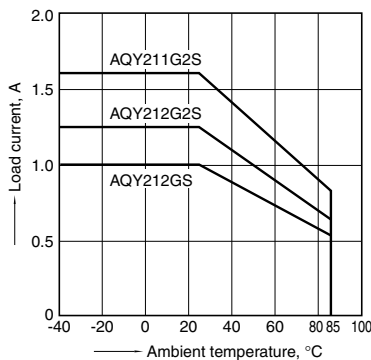
■ These products are not designed for automotive use.

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

## REFERENCE DATA

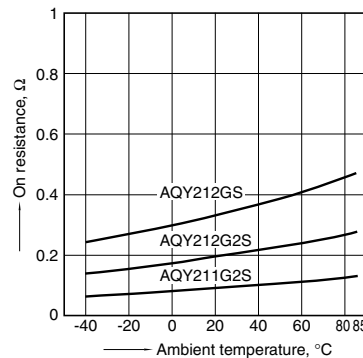
1. Load current vs. ambient temperature characteristics

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



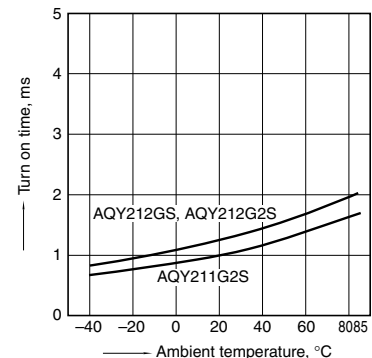
2. On resistance vs. ambient temperature characteristics

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



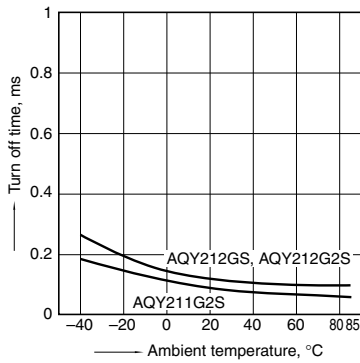
3. Turn on time vs. ambient temperature characteristics

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



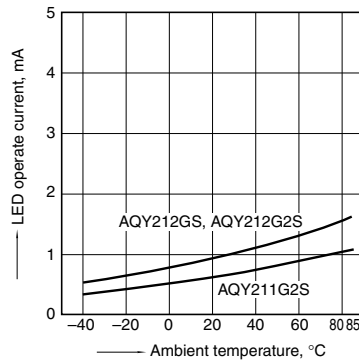
### 4. Turn off time vs. ambient temperature characteristics

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



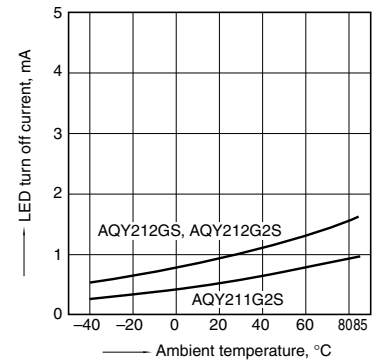
### 5. LED operate current vs. ambient temperature characteristics

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



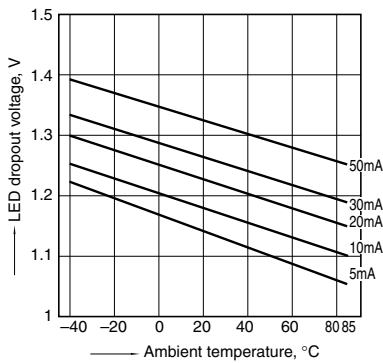
### 6. LED turn off current vs. ambient temperature characteristics

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



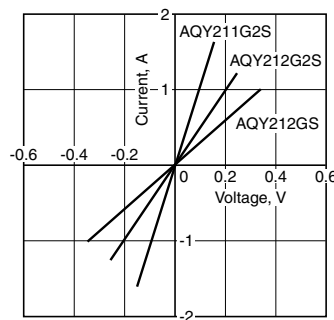
### 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



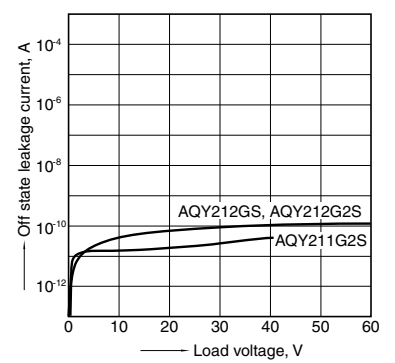
### 8. Current vs. voltage characteristics of output at MOS portion

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



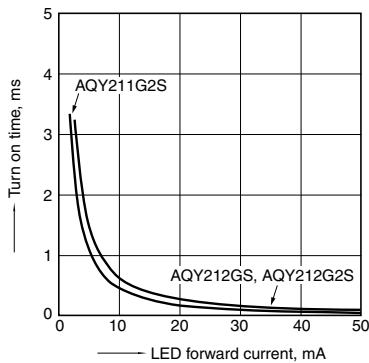
### 9. Off state leakage current vs. load voltage characteristics

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



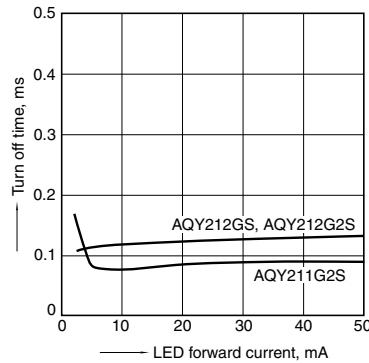
### 10. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4;  
Load voltage: 10 V (DC);  
Continuous load current: 100 mA (DC);  
Ambient temperature: 25°C 77°F



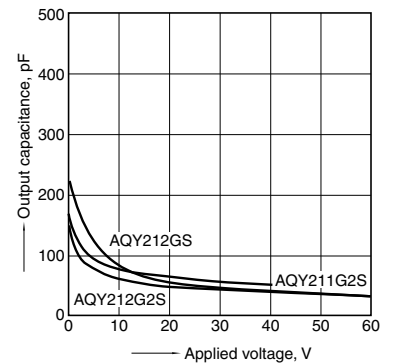
### 11. Turn off time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4;  
Load voltage: 10 V (DC);  
Continuous load current: 100 mA (DC);  
Ambient temperature: 25°C 77°F



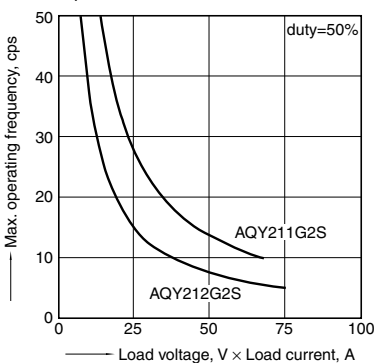
### 12. Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 3 and 4;  
Frequency: 1 MHz;  
Ambient temperature: 25°C 77°F



### 13. Max. operating frequency vs. load voltage and load current

LED current: 5 mA  
Ambient temperature: 25°C 77°F



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