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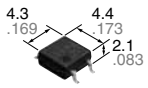
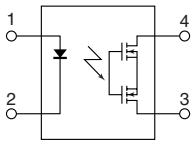
Miniature SOP4-pin type with high capacity up to 1.6A

PhotoMOS®
GU SOP 1 Form A High Capacity
(AQY2)



mm inch



RoHS compliant

FEATURES

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

TYPICAL APPLICATIONS

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

* Please refer to our website for the latest information regarding compliance to standards.

TYPES

	Output rating**		Package	Part No.			Packing quantity	
	Load voltage	Load current		Tube packing style	Tape and reel packing style: Picked from the 1/2-pin side	Tape and reel packing style: Picked from the 3/4-pin side	Tube	Tape and reel
AC/DC dual use	New 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

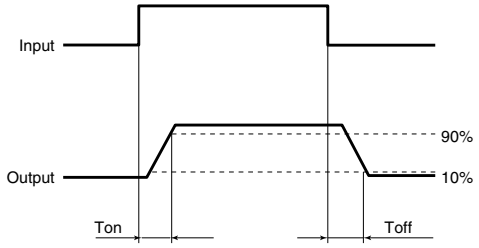
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

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 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 = DC
	Power dissipation	P_{out}	400 mW			
Total power dissipation		P_T	450 mW			
I/O isolation voltage		V_{iso}	1,500 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			

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

Item			Symbol	AQY211G2S	AQY212G2S	AQY212GS	Condition
Input	LED operate current	Typical	I_{Fon}	0.9 mA	1.1 mA		I_L = 100mA
		Maximum		3 mA			
	LED turn off current	Minimum	I_{Foff}	0.2 mA	0.3 mA		I_L = 100mA
		Typical		0.8 mA	1.0 mA		
	LED dropout voltage	Typical	V_F	1.32 V (1.14 V at I_F = 5 mA)			I_F = 50 mA
		Maximum		1.5 V			
Output	On resistance	Typical	R_{on}	0.1 Ω	0.2 Ω	0.34 Ω	I_F = 5 mA I_L = Max. Within 1 s on time
		Maximum		0.15 Ω	0.5 Ω	0.7 Ω	
	Off state leakage current	Maximum	I_{Leak}	1 μA			I_F = 0 mA V_L = Max.
Transfer characteristics	Turn on time*	Typical	T_{on}	1.0 ms	1.3 ms		I_F = 5 mA I_L = 100 mA V_L = 10 V
		Maximum		3.0 ms	5.0 ms		
	Turn off time*	Typical	T_{off}	0.12 ms	0.1 ms		I_F = 5 mA I_L = 100 mA V_L = 10 V
		Maximum		0.5 ms			
	I/O capacitance	Typical	C_{iso}	0.8 pF			f = 1 MHz V_B = 0 V
		Maximum		1.5 pF			
	Initial I/O isolation resistance	Minimum	R_{iso}	1,000 MΩ			500 V DC
	Max. switching frequency	Maximum	—	10 times/s	5 times/s	—	I_F = 5 mA duty = 50% V_L = Max. I_L = Max.

*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

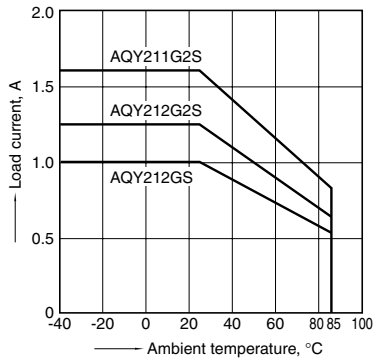
■ For Dimensions.
■ For Schematic and Wiring Diagrams.
■ For Cautions for Use.

■ 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

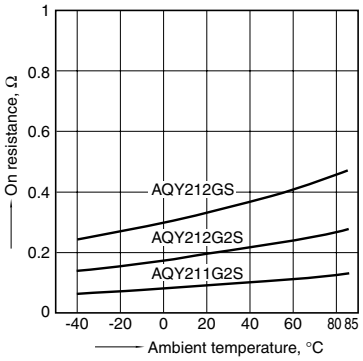
1. Load current vs. ambient temperature characteristics

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



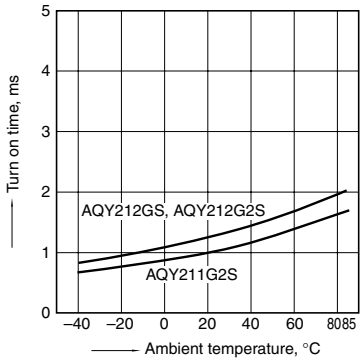
2. On resistance vs. ambient temperature characteristics

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)



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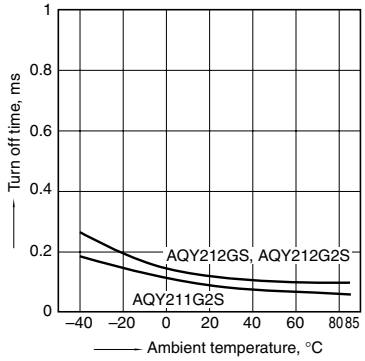
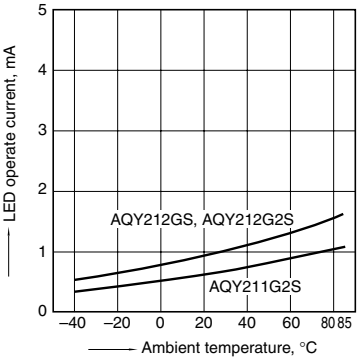
4. Turn off time vs. ambient temperature characteristics

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



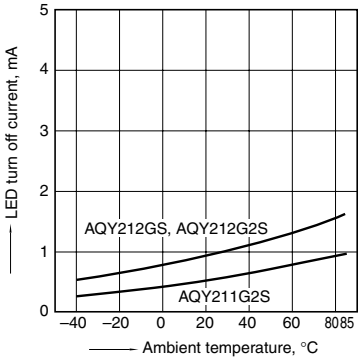
5. LED operate current vs. ambient temperature characteristics

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



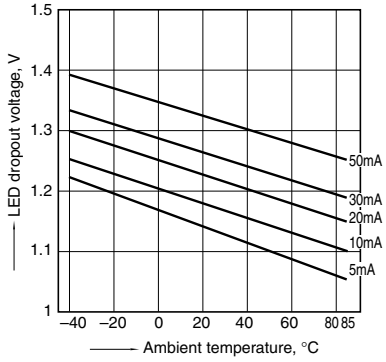
6. LED turn off current vs. ambient temperature characteristics

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



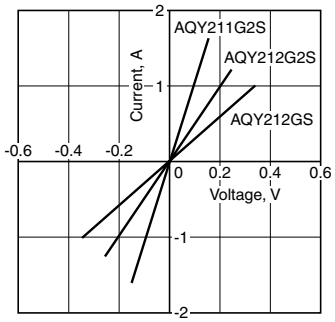
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



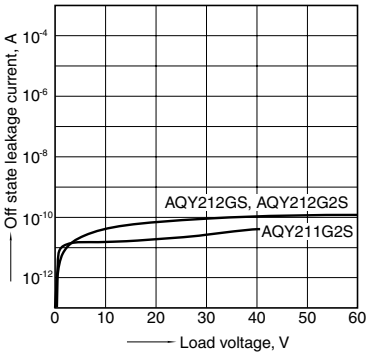
8. Current vs. voltage characteristics of output at MOS portion

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



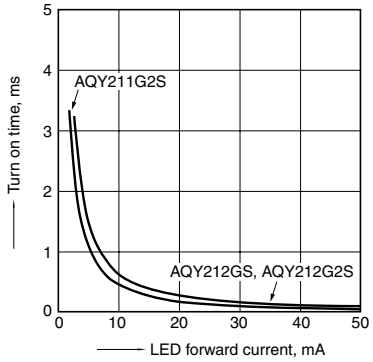
9. Off state leakage current vs. load voltage characteristics

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



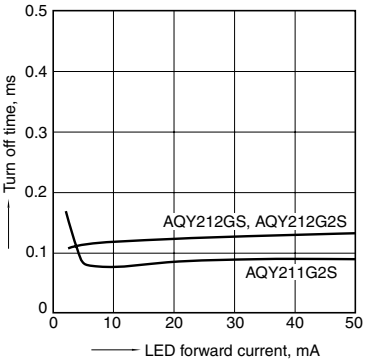
10. Turn on time vs. LED forward current characteristics

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



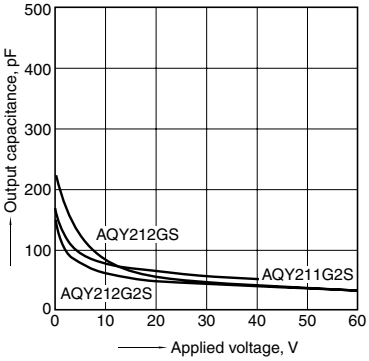
11. Turn off time vs. LED forward current characteristics

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



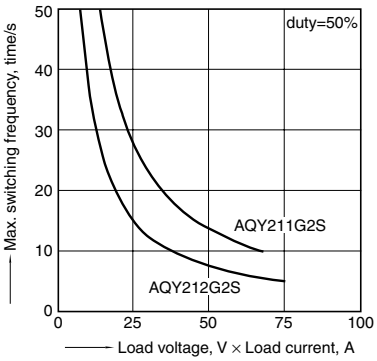
12. Output capacitance vs. applied voltage characteristics

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



13. Max. switching frequency vs. load voltage and load current

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



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