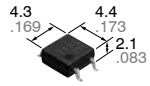
(AQY212GS) (AQY212GS)

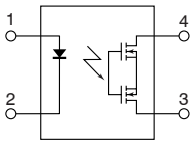
Panasonic
ideas for life

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 (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 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)

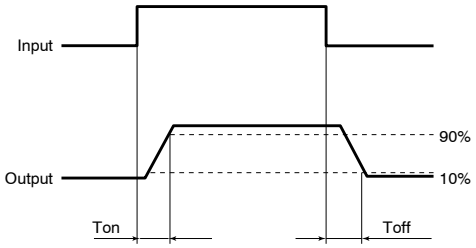
Item		Symbol	AQY212GS	AQY212G2S	Remarks
Input	LED forward current	I_F	50 mA		
	LED reverse voltage	V_R	5 V		
	Peak forward current	I_{FP}	1 A		f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P_{in}	75 mW		
Output	Load voltage (peak AC)	V_L	60 V		
	Continuous load current (peak AC)	I_L	1.0 A	1.25 A	
	Peak load current	I_{peak}	3 A		100ms (1 shot), V_L = DC
	Power dissipation	P_{out}	300 mW		
Total power dissipation		P_T	350 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	AQY212GS	AQY212G2S	Condition
Input	LED operate current	Typical	I_{Fon}	1.1 mA		I_L = 100mA
		Maximum		3 mA		
	LED turn off current	Minimum	I_{Foff}	0.3 mA		I_L = 100mA
		Typical		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}	0.34 Ω	0.2 Ω	I_F = 5 mA I_L = Max. Within 1 s on time
		Maximum		0.7 Ω	0.5 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}	1.3 ms		I_F = 5 mA I_L = 100 mA V_L = 10 V
		Maximum		5.0 ms		
	Turn off time*	Typical	T_{off}	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	—	—	5 times/s	I_F = 5 mA duty = 50% $V_L \times I_L$ = 75 V·A

Notes: 1. Type of connection
2. Recommendable LED forward current I_F = 5 to 10 mA.

*Turn on/Turn off time

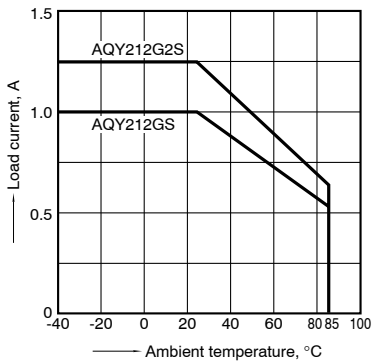


■ Dimensions
■ Schematic and Wiring Diagrams
■ Cautions for Use

REFERENCE DATA

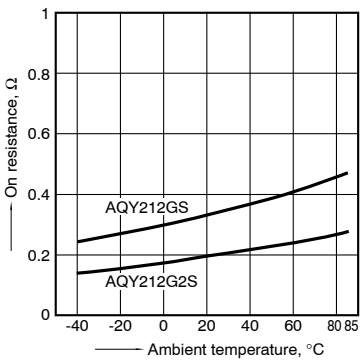
1. Load current vs. ambient temperature characteristics

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



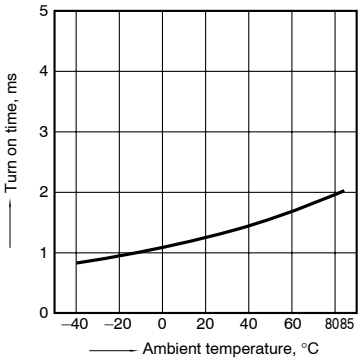
2. On resistance vs. ambient temperature characteristics

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



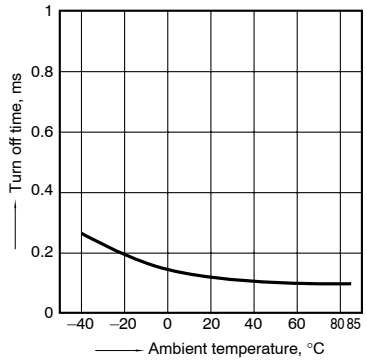
3. Turn on time vs. ambient temperature characteristics

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



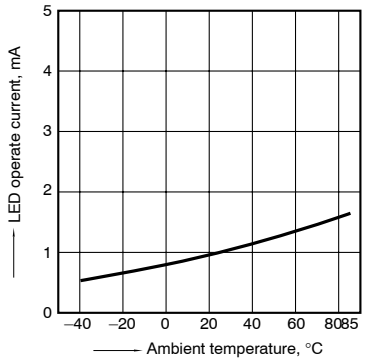
4. Turn off time vs. ambient temperature characteristics

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



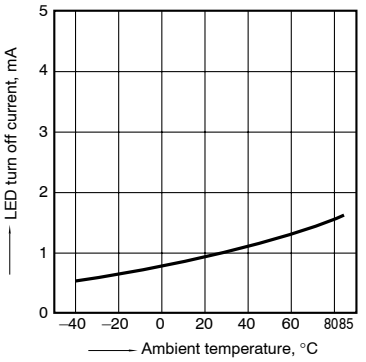
5. LED operate current vs. ambient temperature characteristics

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



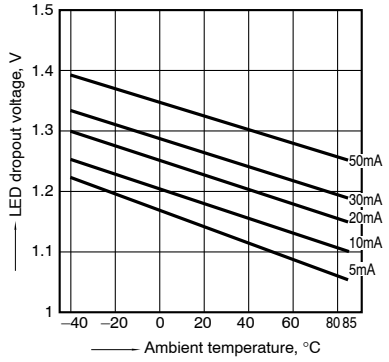
6. LED turn off current vs. ambient temperature characteristics

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



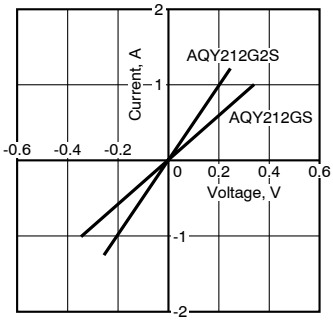
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



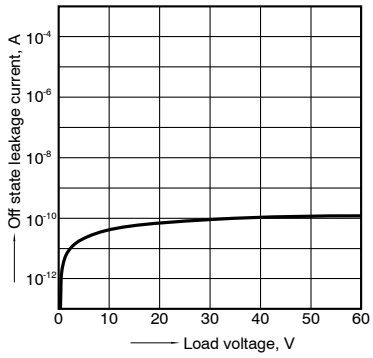
8. Current vs. voltage characteristics of output at MOS portion

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



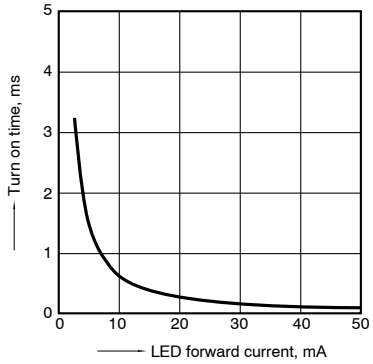
9. Off state leakage current vs. load voltage characteristics

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



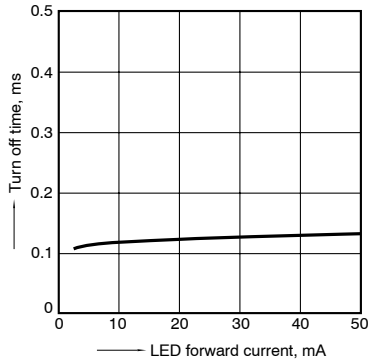
10. Turn on time vs. LED forward current characteristics

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



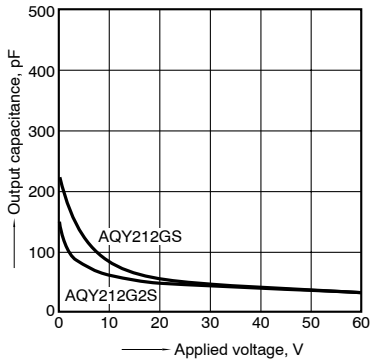
11. Turn off time vs. LED forward current characteristics

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