

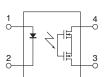


# Miniature SOP4-pin type with high capacity up to 1.25A

Photo MOS Relays GU SOP 1 Form A High Capacity (AQY212GS, AQY212G2S)



mm inch



## **FEATURES**

- 1. Greatly increased load current in miniature SOP4-pin package (1.25A high capacity type added).
- 2. Greatly improved specifications allow you to use this in place of mercury and mechanical relays.

## TYPICAL APPLICATIONS

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

#### **TYPES**

	Output rating*			Part No.			Packing quantity	
	Load voltage		_	Tube packing style	Tape and reel packing style			
					Picked from the 1/2-pin side	Picked from the 3/4-pin side	Tube	Tape and reel
AC/DC dual use	60V	1.0A	SOP4-pin	AQY212GS	AQY212GSX	AQY212GSZ	1 tube contains: 100 pcs.	1 000 non
		1.25A	AQY212G2S	AQY212G2SX	AQY212G2SZ	1 batch contains: 2,000 pcs.	1,000 pcs.	

<sup>\*</sup> Indicate the peak AC and DC values.

Note: 1. 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 relay. (Ex. the label for product number AQY212G2SX is 212G2.)

2. Types with a built-in resistor.

## **RATING**

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

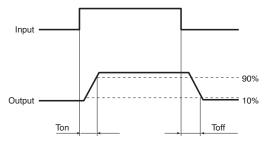
	Item	Symbol	AQY212GS	AQY212G2S	Remarks
	LED forward current	lF	50 mA		
lonut	LED reverse voltage	VR	5 V		
Input	Peak forward current	IFP	1 A		f = 100 Hz, Duty factor = 0.1%
	Power dissipation	Pin	75 mW		
	Load voltage (peak AC)	VL	60 V		
Output	Continuous load current	lι	1.0 A	1.25 A	Peak AC, DC
Output	Peak load current	Ipeak	3 A		100ms (1 shot), V <sub>L</sub> = DC
	Power dissipation	Pout	300 mW		
Total power dissipatio	n	PT	350 mW		
I/O isolation voltage		Viso	1,500 V AC		
Temperature limits	Operating	Topr	-40°C to +85°C -40°F to +185°F		Non-condensing at low temperatures
remperature iimits	Storage	Tstg	-40°C to +100°C -40°F to +212°F		

## GU SOP 1 Form A High Capacity (AQY212GS, AQY212G2S)

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

Item				AQY212GS	AQY212G2S	Condition
Input	LED operate current	Typical Maximum	- I <sub>Fon</sub>	1.1 mA 3 mA		IL = 100mA
	LED turn off current	Minimum	Foff	0.3 mA		IL = 100mA
	LED turn on current	Typical	Ігоп	1.0 mA		
	LED dropout voltage	Typical	VF	1.32 V (1.14 V at I <sub>F</sub> = 5 mA)		I <sub>F</sub> = 50 mA
	LLD dropout voltage	Maximum	VF	1.5 V		
Output	On resistance	Typical	Ron	0.34 Ω	0.2 Ω	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum		0.7 Ω	0.5 Ω	
	Off state leakage current	Maximum	ILeak	1 μΑ		I <sub>F</sub> = 0 mA V <sub>L</sub> = Max.
		Typical		1.3 ms		IF = 5 mA IL = 100 mA VL = 10 V
	Turn on time*	Maximum	Ton	5.0 ms		
		Typical		0.1 ms		I <sub>F</sub> = 5 mA I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V
Transfer	Turn off time*	Maximum	Toff	0.5 ms		
characteristics	I/O capacitance	Typical	Ciso	0.8 pF		f = 1 MHz V <sub>B</sub> = 0 V
	1/О сараспансе	Maximum	Ciso	1.5 pF		
	Initial I/O isolation resistance Minimum		Riso	1,000 ΜΩ		500 V DC
	Max. switching frequency	Maximum	_	_	5 times/s	IF = 5 mA duty = 50% V <sub>L</sub> × I <sub>L</sub> = 75 V·A

<sup>\*</sup>Turn on/Turn off time



## RECOMMENDED OPERATING CONDITIONS

Please obey the following conditions to ensure proper relay operation and resetting.

Item	Symbol	Recommended value	Unit	
Input LED current	lF	5 to 10	mA	

- Dimensions
- Schematic and Wiring Diagrams
- 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 Electric Works technical representative.

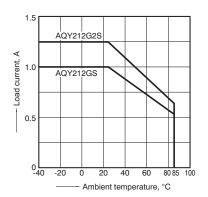
Please refer to our information on PhotoMOS Relays for Automotive Applications.

## GU SOP 1 Form A High Capacity (AQY212GS, AQY212G2S)

## REFERENCE DATA

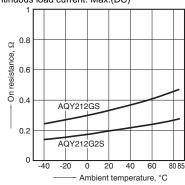
1. Load current vs. ambient temperature characteristics

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



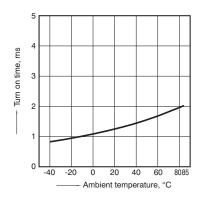
2. On resistance vs. ambient temperature characteristics

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



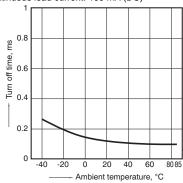
3. Turn on time vs. ambient temperature characteristics

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



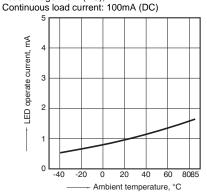
4. Turn off time vs. ambient temperature characteristics

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



5. LED operate current vs. ambient temperature characteristics

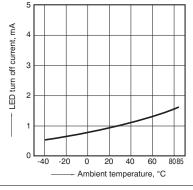
Load voltage: 10 V (DC);



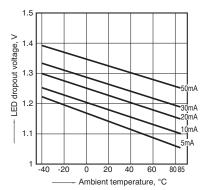
6. LED turn off current vs. ambient temperature characteristics

Load voltage: 10 V (DC);

Continuous load current: 100mA (DC)

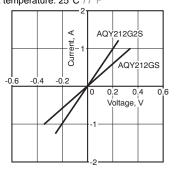


7. LED dropout voltage vs. ambient temperature characteristics LED current: 5 to 50 mA



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°

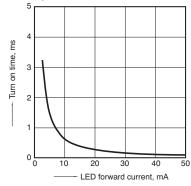
beakage current, state ₽ 10 20 30 - Load voltage, V

## GU SOP 1 Form A High Capacity (AQY212GS, AQY212G2S)

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);

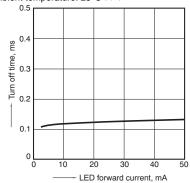
Ambient temperature: 25°C 77°F



11.Turn off time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4; Load voltage: 10 V (DC);

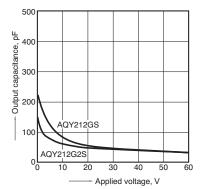
Continuous load current: 100 mA (DC); Ambient temperature: 25°C 77°F



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

