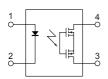


Super miniature design, SOP(1 Form A) 4-pin type Controls load voltage 60V, 350V, 400V

GU PhotoMOS (AQY21OS)



mm inch

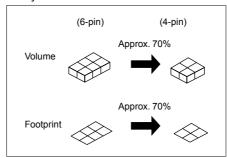


FEATURES

1. SO package 4-Pin type in super miniature design

The device comes in a super-miniature SO package 4-Pin type measuring

(W)4.3 \times (L)4.4 \times (H)2.1 mm (W).169 \times (L).173 \times (H).083 inch —approx. 70% of the volume and 70% of the footprint size of SO package 6-pin type PhotoMOS Relays.



2. Tape and reel

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

3. Controls low-level analog signalsPhotoMOS relays feature extremely low closed-circuit offset voltage to enable control of low-level analog signals without

4. Low-level off state leakage current In contrast to the SSR with an off state leakage current of several milliamperes, the PhotoMOS relay features a very small off state leakage current of typ. 100 pA (AQY214S) even with the rated load voltage of 400 V.

TYPICAL APPLICATIONS

- Telecommunications (PC, Electronic Notepad)
- Measuring and Testing equipment
- Factory Automation Equipment
- Security equipment

distortion.

· High speed inspection machines

TYPES

AC/DC type

Output rating*		Part	Packing quantity in tape		
Load voltage	Load current	Picked from the 1/2-pin side	Picked from the 3/4-pin side	and reel	
60 V	500 mA	AQY212SX	AQY212SZ		
350 V	120 mA	AQY210SX	AQY210SZ	1,000 pcs.	
400 V	100 mA	AQY214SX	AQY214SZ		

^{*} 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: 100 pcs.; Case: 2,000 pcs.)

(2) For space reasons, the top two letters of the product number "AQY" and "S" are omitted on the product seal. The package type indicator "X" and "Z" are omitted from the seal. (Ex. the label for product number AQY210S is 210).

RATING

AC/DC type

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

	Item	Symbol	AQY212S	AQY210S	AQY214S	Remarks
Input	LED forward current	I F	50 mA			
	LED reverse voltage	VR	5 V			
	Peak forward current	I FP	1 A		f = 100 Hz, Duty factor = 0.1%	
	Power dissipation	Pin	75 mW			
Output	Load voltage (peak AC)	VL	60 V	350 V	400 V	
	Continuous load current (peak AC)	IL	0.5 A	0.12 A	0.1 A	
	Peak load current	Ipeak	1.5 A	0.3 A	0.24 A	100ms (1 shot), V∟ = DC
	Power dissipation	Pout	300 mW			
Total power dissipation		Рт	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	
	Storage	T _{stg}	-40°C to +100°C -40°F to +212°F			

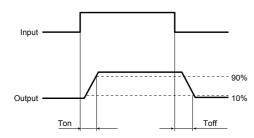
GU PhotoMOS (AQY21OS)

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

Item			Symbol	AQY212S	AQY210S	AQY214S	Remarks
Input	LED an arete assert	Typical	Fon	0.9 mA			I∟ = Max.
	LED operate current	Maximum		3 mA			
	LED turn off current	Minimum	Foff	0.4 mA			— I∟ = Max.
		Typical		0.85 mA			
	LED dropout voltage	Typical	VF	1.25 V (1.14 V at I _F = 5 mA)			I _F = 50 mA
		Maximum	VF	1.5 V			
Output	On resistance	Typical	Ron	$0.83~\Omega$	17 Ω	25 Ω	I _F = 5 mA I _L = Max. Within 1 s on time
		Maximum		$2.5~\Omega$	25 Ω	35 Ω	
	Off state leakage current	Maximum	Leak	1 μΑ		I _F = 0 mA V _L = Max.	
Transfer characteristics	Turn on time*	Typical	Ton	0.65 ms	0.23 ms	0.21 ms	I _F = 5 mA I _L = Max.
		Maximum		2 ms	0.5 ms	0.5 ms	
	Turn off time*	Typical	Toff	0.04 ms			I _F = 5 mA I _L = Max.
		Maximum	loff	0.2 ms			
	I/O capacitance	Maximum	Ciso	1.5 pF		f = 1 MHz V _B = 0 V	
	Initial I/O isolation resistance	Minimum	Riso		1,000 MΩ		500 V DC

Note: Recommendable LED forward current IF = 5mA.

*Turn on/Turn off time

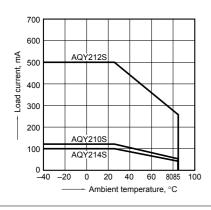




REFERENCE DATA

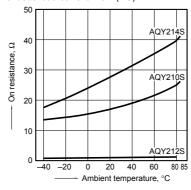
1. Load current vs. ambient temperature characteristics

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



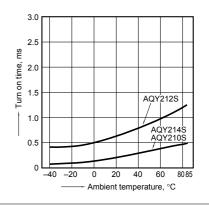
2. On resistance vs. ambient temperature characteristics

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

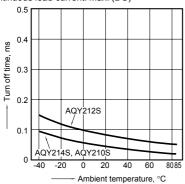
LED current: 5 mA; Load voltage: Max. (DC); Continuous load current: Max. (DC)



GU PhotoMOS (AQY21OS)

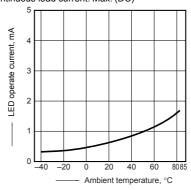
4. Turn off time vs. ambient temperature characteristics

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



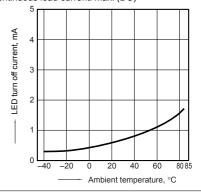
5. LED operate current vs. ambient temperature characteristics

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



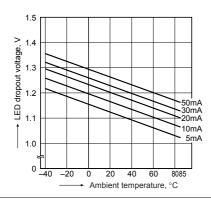
6. LED turn off current vs. ambient temperature characteristics

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



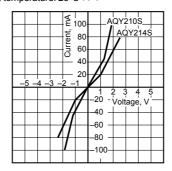
7. LED dropout voltage vs. ambient temperature characteristics

Sample: All types; LED current: 5 to 50 mA



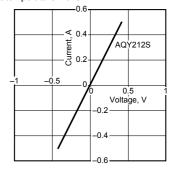
8-(1). Current vs. voltage characteristics of output at MOS portion

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



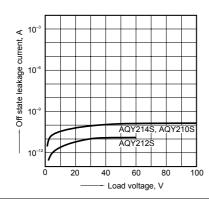
8-(2). Current vs. voltage characteristics of output at MOS portion

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



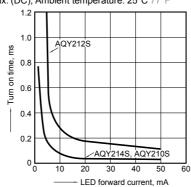
9. Off state leakage current vs. load voltage characteristics

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



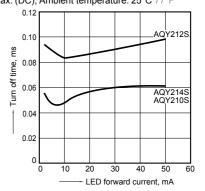
10. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4; Load voltage: Max. (DC); Continuous load current: Max. (DC); Ambient temperature: 25°C $77^{\circ}F$



11. Turn off time vs. LED forward current characteristics

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

