

**Panasonic**  
ideas for life

**GU (General Use) Type**  
**[1, 2-Channel (Form A)**  
**4, 8-Pin Type]**

**PhotoMOS**  
**RELAYS**



mm inch

## FEATURES

### 1. Low cost type.

**2. High sensitivity, Low ON resistance**  
Can control a maximum 0.5A (AQY282S, AQW282S) load current with a 5mA input current.

Low ON resistance of 2.5Ω (AQY282S, AQW282S).

Stable operation because there are no metallic contact parts.

**3. Various package design (DIP4, SOP4, DIP8, SOP8 packages are available)**

### 4. Low-level off state leakage current

The SSR has an off state leakage current of several milliamperes, where as the PhotoMOS relay has only 100pA even with the rated load voltage of 350V (AQY280S, AQW280S).

## TYPICAL APPLICATIONS

- Modem
- Telephone equipment
- Security equipment
- Sensors
- Amusement

## SOP TYPE

### SOP 4pin

Type	Output rating*		Part No.		Packing quantity in tape and reel
	Load voltage	Load current	Picked from the 1/2-pin side	Picked from the 3/4-pin side	
AC/DC type	60 V	500 mA	AQY282SX	AQY282SZ	1,000 pcs.
	350 V	120 mA	AQY280SX	AQY280SZ	
	400 V	100 mA	AQY284SX	AQY284SZ	

\*Indicate the peak AC and DC values.

Notes: (1) Tape package is the standard packing style. Also available in tube. (Part No. suffix "X" or "Z" is not needed when ordering; Tube: 100 pcs.; Case: 2,000 pcs.)

(2) For space reasons, the initial letters of the product number "AQY" and "S", the package type indicator "X" and "Z" are omitted from the seal.

### SOP 8pin

Type	Output rating*		Part No.		Packing quantity in tape and reel
	Load voltage	Load current	Picked from the 1/2/3/4-pin side	Picked from the 5/6/7/8-pin side	
AC/DC type	60 V	350 mA	AQW282SX	AQW282SZ	1,000 pcs.
	350 V	100 mA	AQW280SX	AQW280SZ	
	400 V	80 mA	AQW284SX	AQW284SZ	

\* Indicate the peak AC and DC values.

Notes: (1) Tape package is the standard style. Also available in tube. (Part No. suffix "X" or "Z" is not needed when ordering; Tube: 50 pcs.; Case: 1,000 pcs.)

(2) For space reasons, the package type indicator "X" and "Z" are omitted from the seal.

## RATING

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

SOP 4pin

Item		Symbol	AQY282S	AQY280S	AQY284S	Remarks
Input	LED forward current	$I_F$	50 mA			f = 100 Hz, Duty factor = 0.1%
	LED reverse voltage	$V_R$	5 V			
	Peak forward current	$I_{FP}$	1 A			
	Power dissipation	$P_{in}$	75 mW			
Output	Load voltage (peak AC)	$V_L$	60 V	350 V	400 V	100 ms (1 shot), $V_L = DC$
	Continuous load current (peak AC)	$I_L$	0.5 A	0.12 A	0.1 A	
	Peak load current	$I_{peak}$	1.5 A	0.3 A	0.24 A	
	Power dissipation	$P_{out}$	300 mW			
Total power dissipation		$P_T$	350 mW			
I/O isolation voltage		$V_{iso}$	1,500 V AC			
Operating temperature		$T_{opr}$	-40°C to +85°C -40°F to +185°F			Non-condensing at low temperature
Storage temperature		$T_{stg}$	-40°C to +100°C -40°F to +212°F			

SOP 8pin

Item		Symbol	AQW282S	AQW280S	AQW284S	Remarks
Input	LED forward current	$I_F$	50 mA			f = 100 Hz, Duty factor = 0.1%
	LED reverse voltage	$V_R$	5 V			
	Peak forward current	$I_{FP}$	1 A			
	Power dissipation	$P_{in}$	75 mW			
Output	Load voltage (peak AC)	$V_L$	60 V	350 V	400 V	( ): in case of using only 1 channel 100 ms (1 shot), $V_L = DC$
	Continuous load current (peak AC)	$I_L$	0.35 (0.5) A	0.1 (0.13) A	0.08 (0.1) A	
	Peak load current	$I_{peak}$	1.05 A	0.3 A	0.24 A	
	Power dissipation	$P_{out}$	600 mW			
Total power dissipation		$P_T$	650 mW			
I/O isolation voltage		$V_{iso}$	1,500 V AC			
Operating temperature		$T_{opr}$	-40°C to +85°C -40°F to +185°F			Non-condensing at low temperature
Storage temperature		$T_{stg}$	-40°C to +100°C -40°F to +212°F			

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

SOP 4pin

Item			Symbol	AQY282S	AQY280S	AQY284S	Condition
Input	LED operate current	Typical	$I_{Fon}$	1.8 mA			$I_L = Max.$
		Maximum		3.0 mA			
	LED turn off current	Minimum	$I_{Foff}$	0.2 mA			$I_L = Max.$
		Typical		1.6 mA			
	LED dropout voltage	Typical	$V_F$	1.14 V (1.25 V at $I_F = 50mA$ )			$I_F = 5 mA$
Maximum		1.5 V					
Output	On resistance	Typical	$R_{on}$	0.85Ω	20Ω	28Ω	$I_F = 5 mA$ $I_L = Max.$ Within 1 s on time
		Maximum		2.5Ω	25Ω	35Ω	
	Off state leakage current	Maximum	$I_{Leak}$	1μA			$I_F = 0 mA$ $V_L = Max.$
Transfer characteristics	Turn on time*	Typical	$T_{on}$	0.9 ms	0.3 ms		$I_F = 5 mA$ $I_L = Max.$
		Maximum		3 ms			
	Turn off time*	Typical	$T_{off}$	0.5 ms			$I_F = 5 mA$ $I_L = Max.$
		Maximum		2 ms			
	I/O capacitance	Typical	$C_{iso}$	0.8 pF			f = 1 MHz $V_B = 0V$
Maximum		1.5 pF					
Initial I/O isolation resistance		Minimum	$R_{iso}$	1,000 MΩ		500 V DC	

SOP 8pin

Item		Symbol	AQW282S	AQW280S	AQW284S	Condition
Input	LED operate current	Typical	1.8 mA			I <sub>L</sub> = Max.
		Maximum	3.0 mA			
	LED turn off current	Minimum	0.2 mA			I <sub>L</sub> = Max.
		Typical	1.6 mA			
LED dropout voltage	Typical	1.14 V (1.25 V at I <sub>F</sub> = 50mA)			I <sub>F</sub> = 5 mA	
	Maximum	1.5 V				
Output	On resistance	Typical	0.85Ω	20Ω	28Ω	I <sub>F</sub> = 5 mA I <sub>L</sub> = Max. Within 1 s on time
		Maximum	2.5Ω	25Ω	35Ω	
	Off state leakage current	Maximum	1μA			I <sub>F</sub> = 0 mA V <sub>L</sub> = Max.
Transfer characteristics	Turn on time*	Typical	0.9 ms	0.3 ms		I <sub>F</sub> = 5 mA I <sub>L</sub> = Max.
		Maximum	3 ms			
	Turn off time*	Typical	0.5 ms			I <sub>F</sub> = 5 mA I <sub>L</sub> = Max.
		Maximum	2 ms			
	I/O capacitance	Typical	0.8 pF			f = 1 MHz V <sub>B</sub> = 0V
		Maximum	1.5 pF			
Initial I/O isolation resistance	Minimum	1,000 MΩ			500 V DC	

\*Turn on/Turn off time



3-4 the terminal leads receive solder plating or solder dip plating.

## REFERENCE DATA

[SOP type]

1. Load current vs. ambient temperature characteristics

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

Type of connection: A

(1) AQY282S



(2) AQY280S, AQY284S



(3) AQW282S



**DIMENSIONS**

**AQY28OS**



Recommended mounting pad  
(Top view)



Terminal thickness = 0.15 .006  
General tolerance: ±0.1 ±.004

Tolerance: ±0.1 ±.004

**AQW28OS**



Recommended mounting pad  
(Top view)



Terminal thickness = 0.15 .006  
General tolerance: ±0.1 ±.004

Tolerance: ±0.1 ±.004

**AQY28EH(A)**

Through hole terminal type

Surface mount terminal type

PC board pattern (Bottom view)



Terminal thickness = 0.2 .008  
General tolerance: ±0.1 ±.004

Terminal thickness = 0.2 .008  
General tolerance: ±0.1 ±.004

Tolerance: ±0.1 ±.004

Mounting pad (Top view)

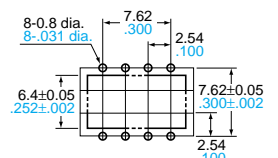
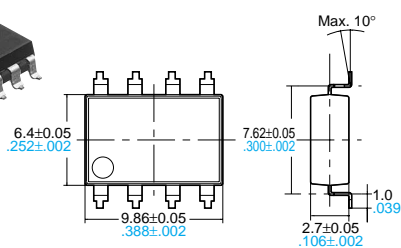
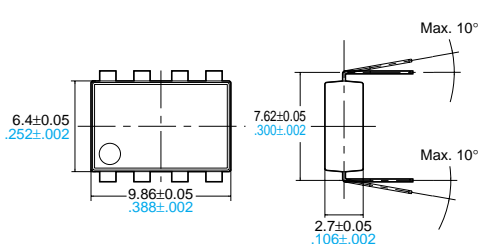
Tolerance: ±0.1 ±.004

**AQW28EH(A)**

Through hole terminal type

Surface mount terminal type

PC board pattern  
(Bottom view)



Terminal thickness = 0.2 .008  
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Tolerance: ±0.1 ±.004

Mounting pad (Top view)

Tolerance: ±0.1 ±.004

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