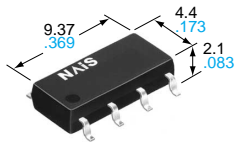
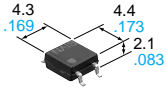


**Panasonic**  
ideas for life

**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,<br>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),<br>$V_L = DC$    |
|                         | 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,<br>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<br>100 ms (1 shot),<br>$V_L = DC$ |
|                         | 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)

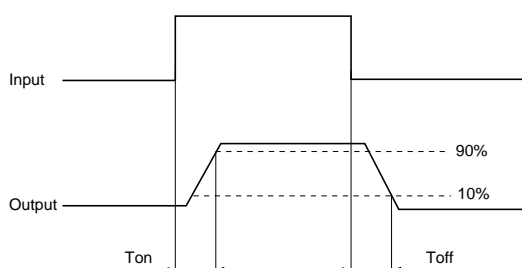
SOP 4pin

| 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     | $I_F = 5 mA$<br>$I_L = Max.$<br>Within 1 s on time |
|                          |                                  | Maximum |            | 2.5Ω                             | 25Ω     | 35Ω     |  |
|                          | Off state leakage current        | Maximum | $I_{Leak}$ | 1μA                              |         |         | $I_F = 0 mA$<br>$V_L = Max.$                       |
| Transfer characteristics | Turn on time*                    | Typical | $T_{on}$   | 0.9 ms                           | 0.3 ms  |         | $I_F = 5 mA$<br>$I_L = Max.$                       |
|                          |                                  | Maximum |            | 3 ms                             |         |         |  |
|                          | Turn off time*                   | Typical | $T_{off}$  | 0.5 ms                           |         |         | $I_F = 5 mA$<br>$I_L = Max.$                       |
|                          |                                  | Maximum |            | 2 ms                             |         |         |  |
|                          | I/O capacitance                  | Typical | $C_{iso}$  | 0.8 pF                           |         |         | f = 1 MHz<br>$V_B = 0V$                            |
| 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<br>I <sub>L</sub> = Max.<br>Within 1 s on time |
|                                  |                           | Maximum                                  | 2.5Ω    | 25Ω     | 35Ω                   |  |
|                                  | Off state leakage current | Maximum                                  | 1μA     |         |                       | I <sub>F</sub> = 0 mA<br>V <sub>L</sub> = Max.                       |
| Transfer characteristics         | Turn on time*             | Typical                                  | 0.9 ms  | 0.3 ms  |                       | I <sub>F</sub> = 5 mA<br>I <sub>L</sub> = Max.                       |
|                                  |                           | Maximum                                  | 3 ms    |         |                       |  |
|                                  | Turn off time*            | Typical                                  | 0.5 ms  |         |                       | I <sub>F</sub> = 5 mA<br>I <sub>L</sub> = Max.                       |
|                                  |                           | Maximum                                  | 2 ms    |         |                       |  |
|                                  | I/O capacitance           | Typical                                  | 0.8 pF  |         |                       | f = 1 MHz<br>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

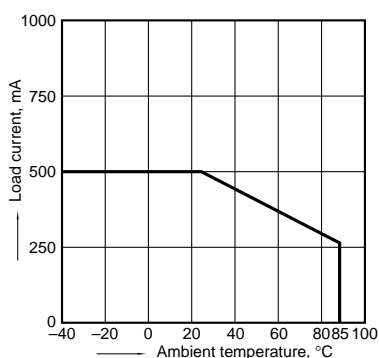
[SOP type]

1. Load current vs. ambient temperature characteristics

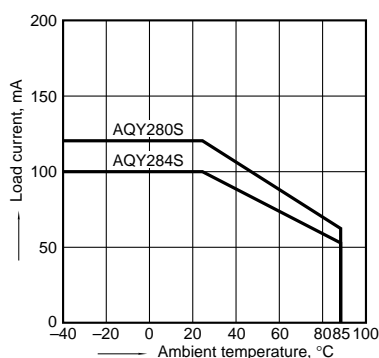
Allowable ambient temperature: -40°C to +85°C  
-40°F to +185°F

Type of connection: A

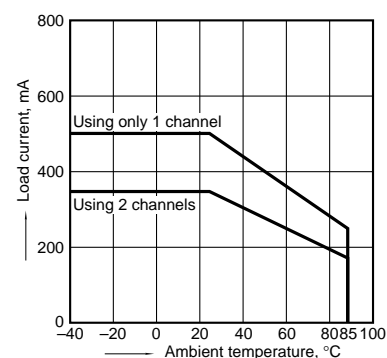
(1) AQY282S



(2) AQY280S, AQY284S



(3) AQW282S

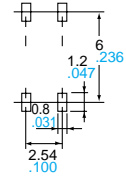


**DIMENSIONS**

**AQY28OS**



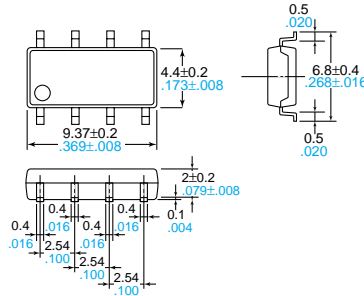
Recommended mounting pad (Top view)



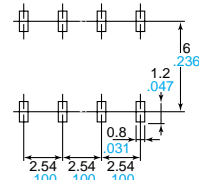
Terminal thickness = 0.15 .006  
General tolerance: ±0.1 ±.004

Tolerance: ±0.1 ±.004

**AQW28OS**



Recommended mounting pad (Top view)



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

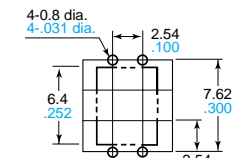
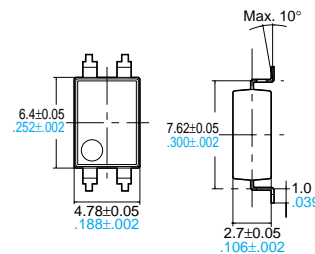
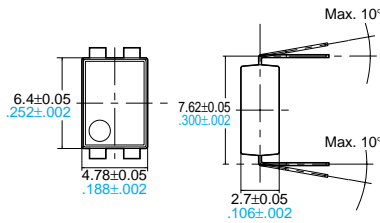
Tolerance: ±0.1 ±.004

**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)

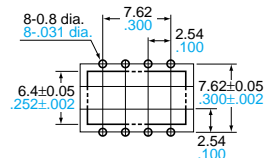
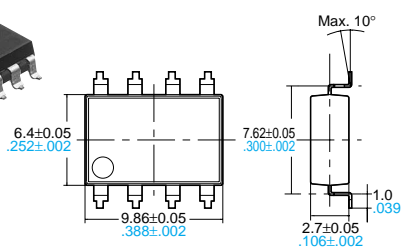
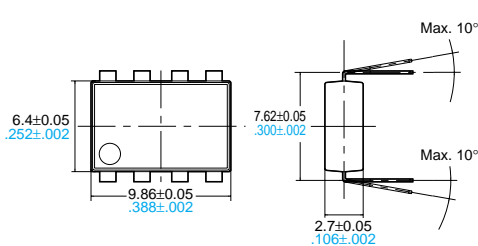
Tolerance: ±0.1 ±.004

**AQW28EH(A)**

Through hole terminal type

Surface mount terminal type

PC board pattern (Bottom view)



Terminal thickness = 0.2 .008  
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



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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- Поставка сложных, дефицитных, либо снятых с производства позиций;
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- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.