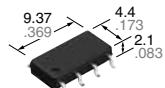


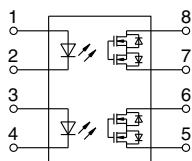


**Normally closed  
SOP8-pin type  
of 400V load voltage**

**PhotoMOS®  
GU SOP 2 Form B  
(AQW414S)**



mm inch



### FEATURES

#### 1. 2 channels in miniature SOP8-pin design

The device comes in a super-miniature SO package measuring —approx. 38% of the volume and 66% of the footprint size of DIP8-pin type.

#### 2. Controls low-level analog signals

PhotoMOS feature extremely low closed-circuit offset voltage to enable control of low-level analog signals without distortion.

#### 3. I/O isolation voltage of 1,500Vrms

**RoHS compliant**

### TYPICAL APPLICATIONS

- Power supply
- Measuring instruments
- Security equipment
- Industrial robots
- Sensing equipment

### TYPES

Load voltage	Output rating*		Package	Part No.		Packing quantity		
	Through hole terminal	Surface-mount terminal		Tape and reel packing style				
				Tube				
				Picked from the 1/2/3/4-pin side	Picked from the 5/6/7/8-pin side	Tape and reel		
AC/DC dual use	400 V	80 mA	SOP8-pin	AQW414S	AQW414SX	AQW414SZ	1 tube contains: 50 pcs. 1 batch contains: 1,000 pcs.	
1 tube contains: 50 pcs. 1 batch contains: 1,000 pcs.								

\*Indicate the peak AC and DC values.

Note: The packing style indicator "X" or "Z" are not marked on the device.

### RATING

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

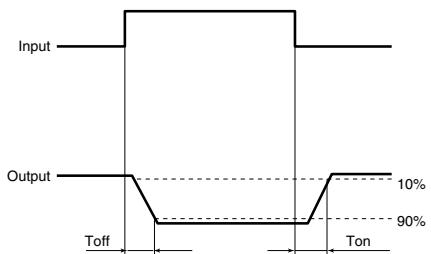
Item	Symbol	AQW414S	Remarks
Input	LED forward current	I <sub>F</sub>	50 mA
	LED reverse voltage	V <sub>R</sub>	5 V
	Peak forward current	I <sub>FP</sub>	1 A
	Power dissipation	P <sub>in</sub>	75 mW
Output	Load voltage (peak AC)	V <sub>L</sub>	400 V
	Continuous load current	I <sub>L</sub>	0.08 A (0.1 A)
	Peak load current	I <sub>peak</sub>	0.24 A
	Power dissipation	P <sub>out</sub>	600 mW
Total power dissipation	P <sub>T</sub>	650 mW	
I/O isolation voltage	V <sub>iso</sub>	1,500 Vrms	
Ambient temperature	Operating	T <sub>opr</sub>	-40 to +85°C -40 to +185°F
	Storage	T <sub>stag</sub>	-40 to +100°C -40 to +212°F
(Non-icing at low temperatures)			

# GU SOP 2 Form B (AQW414S)

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

Item			Symbol	AQW414S	Condition
Input	LED operate (OFF) current	Typical	I <sub>Foff</sub>	0.9 mA	I <sub>L</sub> = Max.
		Maximum		3 mA	
	LED reverse (ON) current	Minimum	I <sub>Fon</sub>	0.4 mA	I <sub>L</sub> = Max.
		Typical		0.8 mA	
Output	LED dropout voltage	Typical	V <sub>F</sub>	1.25 V (1.14 V at I <sub>F</sub> = 5 mA)	I <sub>F</sub> = 50 mA
		Maximum		1.5 V	
	On resistance	Typical	R <sub>on</sub>	26 Ω	I <sub>F</sub> = 0 mA I <sub>L</sub> = Max. Within 1 s
		Maximum		50 Ω	
Transfer characteristics	Off state leakage current	Maximum	I <sub>Leak</sub>	1 μA	I <sub>F</sub> = 5 mA V <sub>L</sub> = Max.
	Operate (OFF) time*	Typical	T <sub>off</sub>	0.43 ms	I <sub>F</sub> = 0 mA → 5 mA I <sub>L</sub> = Max.
		Maximum		1 ms	
	Reverse (ON) time*	Typical	T <sub>on</sub>	0.3 ms	I <sub>F</sub> = 5 mA → 0 mA I <sub>L</sub> = Max.
		Maximum		1 ms	
	I/O capacitance	Typical	C <sub>iso</sub>	0.8 pF	f = 1 MHz V <sub>B</sub> = 0 V
		Maximum		1.5 pF	
	Initial I/O isolation resistance	Minimum	R <sub>iso</sub>	1,000 MΩ	500 V DC

\*Operate/Reverse time



## 3. Recommended operating conditions (Ambient temperature: 25°C 77°F)

Please use under recommended operating conditions to obtain expected characteristics.

Item	Symbol	Number of used channels	Min.	Max.	Unit
LED current	I <sub>F</sub>	AQW414S	5	30	mA
Load voltage (Peak AC)	V <sub>L</sub>		—	320	V
Continuous load current	I <sub>L</sub>		1ch 2ch	0.1 0.08	A

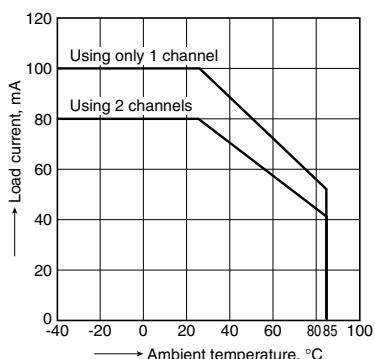
■ These products are not designed for automotive use.

If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

## REFERENCE DATA

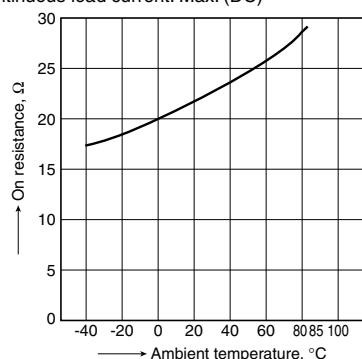
1. Load current vs. ambient temperature characteristics

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



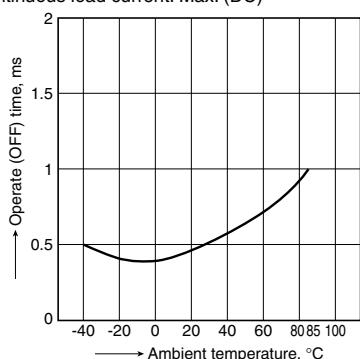
2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 5 and 6, 7 and 8;  
LED current: 0 mA; Load voltage: Max. (DC);  
Continuous load current: Max. (DC)



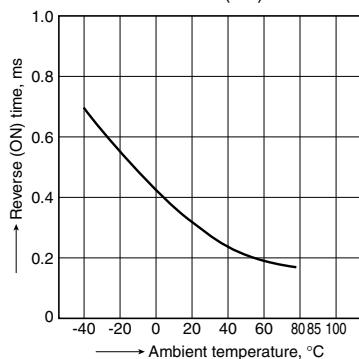
3. Operate (OFF) time vs. ambient temperature characteristics

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



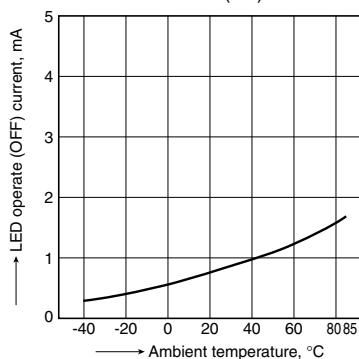
**4. Reverse (ON) time vs. ambient temperature characteristics**

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



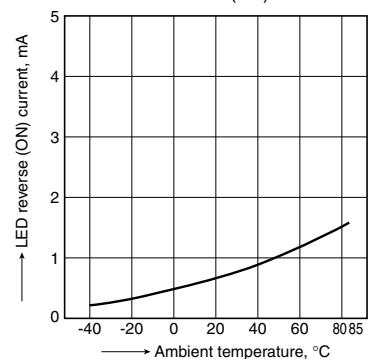
**5. LED operate (OFF) current vs. ambient temperature characteristics**

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



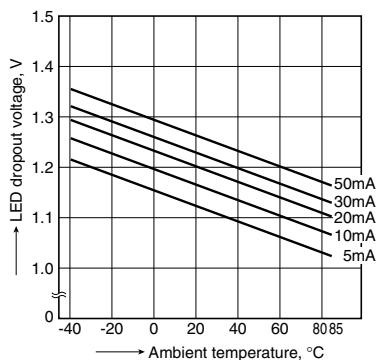
**6. LED reverse (ON) current vs. ambient temperature characteristics**

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



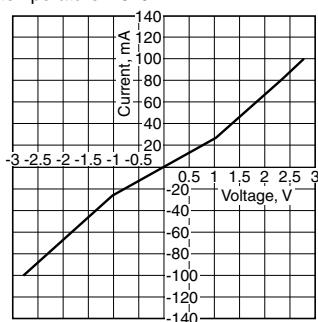
**7. LED dropout voltage vs. ambient temperature characteristics**

LED current: 5 to 50 mA



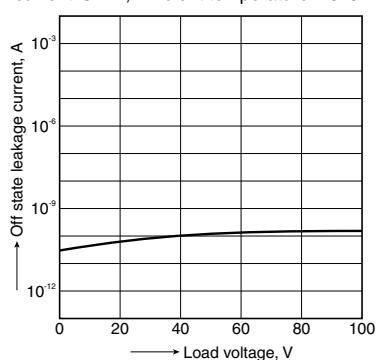
**8. Current vs. voltage characteristics of output at MOS portion**

Measured portion: between terminals 5 and 6, 7 and 8;  
Ambient temperature: 25°C 77°F



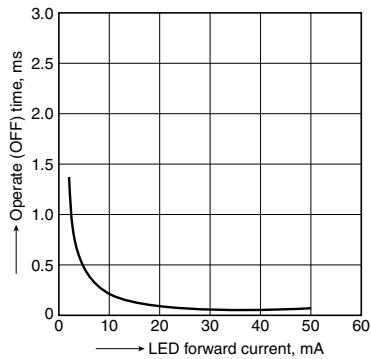
**9. Off state leakage current vs. load voltage characteristics**

Measured portion: between terminals 5 and 6, 7 and 8;  
LED current: 5 mA; Ambient temperature: 25°C 77°F



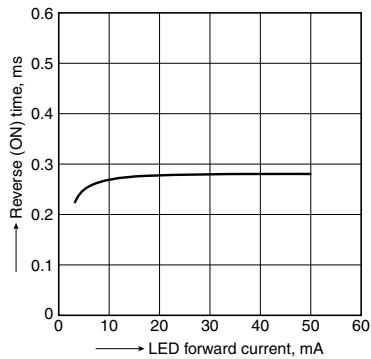
**10. Operate (OFF) time vs. LED forward current characteristics**

Measured portion: between terminals 5 and 6, 7 and 8;  
Load voltage: Max. (DC);  
Continuous load current: Max. (DC);  
Ambient temperature: 25°C 77°F



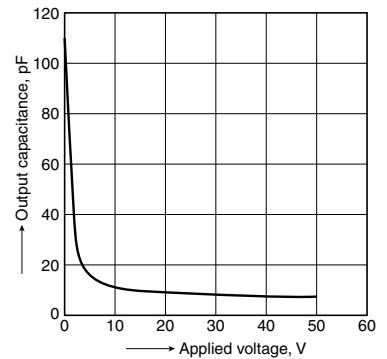
**11. Reverse (ON) time vs. LED forward current characteristics**

Measured portion: between terminals 5 and 6, 7 and 8;  
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 5 and 6, 7 and 8;  
LED current: 5 mA;  
Frequency: 1 MHz;  
Ambient temperature: 25°C 77°F



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Please contact .....

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



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