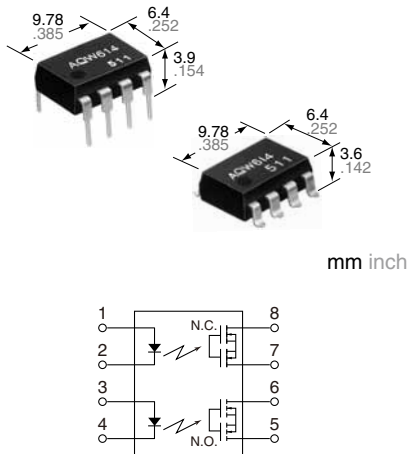




**Both NO and NC contacts incorporated in a DIP8-pin package**

**PhotoMOS®  
GU 1 Form A & 1 Form B  
(AQW614)**



**RoHS compliant**

### FEATURES

1. Approx. 1/2 the space compared with the mounting of a set of 1 Form A and 1 Form B PhotoMOS
2. Applicable for 1 Form A and 1 Form B use as well as two independent 1 Form A and 1 Form B use
3. Controls load currents up to 0.13 A with 5 mA input current
4. Extremely low closed-circuit offset voltages to enable control of small analog signals without distortion
5. Stable on-resistance

### TYPICAL APPLICATIONS

- High-speed inspection machines
- Telephone equipment
- Computers
- Sensing equipment

### TYPES

	Output rating*		Package	Part No.				Packing quantity	
	Load voltage	Load current		Through hole terminal	Surface-mount terminal		Tube	Tape and reel	
					Tape and reel packing style				
			Tube packing style	Picked from the 1/2/3-pin side	Picked from the 4/5/6-pin side				
AC/DC dual use	400 V	100 mA	DIP8-pin	AQW614	AQW614A	AQW614AX	AQW614AZ	1 tube contains: 50 pcs. 1 batch contains: 500 pcs.	1,000 pcs.

\*Indicate the peak AC and DC values.

Note: The surface mount terminal shape indicator "A" and the packing style indicator "X" or "Z" are not marked on the device.

### RATING

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

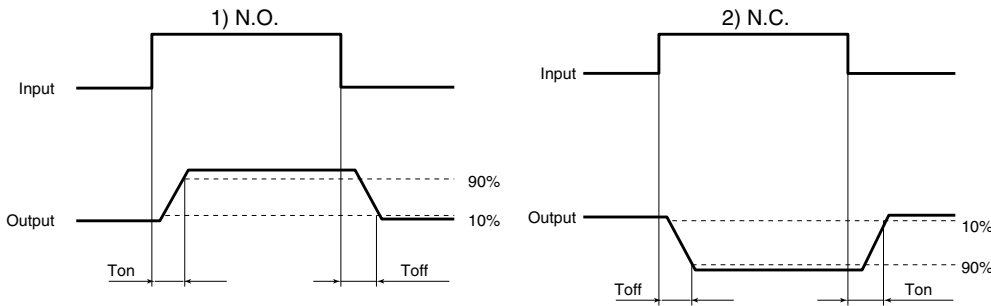
	Item	Symbol	AQW614(A)	Remarks
Input	LED forward current	I <sub>F</sub>	50 mA	
	LED reverse voltage	V <sub>R</sub>	5 V	
	Peak forward current	I <sub>FP</sub>	1 A	f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P <sub>in</sub>	75 mW	
Output	Load voltage (peak AC)	V <sub>L</sub>	400 V	
	Continuous load current	I <sub>L</sub>	0.1 A (0.13 A)	Peak AC, DC ( ): in case of using only 1a or 1b, 1 channel
	Peak load current	I <sub>peak</sub>	0.3 A	100 ms (1 shot), V <sub>L</sub> = DC
	Power dissipation	P <sub>out</sub>	800 mW	
Total power dissipation		P <sub>T</sub>	850 mW	
I/O isolation voltage		V <sub>iso</sub>	1,500 V AC	Between input and output/between contact sets
Temperature limits	Operating	T <sub>opr</sub>	-40°C to +85°C -40°F to +185°F	Non-condensing at low temperatures
	Storage	T <sub>stg</sub>	-40°C to +100°C -40°F to +212°F	

# GU 1 Form A & 1 Form B (AQW614)

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

Item			Symbol	AQW614(A)	Condition
Input	LED operate current	Typical	$I_{Fon}$ (N.O.)	0.9 mA	$I_L = 100$ mA
		Maximum	$I_{Foff}$ (N.C.)	3 mA	
	LED reverse current	Minimum	$I_{Foff}$ (N.O.)	0.4 mA	$I_L = 100$ mA
		Typical	$I_{Fon}$ (N.C.)	0.8 mA	
LED dropout voltage	Typical	$V_F$	1.25 V (1.14 V at $I_F = 5$ mA)		$I_F = 50$ mA
	Maximum		1.5 V		
Output	On resistance	Typical	$R_{on}$	27 $\Omega$	$I_F = 5$ mA (N.O.) $I_F = 0$ mA (N.C.) $I_L = 100$ mA within 1 s on time
		Maximum		50 $\Omega$	
	Off state leakage current	Maximum	$I_{Leak}$	1 $\mu$ A	$I_F = 0$ mA (N.O.) $I_F = 5$ mA (N.C.) $V_L = 400$ V
Transfer characteristics	Operate time*	Typical	$T_{on}$ (N.O.)	0.28 ms (N.O.) 0.43 ms (N.C.)	$I_F = 0$ mA $\rightarrow$ 5 mA $I_L = 100$ mA
		Maximum	$T_{off}$ (N.C.)	1 ms	
	Reverse time*	Typical	$T_{off}$ (N.O.)	0.04 ms (N.O.) 0.3 ms (N.C.)	$I_F = 5$ mA $\rightarrow$ 0 mA $I_L = 100$ mA
		Maximum	$T_{on}$ (N.C.)	1 ms	
	I/O capacitance	Typical	$C_{iso}$	0.8 pF	$f = 1$ MHz $V_B = 0$ V
	Maximum	1.5 pF			
Initial I/O isolation resistance	Minimum	$R_{iso}$	1,000 M $\Omega$	500 V DC	

\*Operate/Reverse time



## RECOMMENDED OPERATING CONDITIONS

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

Item	Symbol	Recommended value	Unit
Input LED current	$I_F$	5	mA

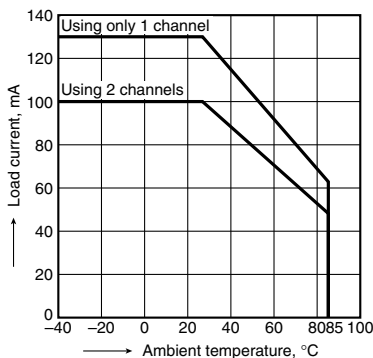
■ These products are not designed for automotive use.

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

## REFERENCE DATA

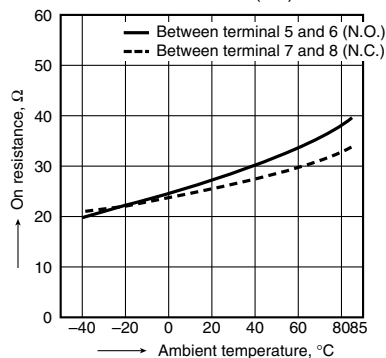
1. Load current vs. ambient temperature characteristics

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



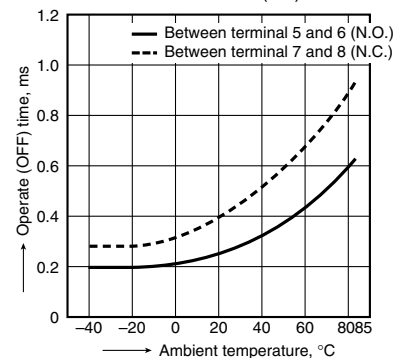
2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 5 and 6, 7 and 8;  
LED current: 5 mA; Load voltage: 400 V (DC);  
Continuous load current: 100 mA (DC)



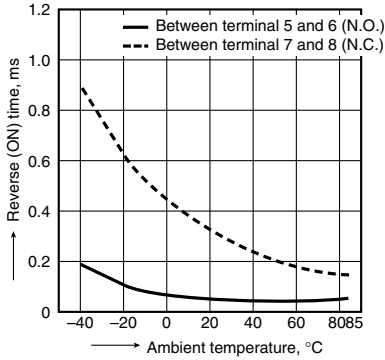
3. Operate time vs. ambient temperature characteristics

LED current: 5 mA;  
Load voltage: 400 V (DC);  
Continuous load current: 100 mA (DC)



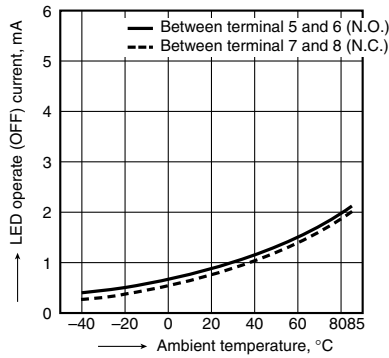
4. Reverse time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 400 V (DC); Continuous load current: 100 mA (DC)



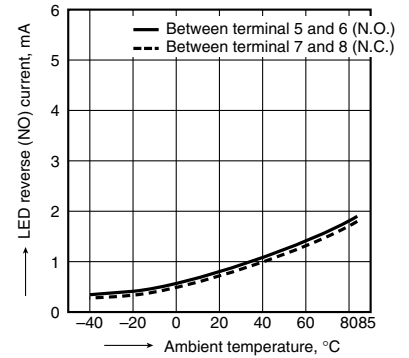
5. LED operate current vs. ambient temperature characteristics

Load voltage: 400 V (DC); Continuous load current: 100 mA (DC)



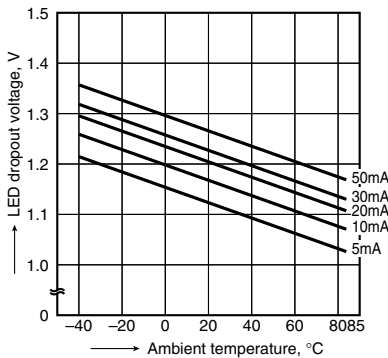
6. LED reverse current vs. ambient temperature characteristics

Load voltage: 400 V (DC); Continuous load current: 100 mA (DC)



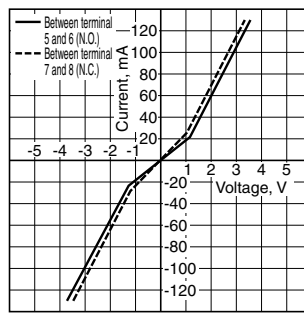
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



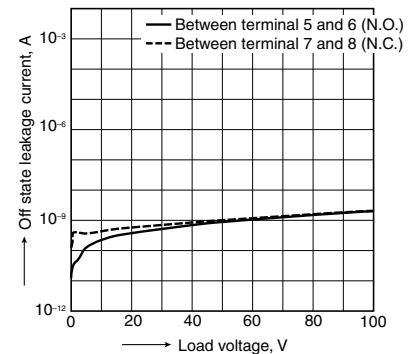
8. Current vs. voltage characteristics of output at MOS portion

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



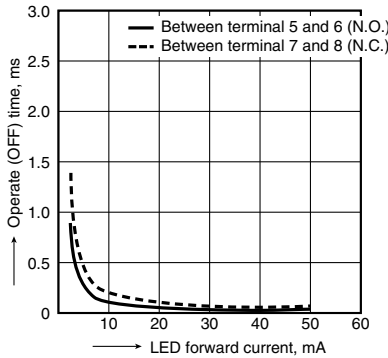
9. Off state leakage current vs. load voltage characteristics

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



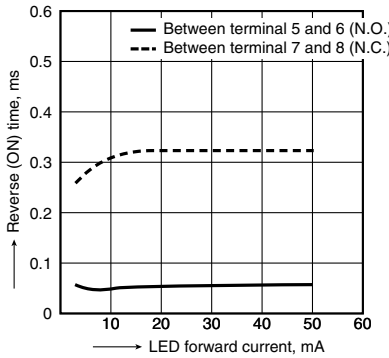
10. Operate time vs. LED forward current characteristics

Measured portion: between terminals 5 and 6, 7 and 8; Load voltage: 400 V (DC); Continuous load current: 100 mA (DC); Ambient temperature: 25°C 77°F



11. Reverse time vs. LED forward current characteristics

Measured portion: between terminals 5 and 6, 7 and 8; Load voltage: 400 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 5 and 6, 7 and 8; LED current: 0 mA (N.O.), 5 mA (N.C.); Frequency: 1 MHz; Ambient temperature: 25°C 77°F

