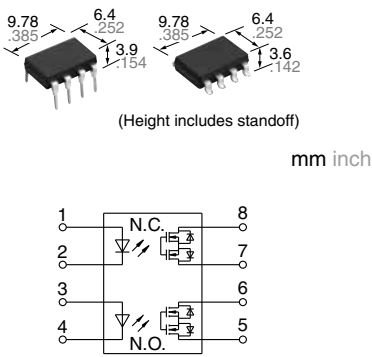




Both N.O. and N.C. contacts
incorporated in a
DIP8-pin package

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 packing style	Tape and reel packing style		Tube	Tape and reel	
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

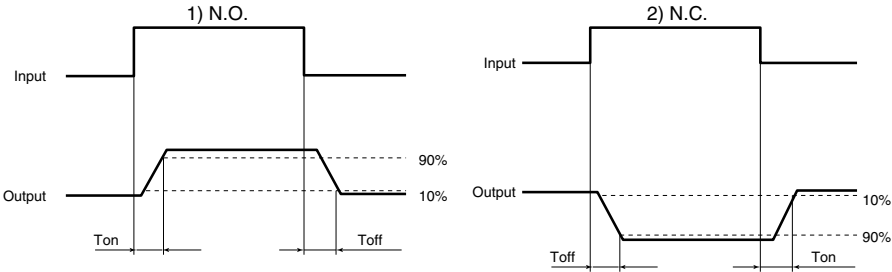
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

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

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 Ω	I _F = 5 mA (N.O.) I _F = 0 mA (N.C.)	
		Maximum		50 Ω	I _L = 100 mA within 1 s	
	Off state leakage current	Maximum	I _{Leak}	1 μA	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.)	
Maximum			T _{off} (N.C.)	1 ms		I _L = 100 mA
Reverse time*		Typical	T _{off} (N.O.)	0.04 ms (N.O.) 0.3 ms (N.C.)		I _F = 5 mA → 0 mA
		Maximum	T _{on} (N.C.)	1 ms		I _L = 100 mA
I/O capacitance		Typical	C _{iso}	0.8 pF		f = 1 MHz
		Maximum		1.5 pF		V _B = 0 V
Initial I/O isolation resistance		Minimum	R _{iso}	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.

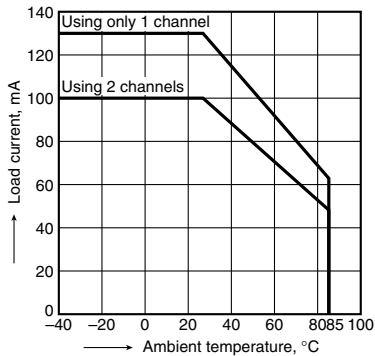
Item		Symbol	Number of used channels	Min.	Max.	Unit
AQW614(A)	LED current	I _F		5	30	mA
	Load voltage (Peak AC)	V _L		—	320	V
	Continuous load current	I _L		—	0.13 0.1	A

■ 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

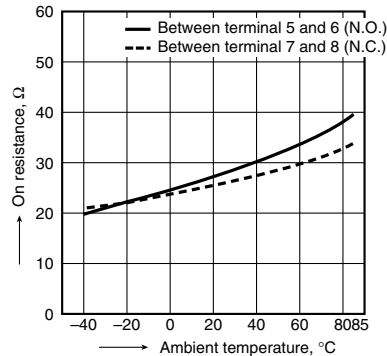
1. Load current vs. ambient temperature characteristics

Allowable ambient temperature: -40 to $+85^{\circ}\text{C}$
 -40 to $+185^{\circ}\text{F}$



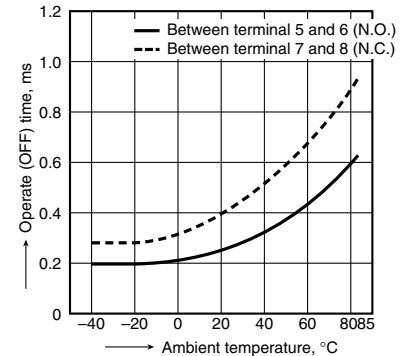
2. On resistance vs. ambient temperature characteristics

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)



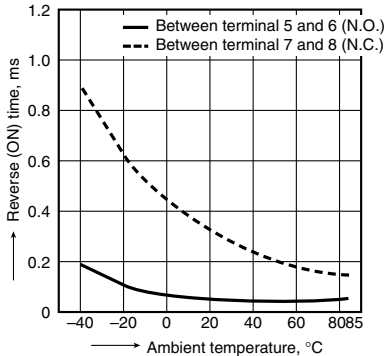
3. Operate time vs. ambient temperature characteristics

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



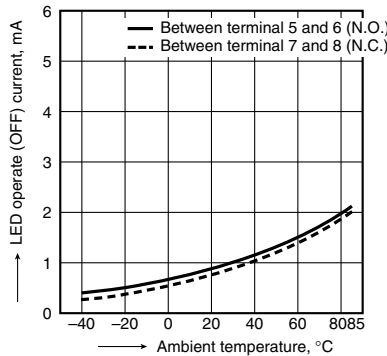
4. Reverse time vs. ambient temperature characteristics

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



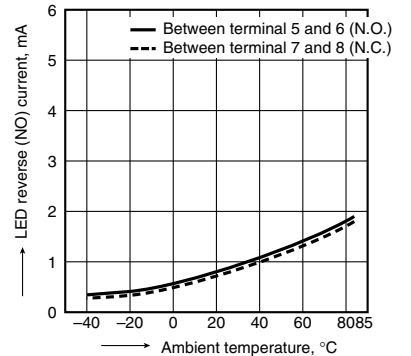
5. LED operate current vs. ambient temperature characteristics

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



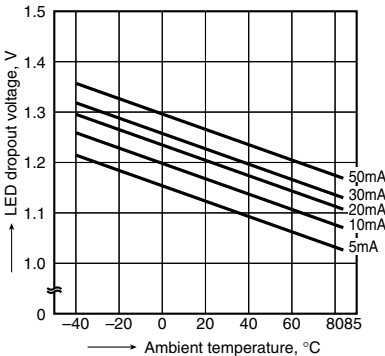
6. LED reverse current vs. ambient temperature characteristics

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



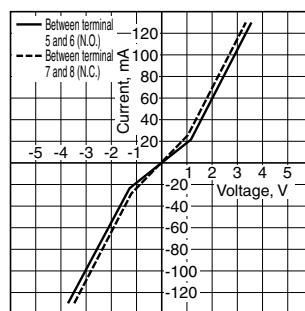
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



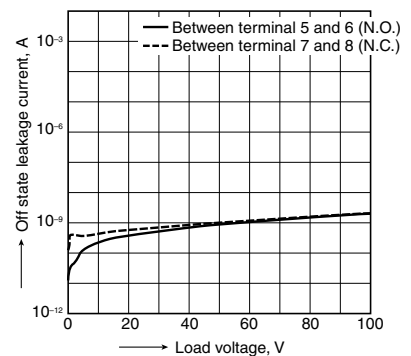
8. Current vs. voltage characteristics of output at MOS portion

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



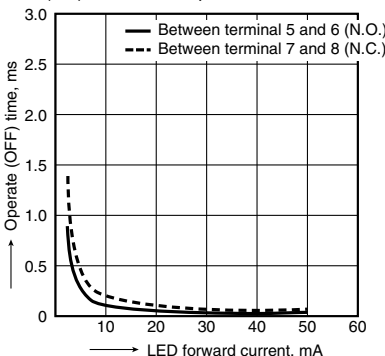
9. Off state leakage current vs. load voltage characteristics

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



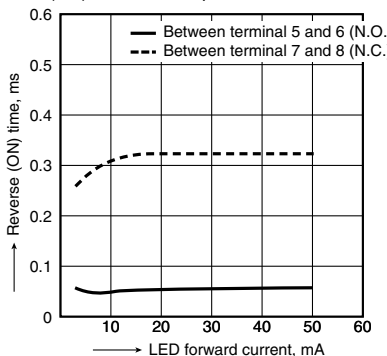
10. Operate time vs. LED forward current characteristics

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



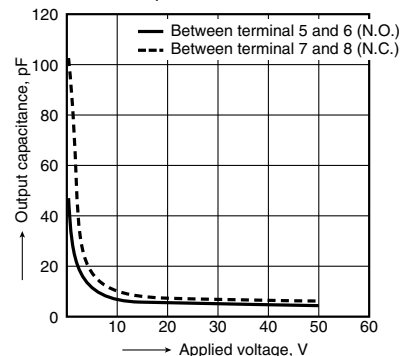
11. Reverse time vs. LED forward current characteristics

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



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