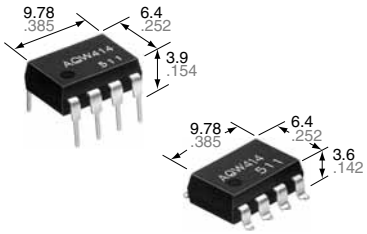
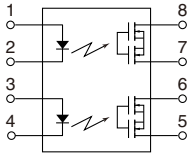
Normally closed DIP8-pin type of 400V load voltage

PhotoMOS® GU 2 Form B (AQW414)



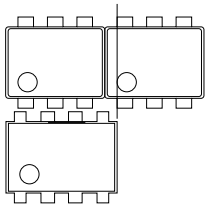
mm inch



RoHS compliant

FEATURES

1. Approx. 1/2 the space compared with the mounting of Two 1 Form B PhotoMOS units



Two 1 Form B units

2 Form B type

2. Applicable for 2 Form B use as well as two independent 1 Form B use
3. Controls load currents up to 0.13 A with an input current of 5 mA
4. High speed switching: operate time typ. 0.46 ms
5. Extremely low closed-circuit offset voltages to enable control of small analog signals without distortion

TYPICAL APPLICATIONS

- High-speed inspection machines
- Telephone equipment
- Computers

TYPES

	Output rating*		Package	Part No.				Packing quantity	
	Load voltage	Load current		Through hole terminal	Surface-mount terminal			Tube	Tape and reel
				Tube packing style		Tape and reel 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	AQW414	AQW414A	AQW414AX	AQW414AZ	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

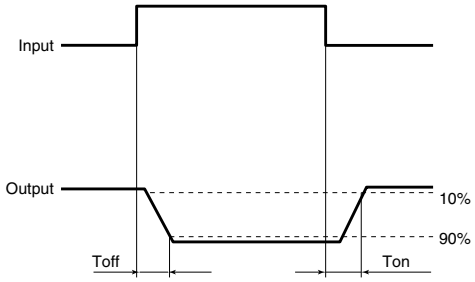
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

Item		Symbol	AQW414(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 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 V AC	
Temperature limits	Operating	T_{opr}	–40°C to +85°C –40°F to +185°F	Non-condensing at low temperatures
	Storage	T_{stag}	–40°C to +100°C –40°F to +212°F	

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

Item			Symbol	AQW414(A)	Condition
Input	LED operate (OFF) current	Typical	I_{Foff}	0.7 mA	I_L = Max.
		Maximum		3 mA	
	LED reverse (ON) current	Minimum	I_{Fon}	0.4 mA	I_L = Max.
		Typical		0.64 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}	26 Ω	I_F = 0 mA I_L= Max. Within 1 s on time
		Maximum		50 Ω	
	Off state leakage current	Maximum	I_{Leak}	1 μA	I_F = 5 mA V_L = Max.
Transfer characteristics	Operate (OFF) time*	Typical	T_{off}	0.46 ms	I_F = 0 mA → 5 mA I_L = Max.
		Maximum		1 ms	
	Reverse (ON) time*	Typical	T_{on}	0.40 ms	I_F = 5 mA → 0 mA I_L = Max.
		Maximum		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 MΩ	500 V DC

*Operate/Reverse time



RECOMMENDED OPERATING CONDITIONS

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

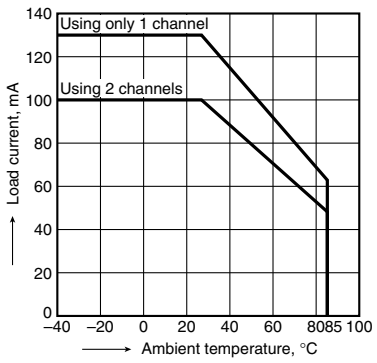
Item	Symbol	Recommended value	Unit
Input LED current	I_F	5	mA

■ **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

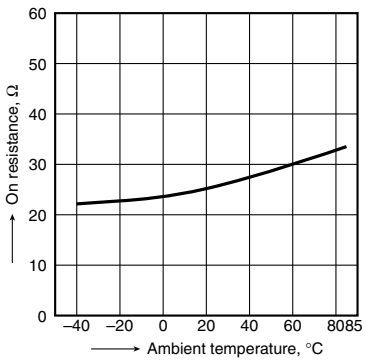
1. Load current vs. ambient temperature characteristics

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



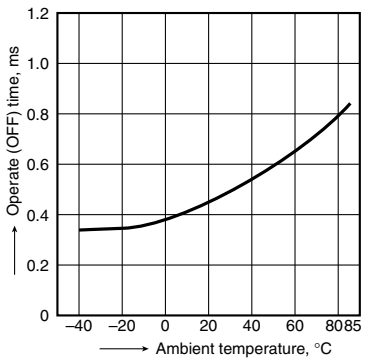
2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 5 and 6, 7 and 8;
LED current: 0 mA;
Continuous load current: 100 mA (DC)



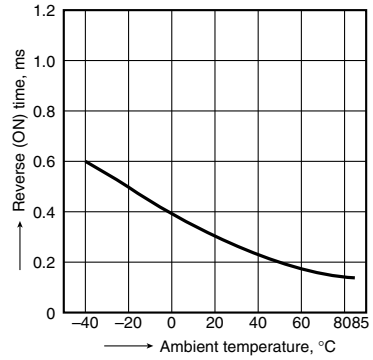
3. Operate (OFF) time vs. ambient temperature characteristics

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



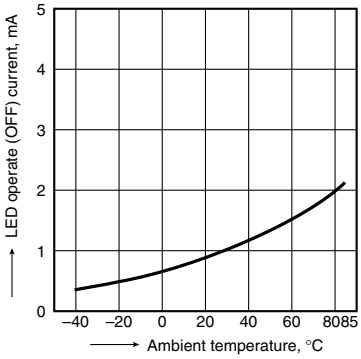
4. Reverse (ON) time vs. ambient temperature characteristics

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



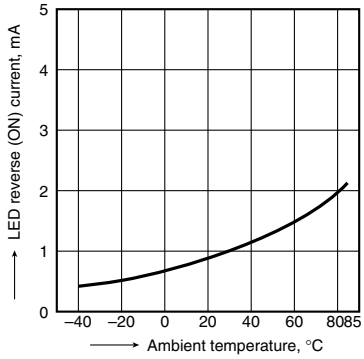
5. LED operate (OFF) current vs. ambient temperature characteristics

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



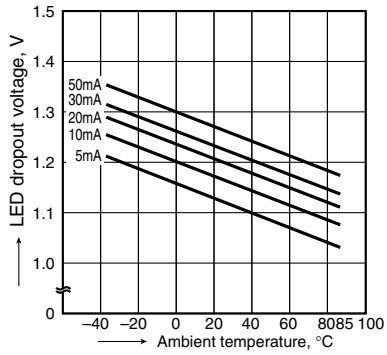
6. LED reverse (ON) current vs. ambient temperature characteristics

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



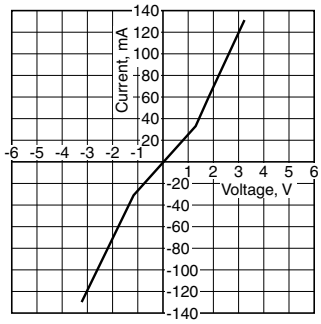
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



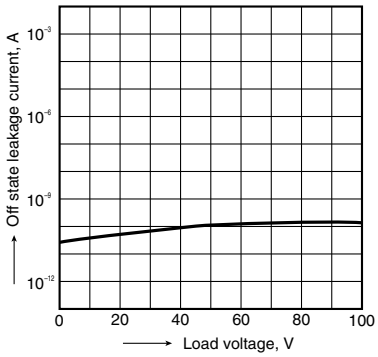
8. Current vs. voltage characteristics of output at MOS portion

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



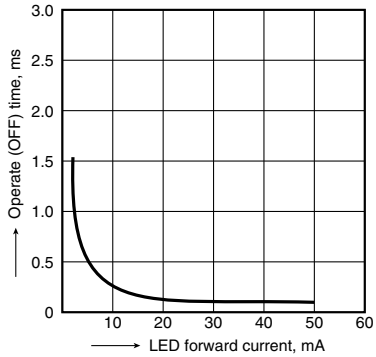
9. Off state leakage current vs. load voltage characteristics

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



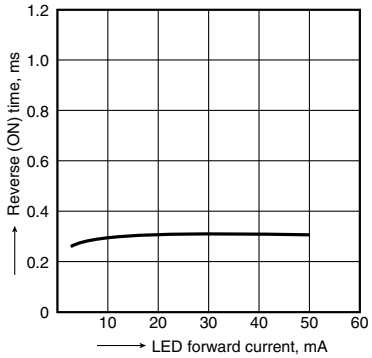
10. Operate (OFF) time vs. LED forward current characteristics

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 (ON) 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: 5 mA; Frequency: 1 MHz;
Ambient temperature: 25°C 77°F