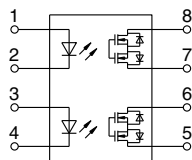
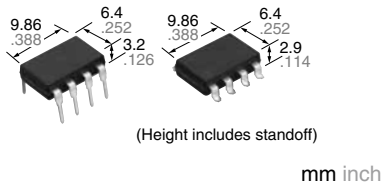




<b>Normally closed type with reinforced insulation</b>	<b>PhotoMOS® GE 2 Form B (AQW414EH)</b>
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**RoHS compliant**

### FEATURES

- 1. Reinforced insulation of 5,000 V**  
More than 0.4 mm internal insulation distance between inputs and outputs. Con-forms to EN41003, EN60950 (reinforced insulation).
- 2. Applicable for 2 Form B use as well as two independent 1 Form B use**
- 3. Controls low-level analog signals**  
PhotoMOS feature extremely low closed-circuit offset voltage to enable control of low-level analog signals without distortion.
- 4. High sensitivity and high speed response**  
Can control max. 0.13 A load current with 5 mA input current. Fast operation speed of Typ. 0.8 ms.
- 5. Low-level off state leakage current**

### TYPICAL APPLICATIONS

- Modem
- Telephone equipment
- Electricity, plant equipment
- Security equipment
- Sensing equipment

### TYPES

	I/O isolation voltage	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 1/2/3/4-pin side	Picked from the 5/6/7/8-pin side				
AC/DC dual use	Reinforced 5,000 Vrms	400 V	100 mA	DIP8-pin	AQW414EH	AQW414EHA	AQW414EHAX	AQW414EHAZ	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)

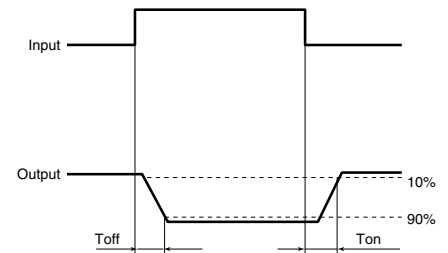
Item		Symbol	AQW414EH(A)	Remarks
Input	LED forward current	$I_F$	50mA	
	LED reverse voltage	$V_R$	5V	
	Peak forward current	$I_{FP}$	1A	f = 100 Hz, Duty factor = 0.1%
	Power dissipation	$P_{in}$	75mW	
Output	Load voltage (peak AC)	$V_L$	400 V	
	Continuous load current	$I_L$	0.1 A (0.13 A)	Peak AC, DC ( ): in case of using only 1 channel.
	Peak load current	$I_{peak}$	0.3 A	100 ms (1 shot), $V_L = DC$
	Power dissipation	$P_{out}$	800mW	
Total power dissipation		$P_T$	850mW	
I/O isolation voltage		$V_{iso}$	5,000 Vrms	
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	

# GE 2 Form B (AQW414EH)

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

Item		Symbol	AQW414EH(A)	Condition
Input	LED operate (OFF) current	Typical	1.3mA	I <sub>L</sub> =Max.
		Maximum	3.0mA	
	LED reverse (ON) current	Minimum	0.4mA	I <sub>L</sub> =Max.
		Typical	1.2mA	
LED dropout voltage	Typical	V <sub>F</sub>	1.25 (1.14 V at I <sub>F</sub> =5mA)	I <sub>F</sub> =50mA
	Maximum		1.5V	
Output	On resistance	Typical	26Ω	I <sub>F</sub> =0mA I <sub>L</sub> =Max. Within 1 s
		Maximum	35Ω	
	Off state leakage current	Maximum	I <sub>LLeak</sub>	10μA
Transfer characteristics	Operate (OFF) time*	Typical	0.8ms	I <sub>F</sub> =0mA → 5mA I <sub>L</sub> =Max.
		Maximum	3.0ms	
	Reverse (ON) time*	Typical	0.2ms	I <sub>F</sub> =5mA → 0mA I <sub>L</sub> =Max.
		Maximum	1.0ms	
	I/O capacitance	Typical	C <sub>iso</sub>	0.8pF
Maximum			1.5pF	
Initial I/O isolation resistance	Minimum	R <sub>iso</sub>	1,000MΩ	500V 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>		5	30	mA
Load voltage (Peak AC)	V <sub>L</sub>		—	320	V
AQW414EH(A) Continuous load current	I <sub>L</sub>	1ch	—	0.13	A
		2ch	—	0.1	

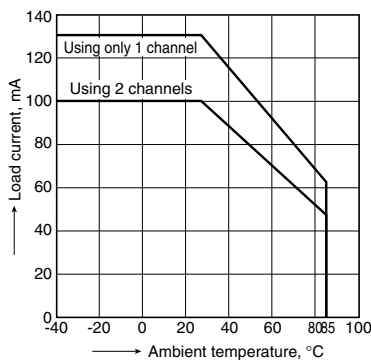
■ These products are not designed for automotive use.

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

## REFERENCE DATA

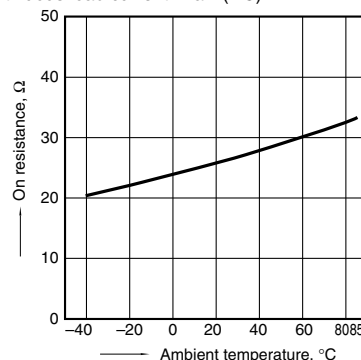
1. Load current vs. ambient temperature characteristics

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



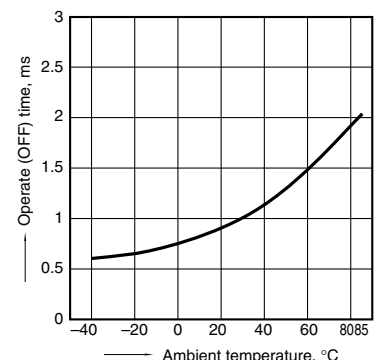
2. On resistance vs. ambient temperature characteristics

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



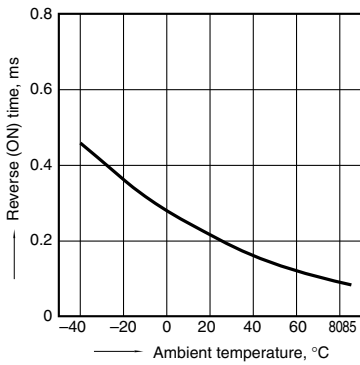
3. Operate (OFF) time vs. ambient temperature characteristics

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



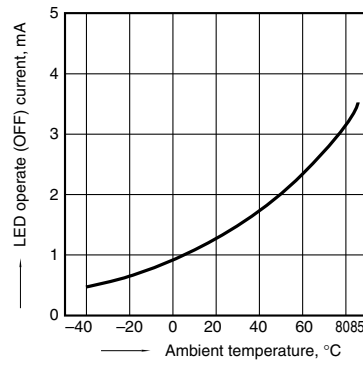
4. Reverse (ON) time vs. ambient temperature characteristics

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



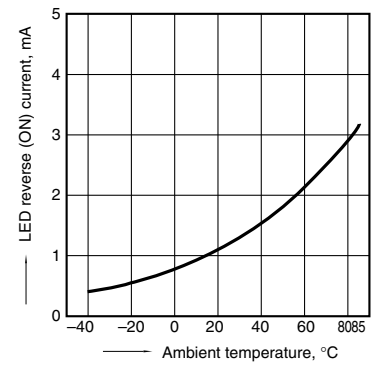
5. LED operate (OFF) current vs. ambient temperature characteristics

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



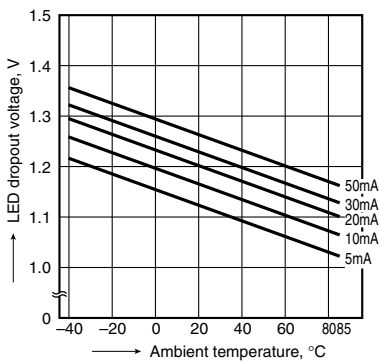
6. LED reverse (ON) current vs. ambient temperature characteristics

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



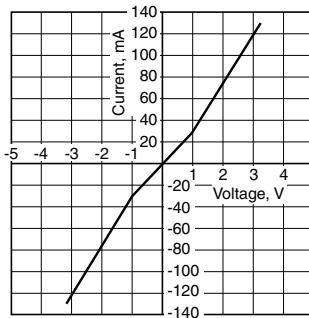
7. LED dropout voltage vs. ambient temperature characteristics;

LED current: 5 to 50 mA



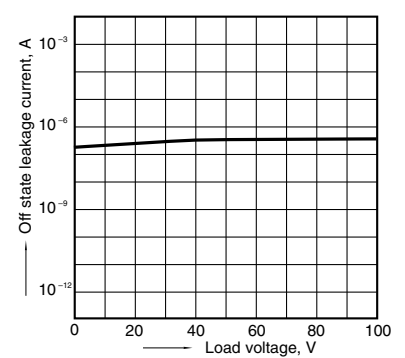
8. Current vs. voltage characteristics of output at MOS portion

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



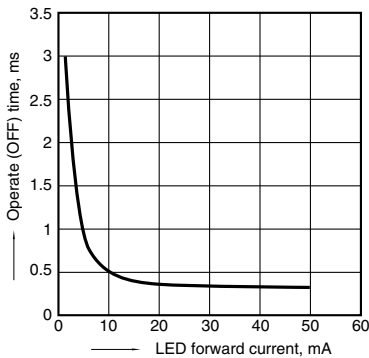
9. Off state leakage current vs. load voltage characteristics

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



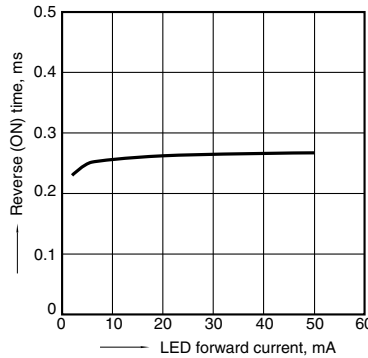
10. Operate (OFF) time vs. LED forward current characteristics

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



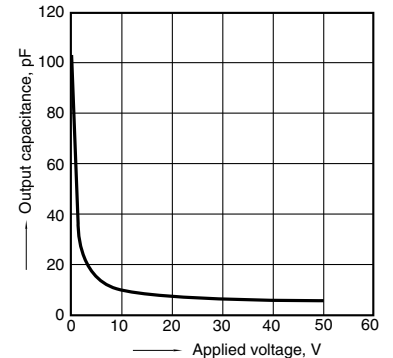
11. Reverse (ON) time vs. LED forward current characteristics

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; Frequency: 1 MHz; Ambient temperature: 25°C 77°F



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\*Recognized in Japan, the United States, all member states of European Union and other countries.

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