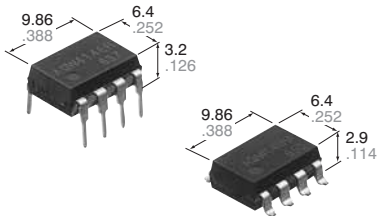


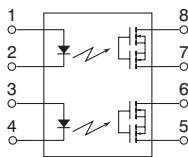
Normally closed DIP8-pin
economic type with
reinforced insulation

PhotoMOS Relays
GU-E 2 Form B
(AQW414EH)



CAD Data

mm inch



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 relays 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
- 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	
						Tube packing style	Tape and reel 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 V	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 relay.

RATING

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

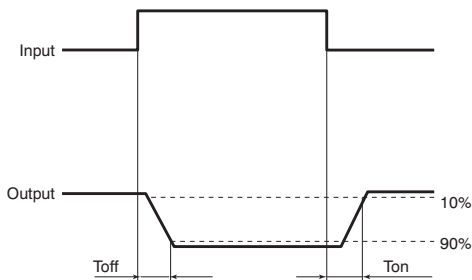
Item		Symbol	AQW414EH(A)	Remarks
Input	LED forward current	I_F	50mA	
	LED reverse voltage	V_R	5V	
	Peak forward current	I_{FP}	1A	f =100 Hz, Duty factor = 0.1%
	Power dissipation	P_{in}	75mW	
Output	Load voltage (peak AC)	V_L	400 V	
	Continuous load current	I_L	0.1 A (0.13 A)	Peak AC, DC (): in case 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 V AC	
Temperature limits	Operating	T_{opr}	-40°C to +85°C -40°F to +185°F	Non-condensing at low temperatures
	Storage	T_{stg}	-40°C to +100°C -40°F to +212°F	

GU-E 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	$I_L = \text{Max.}$
		Maximum	3.0mA	
	LED reverse (ON) current	Minimum	0.4mA	$I_L = \text{Max.}$
		Typical	1.2mA	
LED dropout voltage	Typical	V_F	1.25 (1.14 V at $I_F = 5\text{mA}$)	$I_F = 50\text{mA}$
	Maximum		1.5V	
Output	On resistance	Typical	26Ω	$I_F = 0\text{mA}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum	35Ω	
	Off state leakage current	Maximum	I_{Leak}	
Transfer characteristics	Operate (OFF) time*	Typical	0.8ms	$I_F = 0\text{mA} \rightarrow 5\text{mA}$ $I_L = \text{Max.}$
		Maximum	3.0ms	
	Reverse (ON) time*	Typical	0.2ms	$I_F = 5\text{mA} \rightarrow 0\text{mA}$ $I_L = \text{Max.}$
		Maximum	1.0ms	
	I/O capacitance	Typical	C_{iso}	0.8pF
Maximum		1.5pF		
Initial I/O isolation resistance	Minimum	R_{iso}	1,000MΩ	500V DC

*Operate/Reverse time



RECOMMENDED OPERATING CONDITIONS

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

Item	Symbol	Recommended value	Unit
Input LED current	I_F	5 to 10	mA

■ Dimensions

■ Schematic and Wiring Diagrams

■ Cautions for Use

■ These products are not designed for automotive use.

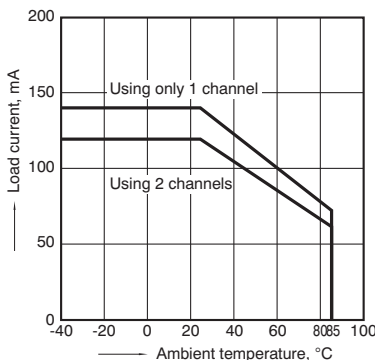
If you are considering to use these products for automotive applications, please contact your local Panasonic Electric Works technical representative.

Please refer to our information on [PhotoMOS Relays for Automotive Applications](#).

REFERENCE DATA

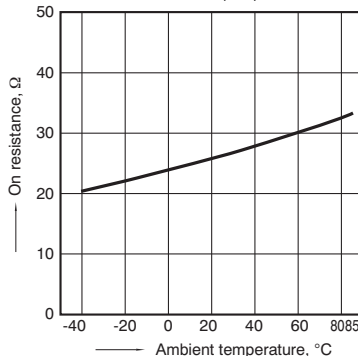
1. Load current vs. ambient temperature characteristics

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



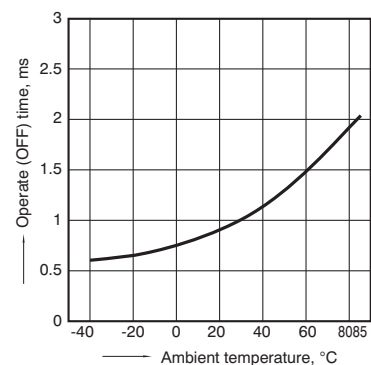
2. On resistance vs. ambient temperature characteristics

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



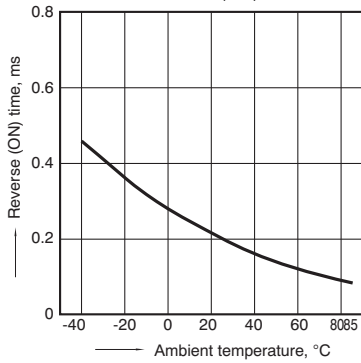
3. Operate (OFF) time vs. ambient temperature characteristics

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



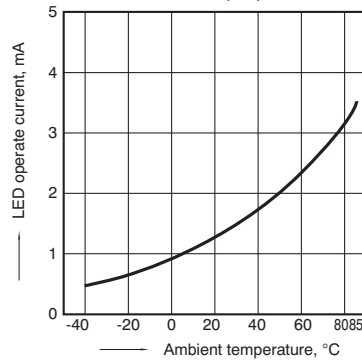
4. Reverse (ON) time vs. ambient temperature characteristics

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



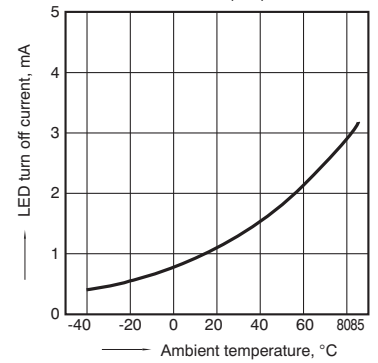
5. LED operate current vs. ambient temperature characteristics

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



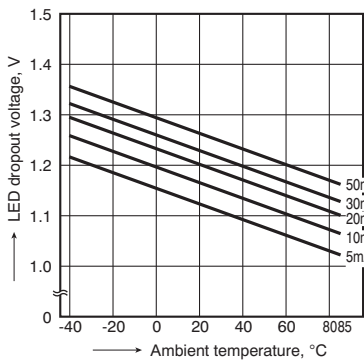
6. LED turn off current vs. ambient temperature characteristics

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



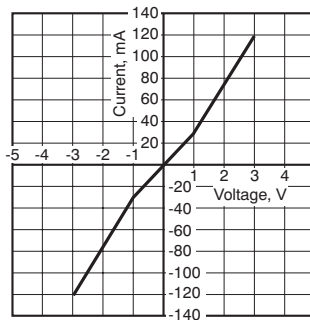
7. LED dropout voltage vs. ambient temperature characteristics;

LED current: 5 to 50 mA



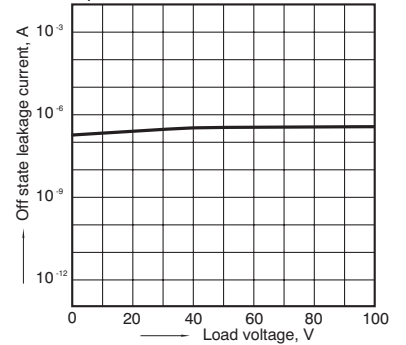
8. Current vs. voltage characteristics of output at MOS portion

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



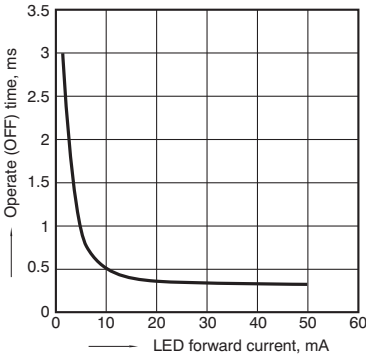
9. Off state leakage current vs. load voltage characteristics

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



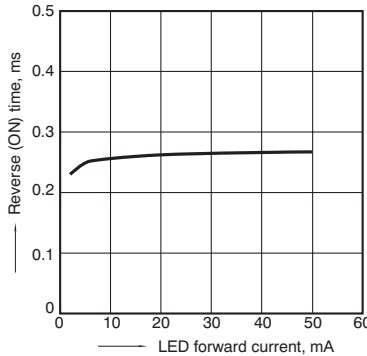
10. Operate (OFF) time vs. LED forward current characteristics

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

