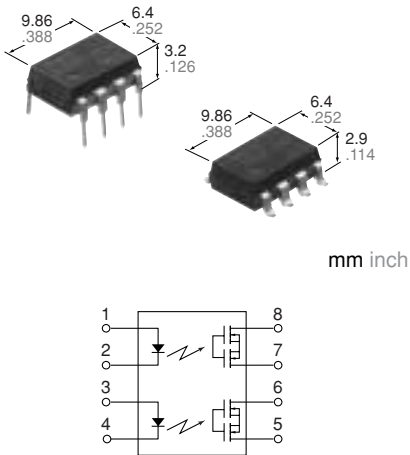


**Panasonic**  
ideas for life

General use and economy type.  
DIP (2 Form B) 8-pin type.  
Reinforced insulation 5,000V  
type.

**GU-E PhotoMOS**  
(AQW414EH)



## FEATURES

### 1. Reinforced insulation 5,000 V type

More than 0.4 mm internal insulation distance between inputs and outputs. Con-forms to EN41003, EN60950 (reinforced insulation).

### 2. Compact 8-pin DIP size

The device comes in a compact (W)6.4×(L)9.86×(H)3.2 mm (W).252×(L).388×(H).126 inch, 8-pin DIP size (through hole terminal type).

### 3. Applicable for 2 Form B use as well as two independent 1 Form B use

**4. Controls low-level analog signals**  
PhotoMOS relays feature extremely low closed-circuit offset voltage to enable

control of low-level analog signals without distortion.

### 5. High sensitivity, high speed response.

Can control a maximum 0.13 A load current with a 5 mA input current. Fast operation speed of 0.8 ms (typical).

### 6. Low-level off state leakage current

## TYPICAL APPLICATIONS

- Modem
- Telephone equipment
- Security equipment
- Sensors

## TYPES

Type	I/O isolation voltage	Output rating*		Part No.				Packing quantity	
				Through hole terminal	Surface-mount terminal			Tube	Tape and reel
					Tube packing style		Tape and reel packing style		
Load voltage	Load current			Picked from the 1/2/3/4-pin side	Picked from the 5/6/7/8-pin side				
AC/DC type	Reinforced 5,000 V	400 V	100 mA	AQW414EH	AQW414EHA	AQW414EHAX	AQW414EHAZ	1 tube contains 40 pcs. 1 batch contains 400 pcs.	1,000 pcs.

\*Indicate the peak AC and DC values.

Note:

For space reasons, the SMD terminal shape indicator "A" and the package type indicator "X" and "Z" are omitted from the seal.

## 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 PhotoMOS (AQW414EH)

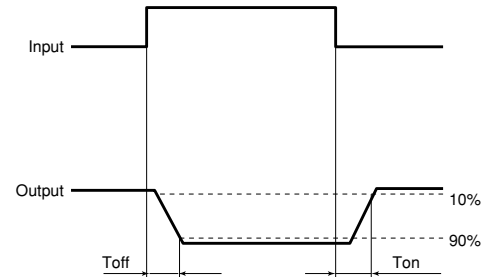
## 2. Electrical characteristics (Ambient temperature: 25°C 77°F)

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	$R_{on}$	Typical	26Ω	$I_F = 0\text{mA}$ $I_L = \text{Max.}$ Within 1 s on time
			Maximum	35Ω	
	Off state leakage current	Maximum	$I_{Leak}$	10μA	
Transfer characteristics	Turn on time*	$T_{off}$	Typical	0.8ms	$I_F = 0\text{mA} \rightarrow 5\text{mA}$ $I_L = \text{Max.}$
			Maximum	3.0ms	
	Turn off time*	$T_{on}$	Typical	0.2ms	$I_F = 5\text{mA} \rightarrow 0\text{mA}$ $I_L = \text{Max.}$
			Maximum	1.0ms	
	I/O capacitance	$C_{iso}$	Typical	0.8pF	$f = 1\text{MHz}$ $V_B = 0\text{V}$
			Maximum	1.5pF	
Initial I/O isolation resistance	Minimum	$R_{iso}$	1,000MΩ	500V DC	

Note: Recommendable LED forward current  $I_F = 5$  to 10mA.

For type of connection

\*Operate/Reverse time

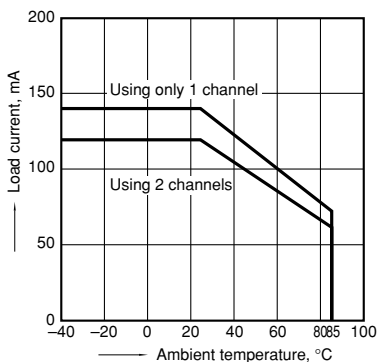


- For Dimensions
- For Schematic and Wiring Diagrams
- For Cautions for Use

## REFERENCE DATA

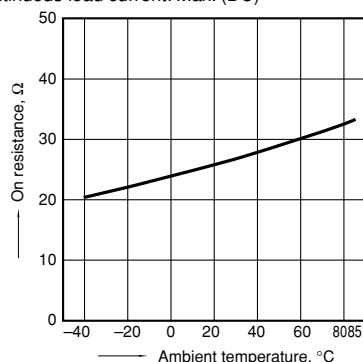
### 1. Load current vs. ambient temperature characteristics

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)

