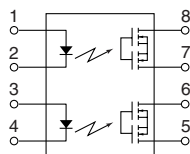
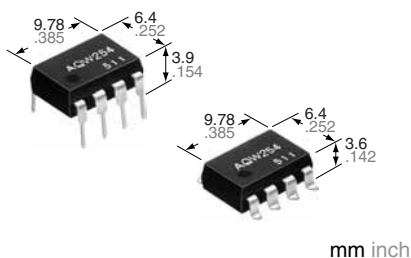


Panasonic
ideas for life

**High sensitivity and low on-resistance.
DIP (2 Form A) 8-pin type.**

**HE PhotoMOS
(AQW254)**



RoHS Directive compatibility information
<http://www.mew.co.jp/ac/e/environment/>

FEATURES

- 1. Compact 8-pin DIP size**
The device comes in a compact (W) 6.4×(L) 9.78×(H) 3.9 mm (W) .252×(L) .385×(H) .154 inch , 8-pin DIP size (through hole terminal type).
- 2. Applicable for 2 Form A use as well as two independent 1 Form A 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, low ON resistance**
Can control a maximum 0.16 A (AQW254) load current with a 5 mA input current. Low ON resistance of 16 Ω (AQW254). Stable operation because there are no metallic contact parts.

- 5. Low-level off state leakage current**
The SSR has an off state leakage current of several milliamperes, whereas the PhotoMOS relay has typ. 100 pA even with the rated load voltage of 400 V (AQW254).
- 6. Low thermal electromotive force (Approx. 1 μV)**

TYPICAL APPLICATIONS

- High-speed inspection machines
- Data communication equipment
- Telephone equipment

TYPES

Type	Output rating*		Part No.				Packing quantity	
			Through hole terminal	Surface-mount terminal			Tube	Tape and reel
	Load voltage	Load current	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	400 V	120 mA	AQW254	AQW254A	AQW254AX	AQW254AZ	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 style indicator "X" or "Z" are not marked on the relay.

RATING

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

	Item	Symbol	AQW254(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	0.12 A (0.16 A)	A connection: Peak AC, DC () : in case of using only 1 channel
	Peak load current	I _{peak}	0.36 A	A connection: 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	Between input and output/between contact sets
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	

HE PhotoMOS (AQW254)

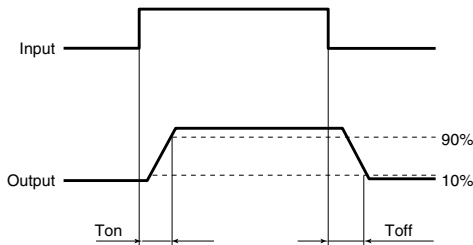
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item			Symbol	AQW254(A)	Condition
Input	LED operate current	Typical	I _{Fon}	0.9 mA	I _L = Max.
		Maximum		3 mA	
	LED turn off current	Minimum	I _{Foff}	0.4 mA	I _L = Max.
		Typical		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}	10.2 Ω	I _F = 5 mA I _L = Max. Within 1 s on time
		Maximum		16 Ω	
	Off state leakage current	Maximum	I _{LLeak}	1 μA	I _F = 0 mA V _L = Max.
Transfer characteristics	Switching speed	Turn on time*	Typical	0.8 ms	I _F = 5 mA
			Maximum	2 ms	I _L = Max.
		Turn off time*	Typical	0.04 ms	I _F = 5 mA
			Maximum	0.2 ms	I _L = Max.
	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	

Note: Recommendable LED forward current I_F = 5 mA.

For type of connection.

*Turn on/Turn off time

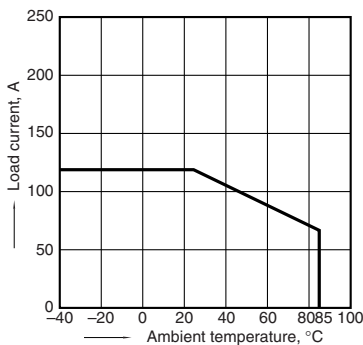


- For Dimensions.
- For Schematic and Wiring Diagrams.
- For Cautions for Use.

REFERENCE DATA

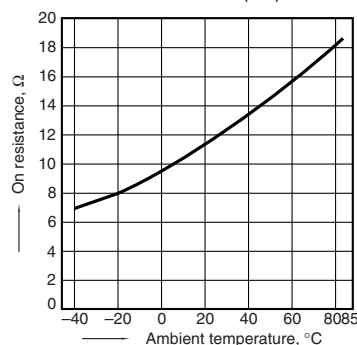
1. Load current vs. ambient temperature characteristics

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



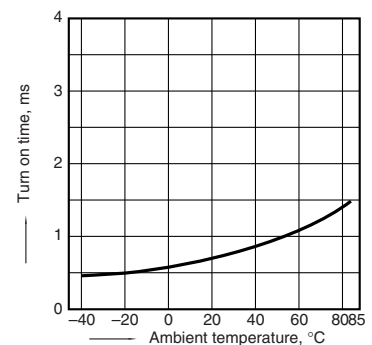
2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 5 and 6, 7 and 8; LED current: 5 mA; Load voltage: 400 V (DC); Continuous load current: 120 mA (DC)



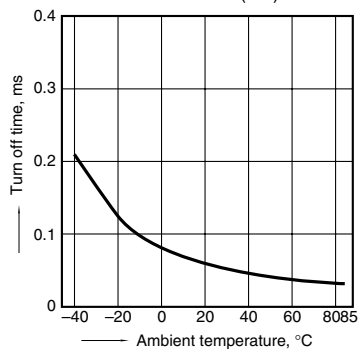
3. Turn on time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 400 V (DC); Continuous load current: 120 mA (DC)



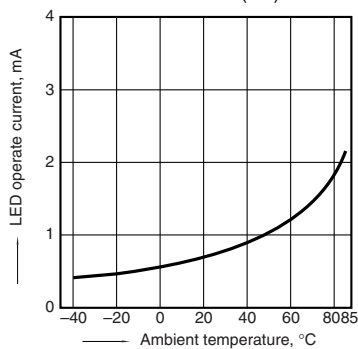
4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 400 V (DC); Continuous load current: 120 mA (DC)



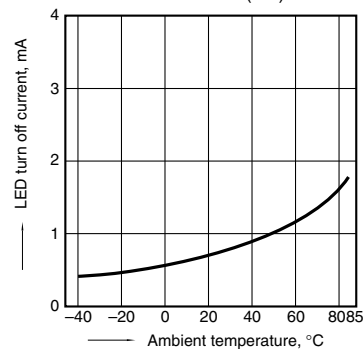
5. LED operate current vs. ambient temperature characteristics

Load voltage: 400 V (DC); Continuous load current: 120 mA (DC)



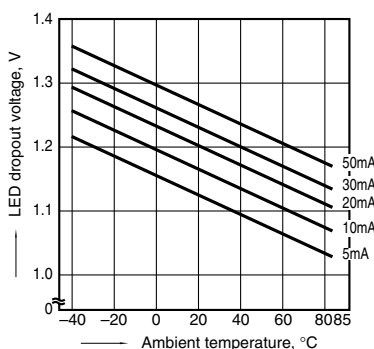
6. LED turn off current vs. ambient temperature characteristics

Load voltage: 400 V (DC); Continuous load current: 120 mA (DC)



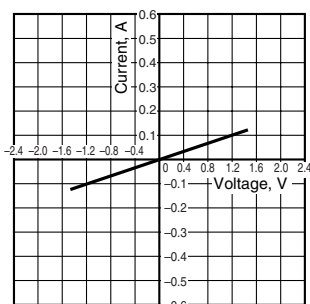
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



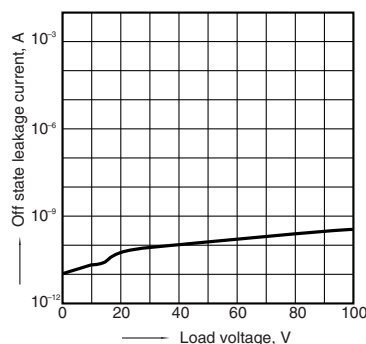
8. Current vs. voltage characteristics of output at MOS portion

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



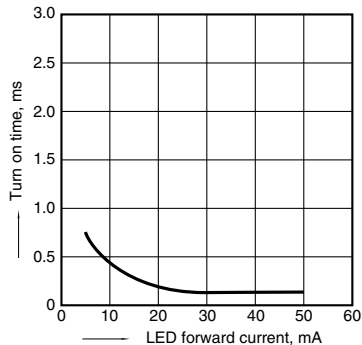
9. Off state leakage current vs. load voltage characteristics

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



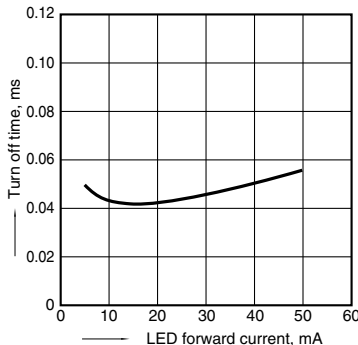
10. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 5 and 6, 7 and 8; Load voltage: 400 V (DC); Continuous load current: 120 mA (DC); Ambient temperature: 25°C 77°F



11. Turn 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: 120 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; Frequency: 1 MHz; Ambient temperature: 25°C 77°F

