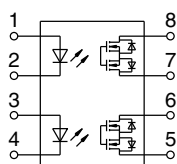
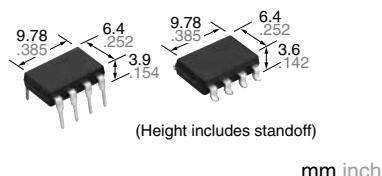


**DIP8-pin type
featuring low on-resistance
with 400V load voltage**

**PhotoMOS®
HE 2 Form A
(AQW254)**



RoHS compliant

FEATURES

1. High sensitivity and low on-resistance

Can control max. 0.16 A load current with 5 mA input current. Low on-resistance of Typ. 10.2Ω. (in case of using only 1 channel)

2. Applicable for 2 Form A use as well as two independent 1 Form A 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. Low-level off state leakage current of max. 1 μA

TYPICAL APPLICATIONS

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

TYPES

	Output rating*		Package	Part No.				Packing quantity	
				Through hole terminal	Surface-mount terminal				
	Load voltage	Load current		Tube packing style		Tape and reel packing style		Tube	Tape and reel
		Picked from the 1/2/3/4-pin side	Picked from the 5/6/7/8-pin side						
AC/DC dual use	400 V	120 mA	DIP8-pin	AQW254	AQW254A	AQW254AX	AQW254AZ	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 indicator "A" and the packing style indicator "X" or "Z" are not marked on the device.

RATING

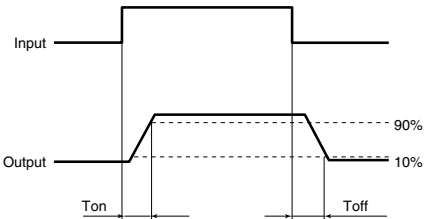
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

Item		Symbol	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	$f = 100 \text{ Hz}$, 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	100 ms (1 shot), $V_L = \text{DC}$
	Power dissipation	P_{out}	800 mW	
Total power dissipation		P_T	850 mW	
I/O isolation voltage		V_{iso}	1,500 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	

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
		Maximum		16 Ω	
	Off state leakage current	Maximum	I _{Leak}	1 μA	
Transfer characteristics	Turn on time*	Typical	T _{on}	0.8 ms	I _F = 5 mA I _L = Max.
		Maximum		2 ms	
	Turn off time*	Typical	T _{off}	0.04 ms	I _F = 5 mA I _L = Max.
		Maximum		0.2 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

*Turn on/Turn off 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
AQW254(A)	LED current	I _F	<div><div></div></div> 1ch 2ch	5	30	mA
	Load voltage (Peak AC)	V _L		—	320	V
	Continuous load current	I _L		—	0.16 0.12	A

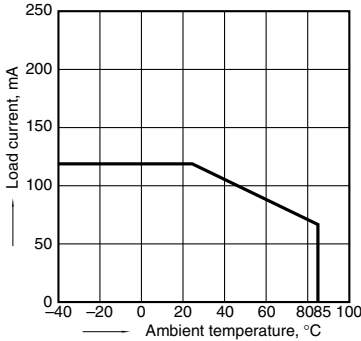
■ These products are not designed for automotive use.
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

1. Load current vs. ambient temperature characteristics

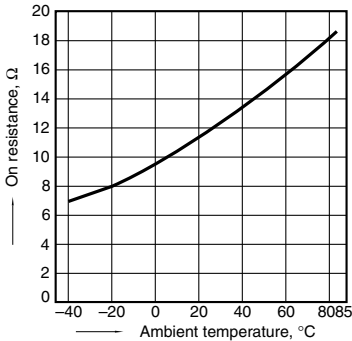
Allowable ambient temperature: -40 to +85°C
-40 to +185°F

When using 2 channels



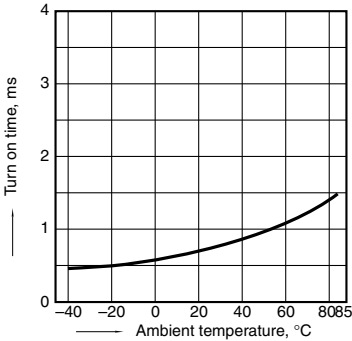
2. On resistance vs. ambient temperature characteristics

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)



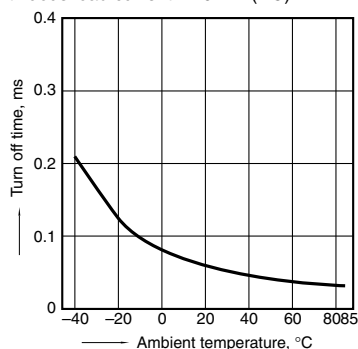
3. Turn on time vs. ambient temperature characteristics

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



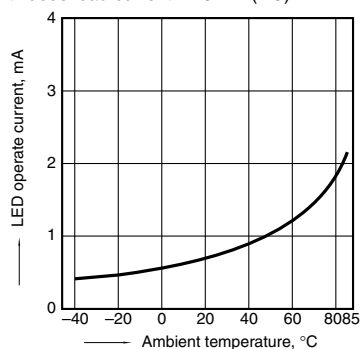
4. Turn off time vs. ambient temperature characteristics

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



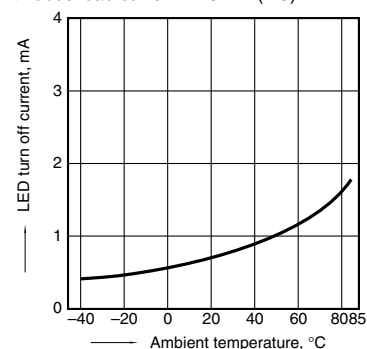
5. LED operate current vs. ambient temperature characteristics

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



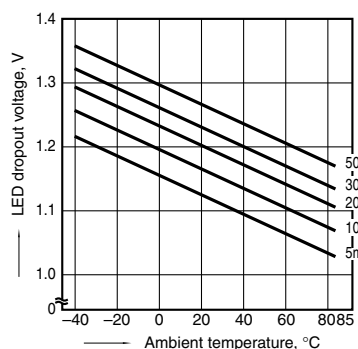
6. LED turn off current vs. ambient temperature characteristics

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



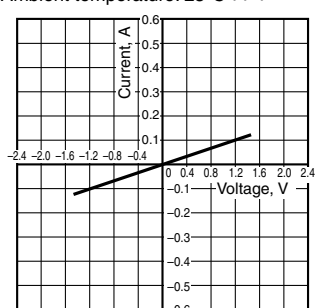
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



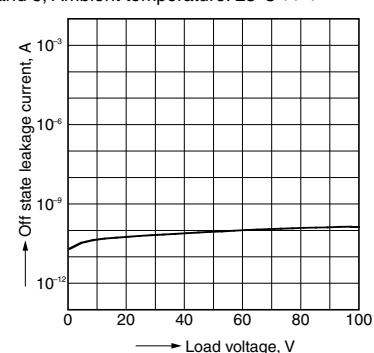
8. Current vs. voltage characteristics of output at MOS portion

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



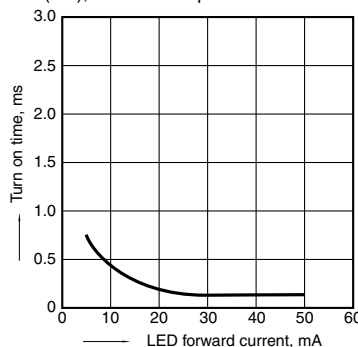
9. Off state leakage current vs. load voltage characteristics

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



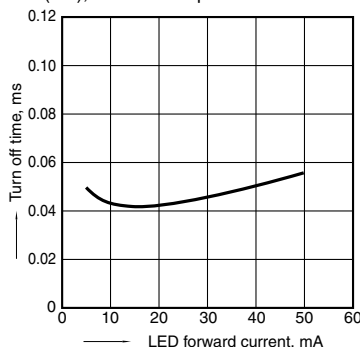
10. Turn on time vs. LED forward current characteristics

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



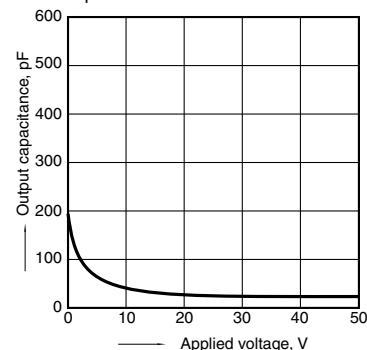
11. Turn off time vs. LED forward current characteristics

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



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