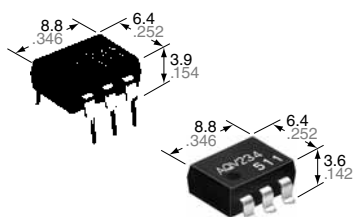


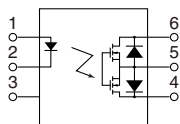


**DIP6-pin type
featuring high sensitivity**

**PhotoMOS[®]
HS 1 Form A
(AQV234)**



mm inch



RoHS compliant

FEATURES

- High sensitivity**
LED operate current: 0.31mA (typ.)
Recommended LED input current: 2mA
- Low-level off state leakage current of max. 1 μ A**
- Controls low-level analog signals**
PhotoMOS feature extremely low closed-circuit offset voltage to enable control of low-level analog signals without distortion.

TYPICAL APPLICATIONS

- High-speed inspection machines**
Scanner, IC checker, Board tester, etc.
- Telephone and data communication equipment**

TYPES

	Output rating*		Package	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-pin side	Picked from the 4/5/6-pin side				
AC/DC dual use	400 V	120 mA	DIP6-pin	AQV234	AQV234A	AQV234AX	AQV234AZ	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)

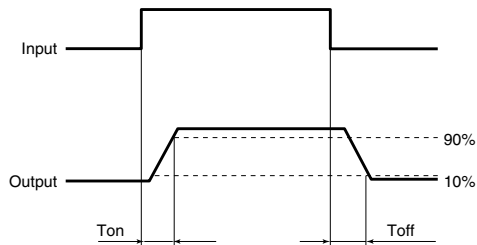
Item	Symbol	Type of connection	AQV234(A)	Remarks
Input	LED forward current	I_F	50 mA	
	LED reverse voltage	V_R	5 V	
	Peak forward current	I_{FP}	1 A	f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P_{in}	75 mW	
Load voltage (Peak AC)	V_L		400 V	
Output	Continuous load current	A	0.12 A	A connection: Peak AC, DC B, C connection: DC
		B	0.13 A	
		C	0.15 A	
Peak load current	I_{peak}		0.3 A	A connection: 100 ms (1 shot), $V_L = DC$
Power dissipation	P_{out}		500 mW	
Total power dissipation	P_T		550 mW	
I/O isolation voltage	V_{iso}		1,500 V AC	
Temperature limits	Operating	T_{opr}	-40°C to +85°C -40°F to +185°F	Non-condensing at low temperature
	Storage	T_{stg}	-40°C to +100°C -40°F to +212°F	

HS 1 Form A (AQV234)

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

Item		Symbol	Type of connection	AQV234(A)	Remarks	
Input	LED operate current	Typical	I _{Fon}	—	0.31 mA	$\Delta I_F/\Delta t \geq 100 \mu\text{A/s}$ I _L = Max.
		Maximum			0.5 mA	
	LED turn off current	Minimum	I _{Foff}	—	0.1 mA	$\Delta I_F/\Delta t \geq 100 \mu\text{A/s}$ I _L = Max.
		Typical			0.29 mA	
LED dropout voltage	Typical	V _F	—	1.25 V (1.1 V at I _F = 2 mA)		
	Maximum			1.5 V	I _F = 50 mA	
Output	On resistance	Typical	R _{on}	A	30 Ω	I _F = 2 mA, I _L = Max. Within 1 s on time
		Maximum			50 Ω	
		Typical	R _{on}	B	22.5 Ω	
		Maximum			25 Ω	
	Typical	R _{on}	C	11.3 Ω	I _F = 2 mA, I _L = Max. Within 1 s on time	
	Maximum			12.5 Ω		
Off state leakage current	Maximum	I _{Leak}	—	1 μA	I _F = 0 mA, V _L = Max.	
Transistor characteristics	Turn on time*	Typical	T _{on}	—	0.89 ms	I _F = 2 mA I _L = Max.
		Maximum			2 ms	
	Turn off time*	Typical	T _{off}	—	0.22 ms	I _F = 2 mA I _L = Max.
		Maximum			1 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



RECOMMENDED OPERATING CONDITIONS

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

Item	Symbol	Recommended value	Unit
Input LED current	I _F	2	mA

■ These products are not designed for automotive use.

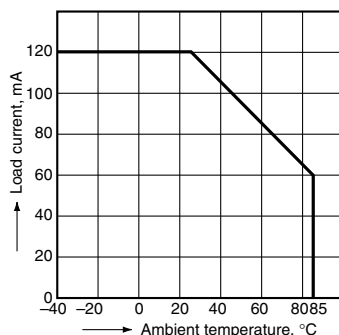
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

1. Load current vs. ambient temperature characteristics

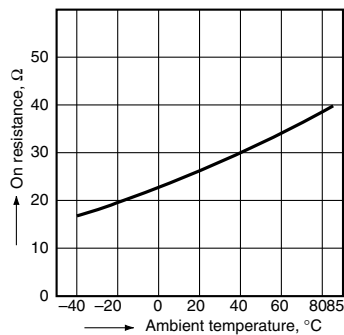
Allowable ambient temperature: -40°C to +85°C
-40°F to +185°F

Type of connection: A



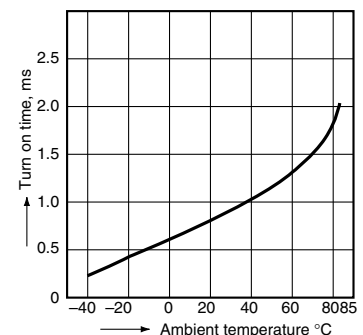
2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 4 and 6;
LED current: 2 mA; Load voltage: 400 V (DC);
Continuous load current: 120 mA (DC)



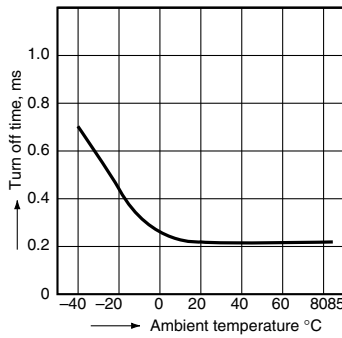
3. Turn on time vs. ambient temperature characteristics

LED current: 2 mA;
Load voltage: 400 V (DC);
Continuous load current: 120 mA (DC)



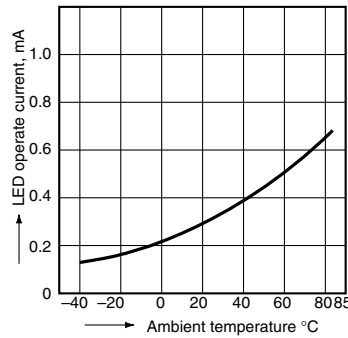
4. Turn off time vs. ambient temperature characteristics

LED current: 2 mA; Load voltage: 400 V (DC); Continuous load current: 120 mA (DC)



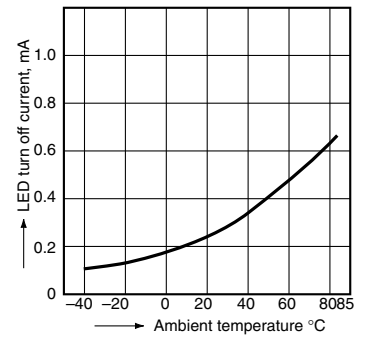
5. LED operate current vs. ambient temperature characteristics

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



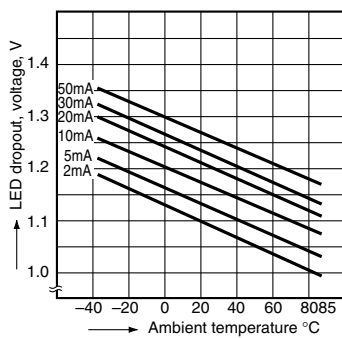
6. LED turn off current vs. ambient temperature characteristics

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



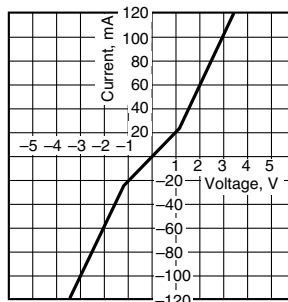
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 2 to 50 mA



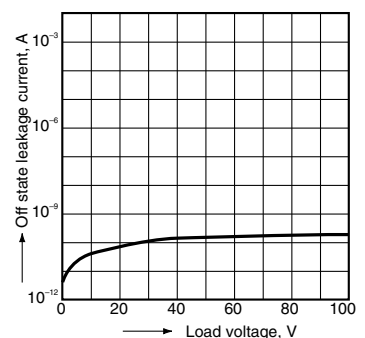
8. Current vs. voltage characteristics of output at MOS portion

Measured portion: between terminals 4 and 6; Ambient temperature: 25°C 77°F



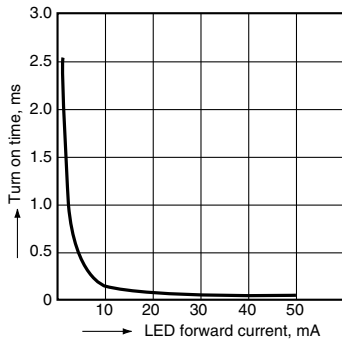
9. Off state leakage current vs. load voltage characteristics

Measured portion: between terminals 4 and 6; Ambient temperature: 25°C 77°F



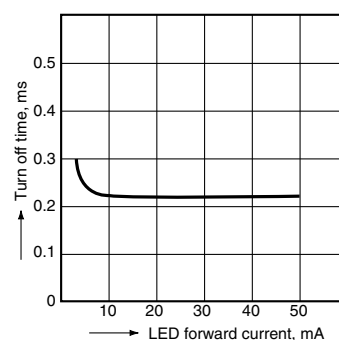
10. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 4 and 6; 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 4 and 6; 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 4 and 6; Frequency: 1 MHz; Ambient temperature: 25°C 77°F

