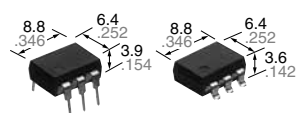


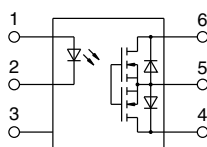
**DIP6-pin type
featuring high sensitivity**

**PhotoMOS®
HS 1 Form A
(AQV234)**



(Height includes standoff)

mm inch



RoHS compliant

FEATURES

1. High sensitivity

LED operate current: Typ. 0.31mA

Recommended LED input current: 2mA

2. Low-level off state leakage current of max. 1 μ A

3. 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

1. High-speed inspection machines

Scanner, IC checker, Board tester, etc.

2. Telephone and data communication equipment

3. Battery operating 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-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

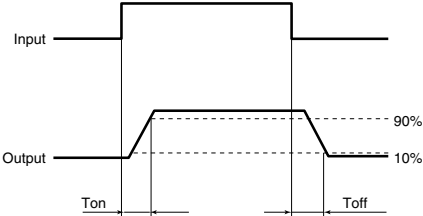
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

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	
Output	Load voltage (Peak AC)	V _L		400 V	
	Continuous load current	I _L	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 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	Type of connection	AQV234(A)	Condition
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)	I _F = 50 mA
Maximum		1.5 V				
Output	On resistance	Typical	R _{on}	A	30 Ω	I _F = 2 mA, I _L = Max. Within 1 s
		Maximum			50 Ω	
		Typical	R _{on}	B	22.5 Ω	I _F = 2 mA, I _L = Max. Within 1 s
		Maximum			25 Ω	
		Typical	R _{on}	C	11.3 Ω	I _F = 2 mA, I _L = Max. Within 1 s
		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



3. Recommended operating conditions (Ambient temperature: 25°C 77°F)

Please use under recommended operating conditions to obtain expected characteristics.

Item		Symbol	Min.	Max.	Unit
AQV234(A)	LED current	I _F	2	30	mA
	Load voltage (Peak AC)	V _L	—	320	V
	Continuous load current (A connection)	I _L	—	0.12	A

■ These products are not designed for automotive use.

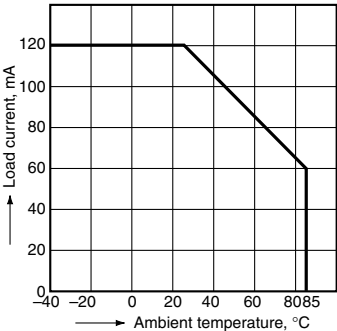
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

1. Load current vs. ambient temperature characteristics

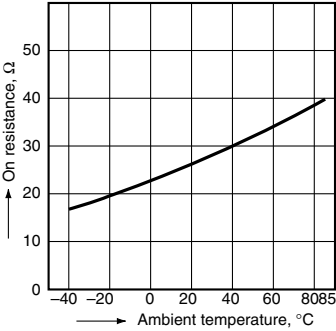
Allowable ambient temperature: -40 to +85°C
-40 to +185°F

Type of connection: A



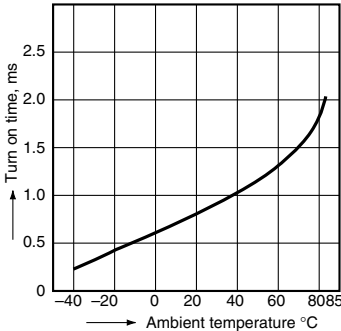
2. On resistance vs. ambient temperature characteristics

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



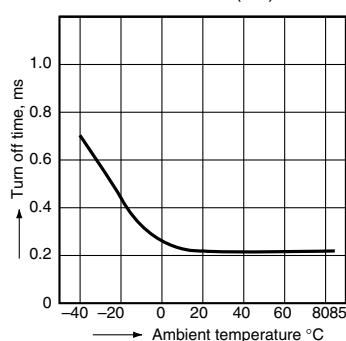
3. Turn on time vs. ambient temperature characteristics

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



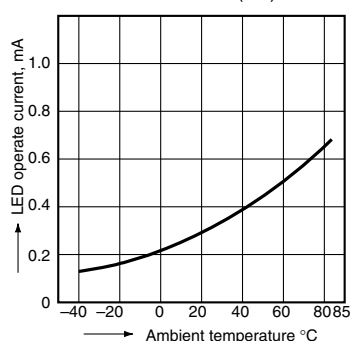
4. Turn off time vs. ambient temperature characteristics

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



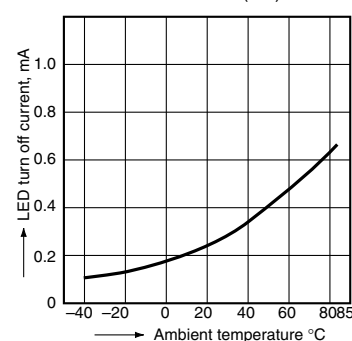
5. LED operate current vs. ambient temperature characteristics

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



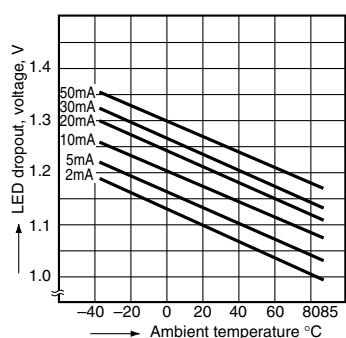
6. LED turn off current vs. ambient temperature characteristics

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



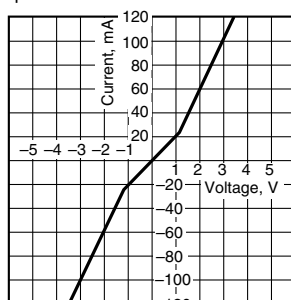
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 2 to 50 mA



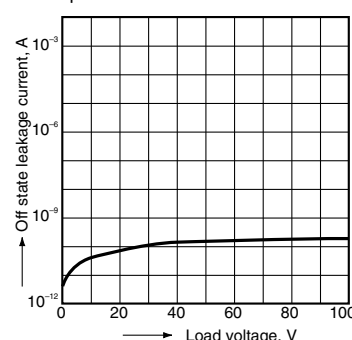
8. Current vs. voltage characteristics of output at MOS portion

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



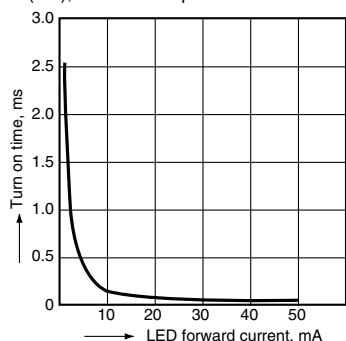
9. Off state leakage current vs. load voltage characteristics

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



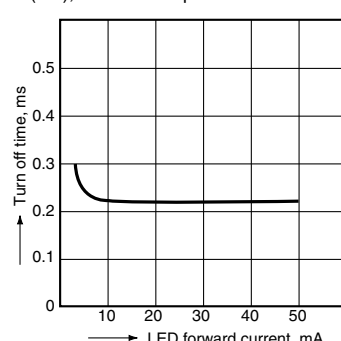
10. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 4 and 6;
Load voltage: 400 V (DC); Continuous load current:
120 mA (DC); Ambient temperature: 25°C 77°F



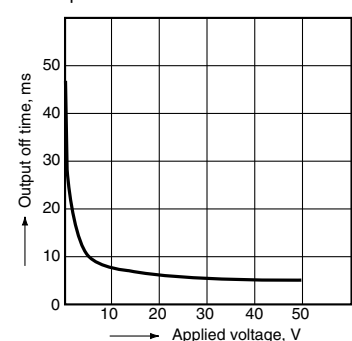
11. Turn off time vs. LED forward current characteristics

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



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*Recognized in Japan, the United States, all member states of European Union and other countries.

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