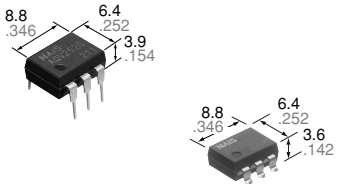
cUL pending VDE pending

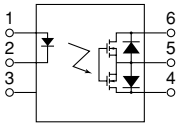
NAiS

Greatly increase load current (2.5A).
Load voltage is 60V.

HE PhotoMOS (AQV252G)



mm inch



FEATURES

1. Greatly increased load current in the same package size.

2. Greatly improved specs allow you to use this in place of mercury and mechanical relays.

TYPICAL APPLICATIONS

• Crime and fire prevention market (use in I/O for alarm and security devices, etc.)
• Measuring instrument market (circuit testers, etc.)

TYPES

Type	Output rating*		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 type	60 V	2.5 A	AQV252G	AQV252GA	AQV252GAX	AQV252GAZ	1 tube contains 50 pcs. 1 batch contains 500 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	Type of connection	AQV252G(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		60 V	
	Continuous load current (peak AC)	I_L	A	2.5 A	A connection: Peak AC, DC B, C connection: DC
			B	3.5 A	
			C	5.0 A	
	Peak load current	I_{peak}		6.0 A	100ms (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 temperatures
	Storage	T_{stg}		–40°C to +100°C –40°F to +212°F	

Datasheet.Technology

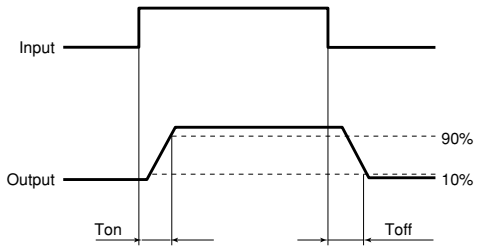
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item			Symbol	Type of connection	AQV252G(A)	Condition
Input	LED operate current	Typical	I_{Fon}	—	0.5 mA	I_L = 100mA
		Maximum			3 mA	
	LED turn off current	Minimum	I_{Foff}	—	0.2 mA	I_L = 100mA
		Typical			0.45 mA	
	LED dropout voltage	Typical	V_F	—	1.32 V (1.14 V at I_F = 5 mA)	I_F = 50 mA
		Maximum			1.5 V	
Output	On resistance	Typical	R_{on}	A	0.08 Ω	I_F = 5 mA I_L = Max. Within 1 s on time
		Maximum			0.12 Ω	
		Typical	R_{on}	B	0.04 Ω	
		Maximum			0.06 Ω	
		Typical	R_{on}	C	0.02 Ω	
		Maximum			0.03 Ω	
	Off state leakage current	Maximum	I_{Leak}	—	1 μA	I_F = 0 mA V_L = Max.
Transfer characteristics	Turn on time*	Typical	T_{on}	—	1.1 ms	I_F = 5 mA I_L = 100 mA V_L = 10 V
		Maximum			5.0 ms	
	Turn off time*	Typical	T_{off}	—	0.25 ms	I_F = 5 mA I_L = 100 mA V_L = 10 V
		Maximum			0.5 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

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

For type of connection, see Page 34.

*Turn on/Turn off time

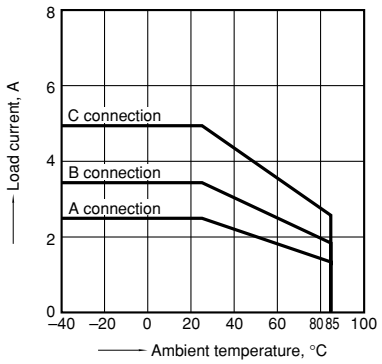


■ For Dimensions, see Page 29.
■ For Schematic and Wiring Diagrams, see Page 34.
■ For Cautions for Use, see Page 38.

REFERENCE DATA

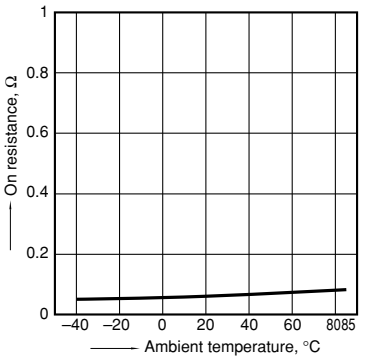
1. Load current vs. ambient temperature characteristics

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



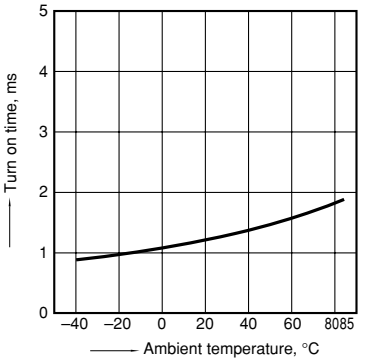
2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 4 and 6;
LED current: 5 mA; Load voltage: Max. (DC)
Continuous load current: Max.(DC)



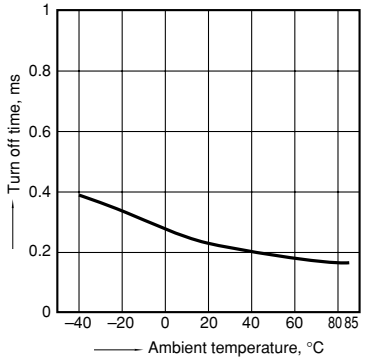
3. Turn on time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10 V (DC);
Continuous load current: 100 mA (DC)



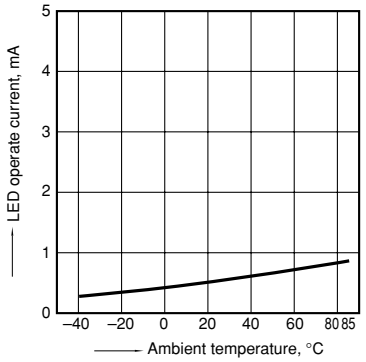
4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10 V (DC);
Continuous load current: 100 mA (DC)



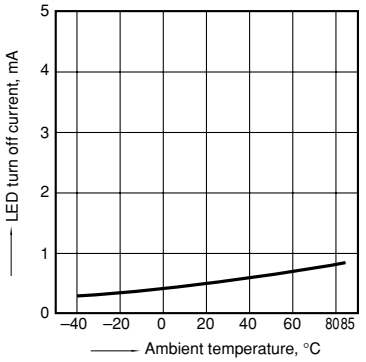
5. LED operate current vs. ambient temperature characteristics

Load voltage: 10 V (DC);
Continuous load current: 100mA (DC)



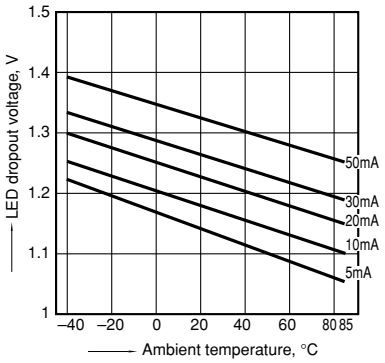
6. LED turn off current vs. ambient temperature characteristics

Load voltage: 10 V (DC);
Continuous load current: 100mA (DC)



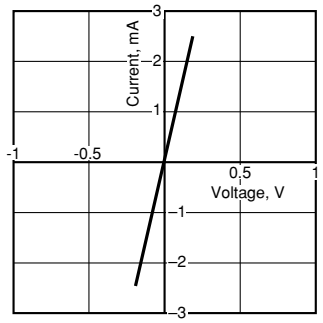
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



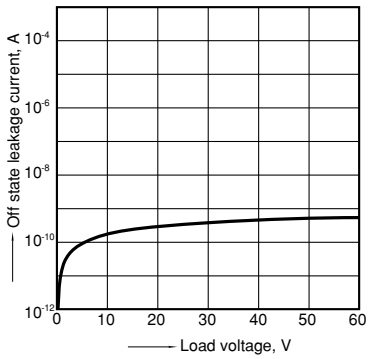
8. Current vs. voltage characteristics of output at MOS portion

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



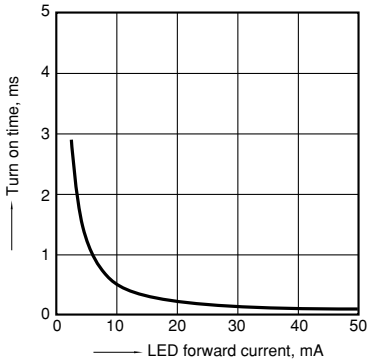
9. Off state leakage current vs. load voltage characteristics

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



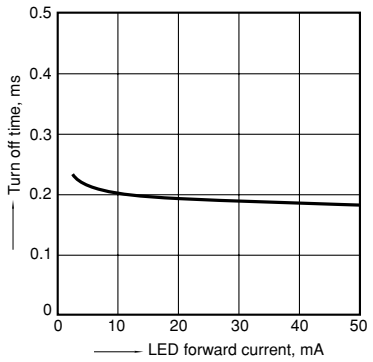
10. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 4 and 6;
Load voltage: 10 V (DC);
Continuous load current: 100 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: 10 V (DC);
Continuous load current: 100 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