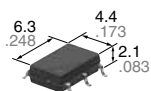
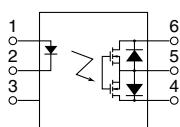




Miniature SOP6-pin type with high capacity of 3A load current	PhotoMOS[®] HE SOP 1 Form A High Capacity (AQV250GOS)
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mm inch



RoHS compliant

FEATURES

1. High capacity in a miniature SOP package

Continuous load current: Max. 3A
Load voltage: 50V and 80V

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

TYPICAL APPLICATIONS

- Security equipment
- Fire-preventing system
- Measuring instruments

TYPES

	Output rating*		Package	Part No.			Packing quantity	
	Load voltage	Load current		Surface-mount terminal			Tube	Tape and reel
				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	50 V	3.0 A	SOP6-pin	AQV252G2S	AQV252G2SX	AQV252G2SZ	1 tube contains: 75 pcs. 1 batch contains: 1,500 pcs.	1,000 pcs.
	80 V	1.25 A		AQV255GS	AQV255GSX	AQV255GSZ		

Note: For space reasons, the two initial letters of the part number "AQ" and the packing style indicator "X" or "Z" are not marked on the device.
* Indicate the peak AC and DC values.

RATING

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

Item	Symbol	Type of connection	AQV252G2S	AQV255GS	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	50 V	80 V		
	Continuous load current	I _L	A	3.0 A	1.25 A	A connection: Peak AC, DC B, C connection: DC
			B	3.5 A	1.75 A	
			C	6.0 A	2.5 A	
	Peak load current	I _{peak}	6 A		3 A	100ms (1 shot), V _L = DC at A connection
Power dissipation	P _{out}	450 mW				
Total power dissipation	P _T	500 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			

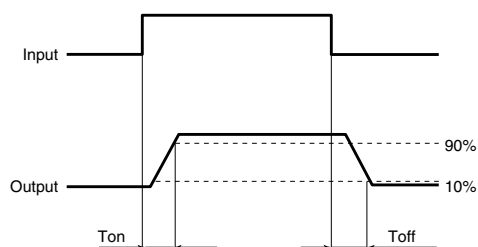
HE SOP 1 Form A High Capacity (AQV25OGOS)

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

Item		Symbol	Type of connection	AQV252G2S	AQV255GS	Condition
Input	LED operate current	Typical	—	0.6 mA	0.5 mA	$I_L = 100\text{mA}$
		Maximum		3 mA		
	LED turn off current	Minimum	—	0.2 mA		$I_L = 100\text{mA}$
Typical		0.5 mA		0.4 mA		
	LED dropout voltage	Typical	—	1.32 V (1.14 V at $I_F = 5\text{ mA}$)		$I_F = 50\text{ mA}$
		Maximum		1.5 V		
Output	On resistance	Typical	A	0.04 Ω	0.09 Ω	A connection $I_F = 5\text{ mA}$, $I_L = \text{Max.}$ Within 1 s on time
		Maximum		0.07 Ω	0.15 Ω	
		Typical	B	0.025 Ω	0.05 Ω	B connection $I_F = 5\text{ mA}$, $I_L = \text{Max.}$ Within 1 s on time
		Maximum		0.04 Ω	0.12 Ω	
		Typical	C	0.01 Ω	0.03 Ω	C connection $I_F = 5\text{ mA}$, $I_L = \text{Max.}$ Within 1 s on time
		Maximum		0.02 Ω	0.1 Ω	
	Off state leakage current	Maximum	—	1 μA		$I_F = 0\text{ mA}$, $V_L = \text{Max.}$
Transfer characteristics	Turn on time*	Typical	—	1.5 ms	1.3 ms	$I_F = 5\text{ mA}$, $I_L = 100\text{ mA}$ $V_L = 10\text{ V}$
		Maximum		5 ms		
	Turn off time*	Typical	—	0.08 ms	0.1 ms	$I_F = 5\text{ mA}$, $I_L = 100\text{ mA}$ $V_L = 10\text{ V}$
		Maximum		0.5 ms		
	I/O capacitance	Typical	—	0.8 pF		$f = 1\text{ MHz}$ $V_B = 0\text{ V}$
		Maximum		1.5 pF		
Initial I/O isolation resistance	Minimum	—	1,000 M Ω		500 V DC	
Max. switching frequency	Maximum	—	—	2.5 times/s	5 times/s	$I_F = 5\text{ mA}$, duty = 50% $I_L = \text{Max.}$, $V_L = \text{Max.}$

Note: Please refer to the "Schematic and Wiring Diagrams" for connection method.

*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	5 to 10	mA

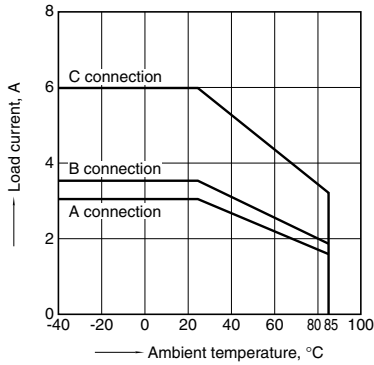
■ These products are not designed for automotive use.

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

REFERENCE DATA

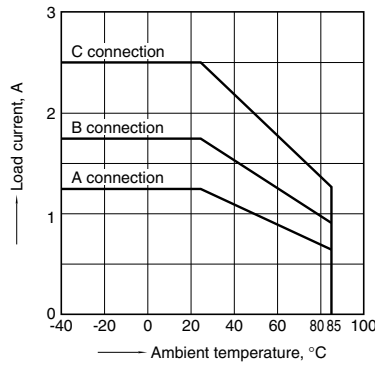
1.-(1) Load current vs. ambient temperature characteristics

Sample: AQV252G2S
 Allowable ambient temperature: -40°C to +85°C
 -40°F to +185°F



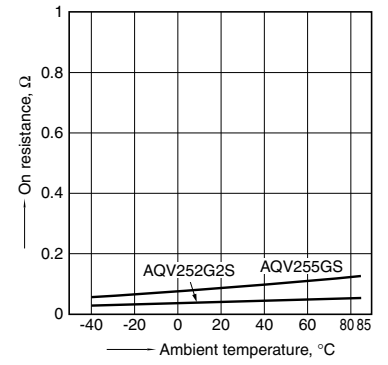
1.-(2) Load current vs. ambient temperature characteristics

Sample: AQV255GS
 Allowable ambient temperature: -40°C to +85°C
 -40°F to +185°F



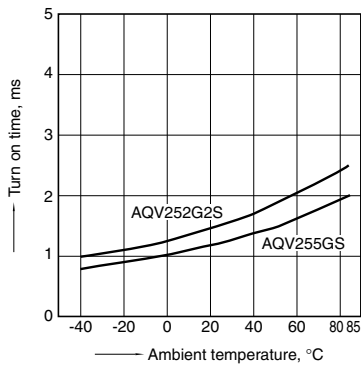
2. On resistance vs. ambient temperature characteristics

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



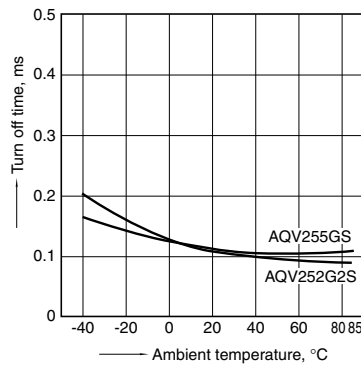
3. Turn on time vs. ambient temperature characteristics

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



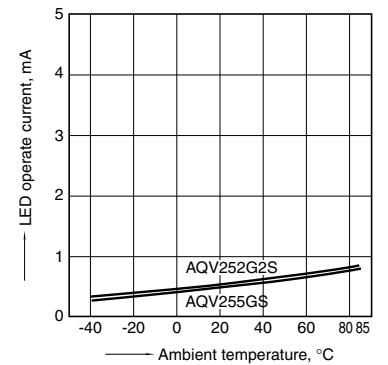
4. Turn off time vs. ambient temperature characteristics

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



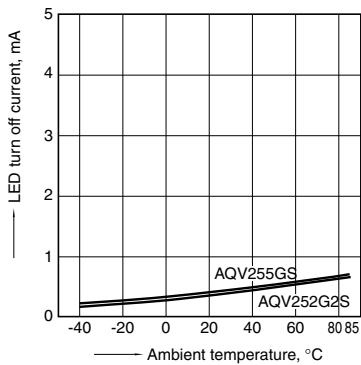
5. LED operate current vs. ambient temperature characteristics

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



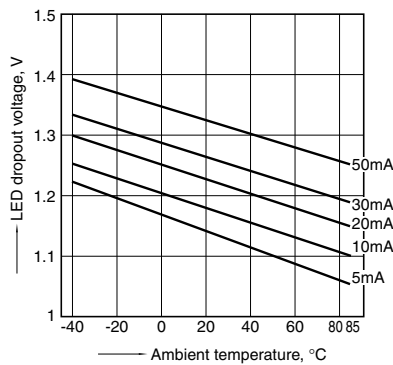
6. LED turn off current vs. ambient temperature characteristics

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



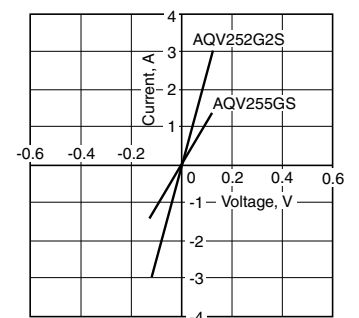
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



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

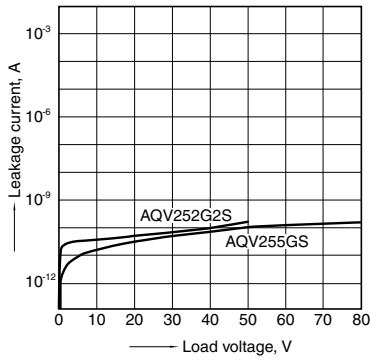
Measured portion: between terminals 4 and 6;
 Ambient temperature: 25°C 77°F



HE SOP 1 Form A High Capacity (AQV250G0S)

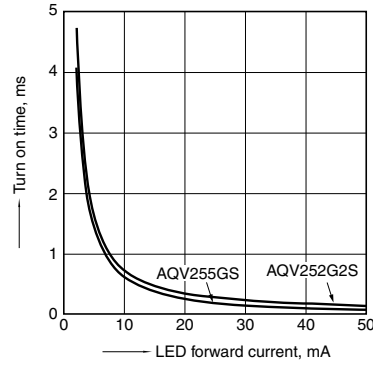
9. Off state leakage current vs. load voltage characteristics

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



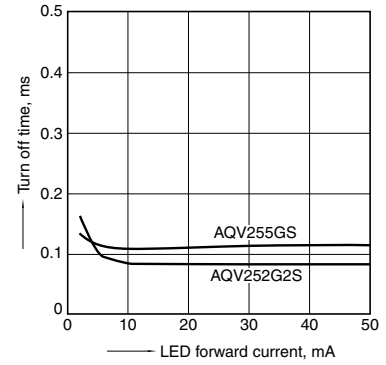
10. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 4 and 6;
Load voltage: 10 V (DC);
Continuous load current: 100 mA (DC);
Ambient temperature: 25°C 77°F



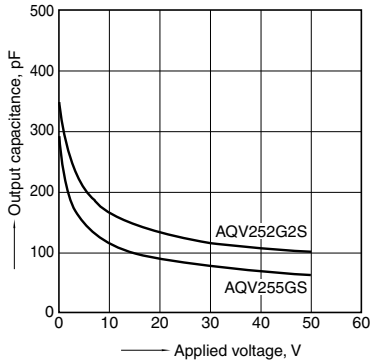
11. Turn off time vs. LED forward current characteristics

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



13. Max. switching frequency vs. load voltage and load current

LED current: 5 mA
Ambient temperature: 25°C 77°F

