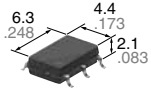
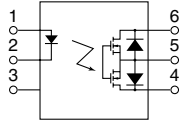


**Miniature SOP6-pin type with high capacity of 3A load current**

**PhotoMOS<sup>®</sup> HE SOP 1 Form A High Capacity (AQV250G0S)**



mm inch



**RoHS compliant**

## FEATURES

- High capacity in a miniature SOP package**  
Continuous load current: Max. 3A  
Load voltage: 50V and 80V
- Greatly improved specifications allow you to use this in place of mercury and mechanical relays.**

## TYPICAL APPLICATIONS

- Security equipment
- Fire-preventing system
- Measuring instruments

\* For the latest information on compliance with international standards, please visit our website.

## 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			
<b>New</b> AC/DC dual use	50 V	3.0 A	SOP6-pin	AQV252G2S	AQV252G2SX	AQV252G2SZ	1 tube contains: 75 pcs.	1,000 pcs.
	80 V	1.25 A		AQV255GS	AQV255GSX	AQV255GSZ	1 batch contains: 1,500 pcs.	

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 <sub>F</sub>		50 mA		
	LED reverse voltage	V <sub>R</sub>		5 V		
	Peak forward current	I <sub>FP</sub>		1 A		f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P <sub>in</sub>		75 mW		
Load voltage (peak AC)		V <sub>L</sub>		50 V	80 V	
Output	Continuous load current	I <sub>L</sub>	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 <sub>peak</sub>		6 A	3 A	100ms (1 shot), V <sub>L</sub> = DC at A connection
Power dissipation		P <sub>out</sub>		450 mW		
Total power dissipation		P <sub>T</sub>		500 mW		
I/O isolation voltage		V <sub>iso</sub>		1,500 V AC		
Temperature limits	Operating	T <sub>opr</sub>		-40°C to +85°C -40°F to +185°F		Non-condensing at low temperatures
	Storage	T <sub>stg</sub>		-40°C to +100°C -40°F to +212°F		

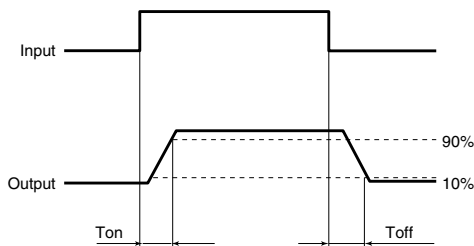
# HE SOP 1 Form A High Capacity (AQV25OGOS)

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

Item			Symbol	Type of connection	AQV252G2S	AQV255GS	Condition
Input	LED operate current	Typical	$I_{Fon}$	—	0.6 mA	0.5 mA	$I_L = 100\text{mA}$
		Maximum			3 mA		
	LED turn off current	Minimum	$I_{Foff}$	—	0.2 mA		$I_L = 100\text{mA}$
		Typical			0.5 mA	0.4 mA	
	LED dropout voltage	Typical	$V_F$	—	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	$R_{on}$	A	0.04 $\Omega$	0.09 $\Omega$	A connection $I_F = 5\text{ mA}$ , $I_L = \text{Max.}$ Within 1 s on time
		Maximum			0.07 $\Omega$	0.15 $\Omega$	
		Typical	$R_{on}$	B	0.025 $\Omega$	0.05 $\Omega$	B connection $I_F = 5\text{ mA}$ , $I_L = \text{Max.}$ Within 1 s on time
		Maximum			0.04 $\Omega$	0.12 $\Omega$	
		Typical	$R_{on}$	C	0.01 $\Omega$	0.03 $\Omega$	C connection $I_F = 5\text{ mA}$ , $I_L = \text{Max.}$ Within 1 s on time
		Maximum			0.02 $\Omega$	0.1 $\Omega$	
	Off state leakage current	Maximum	$I_{Leak}$	—	1 $\mu\text{A}$		$I_F = 0\text{ mA}$ , $V_L = \text{Max.}$
	Transfer characteristics	Turn on time*	Typical	$T_{on}$	—	1.5 ms	1.3 ms
Maximum			5 ms				
Turn off time*		Typical	$T_{off}$	—	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	$C_{iso}$	—	0.8 pF		$f = 1\text{ MHz}$ $V_B = 0\text{ V}$
		Maximum			1.5 pF		
Initial I/O isolation resistance	Minimum	$R_{iso}$	—	1,000 M $\Omega$		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

■ For Dimensions.

■ For Schematic and Wiring Diagrams.

■ For Cautions for Use.

■ 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.

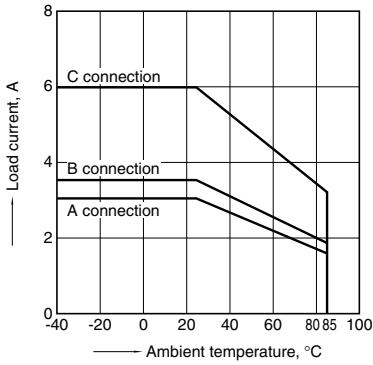
For more information.

# HE SOP 1 Form A High Capacity (AQV25OGOS)

## REFERENCE DATA

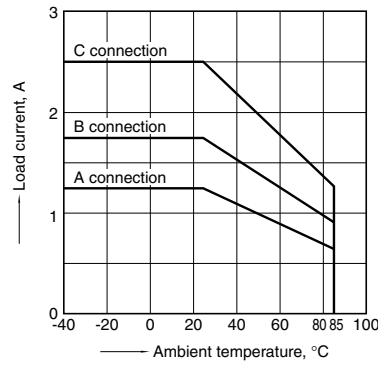
1.-(1) Load current vs. ambient temperature characteristics

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



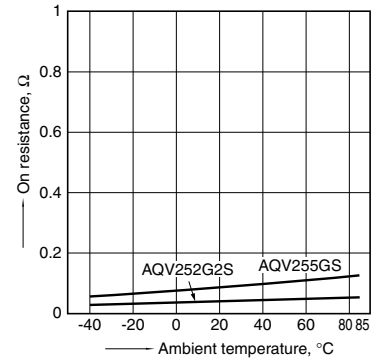
1.-(2) Load current vs. ambient temperature characteristics

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



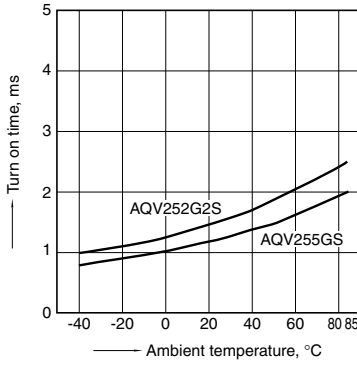
2. On resistance vs. ambient temperature characteristics

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



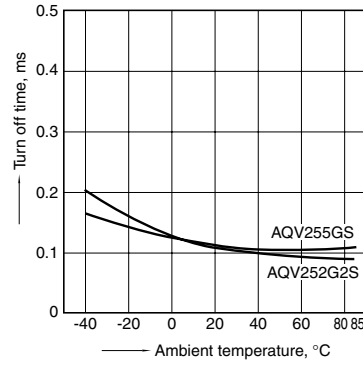
3. Turn on time vs. ambient temperature characteristics

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



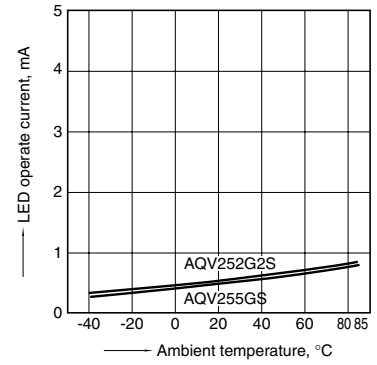
4. Turn off time vs. ambient temperature characteristics

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



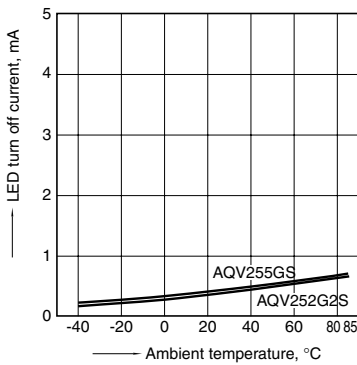
5. LED operate current vs. ambient temperature characteristics

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



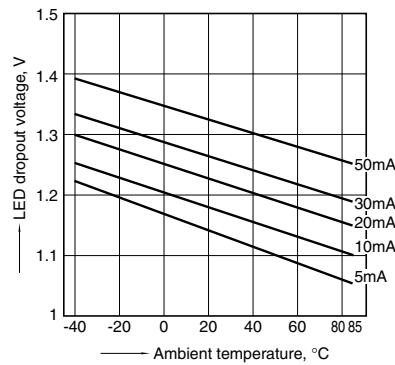
6. LED turn off current vs. ambient temperature characteristics

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



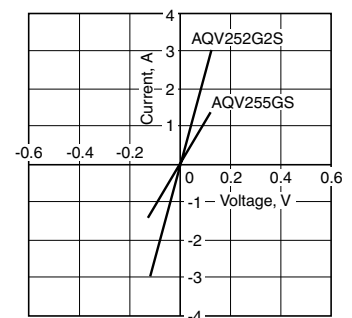
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



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

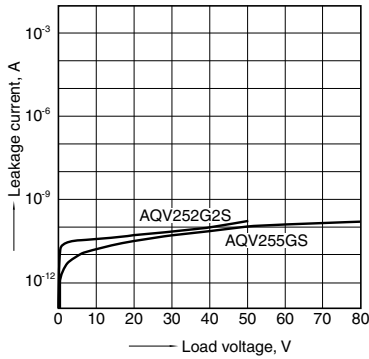
Measured portion: between terminals 4 and 6;  
Ambient temperature: 25°C 77°F



# HE SOP 1 Form A High Capacity (AQV25○G○S)

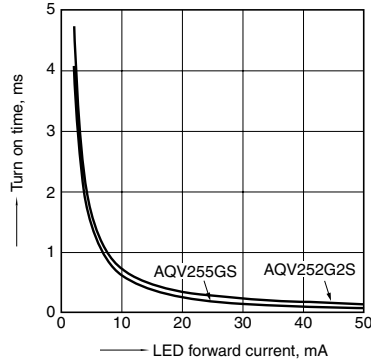
## 9. Off state leakage current vs. load voltage characteristics

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



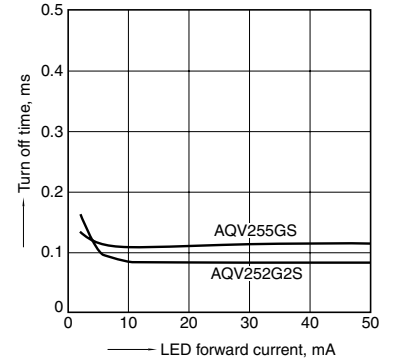
## 10. Turn on time vs. LED forward current characteristics

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



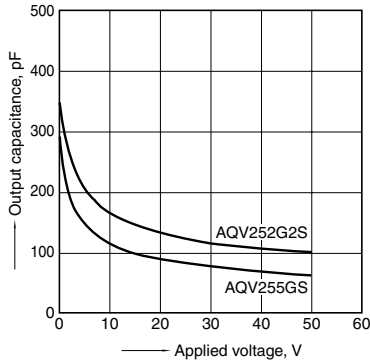
## 11. Turn off time vs. LED forward current characteristics

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

