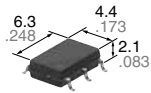
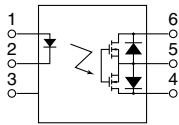




<b>Miniature SOP6-pin type with high capacity of 3A load current</b>	<b>PhotoMOS<sup>®</sup> HE SOP 1 Form A High Capacity (AQV250GOS)</b>
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mm inch



**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

### 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		

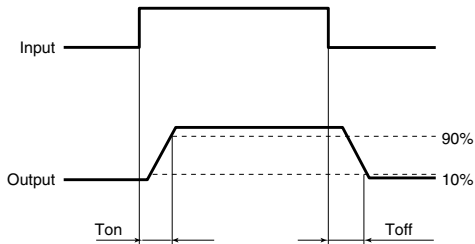
# HE SOP 1 Form A High Capacity (AQV25OGOS)

## 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 <sub>L</sub> = 100mA
		Maximum		3 mA		
	LED turn off current	Minimum	—	0.2 mA		I <sub>L</sub> = 100mA
Typical		0.5 mA		0.4 mA		
	LED dropout voltage	Typical	—	1.32 V (1.14 V at I <sub>F</sub> = 5 mA)		I <sub>F</sub> = 50 mA
		Maximum		1.5 V		
Output	On resistance	Typical	A	0.04 Ω	0.09 Ω	A connection I <sub>F</sub> = 5 mA, I <sub>L</sub> = Max. Within 1 s on time
		Maximum		0.07 Ω	0.15 Ω	
		Typical	B	0.025 Ω	0.05 Ω	B connection I <sub>F</sub> = 5 mA, I <sub>L</sub> = Max. Within 1 s on time
		Maximum		0.04 Ω	0.12 Ω	
		Typical	C	0.01 Ω	0.03 Ω	C connection I <sub>F</sub> = 5 mA, I <sub>L</sub> = Max. Within 1 s on time
		Maximum		0.02 Ω	0.1 Ω	
	Off state leakage current	Maximum	—	1 μA		I <sub>F</sub> = 0 mA, V <sub>L</sub> = Max.
Transfer characteristics	Turn on time*	Typical	—	1.5 ms	1.3 ms	I <sub>F</sub> = 5 mA, I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V
		Maximum		5 ms		
	Turn off time*	Typical	—	0.08 ms	0.1 ms	I <sub>F</sub> = 5 mA, I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V
		Maximum		0.5 ms		
	I/O capacitance	Typical	—	0.8 pF		f = 1 MHz V <sub>B</sub> = 0 V
		Maximum		1.5 pF		
Initial I/O isolation resistance	Minimum	—	1,000 MΩ		500 V DC	
Max. switching frequency	Maximum	—	—	2.5 times/s	5 times/s	I <sub>F</sub> = 5 mA, duty = 50% I <sub>L</sub> = Max., V <sub>L</sub> = 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 <sub>F</sub>	5 to 10	mA

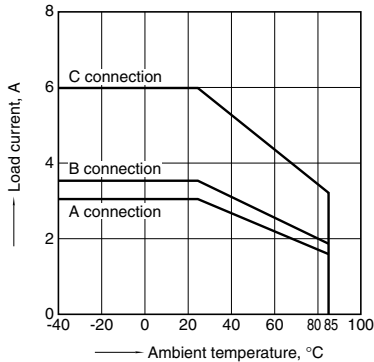
■ These products are not designed for automotive use.

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

## REFERENCE DATA

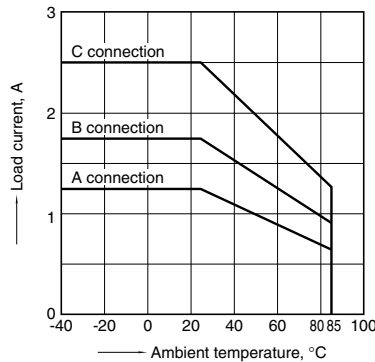
1.-(1) Load current vs. ambient temperature characteristics

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



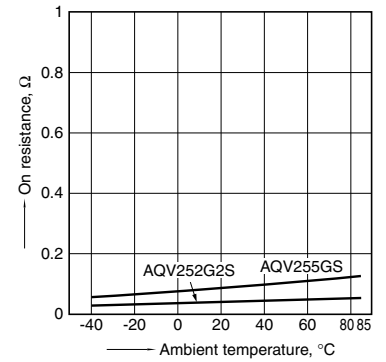
1.-(2) Load current vs. ambient temperature characteristics

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



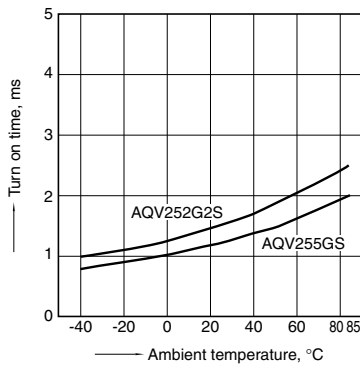
2. On resistance vs. ambient temperature characteristics

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



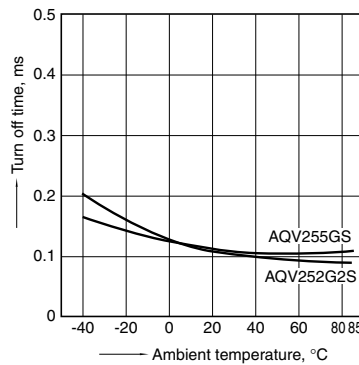
3. Turn on time vs. ambient temperature characteristics

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



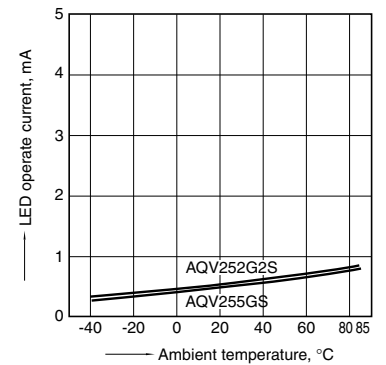
4. Turn off time vs. ambient temperature characteristics

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



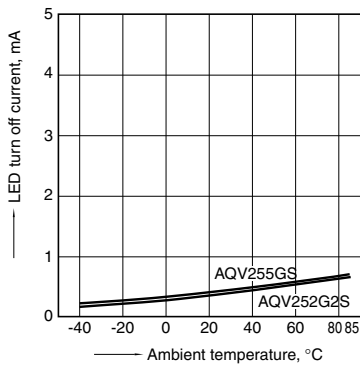
5. LED operate current vs. ambient temperature characteristics

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



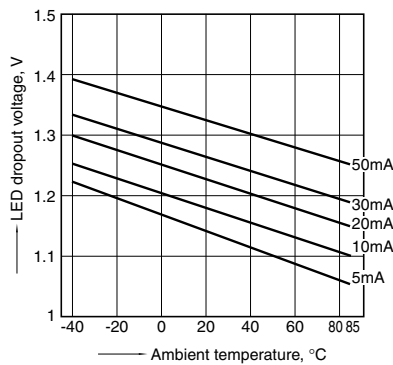
6. LED turn off current vs. ambient temperature characteristics

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



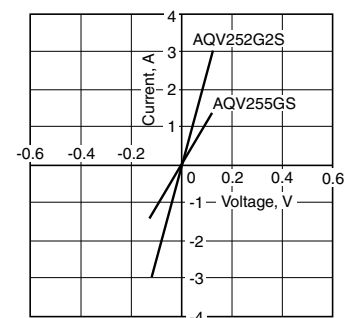
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



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

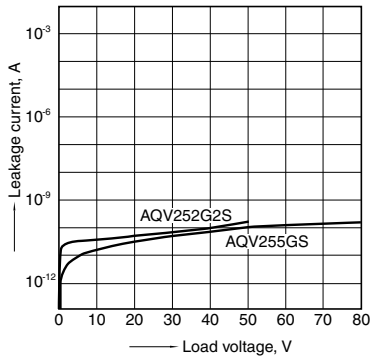
Measured portion: between terminals 4 and 6;  
 Ambient temperature: 25°C 77°F



# HE SOP 1 Form A High Capacity (AQV250G0S)

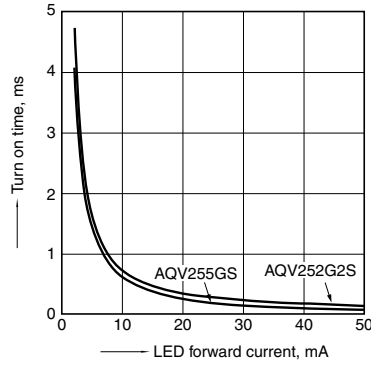
## 9. Off state leakage current vs. load voltage characteristics

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



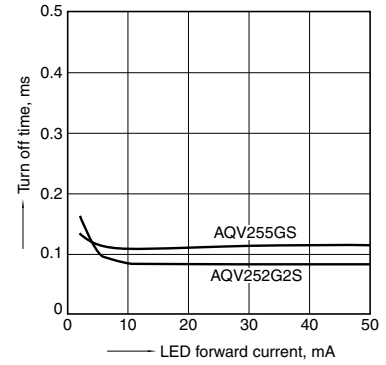
## 10. Turn on time vs. LED forward current characteristics

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



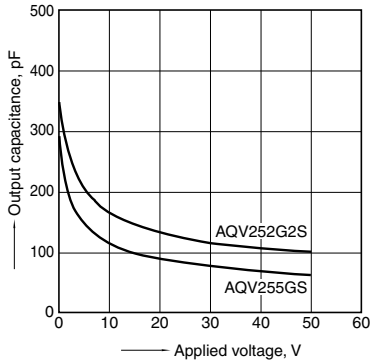
## 11. Turn off time vs. LED forward current characteristics

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

