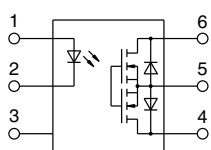


**Miniature SOP6-pin type
with high capacity
of 3.3A load current**

**PhotoMOS®
HE SOP 1 Form A
High Capacity (AQV250G3S)**



mm inch



RoHS compliant

FEATURES

1. High capacity in a miniature SOP package

Continuous load current: Max. 3.3A
Load voltage: 60V and 100V

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

TYPICAL APPLICATIONS

- Security equipment
- Fire-preventing system
- Industrial machine
- Thermostat (HVAC temperature controller)

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	New 60 V	3.3 A	SOP6-pin	AQV252G3S	AQV252G3SX	AQV252G3SZ	1 tube contains: 75 pcs. 1 batch contains: 1,500 pcs.	1,000 pcs.
	New 100 V	2.2 A		AQV255G3S	AQV255G3SX	AQV255G3SZ		

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)

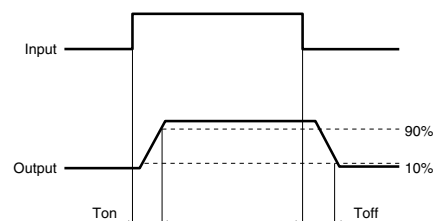
Item	Symbol	Type of connection	AQV252G3S	AQV255G3S	Remarks	
Input	LED forward current	I_F	50 mA			
	LED reverse voltage	V_R	5 V			
	Peak forward current	I_{FP}	1 A		f = 100 Hz, Duty factor = 0.1%	
	Power dissipation	P_{in}	75 mW			
Output	Load voltage (peak AC)	V_L	60 V	100 V		
	Continuous load current	I_L	A	3.3 A	2.2 A	A connection: Peak AC, DC B, C connection: DC
			B	3.5 A	2.4 A	
			C	6.6 A	4.4 A	
	Peak load current	I_{peak}	10 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 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			

HE SOP 1 Form A High Capacity (AQV25○G3S)

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

Item			Symbol	Type of connection	AQV252G3S	AQV255G3S	Condition
Input	LED operate current	Typical	I_{Fon}	—	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			0.4 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	0.033 Ω	0.07 Ω	A connection $I_F = 5\text{ mA}$, $I_L = \text{Max.}$ Within 1 s
		Maximum			0.06 Ω	0.12 Ω	
		Typical	R_{on}	B	0.017 Ω	0.035 Ω	B connection $I_F = 5\text{ mA}$, $I_L = \text{Max.}$ Within 1 s
		Maximum			0.04 Ω	0.07 Ω	
	Typical	R_{on}	C	0.0095 Ω	0.02 Ω	C connection $I_F = 5\text{ mA}$, $I_L = \text{Max.}$ Within 1 s	
	Maximum			0.02 Ω	0.04 Ω		
Off state leakage current	Maximum	I_{Leak}	—	1 μA		$I_F = 0\text{ mA}$, $V_L = \text{Max.}$	
Transfer characteristics	Turn on time*	Typical	T_{on}	—	1.8 ms		$I_F = 5\text{ mA}$, $I_L = 100\text{ mA}$ $V_L = 10\text{ V}$
		Maximum			5 ms		
	Turn off time*	Typical	T_{off}	—	0.15 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 Ω		500 V DC	
Max. operating frequency	Maximum	—	—	2.5 cps		$I_F = 5\text{ mA}$, duty = 50% $I_L = \text{Max.}$, $V_L = \text{Max.}$	

*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
LED current		I_F	5	30	mA
AQV252G3S	Load voltage (Peak AC)	V_L	—	48	V
	Continuous load current (A connection)	I_L	—	3.3	A
AQV255G3S	Load voltage (Peak AC)	V_L	—	80	V
	Continuous load current (A connection)	I_L	—	2.2	A

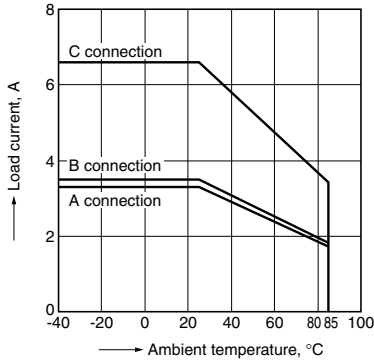
■ These products are not designed for automotive use.

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

REFERENCE DATA

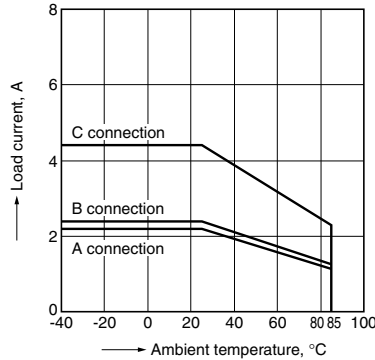
1.-(1) Load current vs. ambient temperature characteristics

Sample: AQV252G3S
 Allowable ambient temperature: -40 to +85°C
 -40 to +185°F



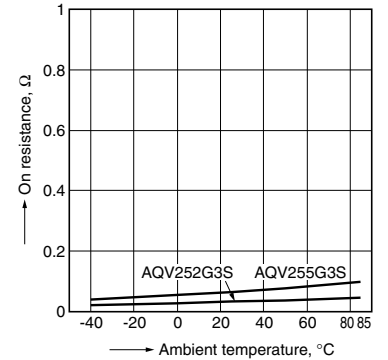
1.-(2) Load current vs. ambient temperature characteristics

Sample: AQV255G3S
 Allowable ambient temperature: -40 to +85°C
 -40 to +185°F



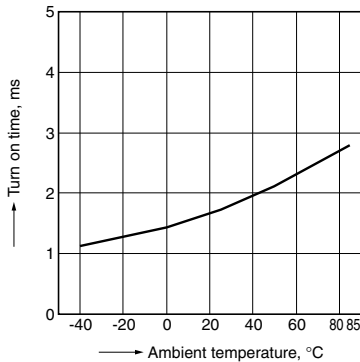
2. On resistance vs. ambient temperature characteristics

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



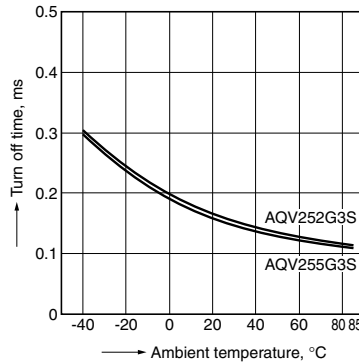
3. Turn on time vs. ambient temperature characteristics

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



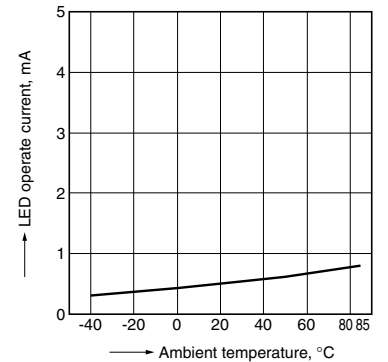
4. Turn off time vs. ambient temperature characteristics

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



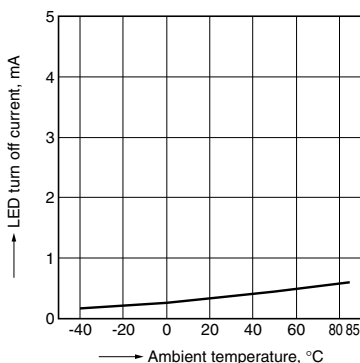
5. LED operate current vs. ambient temperature characteristics

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



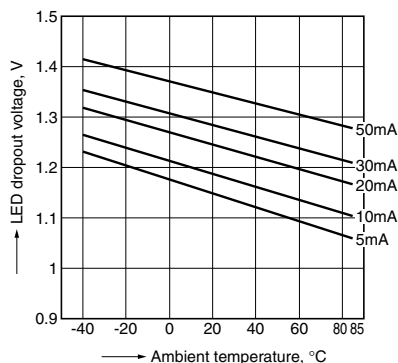
6. LED turn off current vs. ambient temperature characteristics

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



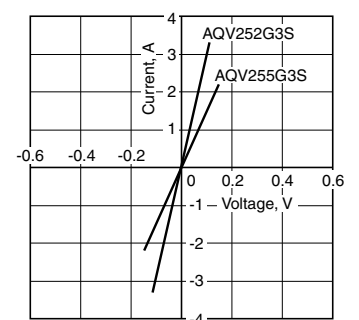
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



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

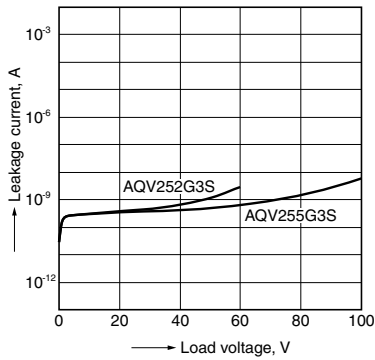
Measured portion: between terminals 4 and 6;
 Ambient temperature: 25°C 77°F



HE SOP 1 Form A High Capacity (AQV25○G3S)

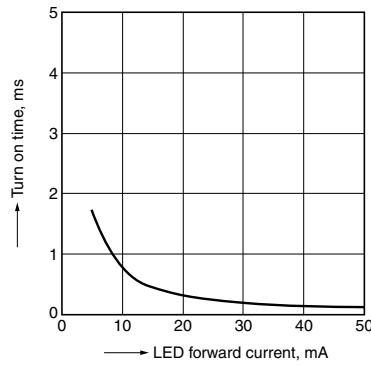
9. Off state leakage current vs. load voltage characteristics

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



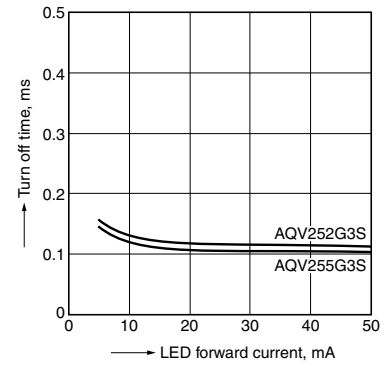
10. Turn on time vs. LED forward current characteristics

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



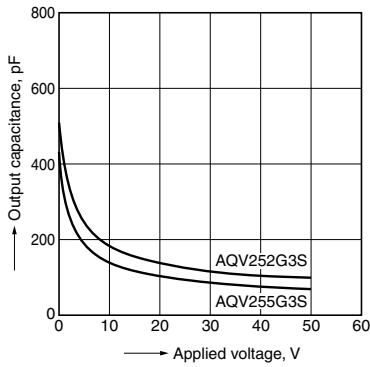
11. Turn off time vs. LED forward current characteristics

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



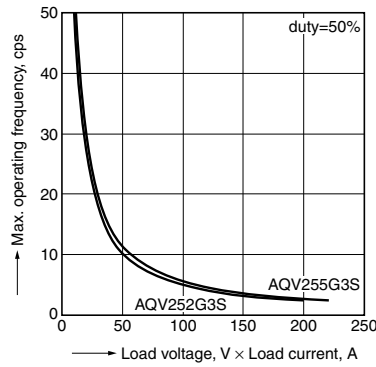
12. Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 4 and 6;
Frequency: 1 MHz;
Ambient temperature: 25°C 77°F



13. Max. operating frequency vs. load voltage and load current characteristics

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



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