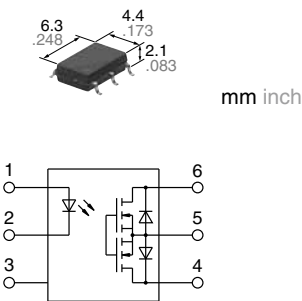


Miniature SOP6-pin type
with high capacity
of 3.3A load current

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



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.	1,000 pcs.
	New 100 V	2.2 A		AQV255G3S	AQV255G3SX	AQV255G3SZ	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)

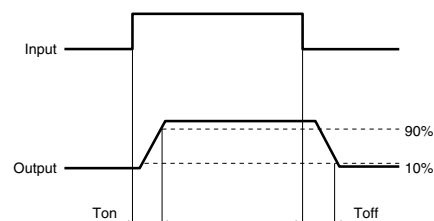
Item		Symbol	Type of connection	AQV252G3S	AQV255G3S	Remarks	
Input	LED forward current	I _F		50 mA		f = 100 Hz, Duty factor = 0.1%	
	LED reverse voltage	V _R		5 V			
	Peak forward current	I _{FP}		1 A			
	Power dissipation	P _{in}		75 mW			
Output	Load voltage (peak AC)	V _L		60 V	100 V	A connection: Peak AC, DC B, C connection: DC	
	Continuous load current	I _L		A	3.3 A		2.2 A
				B	3.5 A		2.4 A
				C	6.6 A		4.4 A
	Peak load current	I _{peak}			10 A	6.6 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		
	Storage	T _{stg}	−40 to +100°C −40 to +212°F				

HE SOP 1 Form A High Capacity (AQV25OG3S)

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 = 100mA
		Maximum			3 mA		
	LED turn off current	Minimum	I _{Foff}	—	0.2 mA		I _L = 100mA
		Typical			0.4 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	0.033 Ω	0.07 Ω	A connection I _F = 5 mA, I _L = 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 mA, I _L = 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 mA, I _L = Max. Within 1 s
		Maximum			0.02 Ω	0.04 Ω	
	Off state leakage current	Maximum	I _{LLeak}	—	1 μA		I _F = 0 mA, V _L = Max.
	Transfer characteristics	Turn on time*	Typical	T _{on}	—	1.8 ms	
Maximum			5 ms				
Turn off time*		Typical	T _{off}	—	0.15 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		Mininum	R _{iso}	—	1,000 MΩ		500 V DC
Max. operating frequency	Maximum	—	—	2.5 cps		I _F = 5 mA, duty = 50% I _L = Max., V _L = 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.

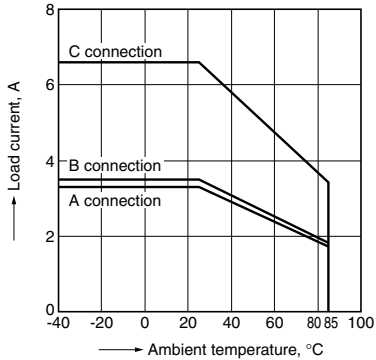
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

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

Sample: AQV252G3S

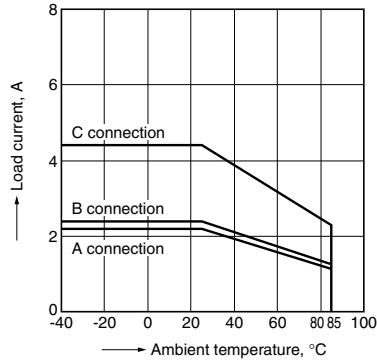
Allowable ambient temperature: -40 to +85°C
-40 to +185°F



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

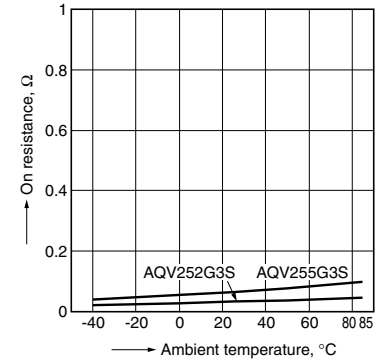
Sample: AQV255G3S

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



2. On resistance vs. ambient temperature characteristics

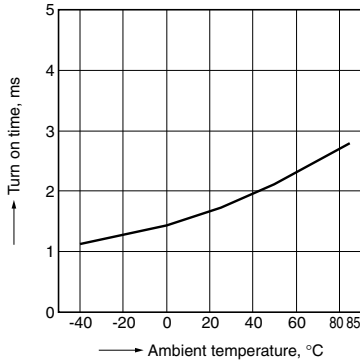
Measured portion: between terminals 4 and 6;
LED current: 5 mA; Load voltage: Max. (DC)
Continuous load current: Max. (DC)



3. Turn on time vs. ambient temperature characteristics

Tested sample: All;

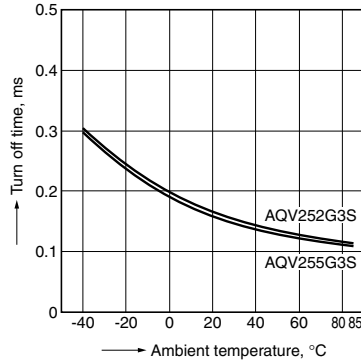
LED current: 5 mA; Load voltage: 10 V (DC);
Continuous load current: 100 mA (DC)



4. Turn off time vs. ambient temperature characteristics

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

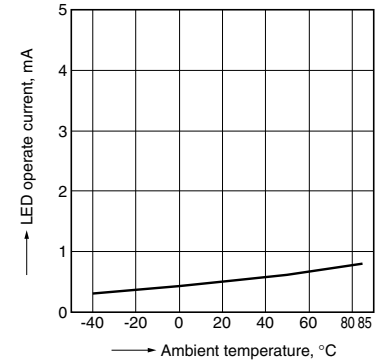
Continuous load current: 100 mA (DC)



5. LED operate current vs. ambient temperature characteristics

Tested sample: All;

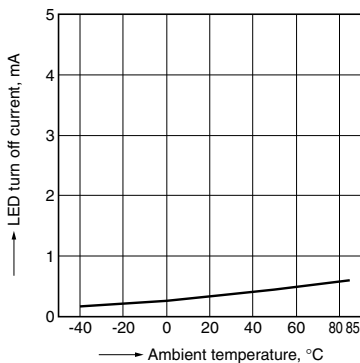
Load voltage: 10 V (DC);
Continuous load current: 100mA (DC)



6. LED turn off current vs. ambient temperature characteristics

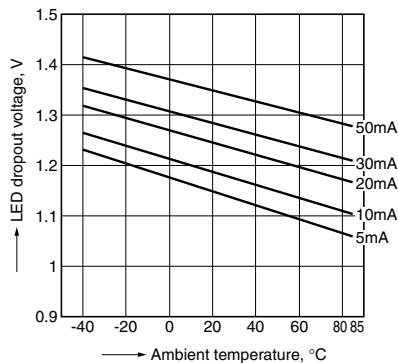
Tested sample: All;

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



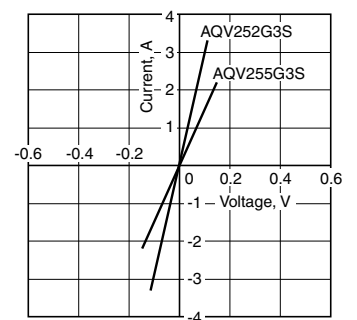
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



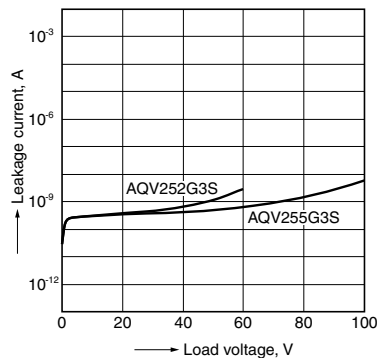
8. Current vs. voltage characteristics of output at MOS portion

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



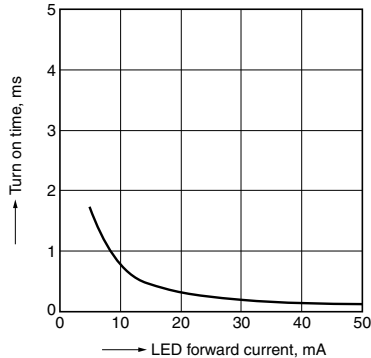
9. Off state leakage current vs. load voltage characteristics

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



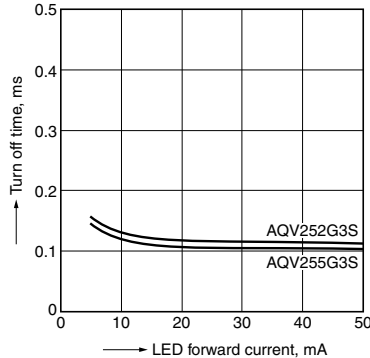
10. Turn on time vs. LED forward current characteristics

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



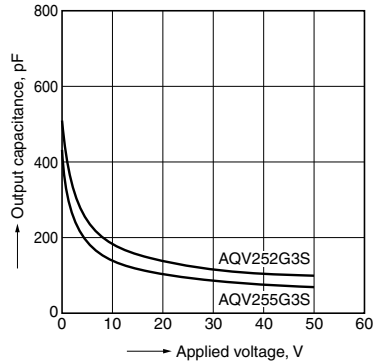
11. Turn off time vs. LED forward current characteristics

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



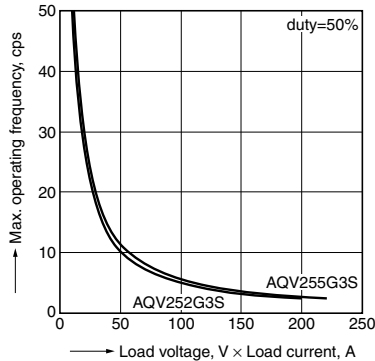
12. Output capacitance vs. applied voltage characteristics

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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