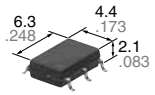
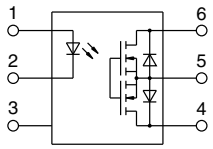
Miniature SOP6-pin type with high capacity of 3.3A load current

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



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	
				Surface-mount terminal				
	Load voltage	Load current		Tube packing style	Tape and reel packing style		Tube	Tape and reel
					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

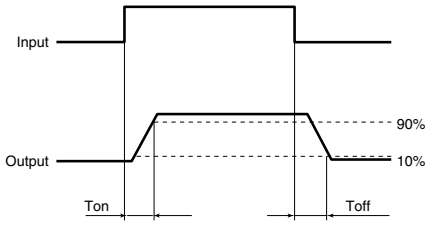
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

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	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		(Non-icing at low temperatures)
	Storage	T_{stg}		–40 to +100°C –40 to +212°F		

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_{Leak}	—	1 μA		I_F = 0 mA, V_L = Max.
Transfer characteristics	Turn on time*	Typical	T_{on}	—	1.8 ms		I_F = 5 mA, I_L = 100 mA V_L = 10 V
		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	Minimum	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.

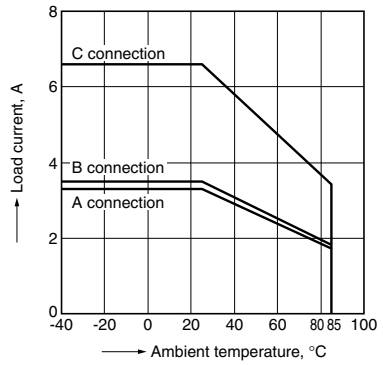
Item		Symbol	Min.	Max.	Unit
LED current		I_F	5	30	mA
AQV252G3S	Load voltage (Peak AC)	V_L	—	48	V
	Continuous load current (A connection)	I_L	—	3.3	A
AQV255G3S	Load voltage (Peak AC)	V_L	—	80	V
	Continuous load current (A connection)	I_L	—	2.2	A

■ **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

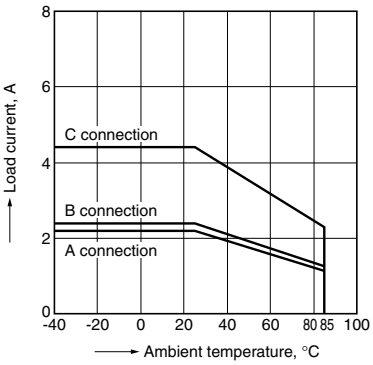
1.-(1) Load current vs. ambient temperature characteristics

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



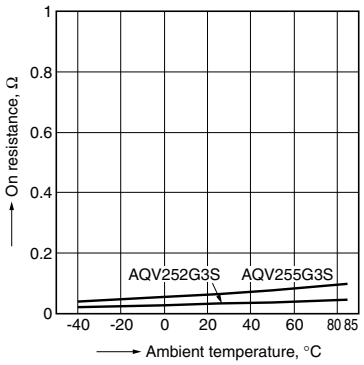
1.-(2) Load current vs. ambient temperature characteristics

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



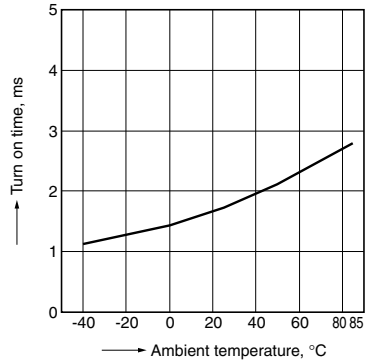
2. On resistance vs. ambient temperature characteristics

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



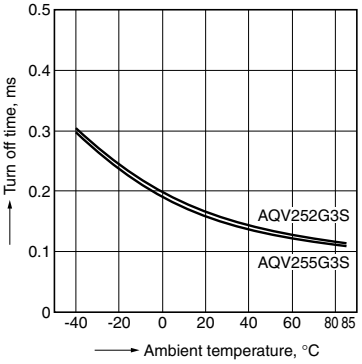
3. Turn on time vs. ambient temperature characteristics

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



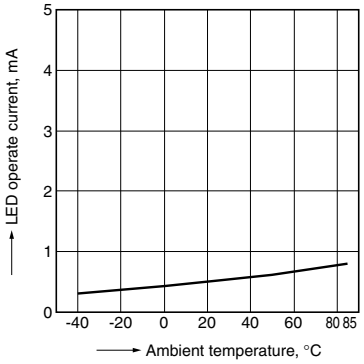
4. Turn off time vs. ambient temperature characteristics

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



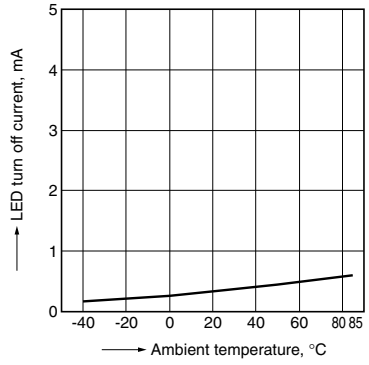
5. LED operate current vs. ambient temperature characteristics

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



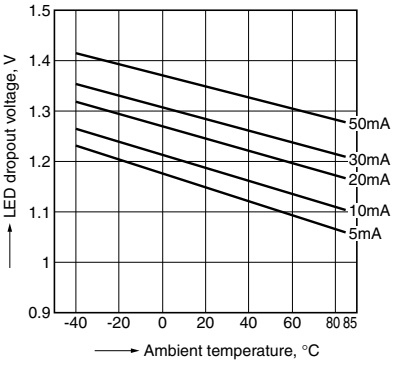
6. LED turn off current vs. ambient temperature characteristics

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



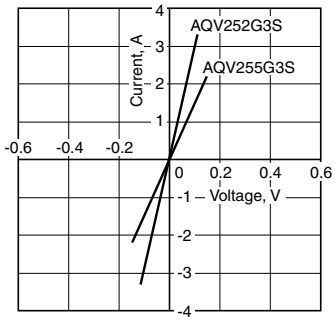
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



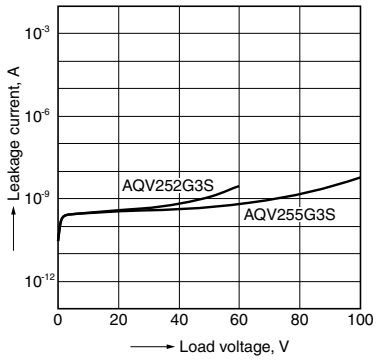
8. Current vs. voltage characteristics of output at MOS portion

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



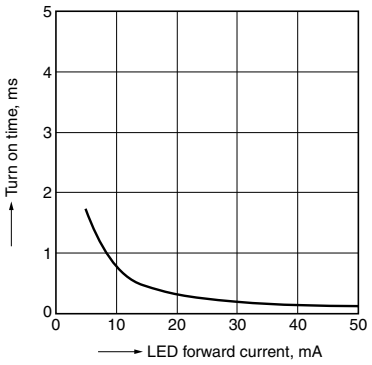
9. Off state leakage current vs. load voltage characteristics

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



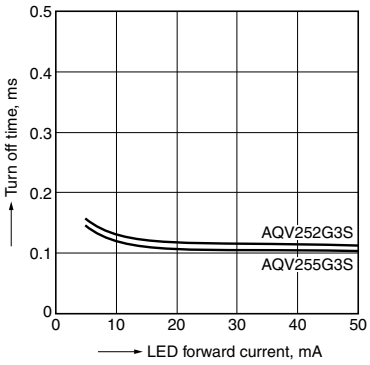
10. Turn on time vs. LED forward current characteristics

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



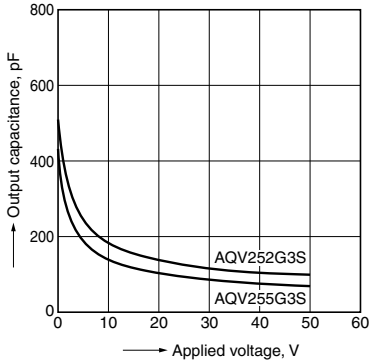
11. Turn off time vs. LED forward current characteristics

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



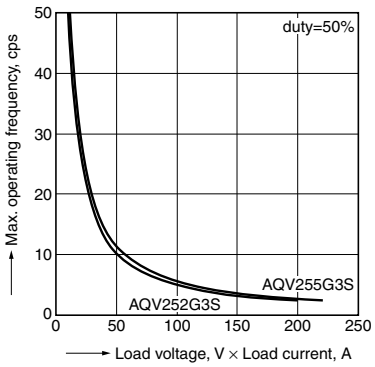
12. Output capacitance vs. applied voltage characteristics

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



Please contact .....

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