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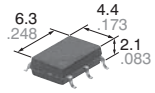
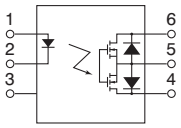
Miniature SOP6-pin type with high capacity of 3A load current

PhotoMOS®
HE SOP 1 Form A
High Capacity (AQV25❍G❍S)



mm inch

CAD Data



FEATURES

1. High capacity in a miniature SOP package
Continuous load current: Max. 3A
Load voltage: 50V and 80V
2. 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	
				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	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		

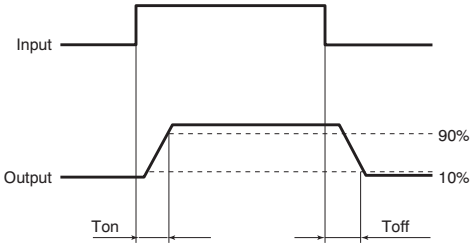
HE SOP 1 Form A High Capacity (AQV25❍G❍S)

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 = 100mA
		Maximum			3 mA		
	LED turn off current	Minimum	I_{Foff}	—	0.2 mA		I_L = 100mA
		Typical			0.5 mA	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	0.04 Ω	0.09 Ω	A connection I_F = 5 mA, I_L = Max. Within 1 s on time
		Maximum			0.07 Ω	0.15 Ω	
		Typical	R_{on}	B	0.025 Ω	0.05 Ω	B connection I_F = 5 mA, I_L = Max. Within 1 s on time
		Maximum			0.04 Ω	0.12 Ω	
		Typical	R_{on}	C	0.01 Ω	0.03 Ω	C connection I_F = 5 mA, I_L = Max. Within 1 s on time
		Maximum			0.02 Ω	0.1 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}	—	1.5 ms	1.3 ms	I_F = 5 mA, I_L = 100 mA V_L = 10 V
		Maximum			5 ms		
	Turn off time*	Typical	T_{off}	—	0.08 ms	0.1 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. switching frequency	Maximum	—	—	2.5 times/s	5 times/s	I_F = 5 mA, duty = 50% I_L = Max., V_L = 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

■ Dimensions

■ Schematic and Wiring Diagrams

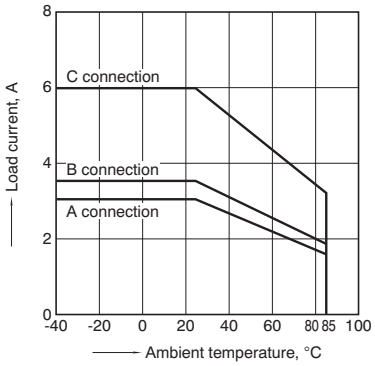
■ Cautions for Use

■ These products are not designed for automotive use.
If you are considering to use these products for automotive applications, please contact your local Panasonic technical representative.
Please refer to our information on PhotoMOS Relays for Automotive Applications.

REFERENCE DATA

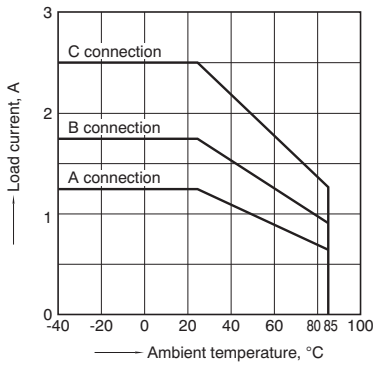
1.-(1) Load current vs. ambient temperature characteristics

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



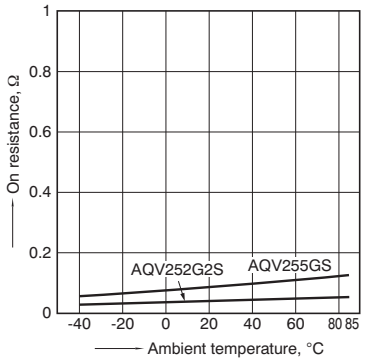
1.-(2) Load current vs. ambient temperature characteristics

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



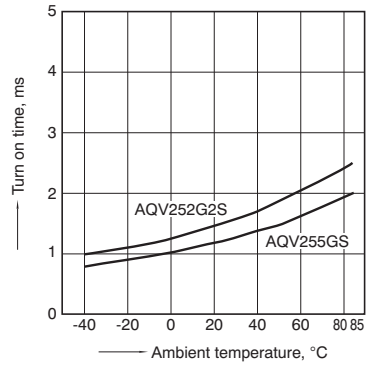
2. On resistance vs. ambient temperature characteristics

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



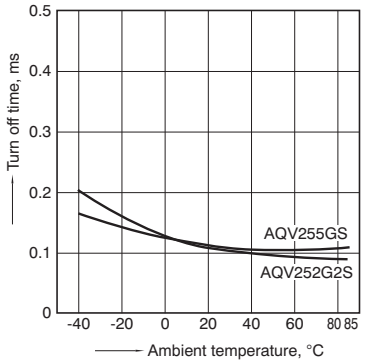
3. Turn on time vs. ambient temperature characteristics

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



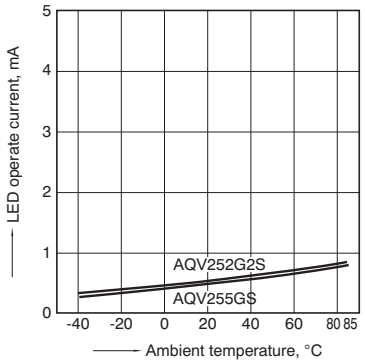
4. Turn off time vs. ambient temperature characteristics

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



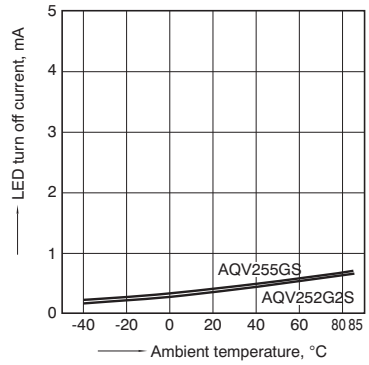
5. LED operate current vs. ambient temperature characteristics

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



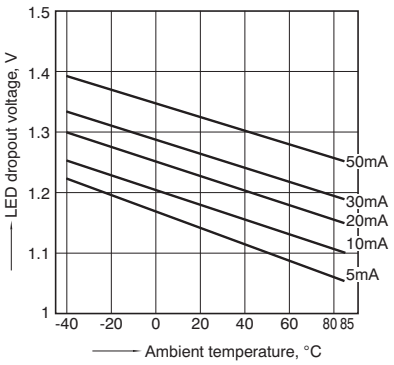
6. LED turn off current vs. ambient temperature characteristics

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



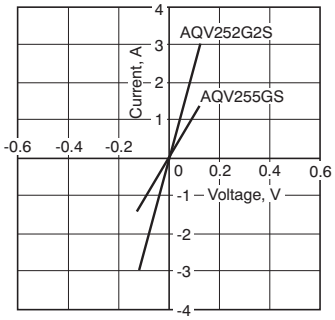
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



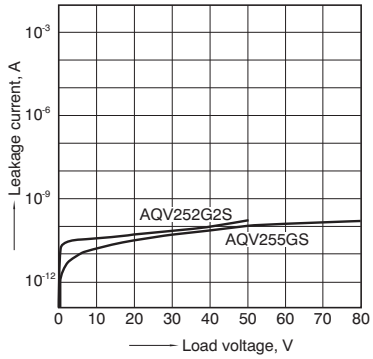
8. Current vs. voltage characteristics of output at MOS portion

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



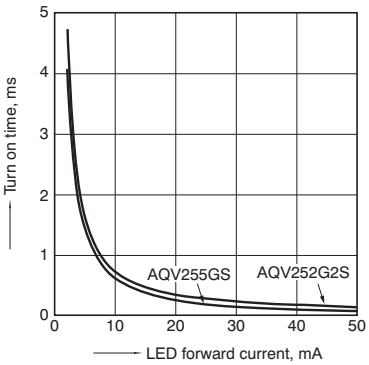
9. Off state leakage current vs. load voltage characteristics

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



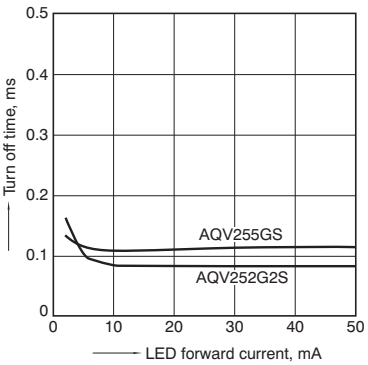
10. Turn on time vs. LED forward current characteristics

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



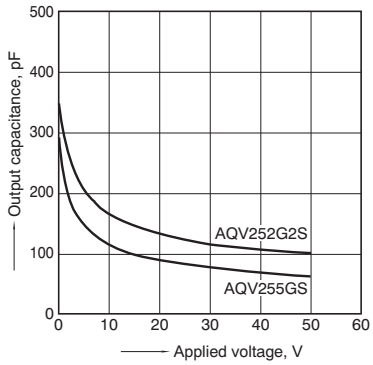
11. Turn off time vs. LED forward current characteristics

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