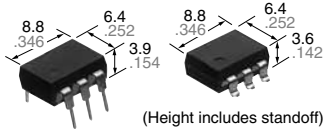


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Capable of 2.4A to 3.5A
 high capacity load
 current control

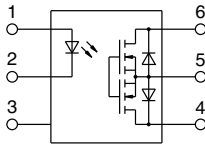
PhotoMOS®
 HE 1 Form A
 High Capacity (AQV250G3)

New



(Height includes standoff)

mm inch



RoHS compliant

FEATURES

- Greatly increased load current in a compact DIP package
 Continuous load current: 3.5A (AQV252G3)
- Greatly improved specifications allow you to use this in place of mercury and mechanical relays.
- Low on-resistance (Typ. 33mΩ, AQV252G3)

TYPICAL APPLICATIONS

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

TYPES

	Output rating*		Package	Part No.				Packing quantity	
				Through hole terminal	Surface-mount terminal			Tube	Tape and reel
	Load voltage	Load current			Tube packing style	Tape and reel packing style			
AC/DC dual use	60 V	3.5 A	DIP6-pin	AQV252G3	AQV252G3A	AQV252G3AX	AQV252G3AZ	1 tube contains: 50 pcs. 1 batch contains: 500 pcs.	1,000 pcs.
	100 V	2.4 A	DIP6-pin	AQV255G3	AQV255G3A	AQV255G3AX	AQV255G3AZ		

*Indicate the peak AC and DC values.

Note: The surface mount terminal indicator "A" and the packing style indicator "X" or "Z" are not marked on the device.

RATING

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

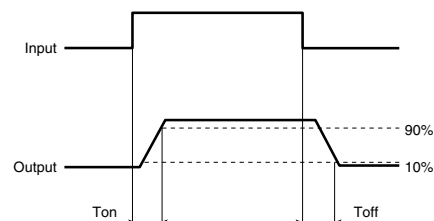
Item	Symbol	Type of connection	AQV252G3(A)	AQV255G3(A)	Remarks	
Input	LED forward current	I _F	50 mA			
	LED reverse voltage	V _R	5 V			
	Peak forward current	I _{FP}	1 A		f = 100 Hz, Duty factor = 0.1%	
	Power dissipation	P _{in}	75 mW			
Output	Load voltage (peak AC)	V _L	60 V	100 V		
	Continuous load current	I _L	A	3.5 A	2.4 A	A connection: Peak AC, DC B, C connection: DC
			B	5.0 A	3.2 A	
			C	7.0 A	4.8 A	
	Peak load current	I _{peak}	10 A	7.0 A	100ms (1 shot), V _L = DC at A connection	
Power dissipation	P _{out}	600 mW				
Total power dissipation	P _T	650 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 1 Form A High Capacity (AQV250G3)

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

Item		Symbol	Type of connection	AQV252G3(A)	AQV255G3(A)	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	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	
		Maximum			0.04 Ω	0.07 Ω	
	Typical	R _{on}	C	0.0095 Ω	0.02 Ω		
	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	
		Maximum		5 ms	V _L = 10 V		
	Turn off time*	Typical	T _{off}	—	0.15 ms	I _F = 5 mA, I _L = 100 mA	
		Maximum		0.5 ms	V _L = 10 V		
	I/O capacitance	Typical	C _{iso}	—	0.8 pF	f = 1 MHz	
		Maximum		1.5 pF	V _B = 0 V		
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 forward current	I _F	5	30	mA
AQV252G3(A) Load voltage (Peak AC)	V _L	—	48	V
AQV252G3(A) Continuous load current (A connection)	I _L	—	3.3	A
AQV255G3(A) Load voltage (Peak AC)	V _L	—	80	V
AQV255G3(A) Continuous load current (A connection)	I _L	—	2.4	A

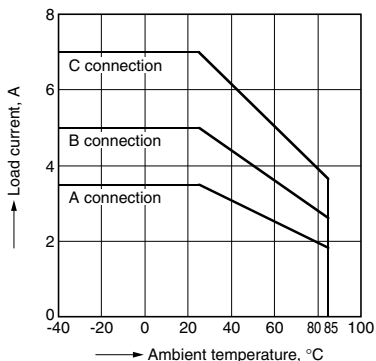
■ These products are not designed for automotive use.

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

REFERENCE DATA

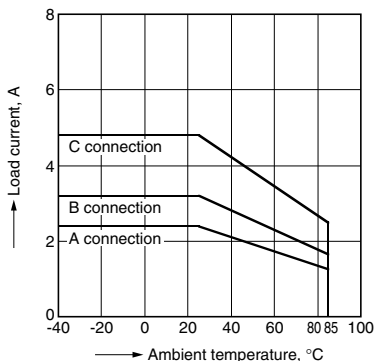
1.-(1) Load current vs. ambient temperature characteristics

Sample: AQV252G3
 Allowable ambient temperature: -40 to +85°C
 -40 to +185°F



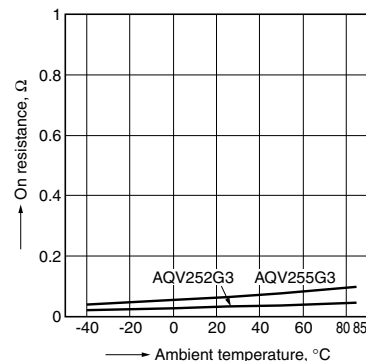
1.-(2) Load current vs. ambient temperature characteristics

Sample: AQV255G3
 Allowable ambient temperature: -40 to +85°C
 -40 to +185°F



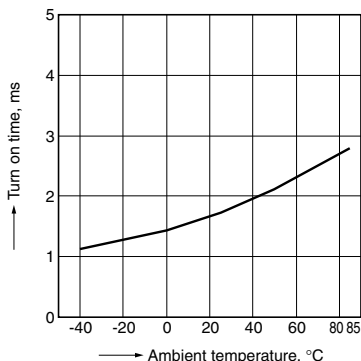
2. On resistance vs. ambient temperature characteristics

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



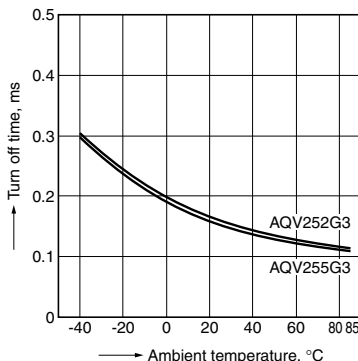
3. Turn on time vs. ambient temperature characteristics

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



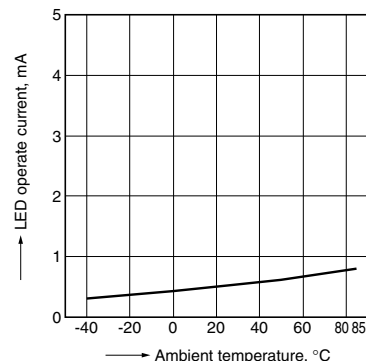
4. Turn off time vs. ambient temperature characteristics

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



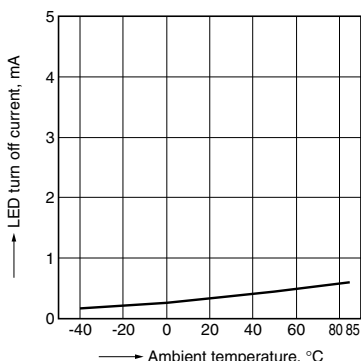
5. LED operate current vs. ambient temperature characteristics

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



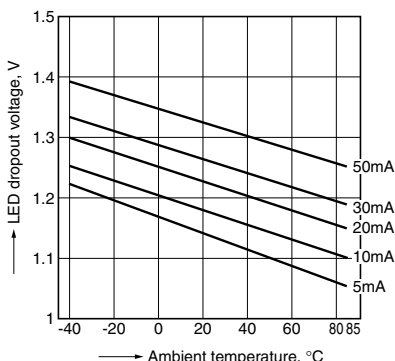
6. LED turn off current vs. ambient temperature characteristics

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



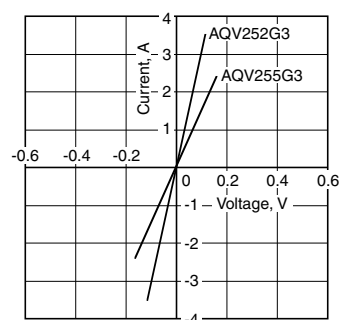
7. LED dropout voltage vs. ambient temperature characteristics

Tested sample: All;
 LED current: 5 to 50 mA



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

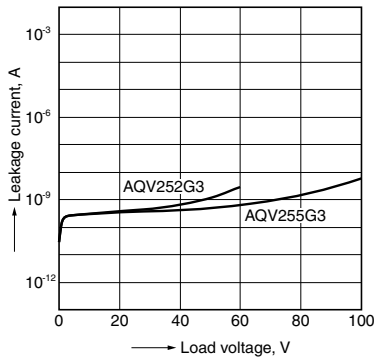
Measured portion: between terminals 4 and 6;
 Ambient temperature: 25°C 77°F



HE 1 Form A High Capacity (AQV250G3)

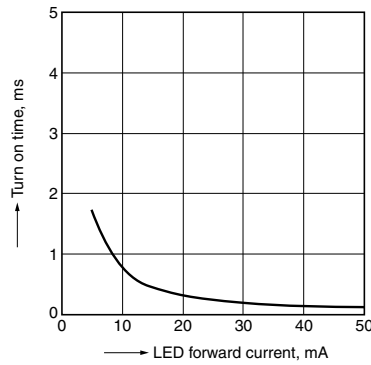
9. Off state leakage current vs. load voltage characteristics

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



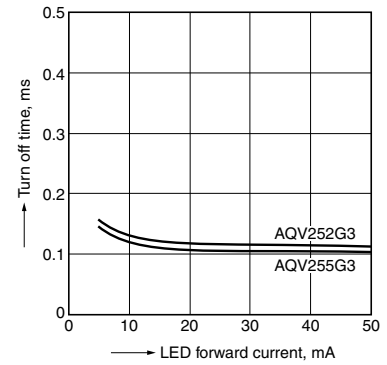
10. Turn on time vs. LED forward current characteristics

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



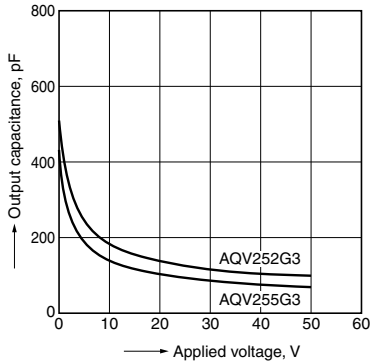
11. Turn off time vs. LED forward current characteristics

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



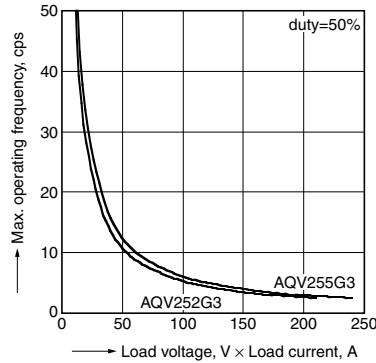
12. Output capacitance vs. applied voltage characteristics

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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