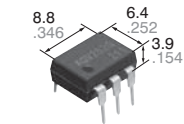
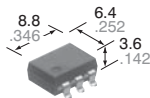


DIP6-pin type with new-generation MOS capable of 2A to 3A high-frequency switching

PhotoMOS®
HE 1 Form A
High Capacity (AQV250G)

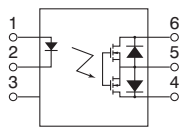


(Height includes standoff)



[CAD Data](#)

mm inch



FEATURES

- Greatly increased load current in a compact DIP package**
Continuous load current: 3.5A (AQV251G)
- Greatly improved specifications allow you to use this in place of mercury and mechanical relays.**
- Low on-resistance (typ. 35mΩ, AQV251G)**

TYPICAL APPLICATIONS

- **Measuring instrument market**
(Testers etc.)
- **Industrial machinery and equipment**
- **Power supply controls**
- **Security/Disaster prevention market**
I/O sections of warning devices, security systems

TYPES

	Output rating*		Package	Part No.				Packing quantity	
				Through hole terminal	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	30 V	3.5 A	DIP6-pin	AQV251G	AQV251GA	AQV251GAX	AQV251GAZ	1 tube contains: 50 pcs. 1 batch contains: 500 pcs.	1,000 pcs.
	60 V	2.5 A	DIP6-pin	AQV252G	AQV252GA	AQV252GAX	AQV252GAZ		

*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)

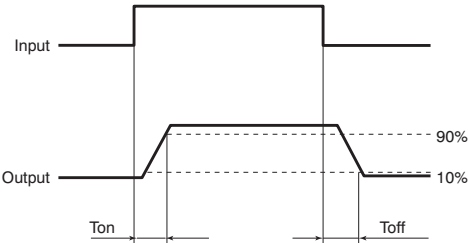
Item		Symbol	Type of connection	AQV251G(A)	AQV252G(A)	Remarks
Input	LED forward current	I _F		50 mA 5 V 1 A 75 mW		
	LED reverse voltage	V _R				
	Peak forward current	I _{FP}				f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P _{in}				
Output	Load voltage (peak AC)	V _L		30 V	60 V	
	Continuous load current	I _L	A	3.5 A	2.5 A	A connection: Peak AC, DC B, C connection: DC
			B	4.0 A	3.5 A	
			C	6.0 A	5.0 A	
	Peak load current	I _{peak}		6.0 A		100ms (1 shot), V _L = DC
	Power dissipation	P _{out}		500 mW		
Total power dissipation		P _T		550 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 1 Form A High Capacity (AQV25OG)

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

Item			Symbol	Type of connection	AQV251G(A)	AQV252G(A)	Condition
Input	LED operate current	Typical	I _{Fon}	—	0.55 mA	0.5 mA	I _L = 100mA
		Maximum			3 mA	3 mA	
	LED turn off current	Minimum	I _{Foff}	—	0.2 mA	0.2 mA	I _L = 100mA
		Typical			0.45 mA	0.45 mA	
	LED dropout voltage	Typical	V _F	—	1.14 V (1.32 V at I _F = 50 mA)		I _F = 5 mA
		Maximum			1.5 V		
Output	On resistance	Typical	R _{on}	A	0.035 Ω	0.08 Ω	I _F = 5 mA I _L = Max. Within 1 s on time
		Maximum			0.08 Ω	0.12 Ω	
		Typical	R _{on}	B	0.018 Ω	0.04 Ω	
		Maximum			0.04 Ω	0.06 Ω	
		Typical	R _{on}	C	0.01 Ω	0.02 Ω	
		Maximum			0.02 Ω	0.03 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}	—	1.1 ms	
Maximum			5.0 ms				
Turn off time*		Typical	T _{off}	—	0.1 ms	0.25 ms	I _F = 5 mA, I _L = 100 mA V _L = 10 V
		Maximum					
I/O capacitance		Typical	C _{iso}	—	0.5 ms		f = 1 MHz V _B = 0 V
		Maximum			0.8 pF		
Initial I/O isolation resistance	Minimum	R _{iso}	—	1.5 pF 1,000 MΩ		500 V DC	

*Turn on/Turn off time



RECOMMENDED OPERATING CONDITIONS

Please obey the following conditions to ensure proper relay 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.

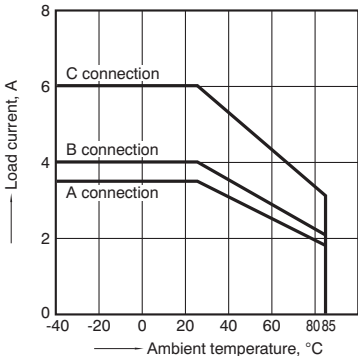
If you are considering to use these products for automotive applications, please contact your local Panasonic technical representative.

Please refer to our information on [PhotoMOS Relays for Automotive Applications](#).

REFERENCE DATA

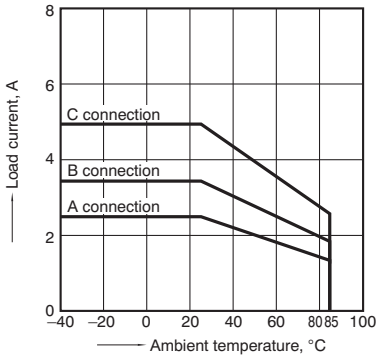
1-(1) Load current vs. ambient temperature characteristics

Tested sample: AQV251G:
Allowable ambient temperature: -40°C to +85°C
-40°F to +185°F



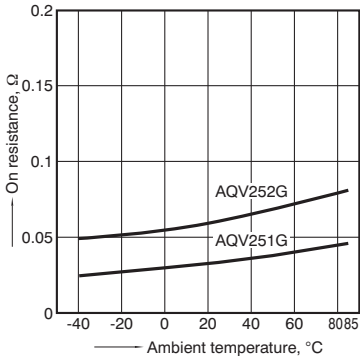
1-(2) Load current vs. ambient temperature characteristics

Tested sample: AQV252G:
Allowable ambient temperature: -40°C to +85°C
-40°F to +185°F



2. On resistance vs. ambient temperature characteristics

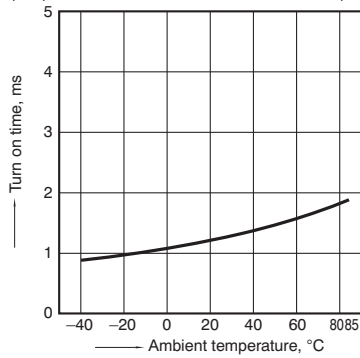
Measured portion: between terminals 4 and 6;
LED current: 5 mA; Load voltage: Max. (DC)
Continuous load current: Max.(DC)



HE 1 Form A High Capacity (AQV25○G)

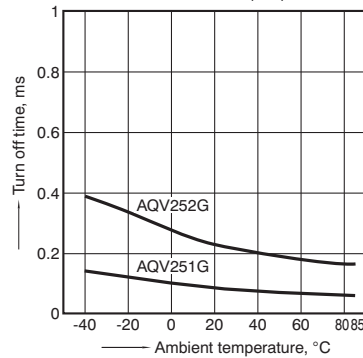
3. Turn on time vs. ambient temperature characteristics

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



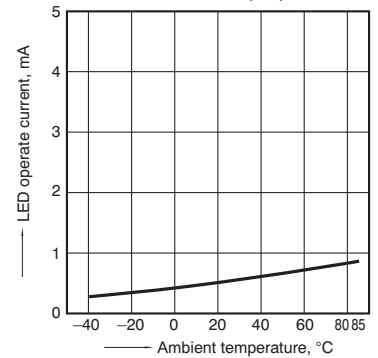
4. Turn off time vs. ambient temperature characteristics

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



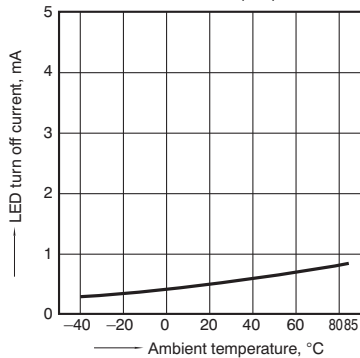
5. LED operate current vs. ambient temperature characteristics

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



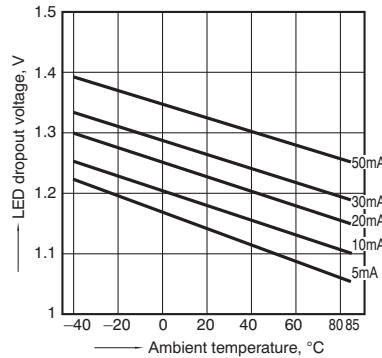
6. LED turn off current vs. ambient temperature characteristics

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



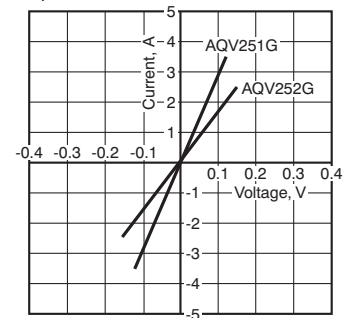
7. LED dropout voltage vs. ambient temperature characteristics

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



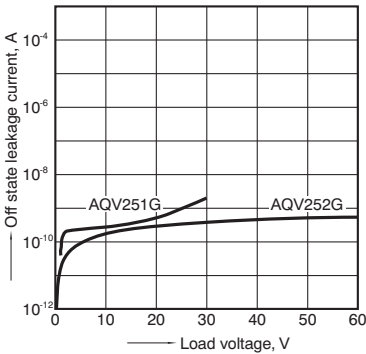
8. Current vs. voltage characteristics of output at MOS portion

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



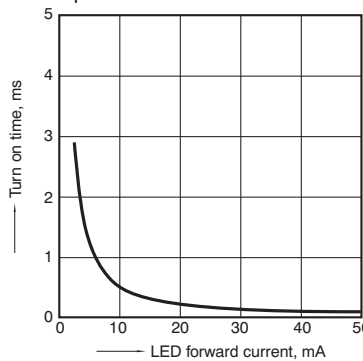
9. Off state leakage current vs. load voltage characteristics

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



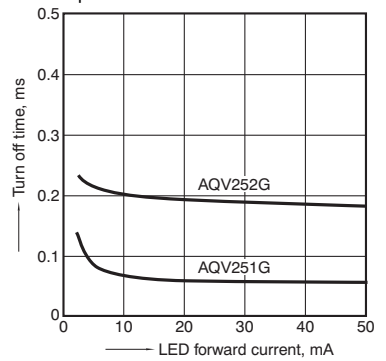
10. Turn on time vs. LED forward current characteristics

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



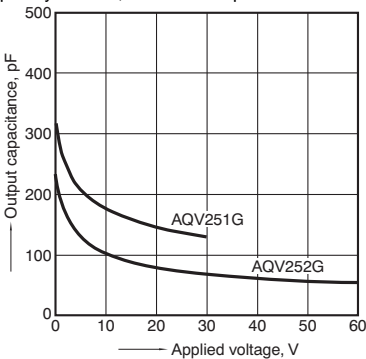
11. Turn off time vs. LED forward current characteristics

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

Tested sample: AQV251G; LED current: 5 mA; Ambient temperature: 25°C 77°F

