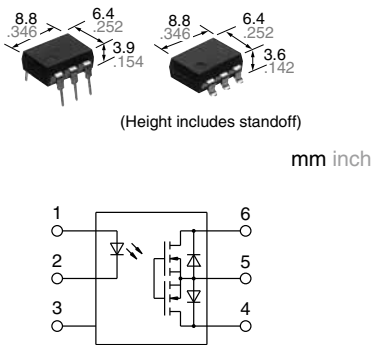




DIP6-pin type, reinforced insulation available

PhotoMOS®
GE 1 Form A
(AQV210EH)



RoHS compliant

FEATURES

- 1. Reinforced insulation of I/O isolation voltage 5,000V (Reinforced insulation type)
- 2. Controls low-level analog signals
PhotoMOS feature extremely low closed-circuit offset voltage to enable control of low-level analog signals without distortion.
- 3. Stable on-resistance
- 4. Low-level off state leakage current of max. 1 μ A

TYPICAL APPLICATIONS

- High-speed inspection machines
- Telephone equipment
- Data communication equipment
- Computers

TYPES

	I/O isolation	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	Reinforced 5,000 Vrms	350 V	130 mA	DIP6-pin	AQV210EH	AQV210EHA	AQV210EHAX	AQV210EHAZ	1 tube contains: 50 pcs.	1,000 pcs.				
		400 V	120 mA		AQV214EH	AQV214EHA	AQV214EHAX	AQV214EHAZ	1 batch contains: 500 pcs.					

*Indicate the peak AC and DC values.
Note: The surface mount terminal shape 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)

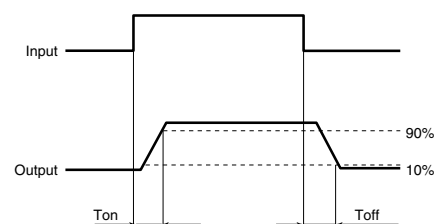
Item		Sym- bol	Type of connec- tion	AQV210EH(A)		AQV214EH(A)		Remarks
Input	LED forward current	I _F		50 mA				
	LED reverse voltage	V _R		5 V				
	Peak forward current	I _{FP}		1 A				f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P _{in}		75 mW				
Output	Load voltage (peak AC)	V _L	A	350 V		400 V		
	Continuous load current	I _L		0.13 A		0.12 A		A connection: Peak AC, DC B, C connection: DC
				0.15 A		0.13 A		
	Peak load current	I _{peak}	0.17 A		0.15 A		A connection: 100 ms (1 shot), V _L =DC	
			0.4 A		0.3 A			
	Power dissipation		P _{out}		500 mW			
Total power dissipation		P _T	550 mW					
I/O isolation voltage		V _{iso}	5,000 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					

GE 1 Form A (AQV210EH)

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

Item			Symbol	Type of connection	AQV210EH(A)	AQV214EH(A)	Condition
Input	LED operate current	Typical	I _{Fon}	—	1.6 mA		I _L = Max.
		Maximum			3 mA		
	LED turn off current	Minimum	I _{Foff}	—	0.4 mA		I _L = Max.
		Typical			1.5 mA		
	LED dropout voltage	Typical	V _F	—	1.25 V (1.14 V at I _F = 5 mA)		I _F = 50 mA
Maximum		1.5 V					
Output	On resistance	Typical	R _{on}	A	23 Ω	30 Ω	I _F = 5 mA I _L = Max. Within 1 s
		Maximum			35 Ω	50 Ω	
		Typical	R _{on}	B	11.5 Ω	22.5 Ω	I _F = 5 mA I _L = Max. Within 1 s
		Maximum			17.5 Ω	25 Ω	
		Typical	R _{on}	C	6.0 Ω	11.3 Ω	I _F = 5 mA I _L = Max. Within 1 s
		Maximum			8.8 Ω	12.5 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}	—	0.7 ms		I _F = 5 mA I _L = Max.
		Maximum			2.0 ms		
	Turn off time*	Typical	T _{off}	—	0.05 ms		I _F = 5 mA I _L = Max.
		Maximum			1.0 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

*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
AQV210EH(A)	Load voltage (Peak AC)	V_L	—	280	V
	Continuous load current (A connection)	I_L	—	0.13	A
AQV214EH(A)	Load voltage (Peak AC)	V_L	—	320	V
	Continuous load current (A connection)	I_L	—	0.12	A

■ These products are not designed for automotive use.

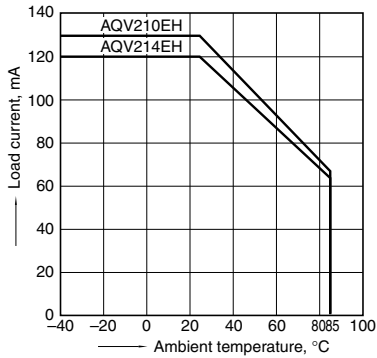
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

1. Load current vs. ambient temperature characteristics

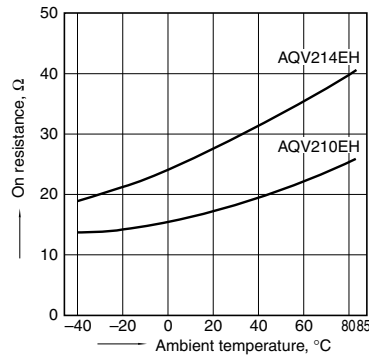
Allowable ambient temperature: -40 to $+85^{\circ}\text{C}$
 -40 to $+185^{\circ}\text{F}$

Type of connection: A



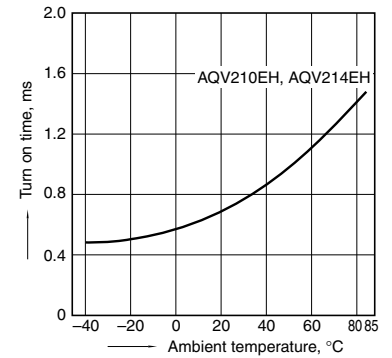
2. On-resistance vs. ambient temperature characteristics

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



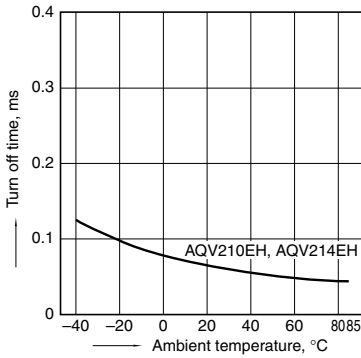
3. Turn on time vs. ambient temperature characteristics

LED current: 5 mA;
 Load voltage: Max. (DC);
 Continuous load current: Max. (DC)



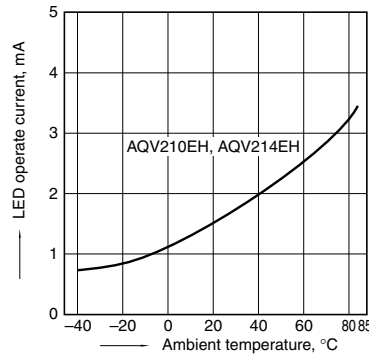
4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: Max. (DC);
 Continuous load current: Max. (DC)



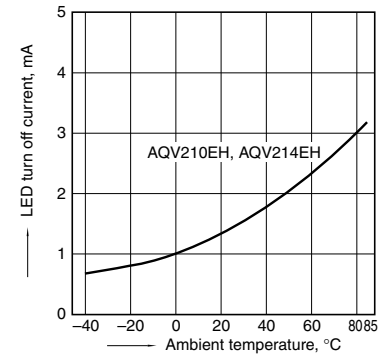
5. LED operate current vs. ambient temperature characteristics

Load voltage: Max. (DC);
 Continuous load current: Max. (DC)



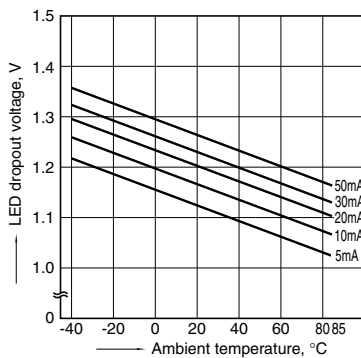
6. LED turn off current vs. ambient temperature characteristics

Load voltage: Max. (DC);
 Continuous load current: Max. (DC)



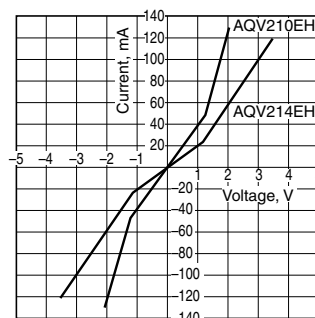
7. LED dropout voltage vs. ambient temperature characteristics

Sample: All types
 LED current: 5 to 50 mA



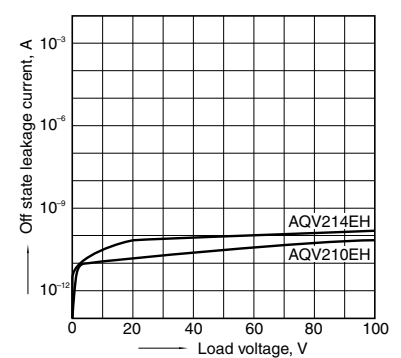
8. Current vs. voltage characteristics of output at MOS portion

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

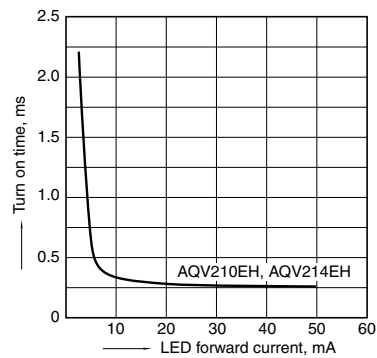


9. Off state leakage current vs. load voltage characteristics

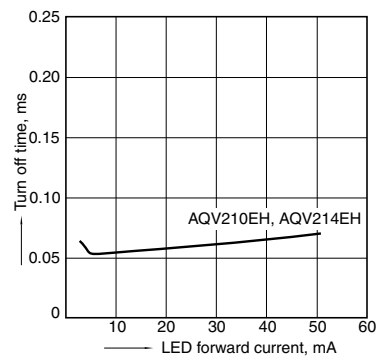
Measured portion: between terminals 4 and 6;
 Ambient temperature: 25°C 77°F



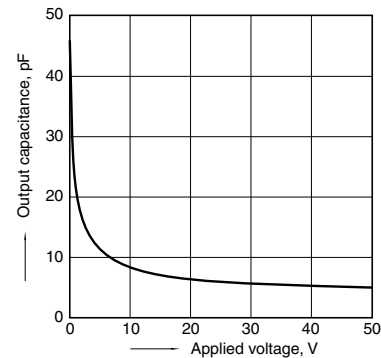
10. Turn on time vs. LED forward current characteristics
Measured portion: between terminals 4 and 6;
Load voltage: Max. (DC); Continuous load current:
Max. (DC); Ambient temperature: 25°C 77°F



11. Turn off time vs. LED forward current characteristics
Measured portion: between terminals 4 and 6;
Load voltage: Max. (DC); Continuous load current:
Max. (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



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