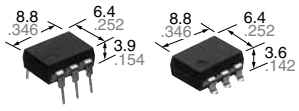
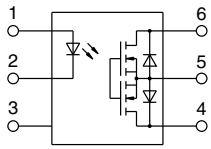
DIP6-pin type, reinforced insulation available

PhotoMOS® GE 1 Form A (AQV21○EH)



(Height includes standoff)

mm inch



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 μA

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				
					Tube packing style		Tape and reel packing style		Tube	Tape and reel
		Load voltage	Load current				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 batch contains: 500 pcs.	1,000 pcs.
		400 V	120 mA		AQV214EH	AQV214EHA	AQV214EHAX	AQV214EHAZ		

*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

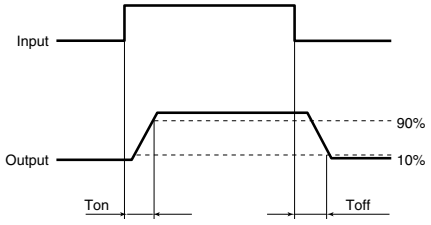
1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

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		350 V	400 V	
	Continuous load current		I_L	A	0.13 A	0.12 A	A connection: Peak AC, DC B, C connection: DC
				B	0.15 A	0.13 A	
				C	0.17 A	0.15 A	
	Peak load current		I_{peak}		0.4 A	0.3 A	A connection: 100 ms (1 shot), V_L=DC
	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		

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

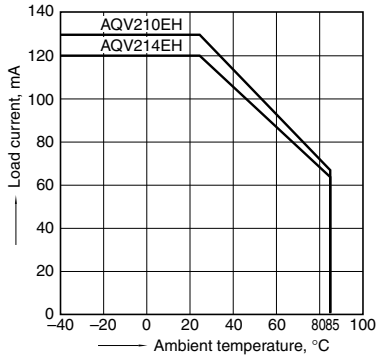
■ **These products are not designed for automotive use.**
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

1. Load current vs. ambient temperature characteristics

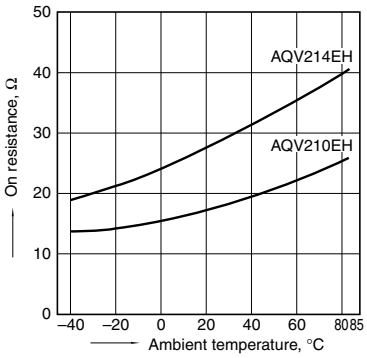
Allowable ambient temperature: –40 to +85°C
–40 to +185°F

Type of connection:A



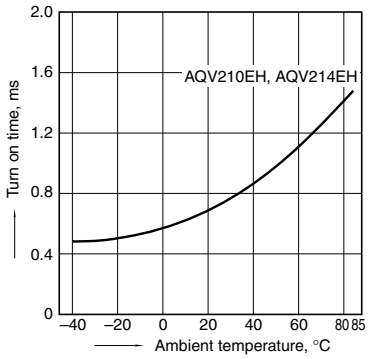
2. On-resistance vs. ambient temperature characteristics

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



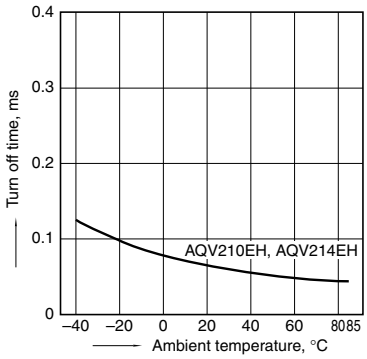
3. Turn on time vs. ambient temperature characteristics

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



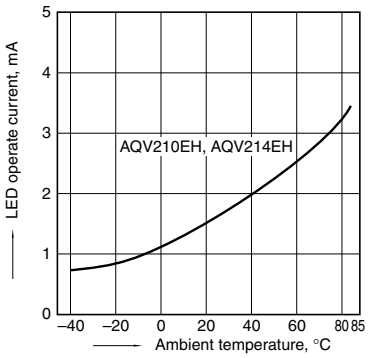
4. Turn off time vs. ambient temperature characteristics

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



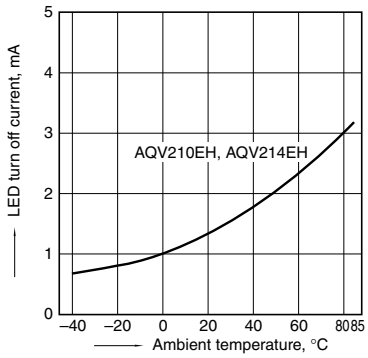
5. LED operate current vs. ambient temperature characteristics

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



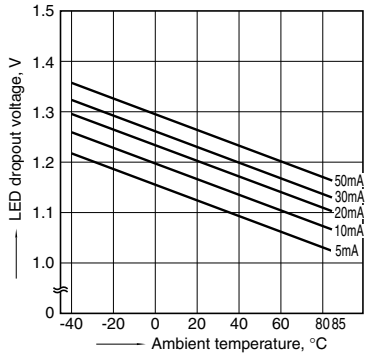
6. LED turn off current vs. ambient temperature characteristics

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



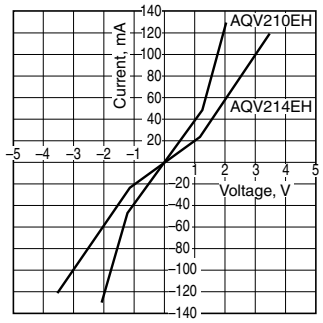
7. LED dropout voltage vs. ambient temperature characteristics

Sample: All types
LED current: 5 to 50 mA



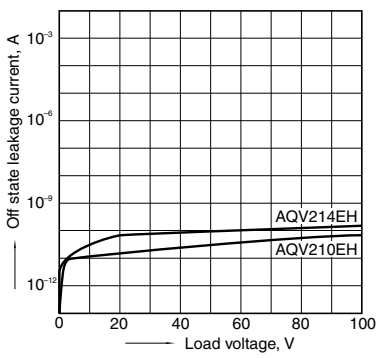
8. Current vs. voltage characteristics of output at MOS portion

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



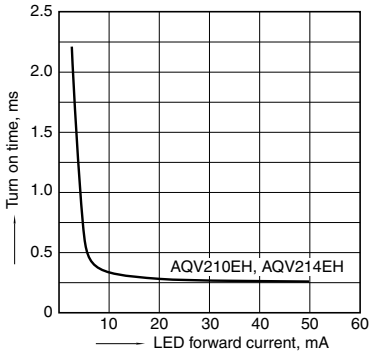
9. Off state leakage current vs. load voltage characteristics

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



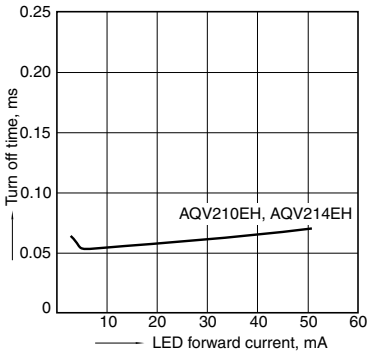
10. Turn on time vs. LED forward current characteristics

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



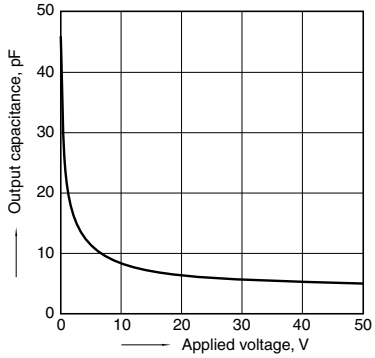
11. Turn off time vs. LED forward current characteristics

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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