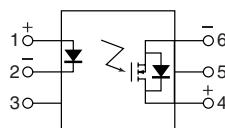
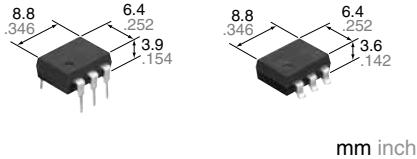


**Short circuit protection
(Non-latch type)
only for DC load**

**PhotoMOS®
GU 1 Form A
Short Circuit Protection (AQV112KL)**



RoHS compliant

FEATURES

1. Protects Circuit from excess current

The short circuit protection function prevents the continued flow of short current. After short current is detected, load current is monitored, and if the load returns to normal, the device returns to normal operation.

2. No need for fuses, polyswitches, or other protectors

The built-in short circuit protection function eliminates the need for overcurrent protectors, reducing mounting costs and space requirements.

3. High capacity

Can control up to 0.5A (60V DC) load current.

TYPICAL APPLICATIONS

- Industrial equipment
- Security equipment

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			
DC only	60 V	500 mA	DIP6-pin	AQV112KL	AQV112KLA	AQV112KLAX	AQV112KLAZ	1 tube contains: 50 pcs. 1 batch contains: 500 pcs.

*Indicate the 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)

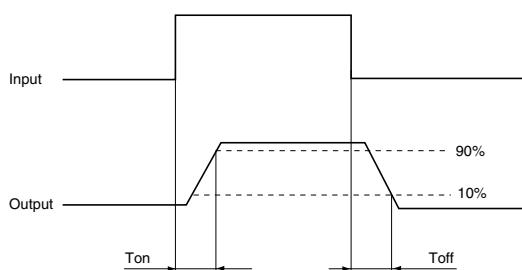
Item		Symbol	AQV112KL(A)		Remarks
Input	LED forward current	I _F	50 mA		
	LED reverse voltage	V _R	5 V		
	Peak forward current	I _{FP}	1 A	f = 100 Hz, Duty factor = 0.1%	
	Power dissipation	P _{in}	75 mW		
Output	Load voltage (peak AC)	V _L	7 to 60V		
	Continuous load current	I _L	0.5 A	Peak AC, DC	
	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		

GU 1 Form A Short Circuit Protection (AQV112KL)

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

Item		Symbol	AQV112KL(A)	Condition
Input	LED operate current	Typical Maximum	I _{Fon}	0.8 mA 10 mA I _L = 100mA
	LED turn off current		I _{loff}	0.3 mA 0.7 mA I _L = 100mA
	LED dropout voltage	Typical Maximum	V _F	1.35 V (1.17 V at I _F = 10 mA) 1.5 V I _F = 50 mA
Output	On resistance	Typical Maximum	R _{on}	0.55 Ω 2.0 Ω I _F = 10 mA I _L = Max.
	Load short circuit detection voltage		V _{LSHT}	5 V 7 V I _F = 10 mA
	Off state leakage current	Maximum	I _{Leak}	1 μA I _F = 0 mA V _L = Max.
Transfer characteristics	Turn on time*	Typical Maximum	T _{on}	2.0 ms 5.0 ms I _F = 10 mA I _L = 100 mA V _L = 10 V
	Turn off time*		T _{off}	0.1 ms 1.0 ms I _F = 10 mA I _L = 100 mA V _L = 10 V
	I/O capacitance	Typical Maximum	C _{iso}	0.8 pF 1.5 pF f = 1 MHz V _B = 0 V
	Initial I/O isolation resistance	Minimum	R _{iso}	1,000 MΩ 500 V DC

*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	10	mA

For Dimensions.

For Schematic and Wiring Diagrams.

For Cautions for Use.

These products are not designed for automotive use.

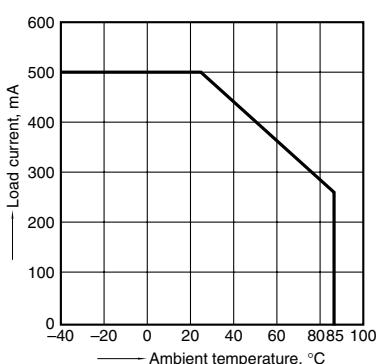
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

For more information.

REFERENCE DATA

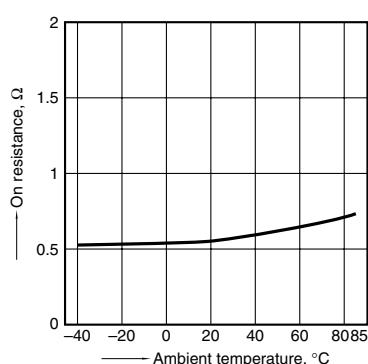
1. Load current vs. ambient temperature characteristics

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



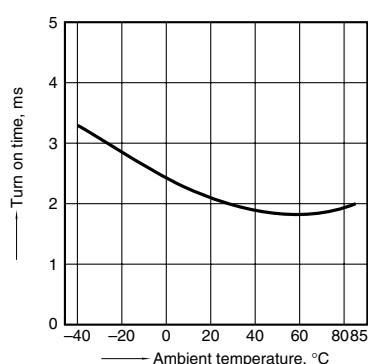
2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 4 and 6;
LED current: 10 mA; Load current: Max.(DC)



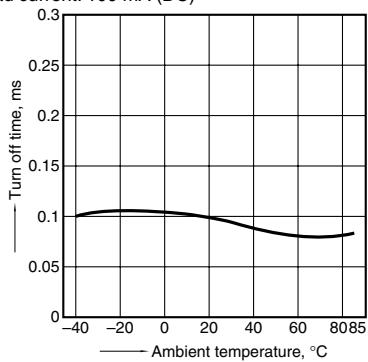
3. Turn on time vs. ambient temperature characteristics

Measured portion: between terminals 4 and 6;
LED current: 10 mA; Load voltage: 10V (DC);
Load current: 100 mA

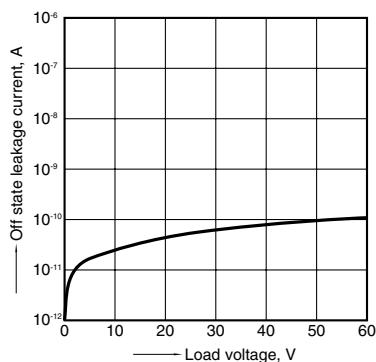


GU 1 Form A Short Circuit Protection (AQV112KL)

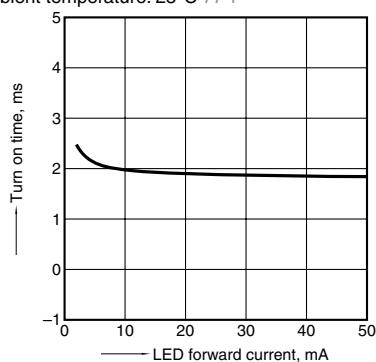
4. Turn off time vs. ambient temperature characteristics
Measured portion: between terminals 4 and 6;
LED current: 10 mA; Load voltage: 10 V (DC);
Load current: 100 mA (DC)



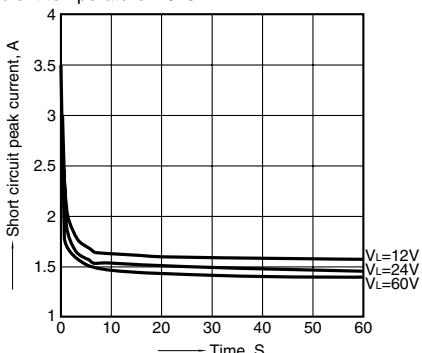
7. Off state leakage current vs. load voltage characteristics
Measured portion: between terminals 4 and 6;
Ambient temperature: 25°C 77°F



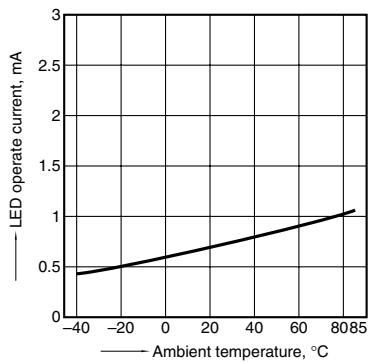
10. Turn on time vs. LED forward current characteristics
Measured portion: between terminals 4 and 6;
Load voltage: 10 V (DC); Load current: 100 mA (DC);
Ambient temperature: 25°C 77°F



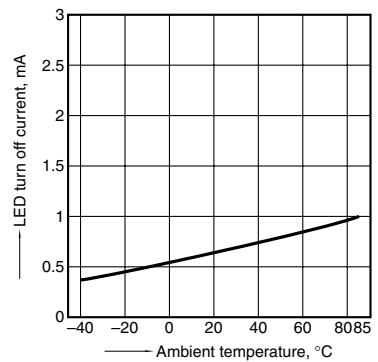
13. Short circuit peak current vs. time characteristics
Measured portion: between terminals 4 and 6;
LED current: 10 mA; Load resistance: 0;
Ambient temperature: 25°C 77°F



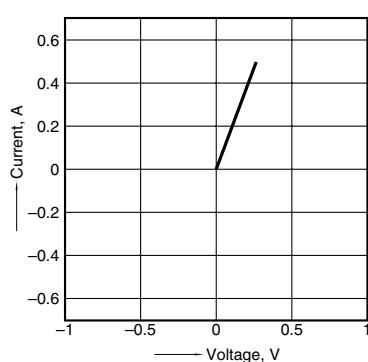
5. LED operate current vs. ambient temperature characteristics
Measured portion: between terminals 4 and 6;
Load current: 100 mA



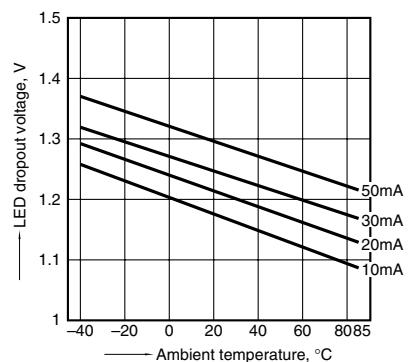
6. LED turn off current vs. ambient temperature characteristics
Measured portion: between terminals 4 and 6;
Load current: 100 mA



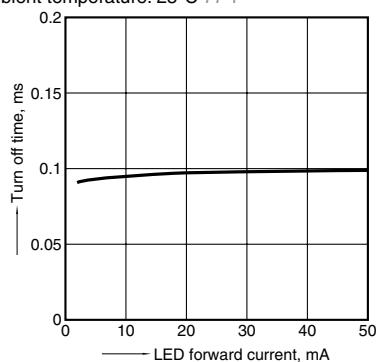
8. Current vs. voltage characteristics of output at MOS portion
Measured portion: between terminals 4 and 6;
Ambient temperature: 25°C 77°F



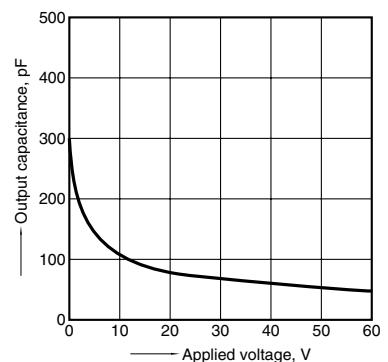
9. LED dropout voltage vs. ambient temperature characteristics
Measured portion: between terminals 1 and 2;
LED current: 10 to 50 mA



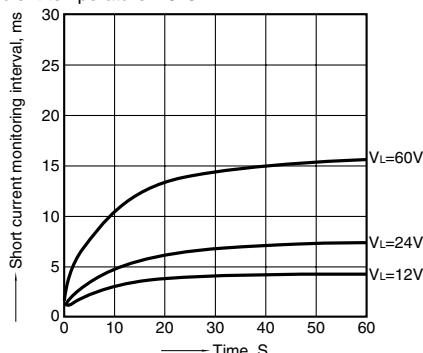
11. Turn off time vs. LED forward current characteristics
Measured portion: between terminals 4 and 6;
Load voltage: 10 V (DC); Load current: 100 mA (DC);
Ambient temperature: 25°C 77°F



12. Output capacitance vs. applied voltage characteristics
Measured portion: between terminals 4 and 6;
Frequency: 1 MHz; Ambient temperature: 25°C 77°F



13. Short circuit peak current vs. time characteristics
Measured portion: between terminals 4 and 6;
LED current: 10 mA; Load resistance: 0;
Ambient temperature: 25°C 77°F



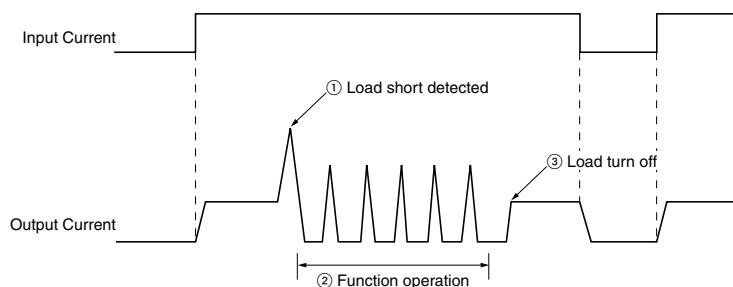
GU 1 Form A Short Circuit Protection (AQV112KL)

What is short circuit protection Non-latch type?

If the load current reaches a predetermined overcurrent level, the output-side short circuit protection function cuts off the load current. It then monitors the load current, and if it returns to normal, automatically recovers to normal device operation.

In order to operate the short circuit protection function, ensure that the input current is at least $I_F = 10$ mA.

Operation chart (Non-latch type)



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Panasonic:

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[AQV216H](#) [AQV216HAX](#) [AQV453EHA](#) [AQV453EHAX](#)



OCEAN CHIPS

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«JONHON» (основан в 1970 г.)

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ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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