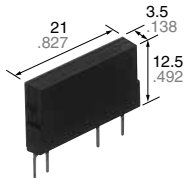




**High capacity up to 6A  
in a slim SIL package**

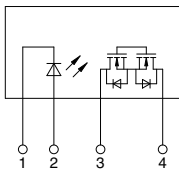
**PhotoMOS®  
Power 1 Form A  
High Capacity (AQZ200G)**

**New**



(Height includes  
standoff)

mm inch



**RoHS compliant**

### FEATURES

**1. High capacity type power PhotoMOS.**

Can switch a wide range of currents and voltages. Can control various types of loads, from very small loads to a max. 6A AC/DC current for sequencers, motors, and lamps.

**2. Low on-resistance and high sensitivity.**

Low on-resistance of less than typ. 0.015Ω (AQZ202G). High sensitivity LED operate current of typ. 1 mA.

**3. AC/DC dual use**

Bi-directional control is possible. There is no need to differentiate depending on the load as was necessary with the conventional SSR.

**4. Slim SIL 4-pin package**

(L) 21.0 mm × (W) 3.5 mm × (H) 12.5 mm  
(L) .827 inch × (W) .138 inch × (H) .492 inch

The compact size of the 4-pin SIL package allows high density mounting

**5. Low-level off state leakage current of max. 10 μA**

**6. Controls low-level analog signals**  
The triac, photocoupler, or SSR cannot be used to control signals of less than several hundred mV. The high capacity type power PhotoMOS feature extremely low closed-circuit offset voltage to enable control of low-level analog signals without distortion.

### TYPICAL APPLICATIONS

- Traffic signals
- Measuring instruments
- Industrial machines
- Mercury relay replacement

### TYPES

	Output rating*		Package	Part No.	Packing quantity	
	Load voltage	Load current			Inner carton	Outer carton
AC/DC dual use	60 V	6.0 A	SIL4-pin	AQZ202G	25 pcs.	500 pcs.
	200 V	2.0 A		AQZ207G		

Note: Please refer to the "Cautions for use" regarding the recommended operation load voltage.  
\* Load voltage and current: Indicate the peak AC and DC values.

### RATING

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

Item	Symbol	AQZ202G	AQZ207G	Remarks	
Input	LED forward current	I <sub>F</sub>	50 mA		
	LED reverse voltage	V <sub>R</sub>	5 V		
	Peak forward current	I <sub>FP</sub>	1 A	f = 100Hz, Duty factor = 0.1%	
	Power dissipation	P <sub>in</sub>	75 mW		
Output	Load voltage (peak AC)	V <sub>L</sub>	60 V	200 V	
	Continuous load current	I <sub>L</sub>	6.0 A	2.0 A	Peak AC, DC
	Peak load current	I <sub>peak</sub>	12.0 A	6.0 A	100 ms (1shot), V <sub>L</sub> = DC
	Power dissipation	P <sub>out</sub>	1.6 W		
Total power dissipation	P <sub>T</sub>	1.6 W			
I/O isolation voltage	V <sub>iso</sub>	2,500 Vrms			
Temperature limits	Operating	T <sub>opr</sub>	-40 to +85°C -40 to 185°F	(Non-icing at low temperatures)	
	Storage	T <sub>stg</sub>	-40 to +100°C -40 to 212°F		

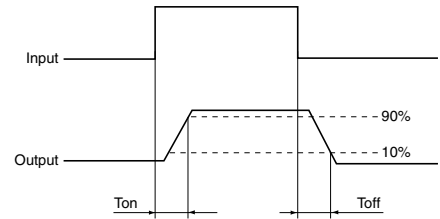
# Power 1 Form A (AQZ200G)

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

Item		Symbol	AQZ202G	AQZ207G	Condition
Input	LED operate current	Typical	1.0 mA		$I_L = 100 \text{ mA}$ $V_L = 10 \text{ V}$
		Maximum	3.0 mA		
	LED turn off current	Minimum	0.2 mA		$I_L = 100 \text{ mA}$ $V_L = 10 \text{ V}$
		Typical	0.9 mA		
LED dropout voltage	Typical	1.25 V (1.16 V at $I_F = 10 \text{ mA}$ )		$I_F = 50 \text{ mA}$	
	Maximum	1.5 V			
Output	On resistance	Typical	0.015 $\Omega$	0.18 $\Omega$	$I_F = 10 \text{ mA}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum	0.03 $\Omega$	0.35 $\Omega$	
	Off state leakage current	Maximum	10 $\mu\text{A}$		$I_F = 0 \text{ mA}$ $V_L = \text{Max.}$
Transfer characteristics	Turn on time*	Typical	3.8 ms	2.5 ms	$I_F = 10 \text{ mA}$ $I_L = 100 \text{ mA}$ $V_L = 10 \text{ V}$
		Maximum	10 ms		
	Turn off time*	Typical	0.2 ms		$I_F = 10 \text{ mA}$ $I_L = 100 \text{ mA}$ $V_L = 10 \text{ V}$
		Maximum	3.0 ms		
	I/O capacitance	Typical	0.8 pF		$f = 1 \text{ MHz}$ $V_E = 0 \text{ V}$
		Maximum	1.5 pF		
Initial I/O isolation resistance	Minimum	$R_{iso}$	1,000 M $\Omega$		500 V DC
Maximum operating speed	Maximum	—	0.5 cps		$I_F = 10 \text{ mA}$ Duty factor = 50% $I_L = \text{Max.}, V_L = \text{Max.}$

Note: Please refer to the "Schematic and Wiring Diagrams" for connection method.

\*Turn on/Turn off time



## 3. Recommended operating conditions (Ambient temperature: 25°C 77°F)

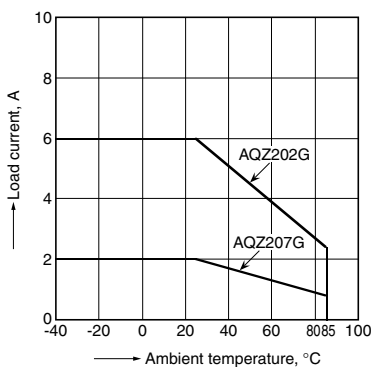
Please use under recommended operating conditions to obtain expected characteristics.

Item		Symbol	Min.	Max.	Unit
LED current		$I_F$	10	30	mA
AQZ202G	Load voltage (Peak AC)	$V_L$	—	48	V
	Continuous load current	$I_L$	—	6.0	A
AQZ207G	Load voltage (Peak AC)	$V_L$	—	160	V
	Continuous load current	$I_L$	—	2.0	A

## REFERENCE DATA

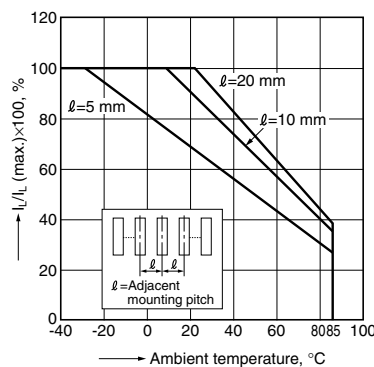
1. Load current vs. ambient temperature characteristics

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



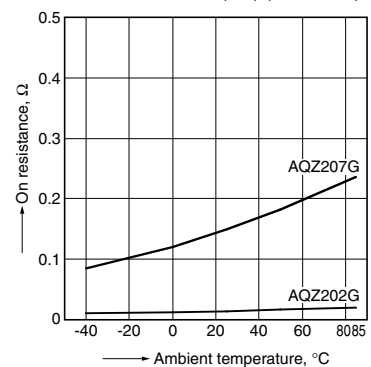
2. Load current vs. ambient temperature characteristics in adjacent mounting

$I_L$ : Load current;  
 $I_L$  (max.): Maximum continuous load current



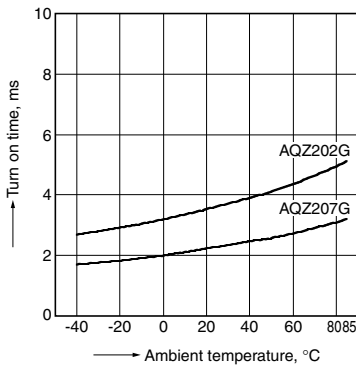
3. On resistance vs. ambient temperature characteristics

LED current: 10 mA;  
Continuous load current: 6 A (DC) (AQZ202G),  
2 A (DC) (AQZ207G)



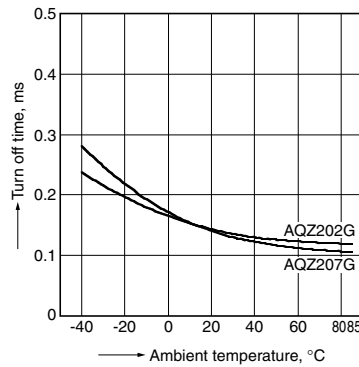
4. Turn on time vs. ambient temperature characteristics

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



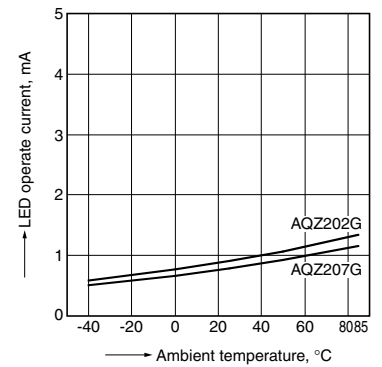
5. Turn off time vs. ambient temperature characteristics

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



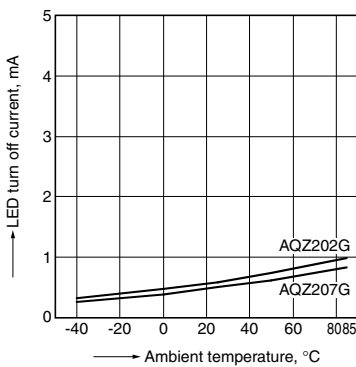
6. LED operate current vs. ambient temperature characteristics

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



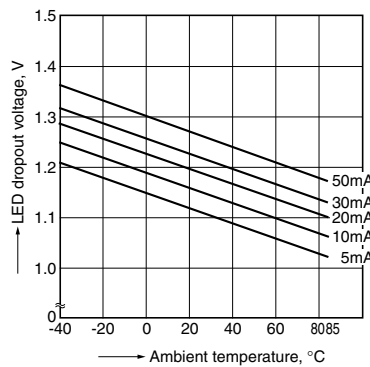
7. LED turn off current vs. ambient temperature characteristics

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



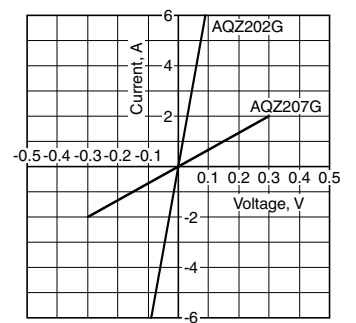
8. LED dropout voltage vs. ambient temperature characteristics

Sample: all types; LED current: 5 to 50 mA



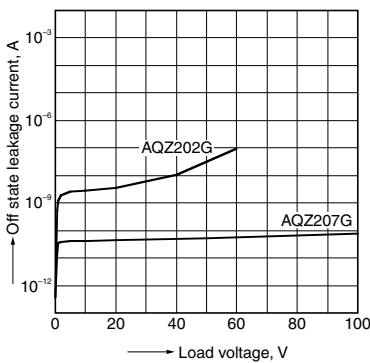
9. Current vs. voltage characteristics of output at MOS portion

Ambient temperature: 25°C 77°F



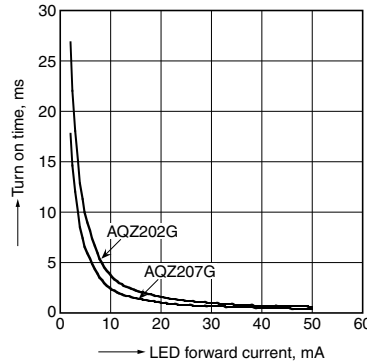
10. Off state leakage current vs. load voltage characteristics

Ambient temperature: 25°C 77°F



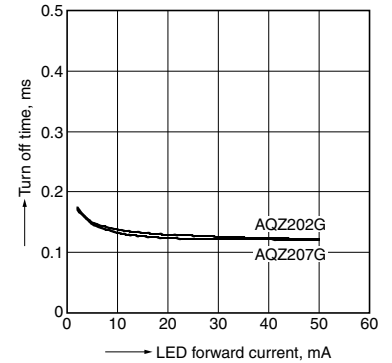
11. Turn on time vs. LED forward current characteristics

Load voltage: 10 V (DC); Continuous load current: 100 mA (DC); Ambient temperature: 25°C 77°F



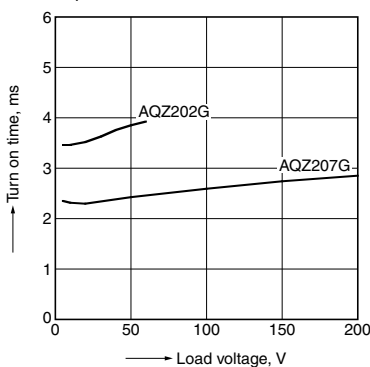
12. Turn off time vs. LED forward current characteristics

Load voltage: 10 V (DC); Continuous load current: 100 mA (DC); Ambient temperature: 25°C 77°F



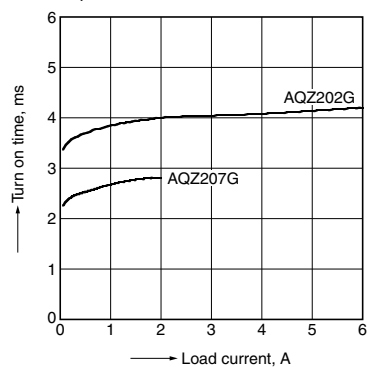
13. Turn on time vs. load voltage characteristics

LED current: 10 mA; Continuous load current: 100 mA; Ambient temperature: 25°C 77°F



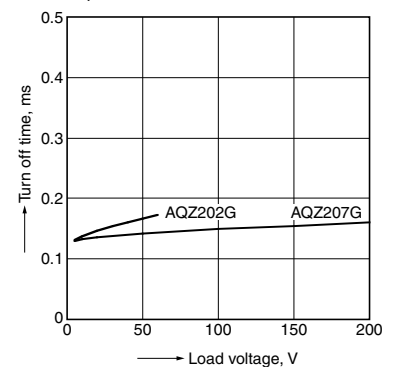
14. Turn on time vs. load current characteristics

LED current: 10 mA; Load voltage: 10 V (DC); Ambient temperature: 25°C 77°F



15. Turn off time vs. load voltage characteristics

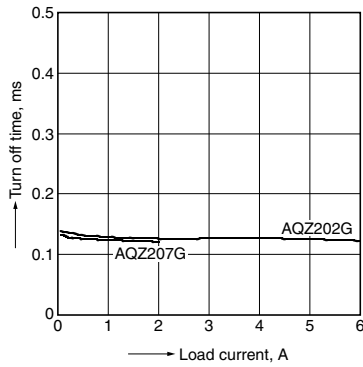
LED current: 10 mA; Continuous load current: 100 mA; Ambient temperature: 25°C 77°F



# Power 1 Form A (AQZ200G)

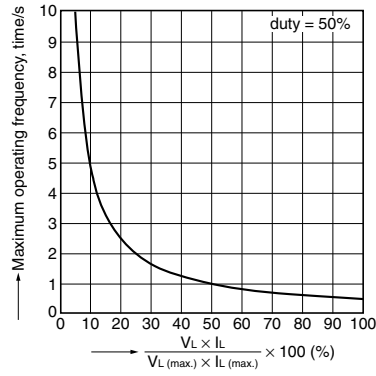
## 16. Turn off time vs. load current characteristics

LED current: 10 mA;  
Load voltage: 10 V (DC);  
Ambient temperature: 25°C 77°F



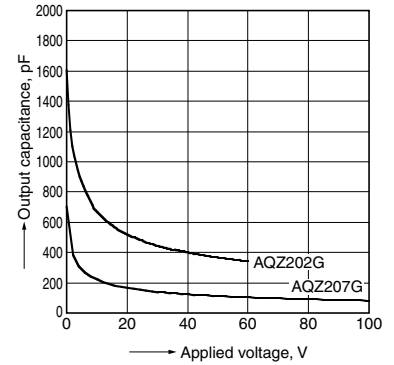
## 17. Maximum operating frequency vs. load voltage/current characteristics

Sample: All types; LED current: 10 mA;  
Ambient temperature: 25°C 77°F  
 $V_L$ : Load voltage,  $V_L$  (Max.): Max. rated load voltage  
 $I_L$ : Load current,  $I_L$  (Max.): Max. rated continuous load current



## 18. Output capacitance vs. applied voltage characteristics

Frequency: 1 MHz;  
Ambient temperature: 25°C 77°F



"PhotoMOS®", "PhotoMOS" and "PHOTOMOS" are registered trademarks of Panasonic Corporation.

\*Recognized in Japan, the United States, all member states of European Union and other countries.

Please contact .....

**Panasonic Corporation**

Electromechanical Control Business Division

■ 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8506, Japan  
[industrial.panasonic.com/ac/e/](http://industrial.panasonic.com/ac/e/)

**Panasonic®**

©Panasonic Corporation 2016