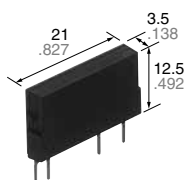




### High capacity up to 6A in a slim SIL package

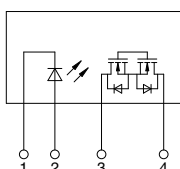
PhotoMOS®  
**Power 1 Form A**  
High Capacity (AQZ200G)

**New**



(Height includes  
standoff)

mm inch



**RoHS compliant**

Please check our website for the latest information regarding compliance to safety standards.

## 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.
	100 V	4.0 A		AQZ205G		
	200 V	2.0 A		AQZ207G		
	600 V	1.0 A		AQZ206G2		

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)

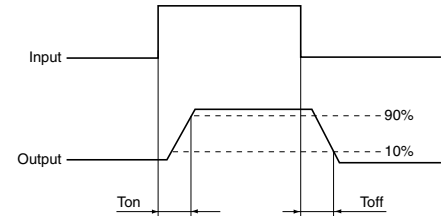
Item		Symbol	AQZ202G	AQZ205G	AQZ207G	AQZ206G2	Remarks
Input	LED forward current	I <sub>F</sub>	50 mA				
	LED reverse voltage	V <sub>R</sub>	5 V				
	Peak forward current	I <sub>FP</sub>	1 A				f = 100Hz, Duty factor = 0.1%
	Power dissipation	P <sub>in</sub>	75 mW				
Output	Load voltage	V <sub>L</sub>	60 V	100 V	200 V	600 V	
	Continuous load current	I <sub>L</sub>	6.0 A	4.0 A	2.0 A	1.0 A	Peak AC, DC
	Peak load current	I <sub>peak</sub>	12.0 A	8.0 A	6.0 A	3.0 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				
Ambient temperature	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	AQZ205G	AQZ207G	AQZ206G2	Condition
Input	LED operate current	Typical	I <sub>Fon</sub>	1.0 mA				I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V
		Maximum		3.0 mA				
	LED turn off current	Minimum	I <sub>Foff</sub>	0.2 mA				I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V
		Typical		0.9 mA				
LED dropout voltage	Typical	V <sub>F</sub>	1.25 V (1.16 V at I <sub>F</sub> = 10 mA)				I <sub>F</sub> = 50 mA	
	Maximum		1.5 V					
Output	On resistance	Typical	R <sub>on</sub>	0.015 Ω	0.035 Ω	0.18 Ω	0.52 Ω	I <sub>F</sub> = 10 mA I <sub>L</sub> = Max. Within 1 s
		Maximum		0.03 Ω	0.06 Ω	0.35 Ω	0.8 Ω	
	Off state leakage current	Maximum	I <sub>Leak</sub>	10 μA				I <sub>F</sub> = 0 mA V <sub>L</sub> = Max.
Transfer characteristics	Turn on time*	Typical	T <sub>on</sub>	3.8 ms	5.0 ms	2.5 ms	3.0 ms	I <sub>F</sub> = 10 mA I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V
		Maximum		10 ms				
	Turn off time*	Typical	T <sub>off</sub>	0.2 ms	0.3 ms	0.2 ms		I <sub>F</sub> = 10 mA I <sub>L</sub> = 100 mA V <sub>L</sub> = 10 V
		Maximum		3.0 ms				
	I/O capacitance	Typical	C <sub>iso</sub>	0.8 pF				f = 1 MHz V <sub>B</sub> = 0 V
		Maximum		1.5 pF				
Initial I/O isolation resistance	Minimum	R <sub>iso</sub>	1,000 MΩ				500 V DC	
Max. operating frequency	Maximum	—	0.5 cps				I <sub>F</sub> = 10 mA Duty factor = 50% I <sub>L</sub> = Max., V <sub>L</sub> = Max.	

\*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
Input LED current		I <sub>F</sub>	10	30	mA
AQZ202G	Load voltage (Peak AC)	V <sub>L</sub>	—	48	V
	Continuous load current	I <sub>L</sub>	—	6.0	A
AQZ205G	Load voltage (Peak AC)	V <sub>L</sub>	—	80	V
	Continuous load current	I <sub>L</sub>	—	4.0	A
AQZ207G	Load voltage (Peak AC)	V <sub>L</sub>	—	160	V
	Continuous load current	I <sub>L</sub>	—	2.0	A
AQZ206G2	Load voltage (Peak AC)	V <sub>L</sub>	—	480	V
	Continuous load current	I <sub>L</sub>	—	1.0	A

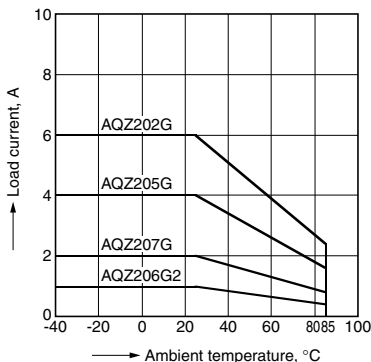
■ These products are not designed for automotive use.

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

## REFERENCE DATA

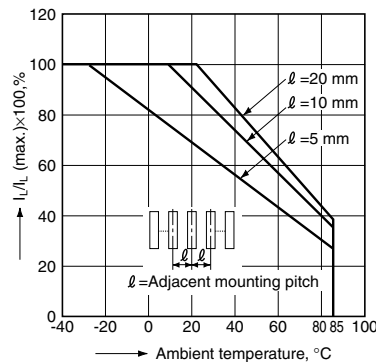
1. Load current vs. ambient temperature characteristics

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



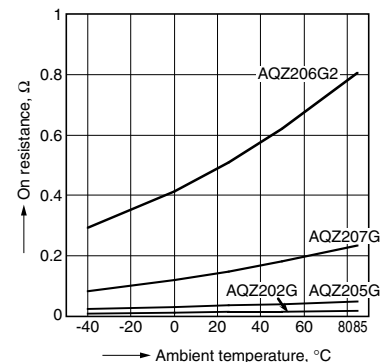
2. Load current vs. ambient temperature characteristics in adjacent mounting

I<sub>L</sub>: Load current;  
I<sub>L</sub> (max.): Maximum continuous load current



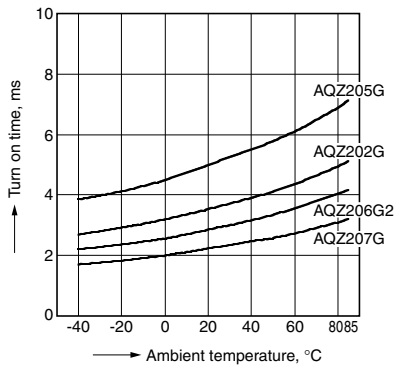
3. On resistance vs. ambient temperature characteristics

LED current: 10 mA;  
Continuous load current:  
6 A (DC) (AQZ202G), 4 A (DC) (AQZ205G),  
2 A (DC) (AQZ207G), 1 A (DC) (AQZ206G2)



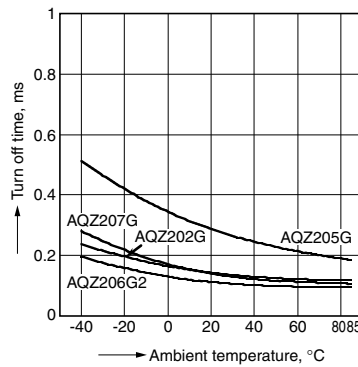
4. Turn on time vs. ambient temperature characteristics

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



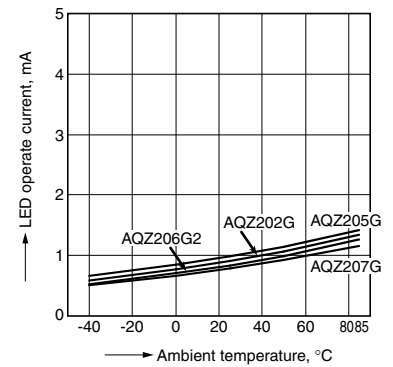
5. Turn off time vs. ambient temperature characteristics

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



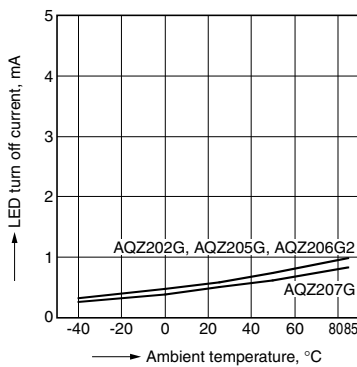
6. LED operate current vs. ambient temperature characteristics

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



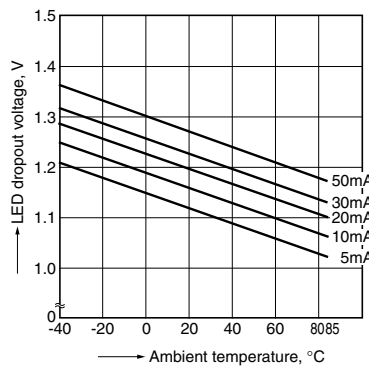
7. LED turn off current vs. ambient temperature characteristics

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



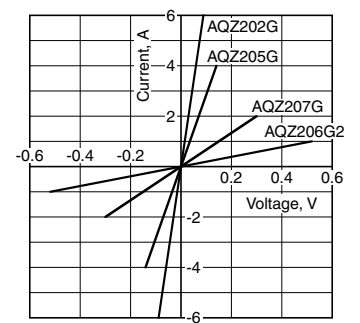
8. LED dropout voltage vs. ambient temperature characteristics

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



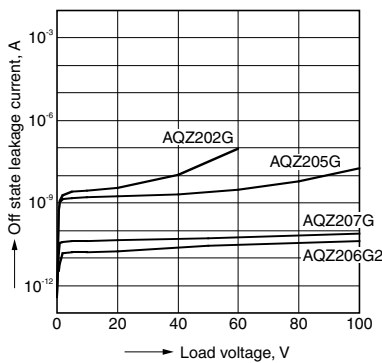
9. Current vs. voltage characteristics of output at MOS portion

Ambient temperature: 25°C 77°F



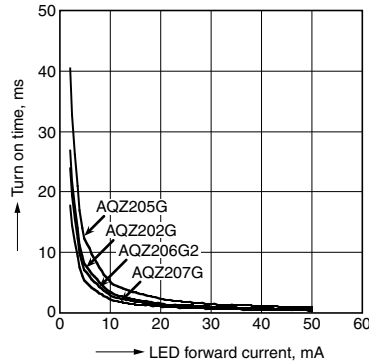
10. Off state leakage current vs. load voltage characteristics

Ambient temperature: 25°C 77°F



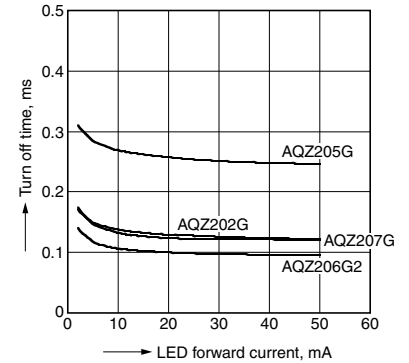
11. Turn on time vs. LED forward current characteristics

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



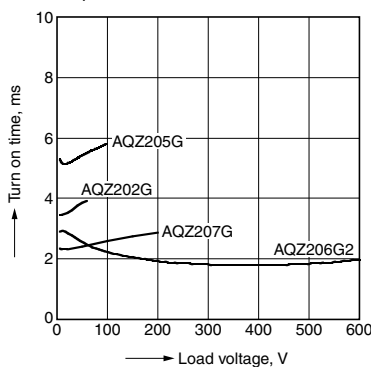
12. Turn off time vs. LED forward current characteristics

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



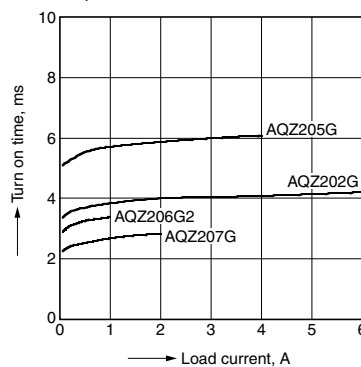
13. Turn on time vs. load voltage characteristics

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



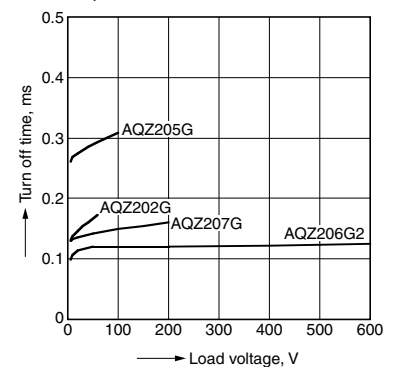
14. Turn on time vs. load current characteristics

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



15. Turn off time vs. load voltage characteristics

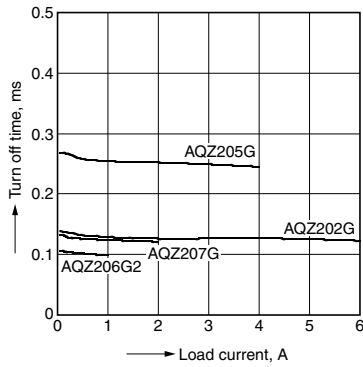
LED current: 10 mA; Continuous load current: 100 mA; Ambient temperature: 25°C 77°F



# Power 1 Form A (AQZ200G)

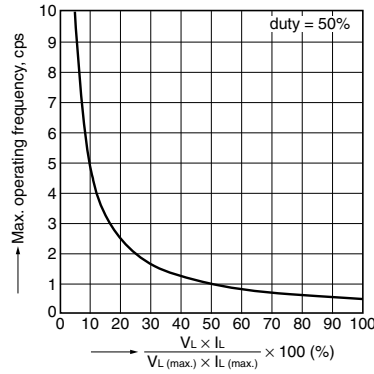
## 16. Turn off time vs. load current characteristics

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



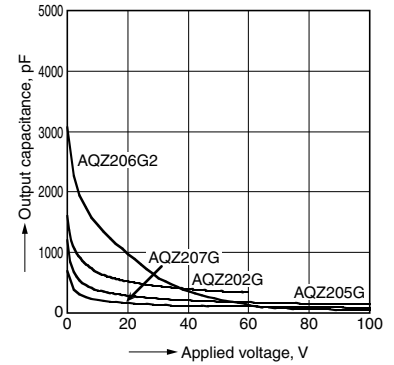
## 17. Max. operating frequency vs. load voltage/ current characteristics

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



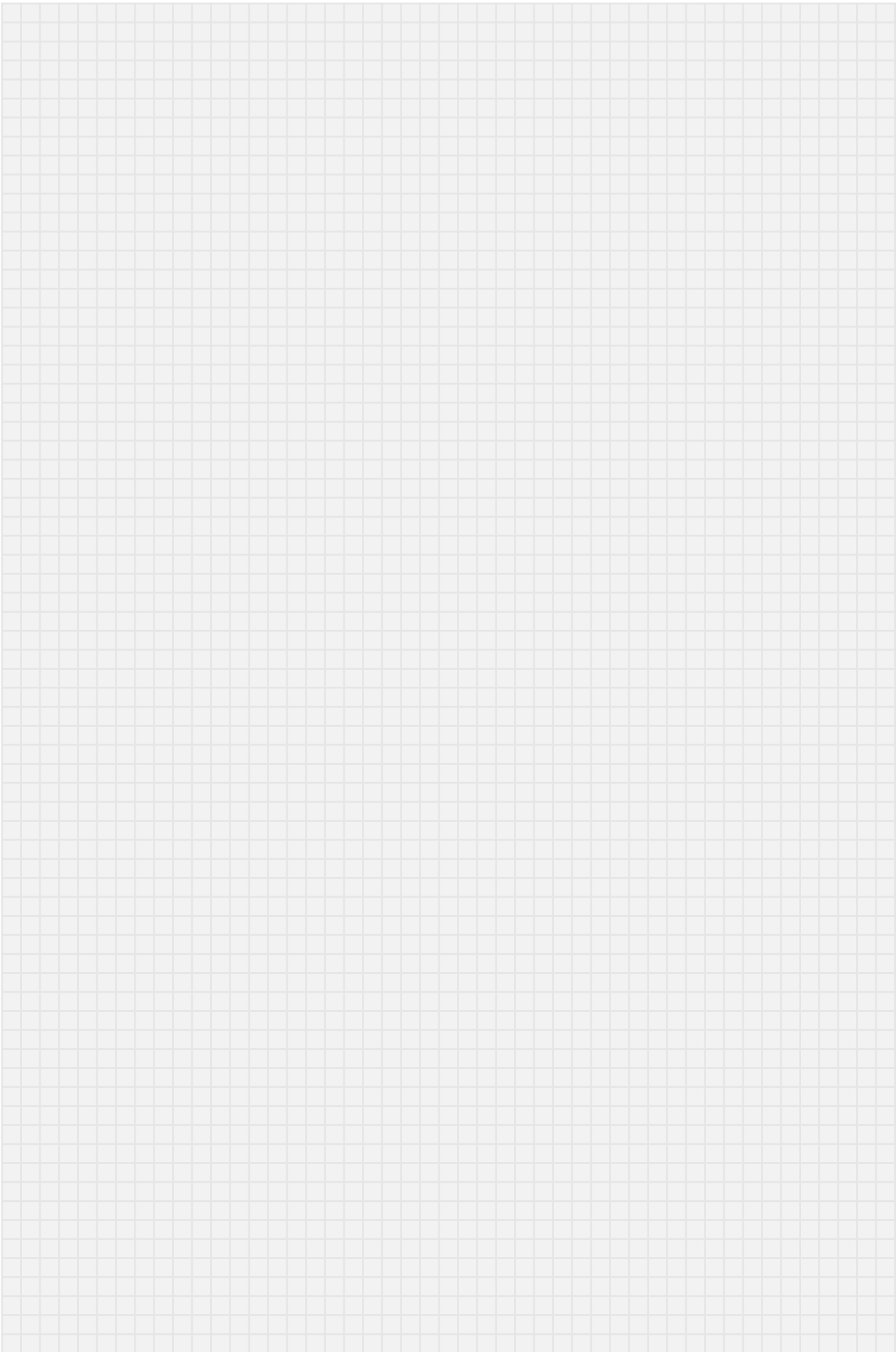
## 18. Output capacitance vs. applied voltage characteristics

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



## CAUTIONS FOR USE

For cautions for general use, please read "PhotoMOS® Cautions for Use" at Automation Control WEB site (as described in footer of catalog).



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