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Jameco Part Number 991220

Load current greatly increased using next-generation MOSFET High Capacity 6-pin Type

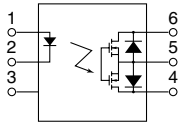
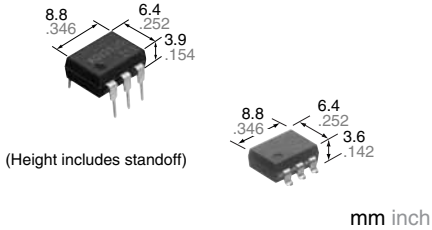
## HE PhotoMOS (AQV252G)

### FEATURES

1. Greatly increased load current in the same package size.
2. Greatly improved specs allow you to use this in place of mercury and mechanical relays.

### TYPICAL APPLICATIONS

- Crime and fire prevention market (use in I/O for alarm and security devices, etc.)
- Amusement market
- Measuring instrument market (circuit testers, etc.)



RoHS Directive compatibility information  
<http://www.mew.co.jp/ac/e/environment/>

### TYPES

Type	Output rating*		Part No.				Packing quantity	
			Through hole terminal	Surface-mount terminal			Tube	Tape and reel
	Load voltage	Load current	Tube packing style		Tape and reel packing style			
				Picked from the 1/2/3-pin side	Picked from the 4/5/6-pin side			
AC/DC type	60 V	2.5 A	AQV252G	AQV252GA	AQV252GAX	AQV252GAZ	1 tube contains 50 pcs. 1 batch contains 500 pcs.	1,000 pcs.

\*Indicate the peak AC and DC values.

Note: For space reasons, the SMD terminal shape indicator "A" and the package style indicator "X" or "Z" are not marked on the relay.

### RATING

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

Item	Symbol	Type of connection	AQV252G(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)	$V_L$	60 V		
	Continuous load current (peak AC)	$I_L$	A	2.5 A	A connection: Peak AC, DC B, C connection: DC
			B	3.5 A	
			C	5.0 A	
	Peak load current	$I_{peak}$		6.0 A	100ms (1 shot), $V_L = DC$
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		

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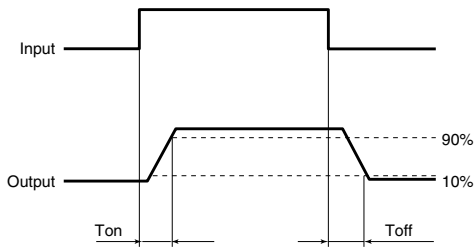
## 2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item		Symbol	Type of connection	AQV252G(A)	Condition
Input	LED operate current	Typical	—	0.5 mA	$I_L = 100\text{mA}$
		Maximum		3 mA	
	LED turn off current	Minimum	—	0.2 mA	$I_L = 100\text{mA}$
		Typical		0.45 mA	
LED dropout voltage	Typical	—	1.14 V (1.32 V at $I_F = 50\text{ mA}$ )		$I_F = 5\text{ mA}$
	Maximum		1.5 V		
Output	On resistance	Typical	A	0.08 $\Omega$	$I_F = 5\text{ mA}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum		0.12 $\Omega$	
		Typical	B	0.04 $\Omega$	
		Maximum		0.06 $\Omega$	
		Typical	C	0.02 $\Omega$	
		Maximum		0.03 $\Omega$	
Off state leakage current	Maximum	$I_{Leak}$	—	1 $\mu\text{A}$	$I_F = 0\text{ mA}$ $V_L = \text{Max.}$
Transfer characteristics	Turn on time*	Typical	—	1.1 ms	$I_F = 5\text{ mA}$ $I_L = 100\text{ mA}$ $V_L = 10\text{ V}$
		Maximum		5.0 ms	
	Turn off time*	Typical	—	0.25 ms	$I_F = 5\text{ mA}$ $I_L = 100\text{ mA}$ $V_L = 10\text{ V}$
		Maximum		0.5 ms	
	I/O capacitance	Typical	—	0.8 pF	$f = 1\text{ MHz}$ $V_B = 0\text{ V}$
		Maximum		1.5 pF	
Initial I/O isolation resistance	Minimum	$R_{iso}$	—	1,000 M $\Omega$	500 V DC

Notes: 1. For type of connection.

2. Recommendable LED forward current  $I_F = 5$  to 10 mA.

\*Turn on/Turn off time

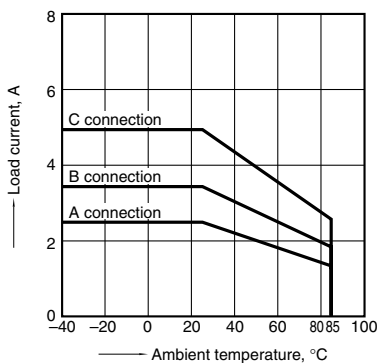


- For Dimensions.
- For Schematic and Wiring Diagrams.
- For Cautions for Use.

## REFERENCE DATA

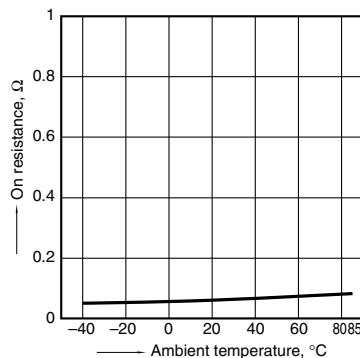
### 1. Load current vs. ambient temperature characteristics

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



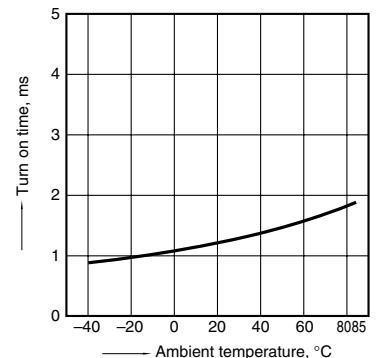
### 2. On resistance vs. ambient temperature characteristics

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

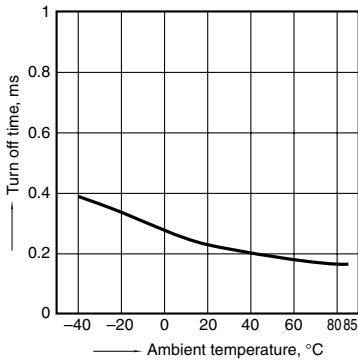
LED current: 5 mA; Load voltage: 10 V (DC);  
Continuous load current: 100 mA (DC)



# HE PhotoMOS (AQV252G)

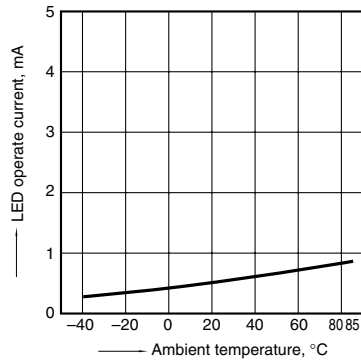
## 4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10 V (DC);  
Continuous load current: 100 mA (DC)



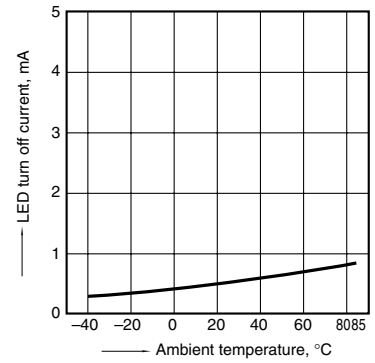
## 5. LED operate current vs. ambient temperature characteristics

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



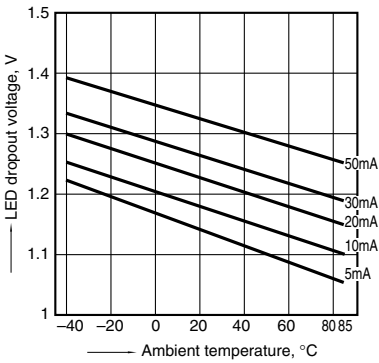
## 6. LED turn off current vs. ambient temperature characteristics

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



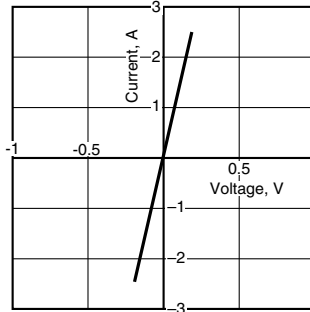
## 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



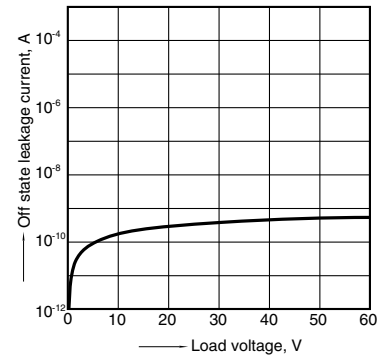
## 8. Current vs. voltage characteristics of output at MOS portion

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



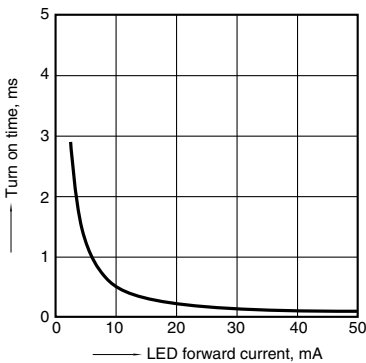
## 9. Off state leakage current vs. load voltage characteristics

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



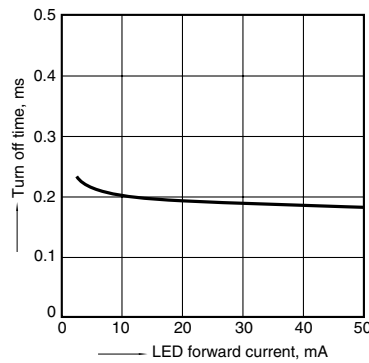
## 10. Turn on time vs. LED forward current characteristics

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

