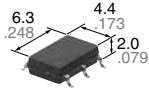
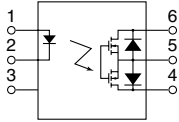


**Miniature SOP6-pin type with high capacity of 1.25A load current**

**PhotoMOS Relays**  
**HE SOP 1 Form A**  
**High Capacity (AQV255GS)**



mm inch



## FEATURES

- High capacity in a miniature SOP package**  
 Continuous load current: 1.25A  
 Load voltage: 80V
- Greatly improved specifications allow you to use this in place of mercury and mechanical relays.**

## TYPICAL APPLICATIONS

- Security equipment
- Fire-preventing system
- Measuring instruments

**Compliance with RoHS Directive**

## TYPES

	Output rating*		Package	Part No.			Packing quantity	
	Load voltage	Load current		Surface-mount terminal			Tube	Tape and reel
				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 dual use	80 V	1.25 A	SOP6-pin	AQV255GS	AQV255GSX	AQV255GSZ	1 tube contains: 75 pcs. 1 batch contains: 1,500 pcs.	1,000 pcs.

\*Indicate the peak AC and DC values.

Note: For space reasons, the two initial letters of the part number "AQ" and the packing style indicator "X" or "Z" are not marked on the relay.

## RATING

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

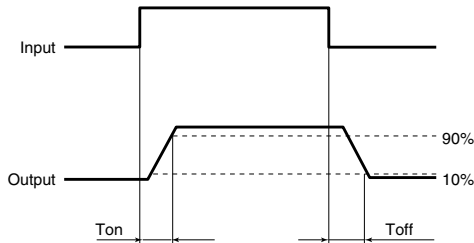
Item		Symbol	Type of connection	AQV255GS	Remarks
Input	LED forward current	$I_F$		50 mA	
	LED reverse voltage	$V_R$		5 V	
	Peak forward current	$I_{FP}$		1 A	$f = 100 \text{ Hz}$ , Duty factor = 0.1%
	Power dissipation	$P_{in}$		75 mW	
Load voltage (peak AC)		$V_L$		80 V	
Output	Continuous load current	$I_L$	A	1.25 A	A connection: Peak AC, DC B, C connection: DC
			B	1.75 A	
			C	2.5 A	
Peak load current		$I_{peak}$		3 A	100ms (1 shot), $V_L = \text{DC}$
Power dissipation		$P_{out}$		450 mW	
Total power dissipation		$P_T$		500 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	

# HE SOP 1 Form A High Capacity (AQV255GS)

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

Item			Symbol	Type of connection	AQV255GS	Condition
Input	LED operate current	Typical	$I_{Fon}$	—	0.5 mA	$I_L = 100\text{mA}$
		Maximum			3 mA	
	LED turn off current	Minimum	$I_{Foff}$	—	0.2 mA	$I_L = 100\text{mA}$
		Typical			0.4 mA	
	LED dropout voltage	Typical	$V_F$	—	1.32 V (1.14 V at $I_F = 5\text{ mA}$ )	$I_F = 50\text{ mA}$
Maximum		1.5 V				
Output	On resistance	Typical	$R_{on}$	A	0.09 $\Omega$	$I_F = 5\text{ mA}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum			0.15 $\Omega$	
		Typical	$R_{on}$	B	0.05 $\Omega$	
		Maximum			0.12 $\Omega$	
		Typical	$R_{on}$	C	0.03 $\Omega$	
		Maximum			0.1 $\Omega$	
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	$T_{on}$	—	1.3 ms	$I_F = 5\text{ mA}$ , $I_L = 100\text{ mA}$ $V_L = 10\text{ V}$
		Maximum			5 ms	
	Turn off time*	Typical	$T_{off}$	—	0.1 ms	$I_F = 5\text{ mA}$ , $I_L = 100\text{ mA}$ $V_L = 10\text{ V}$
		Maximum			0.5 ms	
	I/O capacitance	Typical	$C_{iso}$	—	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
Max. switching frequency		Maximum	—	—	5 times/s	$I_F = 5\text{ mA}$ , duty = 50% $V_L \times I_L = 100\text{ V}\cdot\text{A}$

\*Turn on/Turn off time



## RECOMMENDED OPERATING CONDITIONS

Please obey the following conditions to ensure proper relay operation and resetting.

Item	Symbol	Recommended value	Unit
Input LED current	$I_F$	5 to 10	mA

■ For Dimensions.

■ For Schematic and Wiring Diagrams.

■ For Cautions for Use.

■ These products are not designed for automotive use.

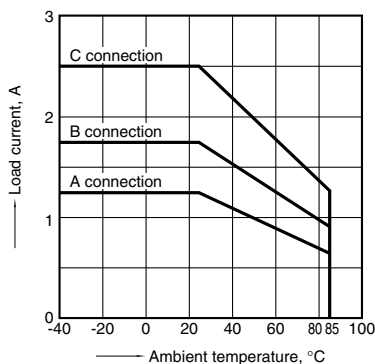
If you are considering to use these products for automotive applications, please contact your local Panasonic Electric Works technical representative.

For more information.

## REFERENCE DATA

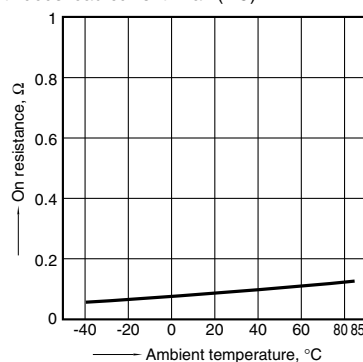
1. Load current vs. ambient temperature characteristics

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



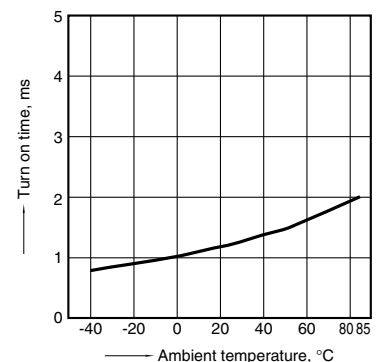
2. On resistance vs. ambient temperature characteristics

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

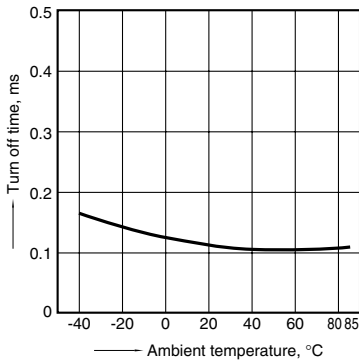
LED current: 5 mA; Load voltage: 10 V (DC);  
Continuous load current: 100 mA (DC)



# HE SOP 1 Form A High Capacity (AQV255GS)

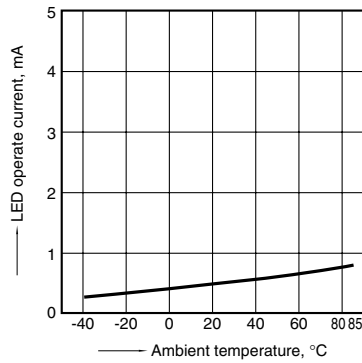
## 4. Turn off time vs. ambient temperature characteristics

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



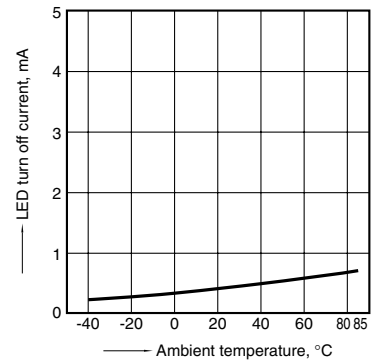
## 5. LED operate current vs. ambient temperature characteristics

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



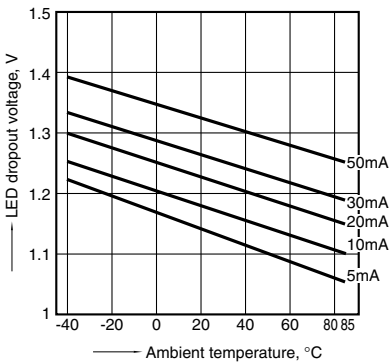
## 6. LED turn off current vs. ambient temperature characteristics

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



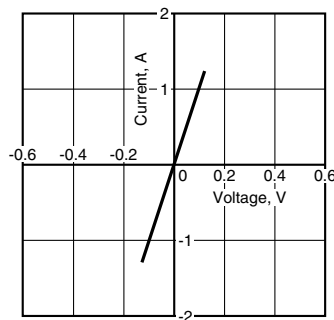
## 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



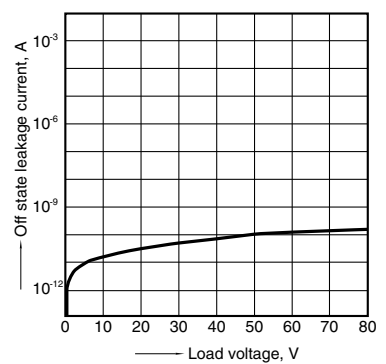
## 8. Current vs. voltage characteristics of output at MOS portion

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



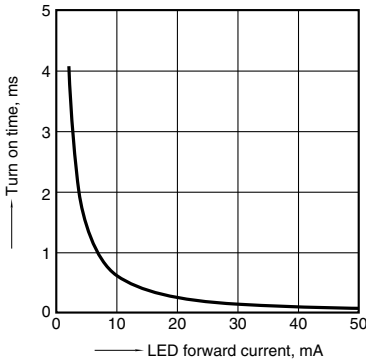
## 9. Off state leakage current vs. load voltage characteristics

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



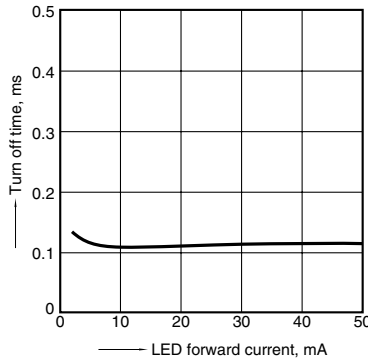
## 10. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 4 and 6;  
Load voltage: 10 V (DC);  
Continuous load current: 100 mA (DC);  
Ambient temperature: 25°C 77°F



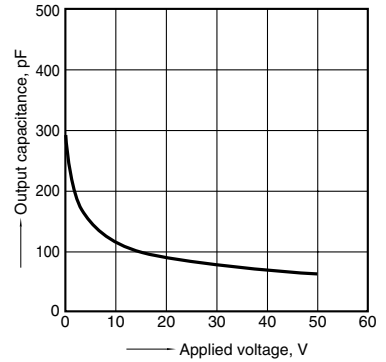
## 11. Turn off time vs. LED forward current characteristics

Measured portion: between terminals 4 and 6;  
Load voltage: 10 V (DC);  
Continuous load current: 100 mA (DC);  
Ambient temperature: 25°C 77°F



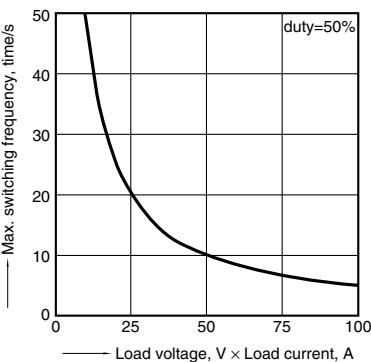
## 12. Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 4 and 6;  
Frequency: 1 MHz;  
Ambient temperature: 25°C 77°F



## 13. Max. switching frequency vs. load voltage and load current

LED current: 5 mA  
Ambient temperature: 25°C 77°F



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