

RoHS compliant

## FEATURES

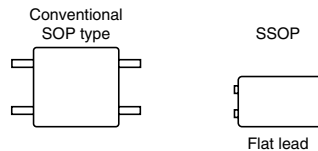
### 1. Low capacitance and on-resistance with 80V load voltage

Output capacitance (C<sub>out</sub>): 4.5pF (typ.)  
ON resistance (R<sub>on</sub>): 10.5Ω (typ.)

### 2. Reduced package size

The bottom dimension has been reduced by 60% and mounting space by 40% compared to conventional SOP4-pin type.

### 3. Mounting space has been reduced and output signals have been improved by using new flat lead terminals.



### 4. High speed switching

Turn on time: 0.05ms (typ.)  
Turn off time: 0.05ms (typ.)

## TYPICAL APPLICATIONS

### 1. Measuring and testing equipment

IC tester, Liquid crystal driver tester, Semiconductor performance tester, Bare board tester, In-circuit tester, function tester, etc.

### 2. Telecommunication and broadcasting equipment

### 3. Medical equipment

### 4. Multi-point recorder

Warping, Thermo couple, etc.

## TYPES

	Output rating*1		Package	Tape and reel packing style*2		Packing quantity in tape and reel
	Load voltage	Load current		Picked from the 1/4-pin side	Picked from the 2/3-pin side	
AC/DC dual use	80 V	0.12 A	SSOP	AQY225R2VY	AQY225R2VW	3,500 pcs.

Notes: \*1 Indicate the peak AC and DC values.

\*2 Tape and reel is the standard packing style for SSOP.

For space reasons, the three initial letters of the part number "AQY" the package (SSOP) indicator "V" and the packing style indicator "Y" or "W" are not marked on the device.

## RATING

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

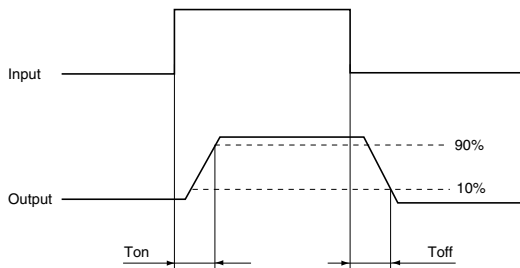
Item		Symbol	AQY225R2V	Remarks
Input	LED forward current	I <sub>F</sub>	50mA	
	LED reverse voltage	V <sub>R</sub>	5V	
	Peak forward current	I <sub>FP</sub>	1A	f=100 Hz, Duty factor=0.1%
	Power dissipation	P <sub>in</sub>	75mW	
Output	Load voltage (peak AC)	V <sub>L</sub>	80V	
	Continuous load current	I <sub>L</sub>	0.12A	Peak AC, DC
	Peak load current	I <sub>peak</sub>	0.3A	A connection: 100 ms (1 shot), V <sub>L</sub> = DC
	Power dissipation	P <sub>out</sub>	250mW	
Total power dissipation		P <sub>T</sub>	300mW	
I/O isolation voltage		V <sub>iso</sub>	1,500V AC	
Temperature limits	Operating	T <sub>opr</sub>	-40°C to +85°C -40°F to +185°F	Non-condensing at low temperatures
	Storage	T <sub>stg</sub>	-40°C to +100°C -40°F to +212°F	

# RF SSOP 1 Form A C×R (AQY225R2V)

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

Item		Symbol	AQY225R2V	Condition	
Input	LED operate current	Typical	0.5 mA	$I_L = 80 \text{ mA}$	
		Maximum	3.0 mA		
	LED turn off current	Minimum	0.1 mA	$I_L = 80 \text{ mA}$	
		Typical	0.45 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	$R_{on}$	$I_F = 5 \text{ mA}$	
		Maximum		$I_L = 80 \text{ mA}$	
	Output capacitance	Typical	$C_{out}$	4.5 pF	$I_F = 0 \text{ mA}$
		Maximum		6 pF	$V_B = 0 \text{ V}$ $f = 1 \text{ MHz}$
	Off state leakage current	Typical	$I_{Leak}$	0.01 nA	$I_F = 0 \text{ mA}$
Maximum		10 nA		$V_L = \text{Max.}$	
Transfer characteristics	Turn on time*	Typical	$T_{on}$	0.05 ms	
		Maximum		0.5 ms	$I_F = 5 \text{ mA}$ $V_L = 10 \text{ V}$ $R_L = 125\Omega$
	Turn off time*	Typical	$T_{off}$	0.05 ms	$I_F = 5 \text{ mA}$
		Maximum		0.2 ms	$V_L = 10 \text{ V}$ $R_L = 125\Omega$
	I/O capacitance	Typical	$C_{iso}$	0.8 pF	$f = 1 \text{ MHz}$
		Maximum		1.5 pF	$V_B = 0 \text{ V}$
Initial I/O isolation resistance	Minimum	$R_{iso}$	1,000M $\Omega$	500V 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	$I_F$	5	mA

### ■ For Dimensions.

### ■ For Schematic and Wiring Diagrams.

### ■ For Cautions for Use.

### ■ These products are not designed for automotive use.

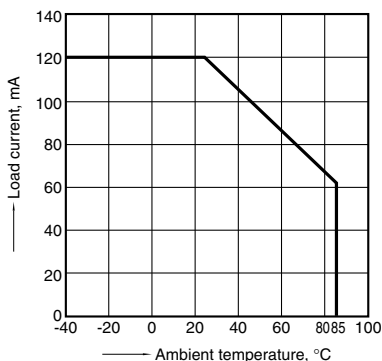
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

For more information.

## REFERENCE DATA

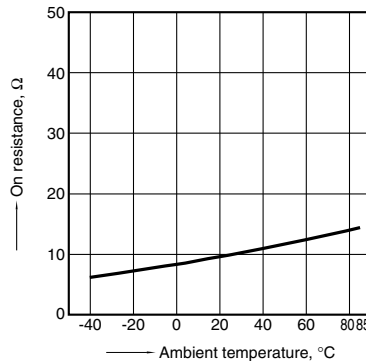
### 1. Load current vs. ambient temperature characteristics

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



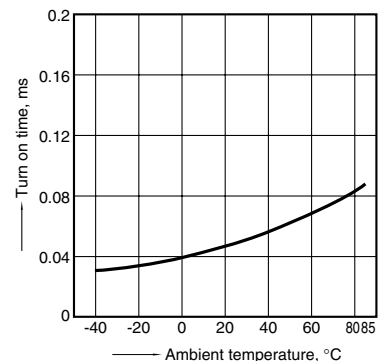
### 2. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4  
LED current: 5 mA; Load voltage: 10V (DC);  
Load current: 80mA (DC)



### 3. Turn on time vs. ambient temperature characteristics

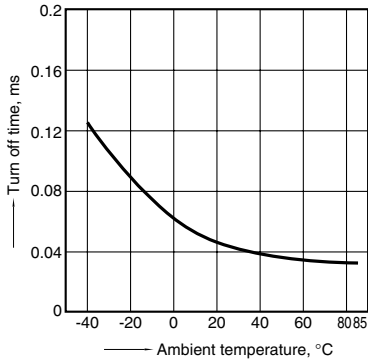
LED current: 5 mA; Load voltage: 10V (DC);  
Continuous load current: 80mA (DC)



# RF SSOP 1 Form A C×R (AQY225R2V)

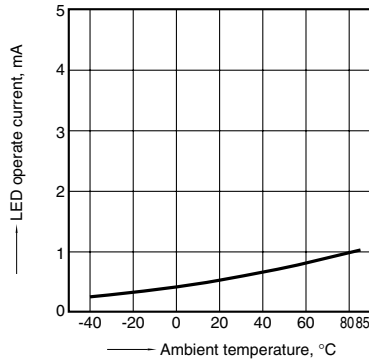
## 4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC);  
Continuous load current: 80mA (DC)



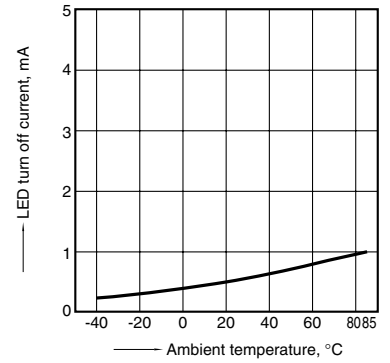
## 5. LED operate current vs. ambient temperature characteristics

Load voltage: 10V (DC);  
Continuous load current: 80mA (DC)



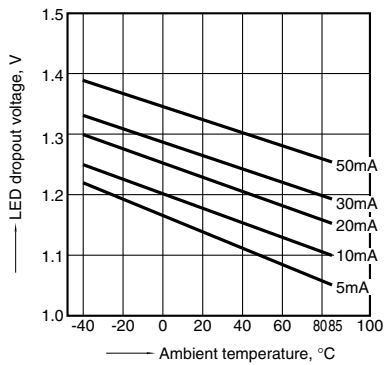
## 6. LED turn off current vs. ambient temperature characteristics

Load voltage: 10V (DC);  
Continuous load current: 80mA (DC)



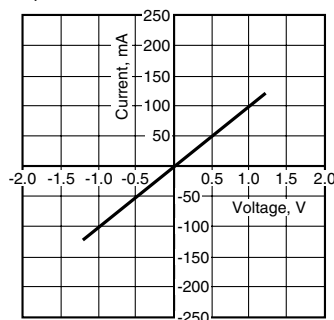
## 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



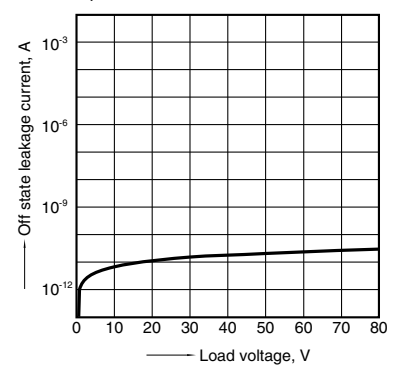
## 8. Current vs. voltage characteristics of output at MOS portion

Measured portion: between terminals 3 and 4  
Ambient temperature: 25°C 77°F



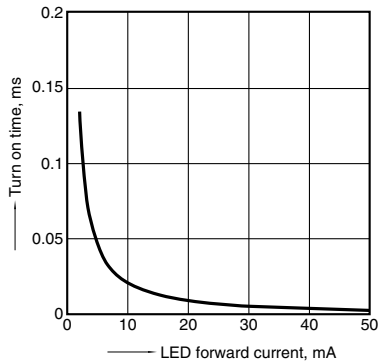
## 9. Off state leakage current vs. load voltage characteristics

Measured portion: between terminals 3 and 4  
Ambient temperature: 25°C 77°F



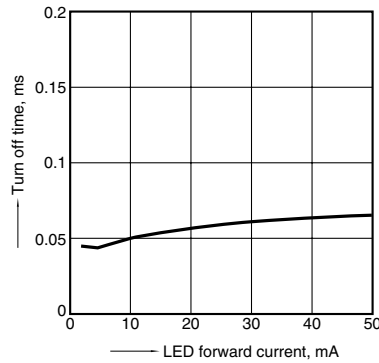
## 10. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4  
Load voltage: 10V (DC); Continuous load current:  
80mA (DC); Ambient temperature: 25°C 77°F



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

Measured portion: between terminals 3 and 4  
Load voltage: 10V (DC); Continuous load current:  
80mA (DC); Ambient temperature: 25°C 77°F



## 12. Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 3 and 4  
Frequency: 1 MHz, 30m Vrms; Ambient temperature:  
25°C 77°F

