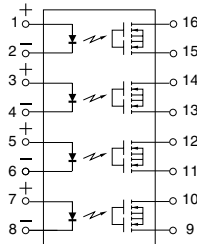


mm inch

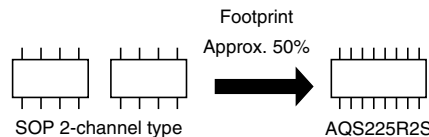


RoHS compliant

## FEATURES

### 1. 4-channel (4 Form A) in a small SOP16-pin package

The device comes in a miniature SOP measuring (W) 10.37 × (L) 4.4 × (H) 2.1mm (W) .408 × (L) .173 × (H) .083inch— approx. 50% of the footprint size of 8-pin (2-channel) type.



### 2. Low C×R and high response speed

- Output capacitance: 4.5pF (typ.)
- On resistance: 10.5Ω (typ.)
- Turn on time: 0.04ms (typ.)

### 3. Applicable for 4 Form A use, as well as 4 independent 1 Form A

### 4. Low-level off state leakage current of typ. 0.01nA

### 5. Controls low-level analog signals

## TYPICAL APPLICATIONS

For multi-circuit switching;

1. Measuring and testing equipment  
IC tester, Liquid crystal driver tester, Probe card, Bear board tester, In-circuit tester, Function tester, etc.
2. Communication and broadcasting equipment
3. Medical equipment  
Ultrasonic wave diagnostic machine
4. Multi-point recorder  
Warping, Thermo couple

## TYPES

	Output rating*		Package	Part No.			Packing quantity	
	Load voltage	Load current		Tube packing style	Tape and reel packing style		Tube	Tape and reel
					Picked from the 1/2/3/4/5/6/7/8-pin side	Picked from the 9/10/11/12/13/14/15/16-pin side		
AC/DC dual use	80V	70mA	SOP16-pin	AQS225R2S	AQS225R2SX	AQS225R2SZ	1 tube contains: 50 pcs. 1 batch contains: 1,000 pcs.	1,000 pcs.

\* Indicate the peak AC and DC values.

Note: The packing style indicator "X" or "Z" is not marked on the device.

## RATING

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

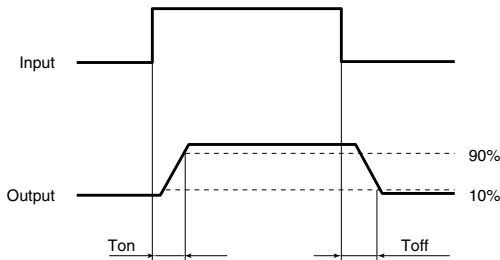
Item		Symbol	AQS225R2S	Remarks
Input	LED forward current	I <sub>F</sub>	50 mA	
	LED reverse voltage	V <sub>R</sub>	5 V	
	Peak forward current	I <sub>FP</sub>	1 A	f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P <sub>in</sub>	75 mW	
Output	Load voltage (peak AC)	V <sub>L</sub>	80 V	
	Continuous load current	I <sub>L</sub>	0.07 A	Peak AC, DC
	Peak load current	I <sub>peak</sub>	0.2 A	100 ms (1 shot), V <sub>L</sub> = DC
	Power dissipation	P <sub>out</sub>	600 mW	
Total power dissipation		P <sub>T</sub>	650 mW	
I/O isolation voltage		V <sub>iso</sub>	1,500 V 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 SOP 4 Form A C×R (AQS225R2S)

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

Item			Symbol	AQS225R2S	Condition
Input	LED operate current	Typical	$I_{Fon}$	0.9 mA	$I_L = \text{Max.}$
		Maximum		3 mA	
	LED turn off current	Minimum	$I_{Foff}$	0.3 mA	$I_L = \text{Max.}$
		Typical		0.85 mA	
LED dropout voltage	Typical	$V_F$	1.25 V (1.14 V at $I_F = 5 \text{ mA}$ )		$I_F = 50 \text{ mA}$
	Maximum		1.5 V		
Output	On resistance	Typical	$R_{on}$	10.5Ω	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum		15Ω	
	Output capacitance	Typical	$C_{out}$	4.5 pF	$I_F = 0$ $V_B = 0 \text{ V}$ $f = 1 \text{ MHz}$
		Maximum		6 pF	
	Off state leakage current	Typical	$I_{Leak}$	0.01 nA	$I_F = 0$ $V_L = \text{Max.}$
		Maximum		10 nA	
Transfer characteristics	Turn on time*	Typical	$T_{on}$	0.04 ms	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$
		Maximum		0.3 ms	
	Turn off time*	Typical	$T_{off}$	0.07 ms	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$
		Maximum		0.2 ms	
	I/O capacitance	Typical	$C_{iso}$	0.8 pF	$f = 1 \text{ MHz}$ $V_B = 0$
		Maximum		1.5 pF	
Initial I/O isolation resistance	Minimum	$R_{iso}$	1,000 MΩ	500 V 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.

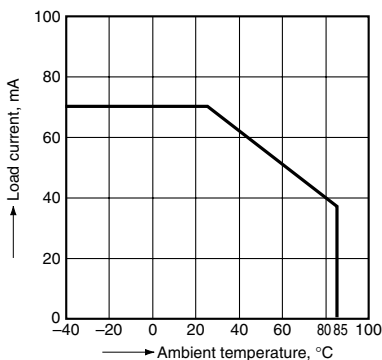
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

For more information.

## REFERENCE DATA

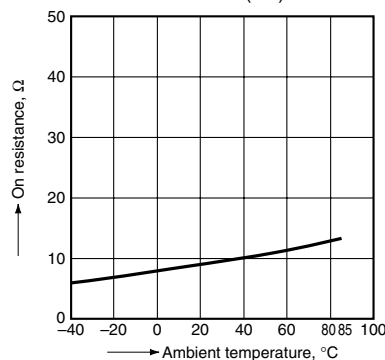
### 1. Load current vs. ambient temperature characteristics

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



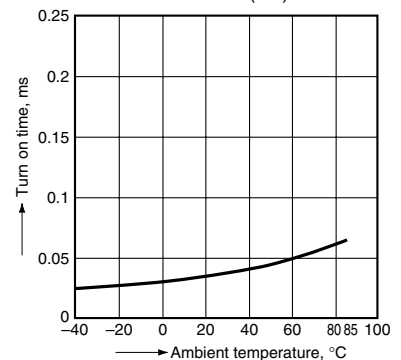
### 2. On resistance vs. ambient temperature characteristics

LED current: 5 mA;  
Continuous load current: 70 mA (DC)



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

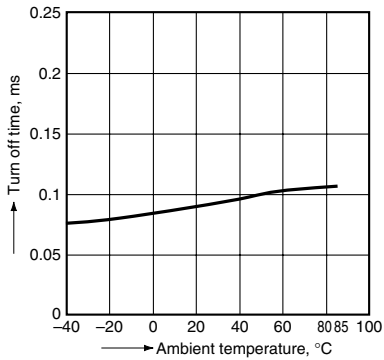
LED current: 5 mA; Load voltage: 80 V (DC);  
Continuous load current: 70 mA (DC)



# RF SOP 4 Form A C×R (AQS225R2S)

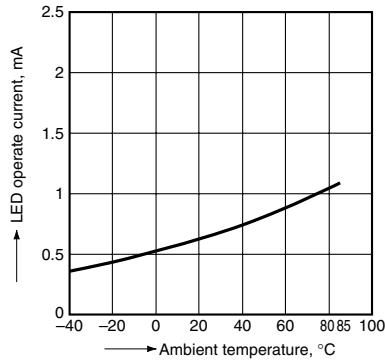
## 4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 80 V (DC);  
Continuous load current: 70 mA (DC)



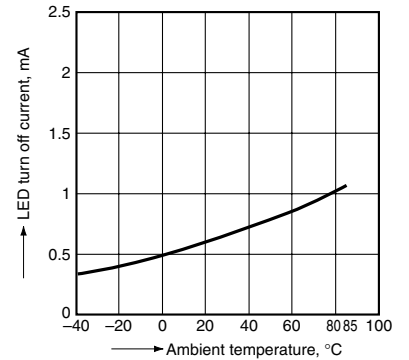
## 5. LED operate current vs. ambient temperature characteristics

Continuous load current: 70 mA (DC)



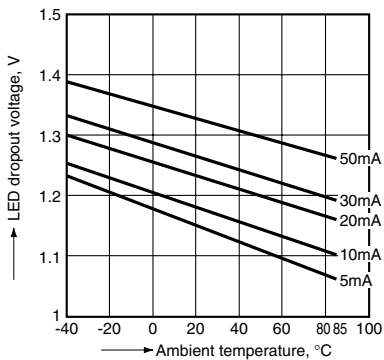
## 6. LED turn off current vs. ambient temperature characteristics

Continuous load current: 70 mA (DC)



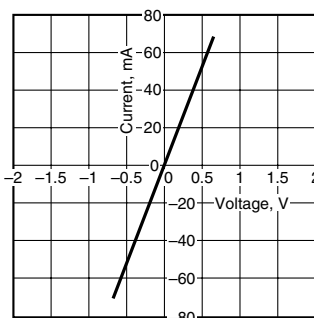
## 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



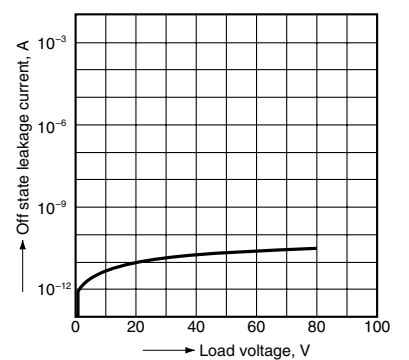
## 8. Current vs. voltage characteristics of output at MOS portion

Ambient temperature: 25°C 77°F



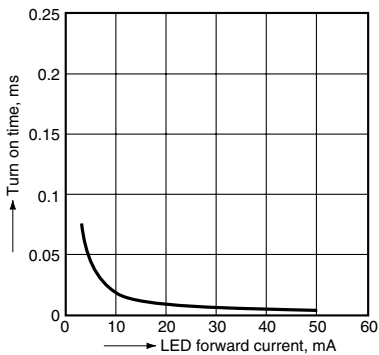
## 9. Off state leakage current vs. load voltage characteristics

Ambient temperature: 25°C 77°F



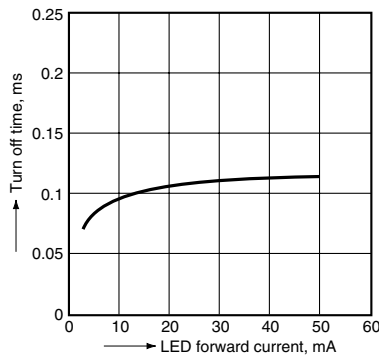
## 10. Turn on time vs. LED forward current characteristics

Load voltage: 80 V (DC); Continuous load current: 70 mA (DC); Ambient temperature: 25°C 77°F



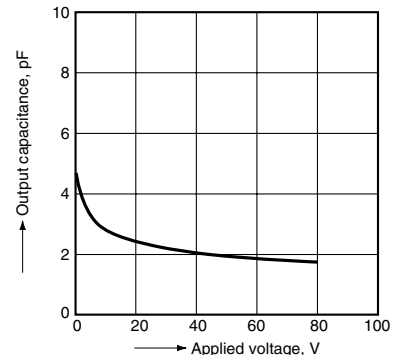
## 11. Turn off time vs. LED forward current characteristics

Load voltage: 80 V (DC); Continuous load current: 70 mA (DC); Ambient temperature: 25°C 77°F



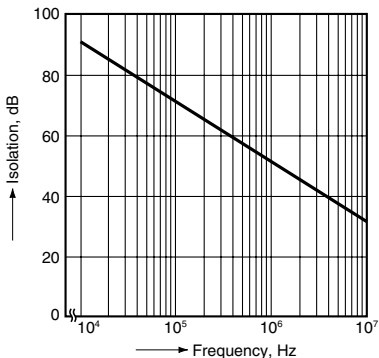
## 12. Output capacitance vs. applied voltage characteristics

Frequency: 1 MHz, 30 m Vrms; Ambient temperature: 25°C 77°F



## 13. Isolation vs. frequency characteristics (50Ω impedance)

Ambient temperature: 25°C 77°F



## 14. Insertion loss vs. frequency characteristics (50Ω impedance)

Ambient temperature: 25°C 77°F

