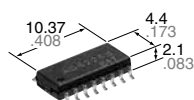
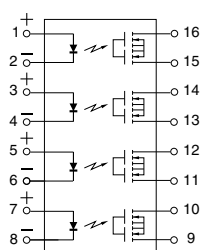


**Space-saving  
SOP16-pin type  
featuring low on-resistance  
80V load voltage**

**PhotoMOS®  
RF SOP 4 Form A C×R  
(AQS225R2S)**



mm inch

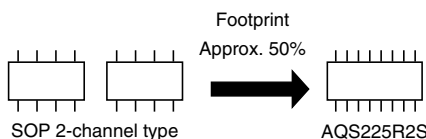


**RoHS compliant**

### 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	

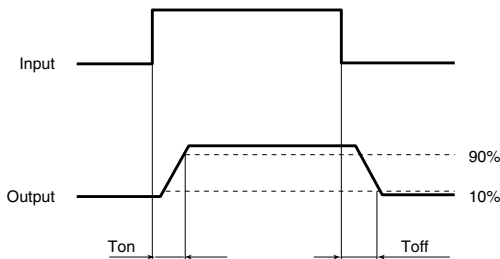
# RF SOP 4 Form A C×R (AQS225R2S)

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

Item		Symbol	AQS225R2S	Condition
Input	LED operate current	Typical	0.9 mA	$I_L = \text{Max.}$
		Maximum	3 mA	
	LED turn off current	Minimum	0.3 mA	$I_L = \text{Max.}$
		Typical	0.85 mA	
LED dropout voltage	Typical	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	10.5Ω	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$ Within 1 s on time
		Maximum	15Ω	
	Output capacitance	Typical	4.5 pF	$I_F = 0$ $V_B = 0 \text{ V}$ $f = 1 \text{ MHz}$
		Maximum	6 pF	
Off state leakage current	Typical	0.01 nA	$I_F = 0$ $V_L = \text{Max.}$	
	Maximum	10 nA (1 nA or less)*		
Transfer characteristics	Turn on time**	Typical	0.04 ms	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$
		Maximum	0.3 ms	
	Turn off time**	Typical	0.07 ms	$I_F = 5 \text{ mA}$ $I_L = \text{Max.}$
		Maximum	0.2 ms	
	I/O capacitance	Typical	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

\*Available as custom orders (1 nA or less)

\*\*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

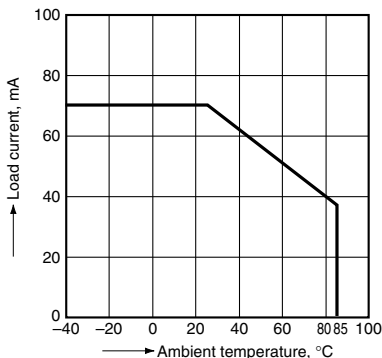
■ These products are not designed for automotive use.

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

## REFERENCE DATA

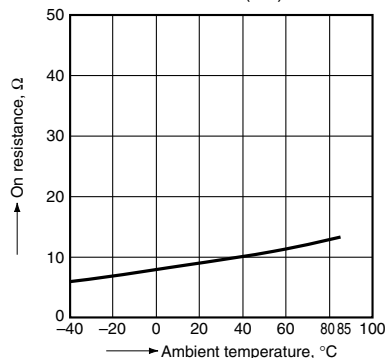
1. Load current vs. ambient temperature characteristics

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



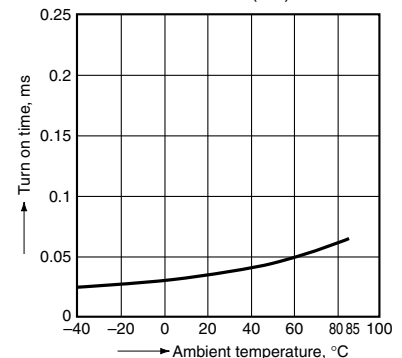
2. On resistance vs. ambient temperature characteristics

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

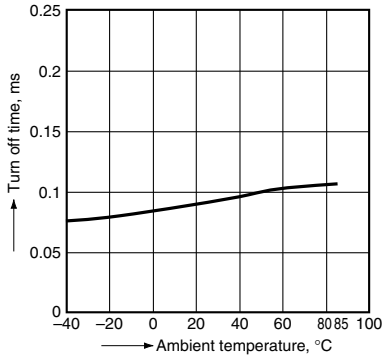


3. Turn on time vs. ambient temperature characteristics

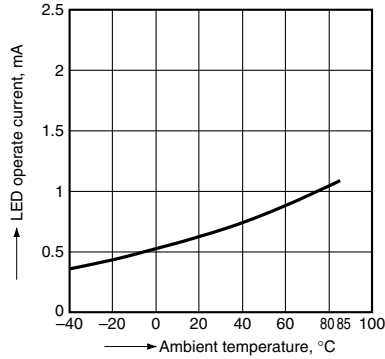
LED current: 5 mA; Load voltage: 80 V (DC);  
Continuous load current: 70 mA (DC)



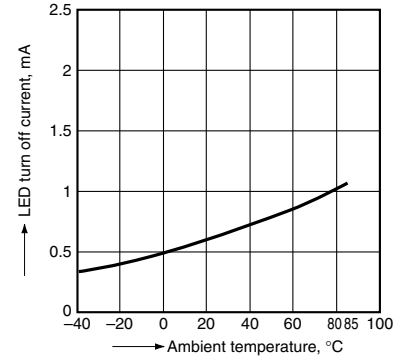
4. Turn off time vs. ambient temperature characteristics  
LED current: 5 mA; Load voltage: 80 V (DC);  
Continuous load current: 70 mA (DC)



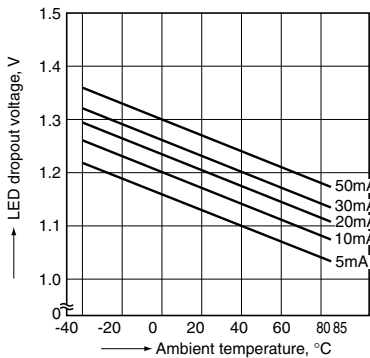
5. LED operate current vs. ambient temperature characteristics  
Continuous load current: 70 mA (DC)



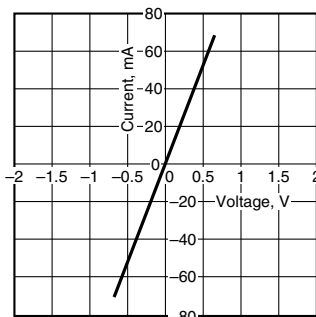
6. LED turn off current vs. ambient temperature characteristics  
Continuous load current: 70 mA (DC)



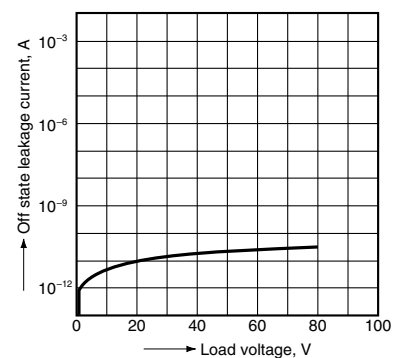
7. LED dropout voltage vs. ambient temperature characteristics  
LED current: 5 to 50 mA



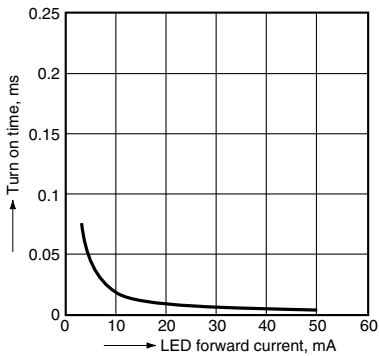
8. Current vs. voltage characteristics of output at MOS portion  
Ambient temperature: 25°C 77°F



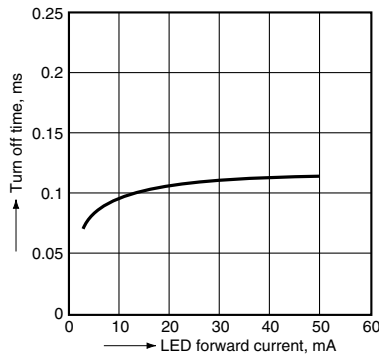
9. Off state leakage current vs. load voltage characteristics  
Ambient temperature: 25°C 77°F



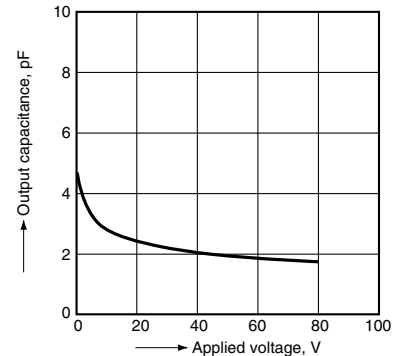
10. Turn on time vs. LED forward current characteristics  
Load voltage: 80 V (DC); Continuous load current:  
70 mA (DC); Ambient temperature: 25°C 77°F



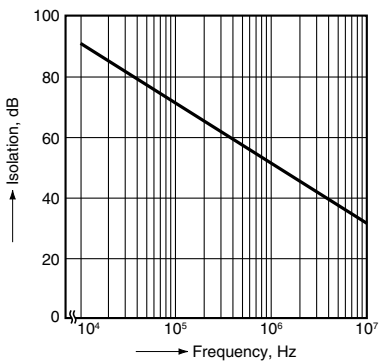
11. Turn off time vs. LED forward current characteristics  
Load voltage: 80 V (DC); Continuous load current:  
70 mA (DC); Ambient temperature: 25°C 77°F



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

