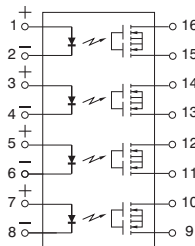


[CAD Data](#)

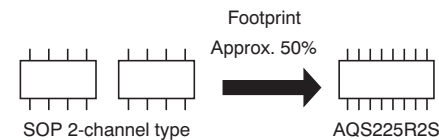
mm inch



## 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, Bare 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.

Notes: 1. The packing style indicator "X" or "Z" is not marked on the relay.

2. Types with a built-in resistor.

## RATING

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

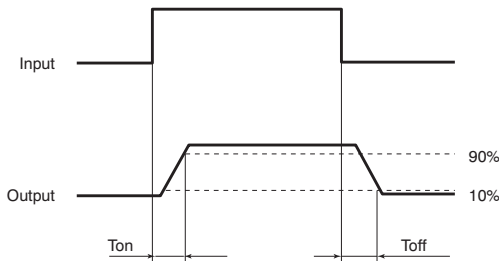
Item		Symbol	AQS225R2S	Remarks
Input	LED forward current	I <sub>F</sub>	50 mA	
	LED reverse voltage	V <sub>R</sub>	5 V	
	Peak forward current	I <sub>FP</sub>	1 A	f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P <sub>in</sub>	75 mW	
Output	Load voltage (peak AC)	V <sub>L</sub>	80 V	
	Continuous load 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 Low on-resistance (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	$V_F$	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	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	$I_{\text{Leak}}$	0.01 nA	$I_F = 0$ $V_L = \text{Max.}$
	Maximum		10 nA	
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	$C_{\text{iso}}$	0.8 pF
Maximum		1.5 pF		
Initial I/O isolation resistance	Minimum	$R_{\text{iso}}$	1,000 MΩ	500 V DC

\*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	mA

### ■ Dimensions

### ■ Schematic and Wiring Diagrams

### ■ Cautions for Use

■ These products are not designed for automotive use.

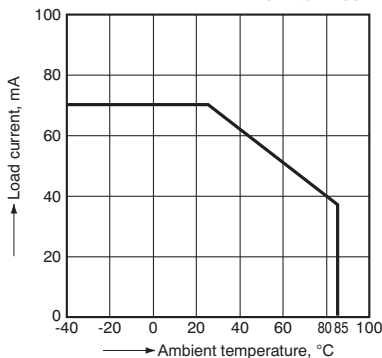
If you are considering to use these products for automotive applications, please contact your local Panasonic Electric Works technical representative.

Please refer to our information on [PhotoMOS Relays for Automotive Applications](#).

## REFERENCE DATA

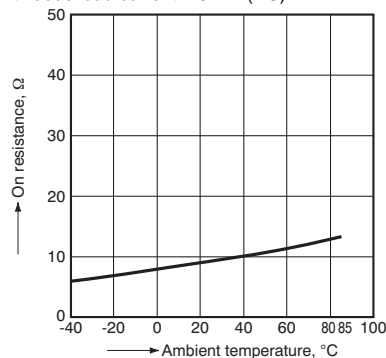
### 1. Load current vs. ambient temperature characteristics

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



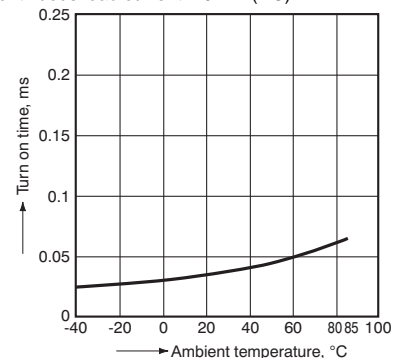
### 2. On resistance vs. ambient temperature characteristics

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



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

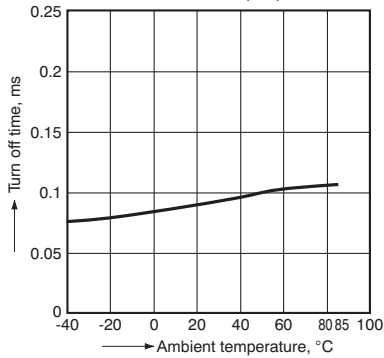
LED current: 5 mA; Load voltage: 80 V (DC);  
Continuous load current: 70 mA (DC)



# RF SOP 4 Form A Low on-resistance (AQS225R2S)

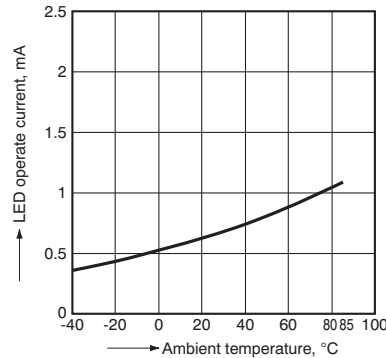
## 4. Turn off time vs. ambient temperature characteristics

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



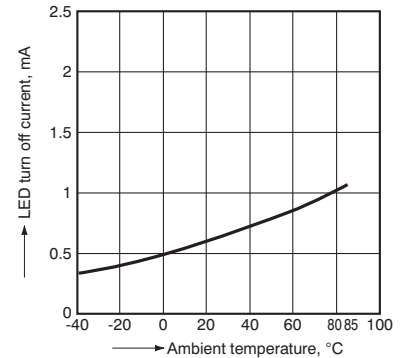
## 5. LED operate current vs. ambient temperature characteristics

Continuous load current: 70 mA (DC)



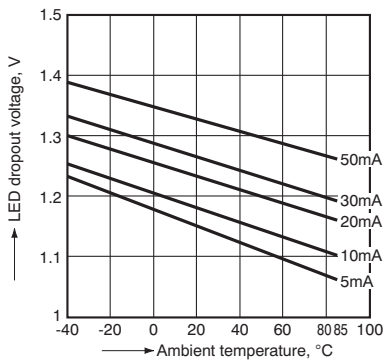
## 6. LED turn off current vs. ambient temperature characteristics

Continuous load current: 70 mA (DC)



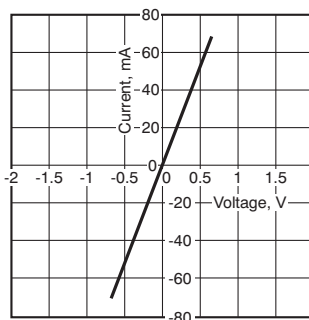
## 7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



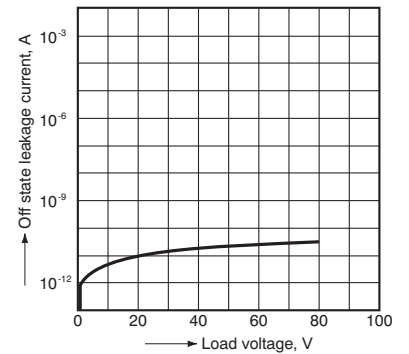
## 8. Current vs. voltage characteristics of output at MOS portion

Ambient temperature: 25°C 77°F



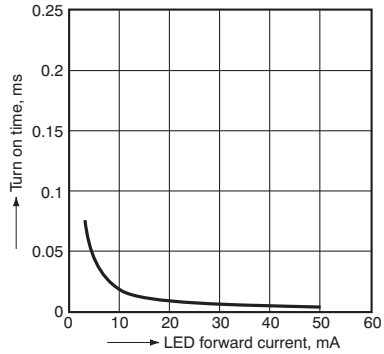
## 9. Off state leakage current vs. load voltage characteristics

Ambient temperature: 25°C 77°F



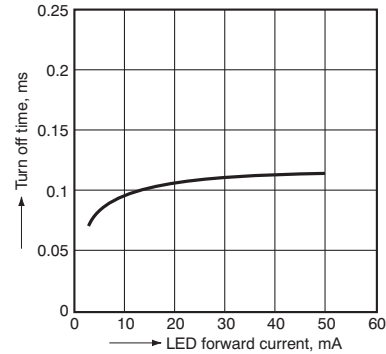
## 10. Turn on time vs. LED forward current characteristics

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



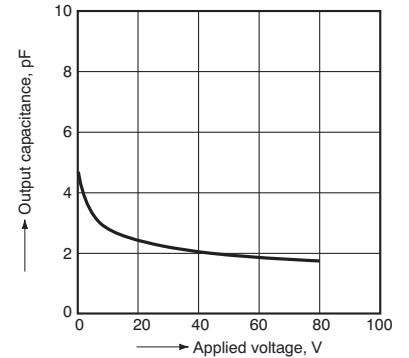
## 11. Turn off time vs. LED forward current characteristics

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



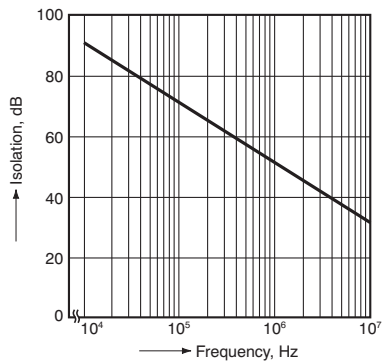
## 12. Output capacitance vs. applied voltage characteristics

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

