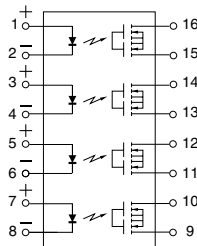


mm inch

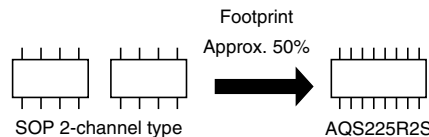


RoHS compliant

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)

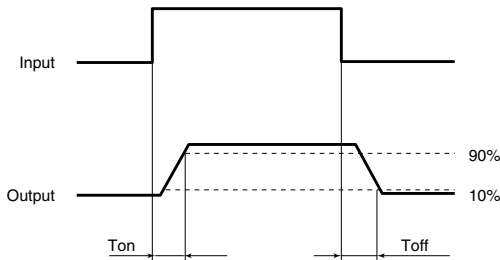
| Item | | Symbol | AQS225R2S | Remarks |
|-------------------------|-------------------------|-------------------|---------------------------------|--------------------------------------|
| Input | LED forward current | I _F | 50 mA | |
| | LED reverse voltage | V _R | 5 V | |
| | Peak forward current | I _{FP} | 1 A | f = 100 Hz, Duty factor = 0.1% |
| | Power dissipation | P _{in} | 75 mW | |
| Output | Load voltage (peak AC) | V _L | 80 V | |
| | Continuous load current | I _L | 0.07 A | Peak AC, DC |
| | Peak load current | I _{peak} | 0.2 A | 100 ms (1 shot), V _L = DC |
| | Power dissipation | P _{out} | 600 mW | |
| Total power dissipation | | P _T | 650 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 | |

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_{ton} | 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.

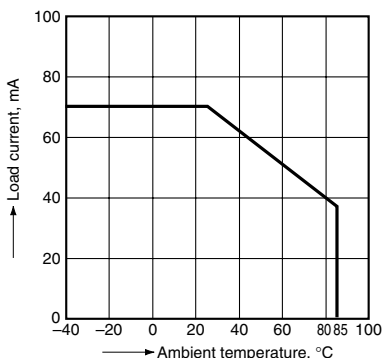
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

For more information.

REFERENCE DATA

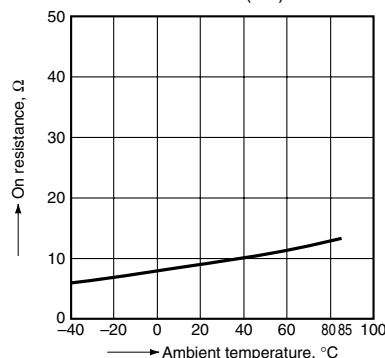
1. Load current vs. ambient temperature characteristics

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



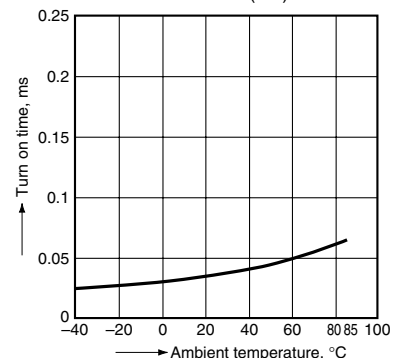
2. On resistance vs. ambient temperature characteristics

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



3. Turn on time vs. ambient temperature characteristics

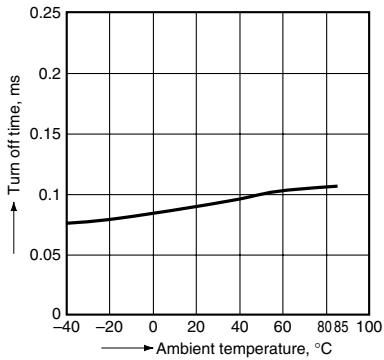
LED current: 5 mA; Load voltage: 80 V (DC);
Continuous load current: 70 mA (DC)



RF SOP 4 Form A C×R (AQS225R2S)

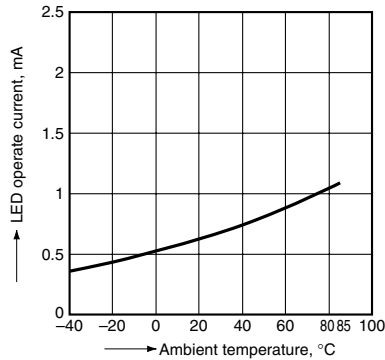
4. Turn off time vs. ambient temperature characteristics

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



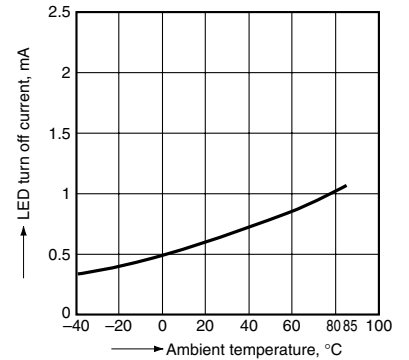
5. LED operate current vs. ambient temperature characteristics

Continuous load current: 70 mA (DC)



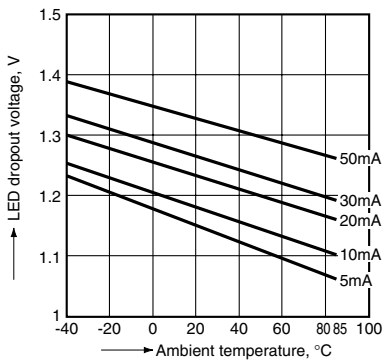
6. LED turn off current vs. ambient temperature characteristics

Continuous load current: 70 mA (DC)



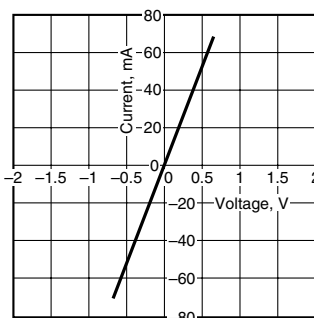
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



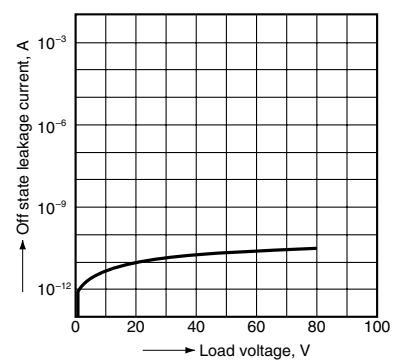
8. Current vs. voltage characteristics of output at MOS portion

Ambient temperature: 25°C 77°F



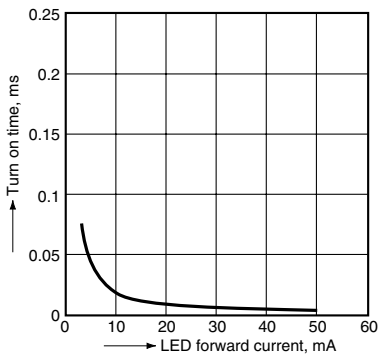
9. Off state leakage current vs. load voltage characteristics

Ambient temperature: 25°C 77°F



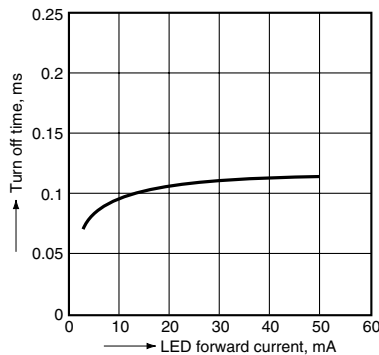
10. Turn on time vs. LED forward current characteristics

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



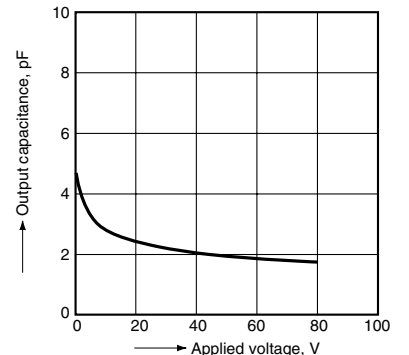
11. Turn off time vs. LED forward current characteristics

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



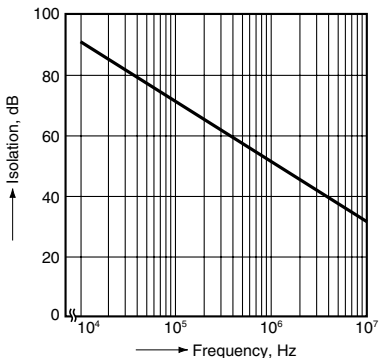
12. Output capacitance vs. applied voltage characteristics

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

