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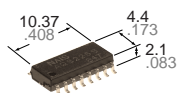
sales@integrated-circuit.com



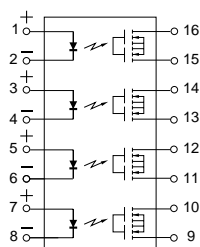
NAIS

RF (Radio Frequency) Type SOP Series 4-Channel (Form A) 16-pin Type

PhotoMOS RELAYS



mm inch



FEATURES

1. 4-channel(4 Form A) of RF PhotoMOS Relays

2. SO package 16-pin type in super miniature design

The device comes in a super-miniature SO package 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.

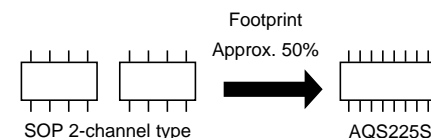
3. Applicable for 4 Form A use, as well as 4 independent 1 Form A

4. Low capacitance between output terminals ensure high response speed:

The capacitance between output terminals is small, typically 4.5pF. This enables for a fast operation speed of 0.1ms(typ.).

5. Low-level off state leakage current

6. Controls low-level analog signals
PhotoMOS relays feature extremely low closed-circuit offset voltage to enable control of low-level analog signals without distortion



TYPICAL APPLICATIONS

- Telephone and data communication equipment
- Measuring equipment
- Medical equipment
- Industrial equipment

TYPES

| Type | Output rating* | | Part No. | | Packing quantity in tape and reel |
|------------|----------------|--------------|--|---|-----------------------------------|
| | Load voltage | Load current | 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 type | 80 V | 50 mA | AQS225SX | AQS225SZ | 1,000 pcs. |

* Indicate the peak AC and DC values.

Notes: (1) Tape package is the standard packing style. Also available in tube. (Part No. suffix "X" or "Z" is not needed when ordering; Tube: 50 pcs.; Case: 1,000 pcs.)

(2) For space reasons, the package type indicator "X" and "Z" are omitted from the seal.

RATING

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

| Item | | Symbol | AQS225S | Remarks |
|-------------------------|-------------------------|-------------------|---------------------------------|--------------------------------------|
| Input | LED forward current | I _F | 50 mA | |
| | LED reverse voltage | V _R | 3 V | |
| | Peak forward current | I _{FP} | 1 A | f = 100 Hz, Duty factor = 0.1% |
| | Power dissipation | P _{in} | 75 mW | |
| Output | Load voltage | V _L | 80 V | |
| | Continuous load current | I _L | 0.05 A | |
| | Peak load current | I _{peak} | 0.15 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 | |

AQS225S

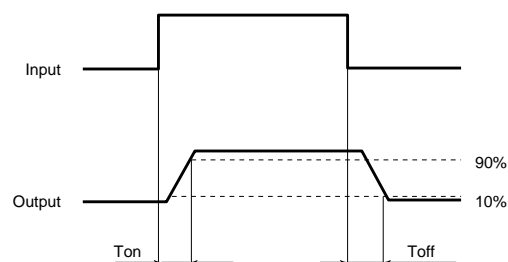
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

| Item | | Symbol | AQS225S | 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 | 1.14 (1.25 V at $I_F = 50\text{mA}$) | $I_F = 5\text{mA}$ |
| | Maximum | | 1.5 V | |
| Output | On resistance | Typical | 21Ω | $I_F = 5\text{mA}$ $I_L = \text{Max.}$ Within 1 s on time |
| | | Maximum | 35Ω | |
| | 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 | 30 pA | $I_F = 0$ $V_L = \text{Max.}$ |
| Maximum | | 10 nA | | |
| Transfer characteristics | Turn on time* | Typical | 0.1 ms | $I_F = 5\text{mA}$ $I_L = \text{Max.}$ |
| | | Maximum | 0.3 ms | |
| | Turn off time* | Typical | 0.03 ms | $I_F = 5\text{mA}$ $I_L = \text{Max.}$ |
| | | Maximum | 0.1 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 |

Note: Recommendable LED forward current $I_F = 5\text{mA}$.

For type of connection, see page 34.

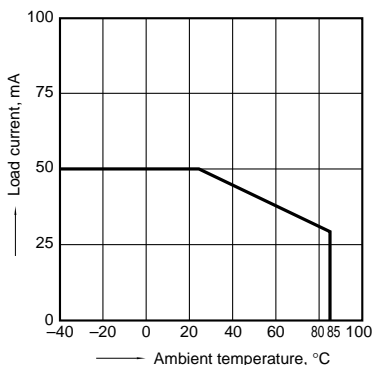
*Turn on/Turn off time



REFERENCE DATA

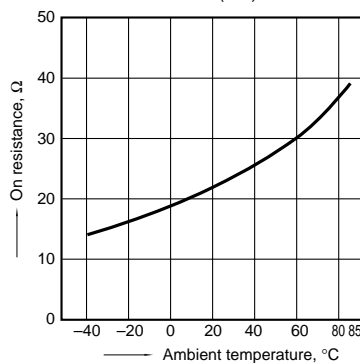
1. Load current vs. ambient temperature characteristics

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



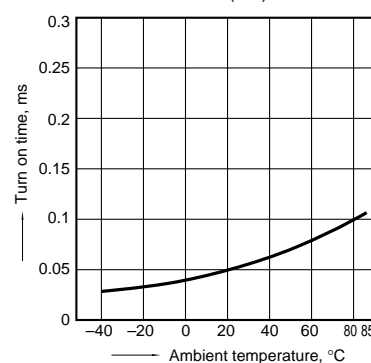
2. On resistance vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: Max. (DC);
Continuous load current: Max. (DC)



3. Turn on time vs. ambient temperature characteristics

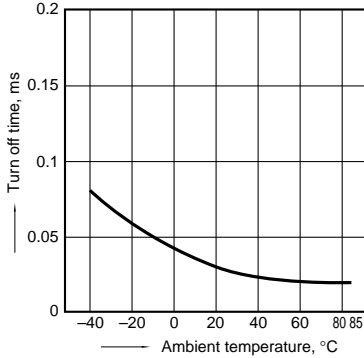
LED current: 5 mA; Load voltage: Max. (DC);
Continuous load current: Max. (DC)



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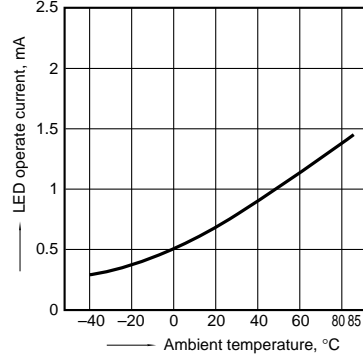
4. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: Max. (DC);
Continuous load current: Max. (DC)



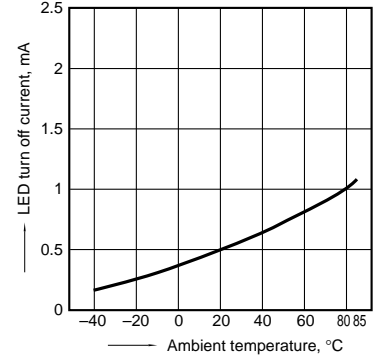
5. LED operate current vs. ambient temperature characteristics

Load voltage: Max. (DC);
Continuous load current: Max. (DC)



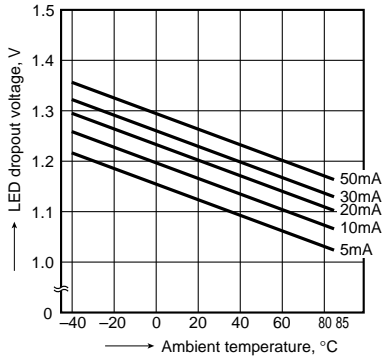
6. LED turn off current vs. ambient temperature characteristics

Load voltage: Max. (DC);
Continuous load current: Max. (DC)



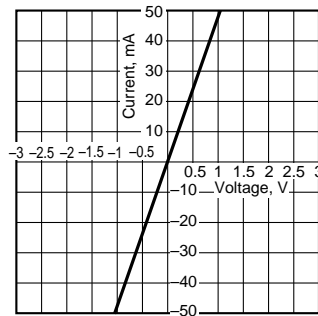
7. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



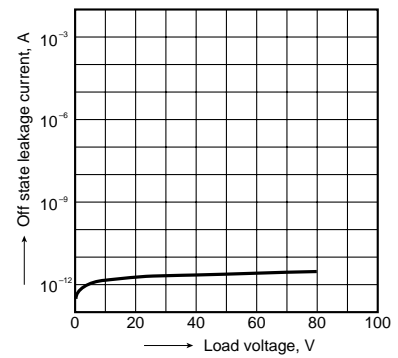
8. Voltage vs. current characteristics of output at MOS portion

Ambient temperature: 25°C 77°F



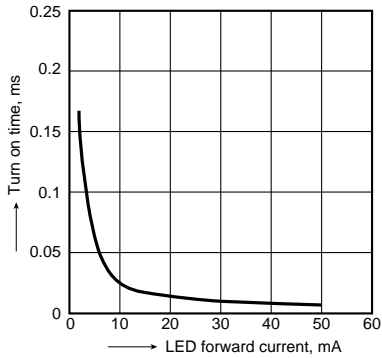
9. Off state leakage current

Ambient temperature: 25°C 77°F



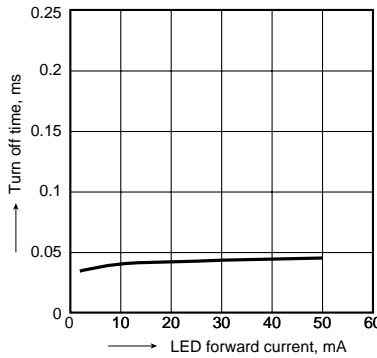
10. LED forward current vs. turn on time characteristics

Load voltage: Max. (DC); Continuous load current: Max. (DC); Ambient temperature: 25°C 77°F



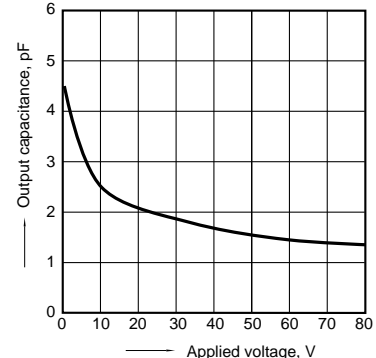
11. LED forward current vs. turn off time characteristics

Load voltage: Max. (DC); Continuous load current: Max. (DC); Ambient temperature: 25°C 77°F



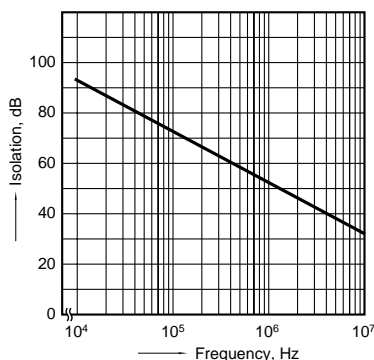
12. Applied voltage vs. output capacitance characteristics

Frequency: 1 MHz; Ambient temperature: 25°C 77°F



13. Isolation characteristics (50Ω impedance)

Ambient temperature: 25°C 77°F



14. Insertion loss characteristics (50Ω impedance)

Ambient temperature: 25°C 77°F

