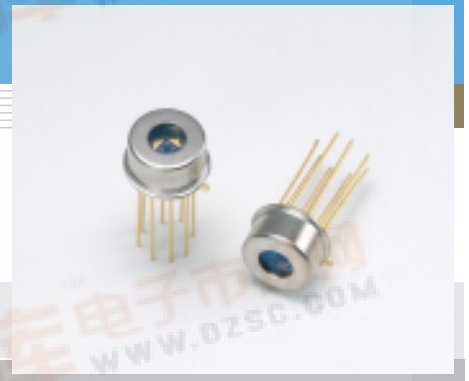


PHOTODIODE

Si APD S4402

φ1 mm quadrant APD



Features

- Uniform element characteristics
Quadrant format on one chip with φ1 mm active area ensures uniform characteristics between elements.
- Single power supply operation
Allows easy and simple operation.

Applications

- Low-light-level detection
- Laser beam positioning

■ General ratings

| Parameter | Symbol | Value | Unit |
|-----------------------|--------|----------------------|-----------------|
| Window material | - | Borosilicate glass | - |
| Active area size | A | φ1 mm/4 | mm |
| Effective active area | - | 0.17 (per 1 element) | mm ² |

■ Absolute maximum ratings

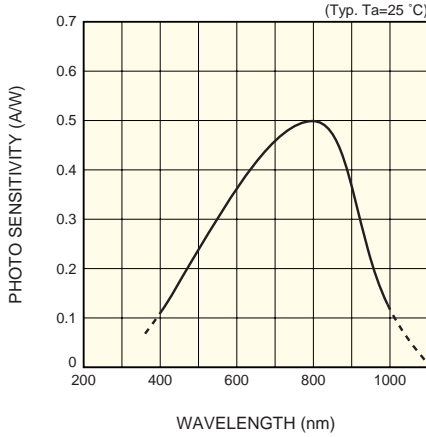
| Parameter | Symbol | Value | Unit |
|-----------------------|--------|-------------|------|
| Operating temperature | Topr | -20 to +60 | °C |
| Storage temperature | Tstg | -55 to +100 | °C |

■ Electrical and optical characteristics (Ta=25 °C)

| Parameter | Symbol | Condition | Min. | Typ. | Max. | Unit |
|--------------------------------|--------|-----------------------------------|------|-------------|------|------|
| Spectral response range | λ | | - | 400 to 1000 | - | nm |
| Peak sensitivity wavelength | λp | M=100 | - | 800 | - | nm |
| Photo sensitivity | S | λ=800 nm, M=1 | - | 0.5 | - | A/W |
| Quantum efficiency | QE | λ=800 nm, M=1 | - | 75 | - | % |
| Breakdown voltage | VBR | IR=100 μA | - | 150 | 200 | V |
| Temperature coefficient of VBR | - | | - | 0.65 | - | V/°C |
| Dark current | ID | M=100 | - | 0.4 | 2.0 | nA |
| Cut-off frequency | fc | M=100, λ=800 nm RL=50 Ω, -3 dB | - | 310 | - | MHz |
| Terminal capacitance | Ct | M=100, f=1 MHz | - | 8 | - | pF |
| Excess noise figure | x | M=50, f=10 kHz Io=10 nA | - | 0.35 | - | - |

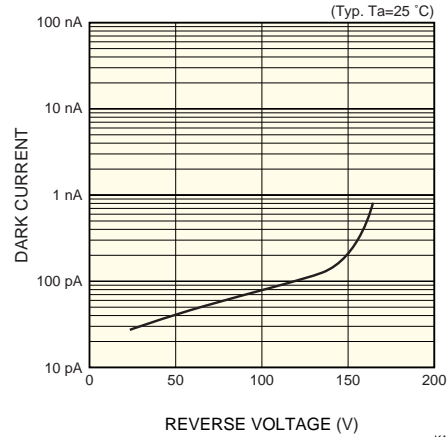


■ Spectral response



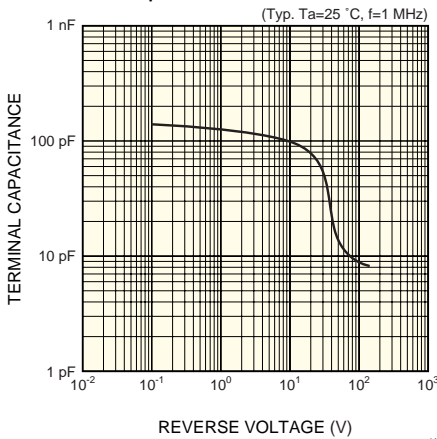
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■ Dark current vs. reverse voltage



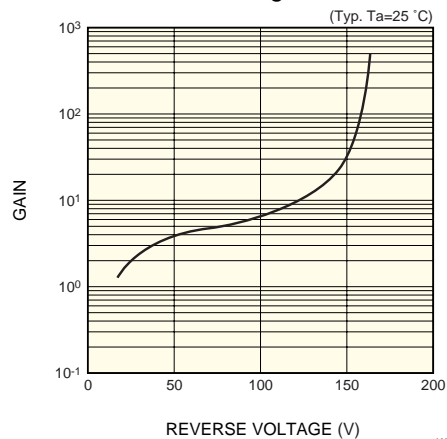
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■ Terminal capacitance vs. reverse voltage



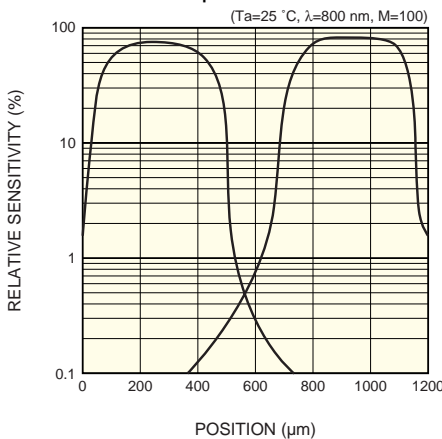
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■ Gain vs. reverse voltage



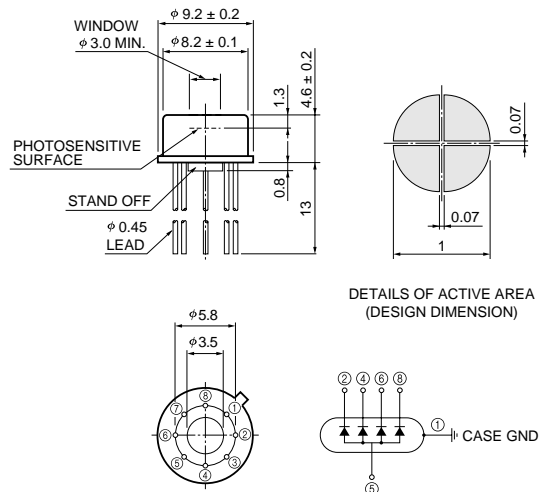
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■ Cross-talk example



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■ Dimensional outline (unit: mm)



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