

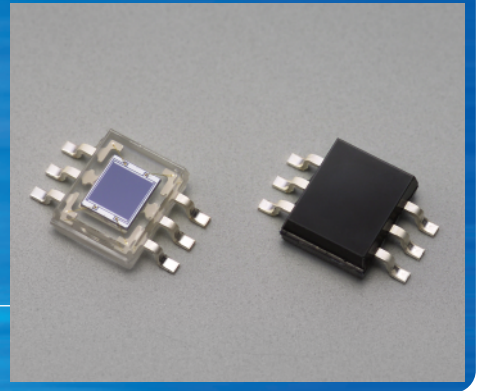
NEW

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P S D

Two-dimensional PSD S7848 series

Surface-mount, plastic package PSD



S7848 series is a 2-D PSD (Position Sensitive Detector) molded into a miniature surface-mountable plastic package. S7848 delivers excellent position detection characteristics.

Features

- Surface-mount package
- Excellent position detection characteristics
- Plastic package
- Active area: 2.0 × 2.0 mm

Applications

- Position or angle detection in optical equipment
- Optical remote control system
- Range finder
- Distortion and vibration measurement
- Laser system

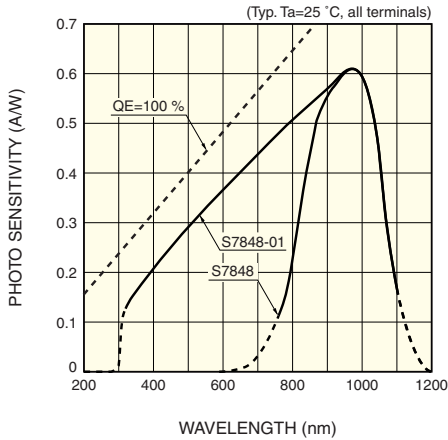
■ Absolute maximum ratings (Ta=25 °C)

| Parameter | Symbol | Value | Unit |
|-----------------------|---------------------|-------------|------|
| Reverse voltage | V _R Max. | 20 | V |
| Operating temperature | T _{opr} | -25 to +85 | °C |
| Storage temperature | T _{stg} | -40 to +100 | °C |

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

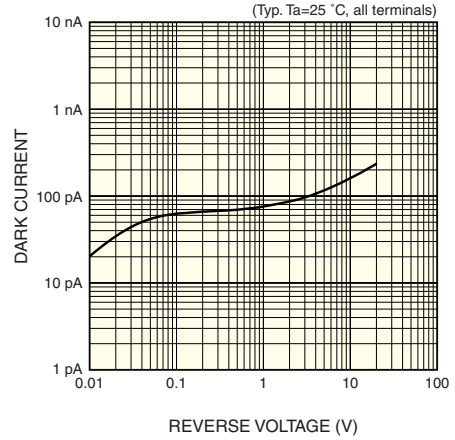
| Parameter | Symbol | Condition | S7848 | | | S7848-01 | | | Unit |
|---|------------------|--|-------|-------------|------|----------|-------------|------|------------|
| | | | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| Spectral response range | λ | | - | 760 to 1100 | - | - | 320 to 1100 | - | nm |
| Peak sensitivity wavelength | λ_p | | - | 960 | - | - | 960 | - | nm |
| Photo sensitivity | S | $\lambda = \lambda_p$, all terminals | - | 0.58 | - | - | 0.58 | - | A/W |
| Position detection error | E | V _R =1 V, λ =900 nm spot light size= ϕ 200 μ m \pm 75 % from center of active area | - | \pm 20 | - | - | \pm 20 | - | μ m |
| Interelectrode resistance | R _{ie} | V _b =0.1 V | 60 | 100 | 140 | 60 | 100 | 140 | k Ω |
| Dark current | I _D | V _R =1 V, all terminals | - | 0.1 | 10 | - | 0.1 | 10 | nA |
| Temperature coefficient of I _D | T _{CID} | | - | 1.15 | - | - | 1.15 | - | times/°C |
| Rise time | t _r | V _R =1 V, R _L =1 k Ω λ =900 nm, 10 to 90 % | - | 20 | - | - | 20 | - | μ s |
| Terminal capacitance | C _t | V _R =1 V, f=10 kHz all terminals | - | 80 | 150 | - | 80 | 150 | pF |
| Saturation photocurrent | I _{st} | V _R =1 V | 50 | 100 | - | 50 | 100 | - | μ A |

■ Spectral response



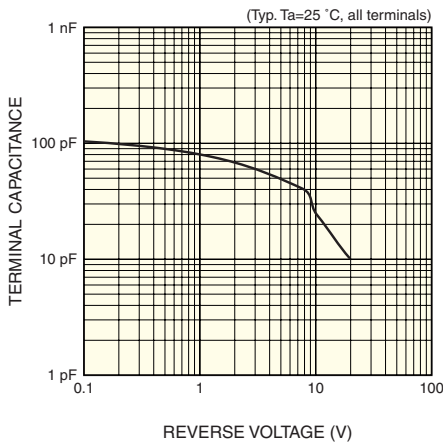
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■ Dark current vs. reverse voltage



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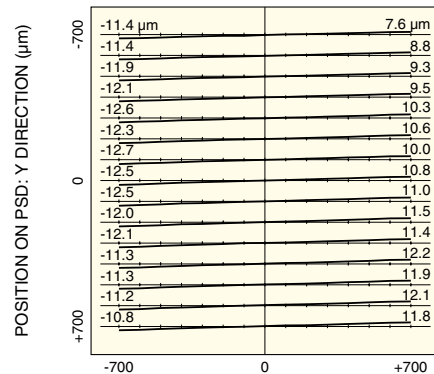
■ Terminal capacitance vs. reverse voltage



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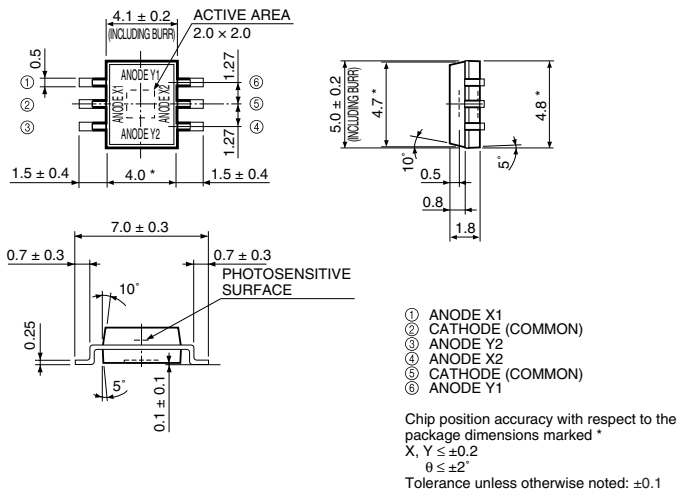
■ Position detection error example

X direction



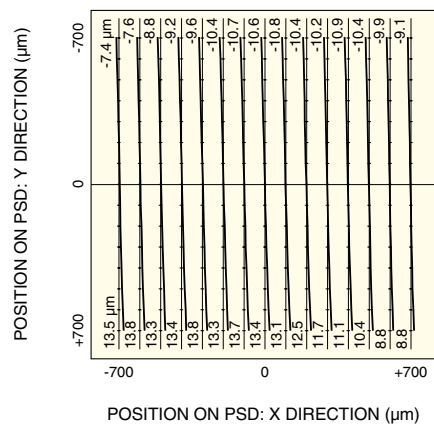
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■ Dimensional outline (unit: mm)



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Y direction



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