

P-TYPE SILICON PIN PHOTODIODE FD5P



PIN photodiode FD5P is optimized for detection of radiation at 1060 nm. A photodiode illuminated by visible and near infrared light behaves as a current source with photocurrent proportional to the power of detected radiation. Reverse bias increases parallel internal resistance and capacity of diode. Decrease of capacity and of load resistance R_L decreases response time. Low capacity with relatively low bias is achieved by using extremely pure, high resistance silicon for the base I-region of the diode ($> 10 \text{ k}\Omega\text{cm}$). Background radiation flux increases noise current, thus filters or darkening are recommended to decrease this radiation.

FEATURES

- Guard ring construction
- Peak responsivity at 1060nm
- Short response time
- Low capacity
- Low noise
- Low dark current
- Wide spectral range
- Linearity over wide spectral range
- High reliability
- Fast delivery

APPLICATION

- NdYAG laser pulse detection
- Guidance, tracking and aligning
- Alarm systems
- Optical pyrometers
- Precision light meters

SPECIFICATIONS

Ambient temperature 25°C, DC reverse operating voltage 200V

| Parameter | typical | min | max | Upon request, up to | Note |
|---|---------|------|-----|------------------------|---|
| Breakdown voltage (V) | 400 | 250 | | >450 | 1 μ A |
| Dark current (nA) | 20 | | 50 | <10 | |
| Responsivity at 900 nm (A/W) | 0.6 | 0.5 | | 0.65 | |
| Responsivity at 1060 nm (A/W) | 0.45 | 0.40 | | | |
| NEP at 900nm ($\times 10^{-12}$ W/Hz ^{1/2}) | <1.5 | | 10 | <1 | |
| NEP at 1060nm ($\times 10^{-12}$ W/Hz ^{1/2}) | <2.5 | | 15 | <1.5 | |
| Capacitance (pF) | 2.8 | | 3.0 | <2.65 | 1 MHz |
| Response time (ns) | 11 | | | | 900 nm, R=50 Ω , 50% |
| Approx. full angle for totally illuminated active area ($^{\circ}$) | 61 | | | | The values are dependent on dimensional tolerances of the package |
| Approx. full angle for partially illuminated active area ($^{\circ}$) | 107 | | | | The values are dependent on dimensional tolerances of the package |
| Active area (mm ²) | 5 | | | | |

