

FCI-InGaAs-QXXX

Large Active Area InGaAs Quadrants

FCI-InGaAs-QXXX series are large active area InGaAs photodiodes segmented into four separate active areas. These photodiodes come in 1mm and 3mm active area diameter. The InGaAs Quad series with high response uniformity and the low cross talk between the elements are ideal for accurate nulling or centering applications as well as beam profiling applications. They exhibit excellent responsivity from 1100nm to 1620nm, and are stable over time and temperature, and fast response times necessary for high speed or pulse operation. The photodiodes are packaged in isolated TO-5 or TO-8 cans with a broadband double sided AR coated flat window, and also can be mounted on ceramic substrate per request.



APPLICATIONS

- Position Sensing
- Beam Alignment
- Beam Profiling

FEATURES

- High Responsivity
- Low Noise
- Spectral Range 900nm to 1700nm
- Low Crosstalk
- Wide Field of View

Absolute Maximum Ratings

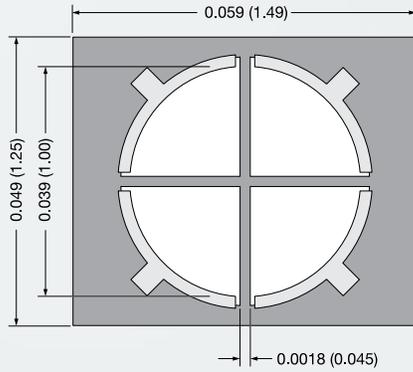
| PARAMETERS | SYMBOL | MIN | MAX | UNITS |
|-----------------------|------------|-----|------|-------|
| Storage Temperature | T_{stg} | -55 | +125 | °C |
| Operating Temperature | T_{op} | -40 | +75 | °C |
| Soldering Temperature | T_{slid} | --- | +260 | °C |

Electro-Optical Characteristics (per 1 element)

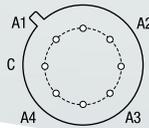
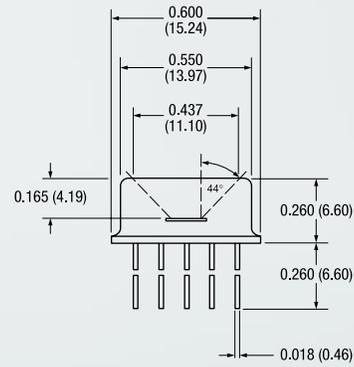
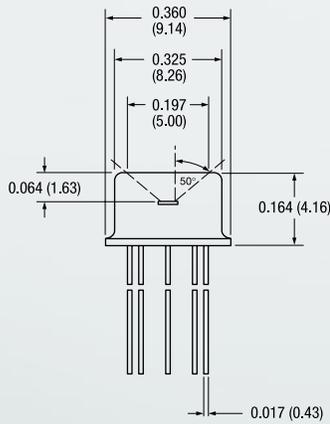
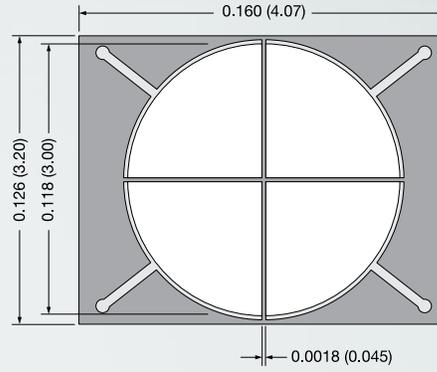
$T_A = 23^\circ\text{C}$

| PARAMETERS | SYMBOL | CONDITIONS | FCI-InGaAs-Q1000 | | | FCI-InGaAs-Q3000 | | | UNITS |
|-------------------------|-------------|---|------------------|----------|-----|------------------|----------|-----|---------------|
| | | | MIN | TYP | MAX | MIN | TYP | MAX | |
| Active Area Diameter | AA_ϕ | --- | --- | 1000 | --- | --- | 3000 | --- | μm |
| Responsivity | R_λ | $\lambda = 1310\text{nm}$ | 0.85 | 0.90 | --- | 0.85 | 0.90 | --- | A/W |
| | | $\lambda = 1550\text{nm}$ | 0.90 | 0.95 | --- | 0.90 | 0.95 | --- | |
| Element Gap | --- | --- | --- | 0.045 | --- | --- | 0.045 | --- | mm |
| Capacitance | C_j | $V_R = 5.0\text{V}$ | --- | --- | 25 | --- | --- | 225 | pF |
| Dark Current | I_d | $V_R = 5.0\text{V}$ | --- | 0.5 | 15 | --- | 2.0 | 100 | nA |
| Rise Time/ Fall Time | t_r/t_f | $V_R = 5.0\text{V}, 50\Omega$ 10% to 90% | --- | 3 | --- | --- | 24 | --- | ns |
| Crosstalk | --- | $\lambda = 1550\text{nm},$ $V_R = 5.0\text{V}$ | --- | --- | 1 | --- | --- | 1 | % |
| Max. Reverse Voltage | --- | --- | --- | --- | 15 | --- | --- | 10 | V |
| NEP | --- | $\lambda = 1550\text{nm}$ | --- | 1.20E-14 | --- | --- | 2.50E-14 | --- | W/√Hz |

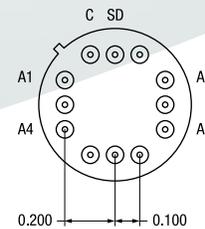
InGaAs-Q1000



InGaAs-Q3000



Pin Circle Dia.=0.230
Bottom View



Bottom View

Pinout

| PIN | Description |
|-----|------------------|
| A1 | ANODE QUADRANT 1 |
| A2 | ANODE QUADRANT 2 |
| A3 | ANODE QUADRANT 3 |
| A4 | ANODE QUADRANT 4 |
| C | COMMON CATHODE |

Pinout

| PIN | Description |
|-----|------------------|
| A1 | ANODE QUADRANT 1 |
| A2 | ANODE QUADRANT 2 |
| A3 | ANODE QUADRANT 3 |
| A4 | ANODE QUADRANT 4 |
| C | COMMON CATHODE |
| SD | SUCTION DIODE |

Notes:

- All units in inches (mm).