

QDY80P P-TYPE SILICON PIN QUADRANT PHOTODIODE



Quadrant PIN photodiode QDY80P 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 decreases 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. Influences of transition area width and cross-talk influence are minimized.

FEATURES

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

APPLICATIONS

- Nd YAG laser pulse detection
- Navigation
- Tracking and aligning

TEHNICAL CHARACTERISTICS

- At 25°C, DC reverse bias 170V. Values are given per quadrant.

Parameter	typical	min	max	Request	Operating condition
Breakdown voltage (V)		250		>300	1 μ A
Dark current (nA)	100		1000	50	
Responsivity at 900 nm (A/W)	0.6	0.5		0.65	
Responsivity at 1060 nm (A/W)	0.45	0.40			
NEP at 900 nm ($\times 10^{-11}$ W/Hz ^{1/2})	5		40	2	
NEP at 1060 nm ($\times 10^{-11}$ W/Hz ^{1/2})	7		60	3	
Capacitance (pF)	7		9		1 MHz
Response time (ns)	12				1060 nm, R=50 Ω , 10%-90%
Approx. full angle for totally illuminated active area (°)	51				The values are dependent on dimensional tolerances of the package
Approx. full angle for partially illuminated active area(°)	124				The values are dependent on dimensional tolerances of the package
Active area (mm ²)	80				Total for all quadrants
Uniformity (%)	1		2		
Cross talk (%)	2		3		

