

Photodiode Parameters

Quantum Efficiency and Responsivity

- Quantum Efficiency Q is the fraction of photons converted to charge carriers. It is affected by factors such as absorption layer thickness, AR coating, etc.
- Responsivity R is an easily measurable quantity that gives the current due to photogenerated carriers for a given optical input power. R is measured in amps per watt (A/W).

$$R = Q \frac{\lambda (\mu m)}{1.24 (eV)}$$

Example: Maximum responsivity without gain is 1.25 A/W at 1550nm, while it is 0.68 A/W at 850nm.