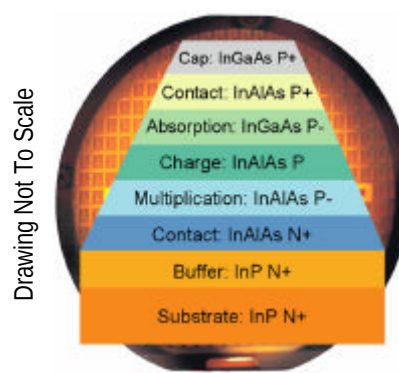


043645-2: 2.5Gb/s Low Capacitance InAlAs/InGaAs APD Die

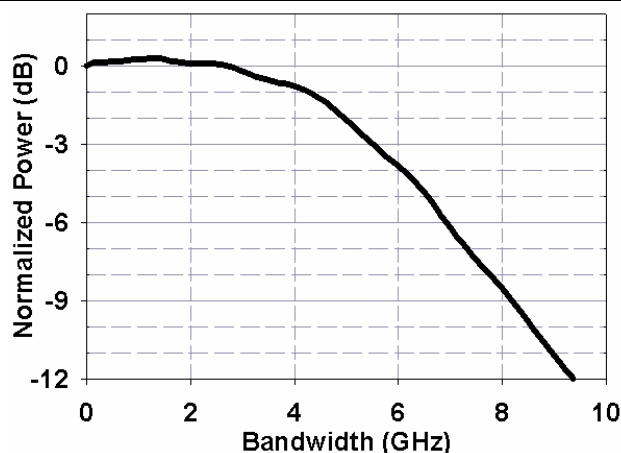
General Product Description

- High-quality epitaxial InGaAs/InAlAs avalanche photodetector (APD) device structures grown on InP substrates by MOVPE.
- 10 Gb/s device designs available.
- Spectrolab offers high-quality InGaAs ($1.0\ \mu\text{m}$ – $1.7\ \mu\text{m}$) avalanche photodetector epitaxial structures for the telecommunication market.
- The epitaxial structure is grown in Spectrolab's high-volume multi-wafer MOVPE reactors.
- Low capacitance dies are under development.

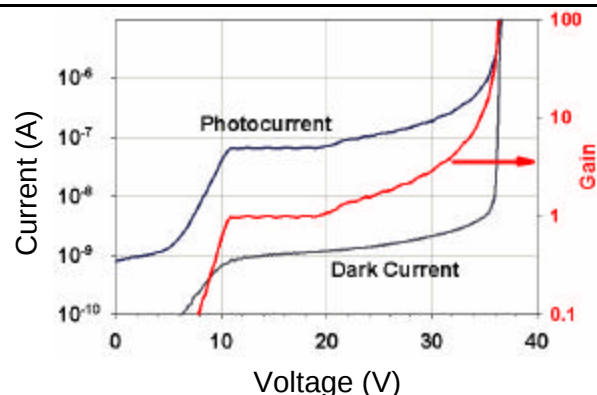


InAlAs APD Photodetector Die Structure

Frequency Response of 2.5Gb/s APD Die



InAlAs APD Die IV Data & Gain



2.5 Gb/s APD Specifications

Parameter	Test Conditions at: $0^{\circ}\text{C} < T_{\text{ambient}} < 85^{\circ}\text{C}$ (Unless Specified)	Min.	Max.	Unit
APD Responsivity	$\lambda = 1530$ to $1615\ \text{nm}$ at $M = 10$ $\lambda = 1260$ to $1330\ \text{nm}$ at $M = 10$	7.0 6.0	9.0 8.0	A / W A / W
APD Breakdown Voltage, V_{br}	$I_{\text{d}} = 100\ \mu\text{A}$	30	40	V
Dark Current at $M = 10$	$T_{\text{a}} = 25^{\circ}\text{C}$	5	20	nA
Total APD Capacitance	$F = 1\ \text{MHz}$ at $M > 3$	0.3	0.5	pF
High Frequency Cut-Off	$R_{\text{L}} = 50\ \Omega$, $3 < M < 10$ Ref. To 200 MHz	2	-	GHz
Bandwidth Flatness	$R_{\text{L}} = 50\ \Omega$, $3 < M < 10$, $0.2 < F < 8\ \text{GHz}$	-1.0	+1.0	dB
Noise Equivalent Power	$\lambda = 1550\ \text{nm}$, $M = 10$	3×10^{-14}	1×10^{-13}	W / $\sqrt{\text{Hz}}$
Effective Optical Diameter	$\lambda = 1550\ \text{nm}$, $M = 10$; $R > 7.0\ \text{A / W}$, $P_{\text{in}} = -20\text{dBm}$	40	40	μm

The information contained on this sheet is for reference only. Actual specifications for delivered products may vary. 6/6/06

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