

40 GHz Photodetector Chip



Email: info@liniobate.com.com



Phone: (+65) 31638599



Company Address: 288 Woodlands Loop #04-00, Singapore 738100



www.liniobate.com

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Power Next Gen Photon

Overview

High-speed photodetector modules are of interest for the development of next-generation optical communication links in datacom and telecom. Since these R&D links are always a step ahead in terms of symbol rates, photodetector modules with a RF bandwidth beyond state-of-the-art are needed at the receiver side. Furthermore, the high-speed performance of the photodetector modules makes them applicable to microwave photonics. The photodetector chips inside the modules are based on mature InP technology and are fabricated at the wafer process line of offering Telcordia and space-qualified processes. The chips are packaged at Fraunhofer HHI facilities.

Test conditions: 25 ° C, unless otherwise specified

Parameters	Symbol	Test condition	Min.	Typ.	Max.	Unit
Operating Temperature	TO		0		75	°C
Storage Temperature	Ts		-40		85	°C
Operating Wavelength	λ		1550			nm
Bias Voltage	Vb		3	5	9	V
Active Area Diameter	Φ			16		μm
Saturation Optical Power	Ps	$\lambda = 1550 \text{ nm}, Vb = 5 \text{ V}$		10		dBm
Responsivity	R	$\lambda = 1550 \text{ nm}, Vb = 5 \text{ V}$		0.8		A/W
Dark Current	Id	$Vb = 5 \text{ V}$		0.5		nA
3dB Bandwidth	BW	$P_{s,o} = 5 \text{ mW}, Vb = 5 \text{ V}$		40		GHz

Bandwidth and Responsivity value test

O/E Bandwidth Log Magnitude Plot

