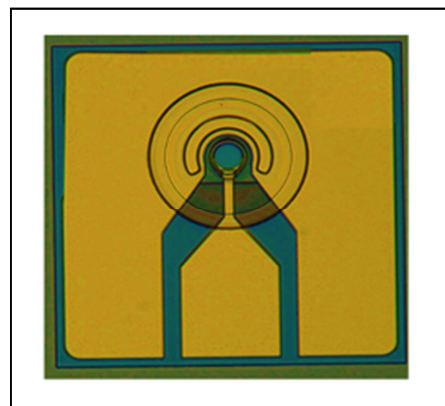


High Speed 840–1650 nm Photodetector up to 112 Gbit/s

Product Code: Dxx-BROAD-C1 1x1
Dxx-BROAD-C4 4x1



Sample image only. Actual product may vary.

Product Description

These multi- and single-mode compatible high-speed top-illuminated InP-based pin photodetector chips are aimed for the development and production of present and next-generation optical data communication links. These PDs are available as individual chips and 4-ch chip arrays with 250 µm pitch, allowing alignment both to MMF array connectors and to single-mode fiber or multi-mode fibers. The chips can be wire bonded or flip-chip stud bonded. A preliminary reliability report that confirms >10 years of operation can be supplied upon request.

Features

- Qualified reliability
- 20 to 25 µm aperture diameter
- Single chip or 4-ch chip array
- Up to 112 Gbit/s PAM4 per channel
- High temperature stability

Applications

- Active Optical Cables (AOC)
- SWDM Optical Interconnects
- Chip-to-Chip Interconnects

Parameter	Typical	Notes
Operating Wavelength	840 - 1650 nm	20-25 µm aperture
Data Rate	up to 112 Gbit/s per channel	DMT or PAM-4
Responsivity	min 0.5 A/W	850nm
Small signal -3dBo bandwidth	> 30 GHz	typ.

Electro Optical Specifications for standard 20 μm chip (T = 0 to 85°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Data bit rate	BR	PAM-4			112	Gbit/s
-3dB bandwidth	BW_{f3dB}			30		GHz
Operating wavelength	λ		840		1650	nm
Responsivity	R	850 nm	0.50	0.50		A/W
	R	880 nm	0.50	0.52		A/W
	R	910 nm	0.50	0.54		A/W
	R	940 nm	0.50	0.56		A/W
	R	1310 nm*	0.70	0.75		A/W
	R	1550 nm*	0.70	0.75		A/W
Dark current	I_D	$V_{Bias} = -5\text{ V}$		3		nA
Capacitance	C	-5V 1 MHz		0.08		pF

*anti-reflection coating is optimized for <1% reflectivity within the range 840 nm -950 nm

Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Max	Unit
Operating temperature	T_{op}		-20	85	°C
Storage temperature	T_{st}		-40	125	°C
Soldering temperature	T_{sl}	10 sec		260	°C

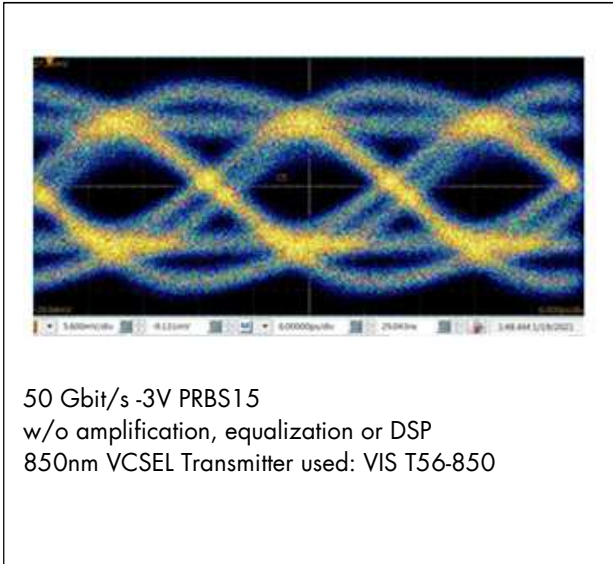
Mechanical Dimensions

Parameter	Type	Min	Typ	Max	Unit
Length	Dxx-BROAD-C1		250	260	μm
	Dxx-BROAD-C4		1000	1040	μm
Height			150		μm
Width			250	260	

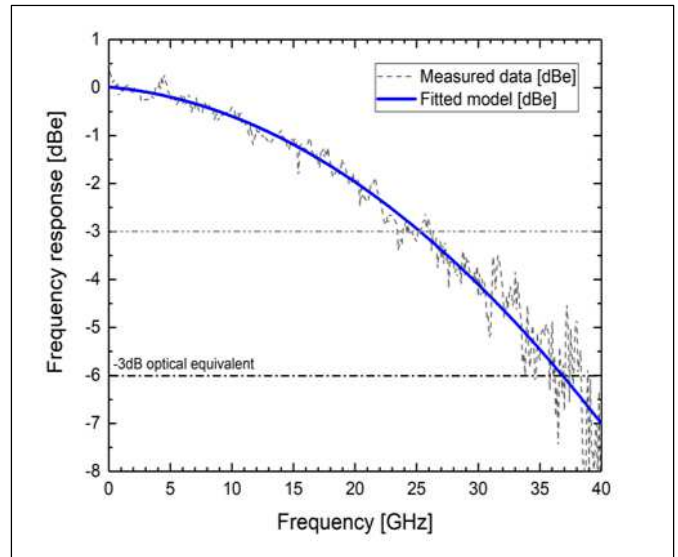
All product specifications and descriptions are subject to change without notice.

Dxx-BROAD-xx

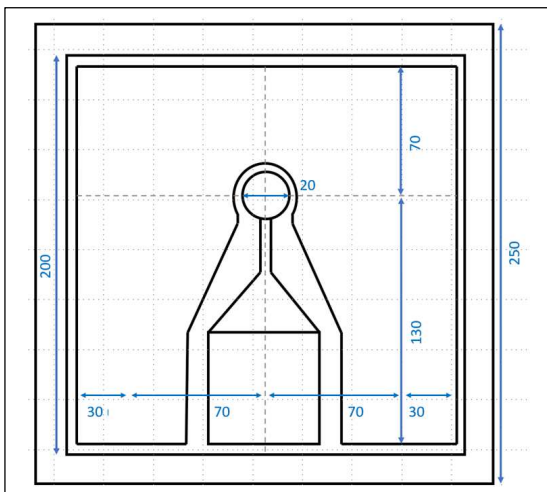
NRZ application performance (20 μm)



Frequency response graph (20 μm)



Dimensions (20 μm)



Available variations:

Equivalent Aperture diameter	Active area	Optical -3dB Bandwidth	Note	Product ID
~20 μm	~315 μm^2	40 GHz	Contact shape A	D40-BROAD-Cxx
~23 μm	~425 μm^2	30 GHz	Contact shape B	D30-BROAD-Cxx
~24 μm	~455 μm^2	25 GHz	Contact shape C	D25-BROAD-Cxx

Contact Shapes:



A



B



C

Qualification Notification

The Dxx-BROAD-Cxx chips have been tested to meet the specifications outlined in this datasheet. Qualification testing is performed up to 3000h at 125 °C -2.5 V at no degradation of dark current. Reliability report is sent complementary to the data sheet.



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