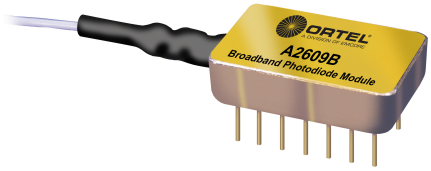
2609B Broadband Photodiode Module



The 2609B is a packaged impedance-matched photodiode module with internal gain designed for use in optical broadband receivers in fiberoptic networks. The patented impedance-match technology results in improved gain-bandwidth product compared to external circuits due to better control of parasitics between the photodiode and the impedance-matching circuit.

Features

- Flat response to ± 0.5 dB
- Frequency response up to 860 MHz
- High Responsivity
  - >0.85A/W at 1310 nm
  - >0.95 A/W at 1550 nm
- Internal current gain, 6 dB (typ.)
- 75 Ω impedance-matched

Applications

- Broadband CATV receivers

PIN Information

Table 1. Pin Descriptions

Pin No.	Description
1	Ground
2	Ground
3	Ground
4	Ground
5	Ground
6	Ground
7	Open
8	Open
9	RF Out
10	Ground
11	Bias
12	Ground
13	Open
14	Ground

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Min	Max	Unit
Operating case temperature range	T_C	-40	85	℃
Storage temperature range	T_{stg}	-40	85	℃
Optical Input Power	P_{IN}	--	2	mW
Bias Voltage	V_{PD}	--	20	V
Forward Current	I_F	--	10	mA

Characteristics

Note: These product specifications describe warranted performance. Typical values provide expected levels of performance but are not guaranteed.

Table 2. Electrical/Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Optical Wavelength Range	λ	1280	--	1580	nm
Responsivity	--	-- --	>0.85 at 1310 nm >0.95 at 1550 nm	-- --	mA/mW mA/mW
Optical Return Loss[1]	RL	--	>45	--	dB
Bias Voltage	--	--	15 (nominal)	--	V
Dark Current	I_D	--	200 at 20 ℃	--	nA

1. Without connector

Table 3. RF Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Frequency Range	F	40	--	860	MHz
Gain[1]	G	--	>5	--	dB
Frequency Response	--	--	<± 0.5	--	dB
Receiver Noise	--	See Figure 1.			
Distortion Products[2] Second Order Third Order	 CSO CTB	 -- --	 <-70 <-80	 -- --	 dBc dBc

1. Current gain of internal transformer circuit
2. Two laser test. Each laser has 40% modulation index. Total received optical power is 0 dBm. Distortion products measured at 80 MHz, 450 MHz, 600 MHz, and 850 MHz

Characteristics Curves

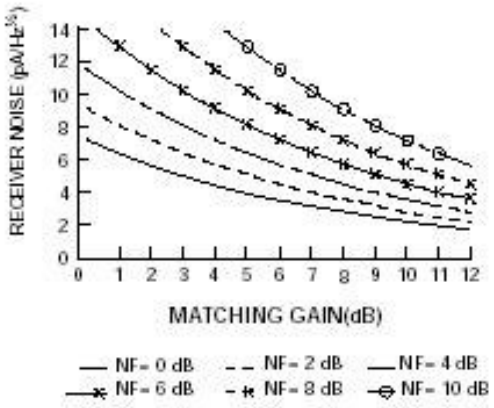


Figure 1. Receiver Noise

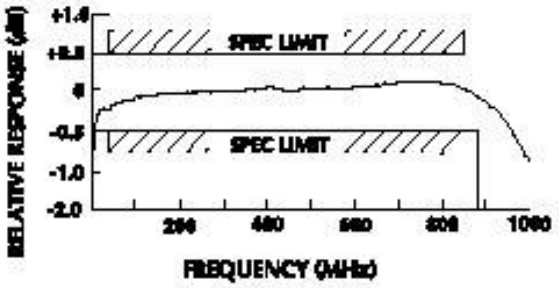
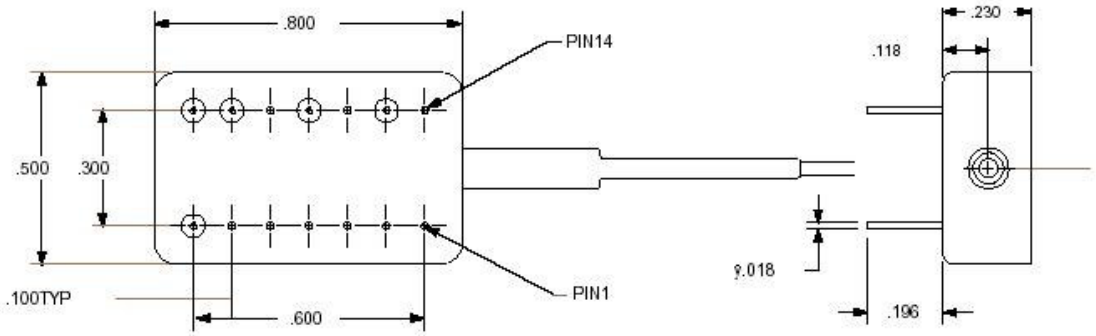


Figure 2. Typical Frequency Response Measured into a 75 Ω Load, VSWR <1.5

Outline Diagram

Dimensions are in inches.



Ordering Information

Contact Ortel, a division of EMCORE, for ordering information on this or any other product at (626) 293-3400

Table 2. Ordering Information

Device Code	Description	Connector	Pigtail
2609B	Broadband Photodiode Module	None	Singlemode, 9 µm/125 µm 2 m-3 m

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