45GHz Microwave Photonics Receiver



Overview

LD-PD manufactures a wide range of component photoreceivers with wide bandwidths up to 45 GHz. The MPR0045 Microwave Photonics Receiver extends link response to greater than 30 GHz via direct optical-to-analog RF conversion for signal remoting, communications, radar and information processing applications.

The unit consists of a high speed InGaAs PIN photodiode coupled to the RF output connector. It includes internal bias decoupling and can operate over a wide range of supply voltages (+3 to +15V). The detector response covers 1300 to 1600 nm. It is pigtailed with 900μm jacketed, single mode (ITU-T G.652.D compliant) fiber and can be terminated with a variety of optical connector options. The entire unit is contained in a sealed housing and weighs less than 25 grams.

Key Parameter

Main Characteristics

Parameters	Symbol	Test Conditions	Specifications	Units
Resposivity	Re	VR=5V, λ=1.55μm, Pin=1mW	≥0.7	A/W
3dB bandwidth	f3dB	VR=5V, λ=1.55μm, Pin=1mW, RFin=-10dB	DC～45	GHz
Dark Current	ID	VR=5V, Pin=0mW	≤20	nA
Saturated input optical power	PS	VR=5V, λ=1.55μm, fc=4 GHz, RFin=-10dB	8	dBm

Absolute maximum rating

Parameters		Values	Units
Storage temperature range	TSTG	-45～+85	℃
Operating temperature range2	TC	-40～+70	℃
Bias voltage	VR	≤9	V
Input power1	Pin（VR=5V）	≤20	mW

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Welding Temperature	Tsolder	260（10s）	℃
Electrostatic discharge sensitivity	ESD	≥250	V

Recommended Operation Conditions

Parameters	Symbol	Values	Units
Bias voltage	VR	3~5	V
Input Optical power	Pin	1~8	mW

Mechanical Characteristics

RF Connector	3.5 mm (SMA) female
Fiber Pigtail	G.652.D, single mode 900um buffer, 1m typ3
Fiber Connector	FC/APC4
Bias Connectors	0.018" dia. Kovar pins with Sn/Pb coating
Max Weight (Grams)	25

Note:

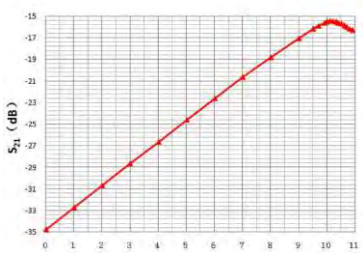
1. Exceeding maximum optical input power may damage the device.
2. Military temperature range available. Consult factory.
3. Other fiber options available. Consult factory.
4. Other connector options available. Consult factory.

Typical Link Response



Typical frequency response s21

Input Saturation optical power curve



(Optical Power UNIT:dBm)