

RF OVER FIBER OPTIC LINK

OZ516 - Ultra Broadband Pluggable 6GHz Tx/Rx



Features

- 20 MHz to 6GHz Bandwidth
- Approx. Size: 1.5 x 2.5 x 0.6 in.
- -20°C to +75°C Operating Temperature Range
- LD/PD Monitoring & Alarm
- High SFDR
- Automatic Optical Power Control
- 1.3 µm Low Noise FP Lasers
- Laser conforms to Class 1 Laser Safety, EN60825-1:2007.

Options

- CWDM Grade
- Extended Bandwidth of 10 KHz to 6 GHz
- Extended Temperature from -40°C to +75°C
- Built-in Low Noise Amplifier in the Tx Module

Applications

- LTE-U and Wi-Fi 802.11a
- 5G sub 6GHz bands
- CBRS 3.5GHz
- 4G LTE Cellular Backhaul
- In-Building DAS Solutions
- GPS Distribution
- MMDS
- Remote Antenna Location
- Satcom
- Avionics
- Timing Delay

<u>OZ516</u>

Description

The OZ516 Series is an Ultra Broadband RFoF (UB-RFoF), with individual Tx and Rxmodules providing cost-effective high-performance transport over RF over FiberOptics (RFoF) applications. These Links with bandwidths of up to 6GHz have HighhighSpurious Free Dynamic Range (SFDR) supporting applications such as CBRSLTE-U, 802.11a and, as well as, other wireless standards within the 6 GHz band.The OurUB-RFoF series of our Linear Analog Links are designed as compact RF pluginModules for Single Mode Fiber operation. They are designed to be compactwith built in RF shield to support low EMI/RF interference for Single Mode Fiberapplications. The standard optical connector is SC/APC (FC/APC is also available) for lowback reflection applications. The Receiver features a high performance InGaAsphotodiode and the Transmitter is based upon a linear lisolated DFB Laser atwavelengths of 1310nm, 1550nm or CWDM grade. Average Automatic PowerControl (AAPC) is incorporated for optimal optical power stability over the fulltemperature range. The RF interface is via a 50 Ohms SMA connector.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units
Storage Temperature (Case)	T ₅	-40	+85	°C
Operating Temperature (Case) 1310nm (-20C for 1550nm lasers)	Τ _ο	-40	+75	°C
DC Supply Voltage	$V_{\rm cc}$	11.5	12.5	Volts
Maximum RF Input into TX (no LNA)			+17	dBm
Maximum RF Input into TX (with LNA)			+5	dBm
Maximum Optical Input into Rx			12	mW



Characteristics of OZ516

Parameter	Symbol	Min	Typical	Max	Units	Notes
Power Supply Voltage	VCC		+12		Volts	
Power Supply Current TX	ICCtx		80	95	mA	2
Power Supply Current TX (with LNA)	ICCtx		150	180	mA	9
Power Supply Current RX	ICCrx		140	180	mA	2
Laser Optical Output Power TX (λ dependent)		2	3	6	mW	
Transmitter Operating Wavelength	λ	1270	1310 or 1550	1610	nm	3
Receiver Operating Wavelength	λ	1270		1610	nm	
High Frequency Cutoff	HFC		6000		MHz	4
Low Frequency Cutoff	LFC	20	30		MHz	5
Frequency Response (20 - 3000 MHz)			+/- 1.5		dB	
Frequency Response (20 - 3000 MHz) (with LNA)			+/- 1.75		dB	6
Frequency Response (20 - 6000 MHz)			+/- 2.5		dB	
Input/Output Impedance	Z		50		Ohms	
Input/Output VSWR (20 - 3000 MHz)			1.6:1	1.8:1		
Input/Output VSWR (3000 - 6000 MHz)			1.8:1	2.2:1		
RF Link Gain (20 - 6000 MHz)		-2	0	+2	dB	7
RF Link Gain (20 - 6000 MHz) (with LNA)		14	16	18	dB	7
Input Noise Floor, measured @ 1GHz	EIN		-133	-128	dBm-Hz	
Input Noise Floor, measured @ 1GHz (with LNA)	EIN		-149	-145	dBm-Hz	
Input Noise Floor, measured @ 6GHz	EIN		-124	-117	dBm-Hz	
Input Noise Floor, measured @ 6GHz (with LNA)	EIN		-140	-137	dBm-Hz	
Input Third Order Intercept @ 1GHz	IIP3	+26	+28		dBm	8
Input Third Order Intercept @ 1GHz (with LNA)	IIP3	8	10		dBm	8
Input Third Order Intercept @ 6GHz	IIP3	+16	+19		dBm	8
Input Third Order Intercept @ 6GHz (with LNA)	IIP3	0	2		dBm	
Group Delay TX/RX Link electronics only	GD		0.5	1	nS	

¹ Contact Factory for Limiter option for Higher Max Power Rating.

² Lower operating Voltage (+5 V) and Current Consumption for both Transmitter and Receiver available. Contact Factory for more details.

³ CWDM grade Transmitters, Operational Temperature is from -20°C to +75°C.

⁴ Typically -5 dB tilt from 3GHz to 6Ghz. Flatter frequency response available. Contact Factory for more details.

- ⁵ Higher (LFC) like 500 MHz is optional. For lower LFC, contact Factory.
- ⁶ The Frequency Response from 50 MHz to 2.GHz is typically better than + 1.5dB.
- ⁷ Measured with 1 meter of Single Mode Fiber.

^a Measured 1 meter of Single Mode Fiber and two-tone tests, each tone at 0 dBm at Receiver output.



PIN Assignments

Pin	Тх	Rx	Pin	Тх	Rx
1	Laser Enable (+12V)	NC	2	NC	NC
3	Ground	Ground	4	NC	NC
5	+12 Volts	+12 Volts	6	NC	NC
7	Tx Monitor (0.1V/ 1mA)	Rx Monitor (0.1V/1mW)	8	NC	NC
9	Tx Alarm Open Collector	Rx Alarm Open Collector	10	NC	NC

RF Connectors = SMB PCB mount plug/jack or SMA Plug Horizontal Optical Connectors = SC / APC (Optional FC /

APC or LC / APC)

Supply + Monitor + Alarm = 10 Pin Connector





ALARM

Transmitter Dual Color LED Laser Bias Indicator. Receiver Dual Color LED Received Optical Power Indicator.

LED Indications	GREEN	RED
Transmitter	Laser Bias Current Normal < 110	Laser Bias Current Fault
Receiver	Input Optical Power Normal >- 10	Input Optical Power Fault

Individual Tx Alarm & Monitoring Circuit Diagram

Individual Rx Alarm & Monitoring Circuit Diagram



All alarms are Open Collector topology, with Active Low for Normal operations and during Alarm condition the open collector will Pull to High logic levels. Reverse polarity alarm is also available upon request, such as under normal conditions the Open collector will be High and vice versa under fault conditions.

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Ordering Information





Contacts

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CUSTOMER SUPPORT SALES - RF 818-780-9701 x276; 818-780-970 918 452 5121 918 570 94

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TECHNICAL SUPPORT

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