



FEATURES

- 30 MHz to 2.7 GHz Bandwidth
- Rugged Dust-Tight Housing
- 3 x 5 x 1.25 in. Weight ¾ lb
- -40°C to +75°C Operating Temperature
- LD/PD Monitoring and Alarm
- High Spurious Free Dynamic Range
- Automatic Optical Power Control
- 1.3 µm Low Noise FP Lasers
- Laser Conforms to Class 1 Emission Level per CDRH and IEC-825 (EN 60825) Standards

OPTIONS

- Extended Bandwidth of 10 KHz to 3.3 GHz
- 1550/1310 nm DFB with Optical Isolator
- Internal Transmitter LNA
- Manual Gain Adjust
- Multimode Fiber Compatibility
- Wide DC Input Range of +18 V to +30 V Supply
- Internal WDM
- Low Power Dissipation

APPLICATIONS

- Wi-Max/4G LTE
- Cellular Backhaul
- MMDS
- Remote Antenna Location
- Satcom
- In-Building DAS Solutions
- Outdoor DAS Solutions
- GPS Distribution
- Timing Delay

DESCRIPTION

The OZ600 is a low cost high performance Broadband Optical Transceiver with very wide Dynamic Range designed for RF over Fiber applications. A pair of OZ600 transceivers will create a bi-directional RF to Optical and Optical to RF link. OZ600 may also be configured as individual Transmitter (Tx) or Receiver (Rx) units. Each unit is packaged in a rugged dust-tight Cast Metal housing. These linear RFoF links are an excellent alternative to using coaxial cable systems. The OZ600 delivers significant improvements in the transport of RF signals in their native format reliably in many optical networks across broad range of frequencies. The OZ600 offers high Spurious Free Dynamic Range (SFDR) with operational frequencies from 30 MHz to 2.7 GHz. Optional extended bandwidth of up to 10 KHz to 3.3 GHz is also available. The *Manual Gain Control* feature enables the installers an easy way to adjust receiver output RF level to facilitate simple field installations.

The standard optical connector is SC/APC (FC/APC available) for low back reflection applications and the RF interface is via a 50 Ohms SMA connector. The transceiver features a high performance InGaAs photodiode and a linear optically Isolated FP Laser operating at 1.3 µm (A) over 9/125 µm Single Mode Fiber. Average Automatic Power Control (AAPC) is incorporated for optimal optical power stability over the full operating temperature range. Alarm and monitoring functions are available through DB connectors and local dual color LED's for Received Optical Power and Laser Bias Current Monitoring.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Units
Storage Temperature (Case)	T _S	-40	+85	°C
Operating Temperature (Case) FP Laser	T _O	-40	+75	°C
DC Supply Voltage	V _{PD}	+11.5	+12.5	Volts
Maximum RF input into Tx (no LNA)			+15	dBm
Maximum Optical Input into Rx			4	mW

CHARACTERISTICS OF OZ600

Parameter	Symbol	Min	Typical	Max	Units	Notes
Power Supply Voltage	VCC		12		Volts	
Power Supply Current	ICC		240	320	mA	
Laser Optical Output Power			2	4	mW	
Transmitter Operating Wavelength A/B			1310		nm	
Receiver Operating Wavelength B/A			1310		nm	
High Frequency Cutoff	HFC		2700	3300	MHz	1
Low Frequency Cutoff	LFC	.01	30		MHz	2
Frequency Response (30 – 2700 MHz)			+/- 1.5		dB	
Input/Output Impedance	Z		50		Ohms	
Input/Output VSWR (30-2700 MHz)			1.5:1	2:1		
Spur Free Dynamic Range	SFDR		108		(dB/Hz) ^{2/3}	3
RF Link Gain		-1	0	+1	dB	3
Input Noise Floor @ 1Ghz	EIN	-129	-133		dBm-Hz	3
Input Third Order Intercept @ 1Ghz	IIP3	26	30		dBm	4
Isolation		50	60		dB	5
Group Delay Over 4MHz (30-2700 MHz)			1		nS	

1. Typical High Frequency Cutoff (HFC) is 2700 MHz. For higher HFC contact Factory.
2. Typical Low Frequency Cutoff (LFC) is 30 MHz. For lower LFC contact Factory.
3. Measured and Specified with Optical Loss Budget of 0 dB and 1 meter of Single Mode Fiber.
4. Equivalent to IMD 60dB@0 dBm total output power (2 tone measurement)
5. Measured at 1GHz

CHARACTERISTICS OF OZ600 with LNA

Parameter	Symbol	Min	Typical	Max	Units	Notes
Power Supply Voltage	VCC		+12		Volts	
Power Supply Current	ICC		320	380	mA	
Laser Optical Output Power			2	4	mW	
Transmitter Operating Wavelength A/B			1310		nm	
Receiver Operating Wavelength B/A			1310		nm	
High Frequency Cutoff	HFC		2700	3300	MHz	1
Low Frequency Cutoff	LFC	.01	30		MHz	2
Frequency Response (30 – 2700 MHz)			+/- 1.5	+/- 2.0	dB	
Input/Output Impedance	Z		50		Ohms	
Input/Output VSWR (30-2700 MHz)			1.7:1	2:1		
Spur Free Dynamic Range	SFDR		109		(dB/Hz) ^{2/3}	3
RF Link Gain			20	21	dB	3
Input Noise Floor @ 1Ghz	EIN	-149	-153		dBm-Hz	3
Input Third Order Intercept @ 1Ghz	IIP3		12		dBm	4
Isolation		50	60		dB	5
Group Delay Over 4MHz (30-2700 MHz)			1		nS	

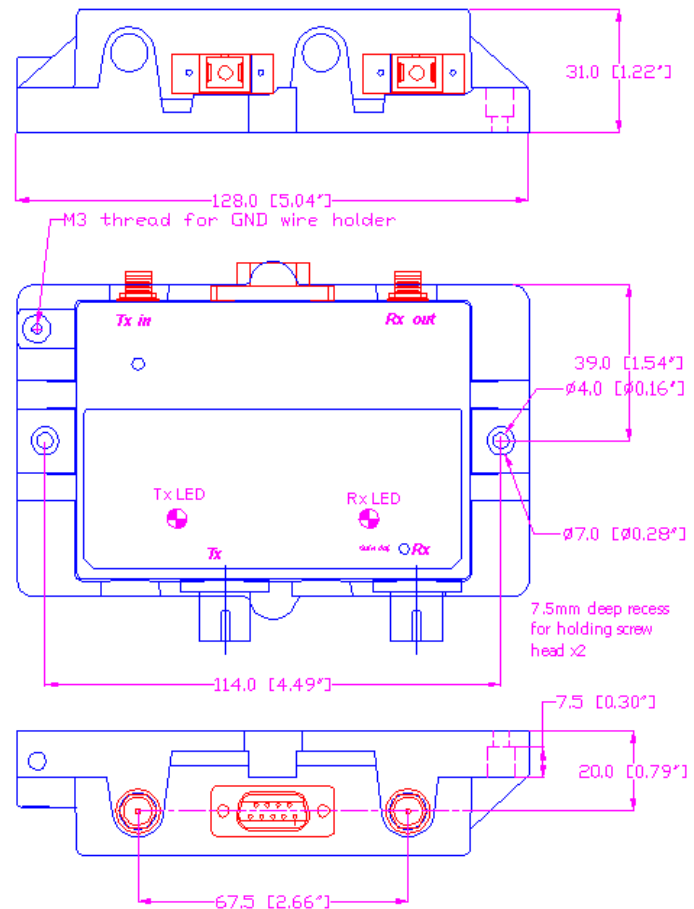
1. Typical High Frequency Cutoff (HFC) is 2700 MHz. For higher HFC contact Factory.
2. Typical Low Frequency Cutoff (LFC) is 30 MHz. For lower LFC contact Factory.
3. Measured with 1 meter of Single Mode Fiber.
4. Equivalent to IMD 60dB@0 dBm Total Output Power (2 tone measurement).
5. Measured at 1GHz

For lower power dissipation version contact Factory.

MECHANICAL DRAWING (outline reference only)

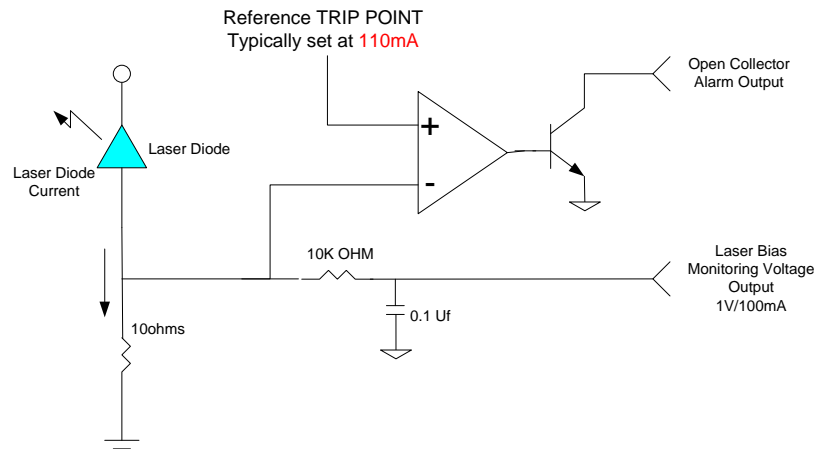
RF Connector = SMA Female
 Optical Connector = SC/APC or FC/APC
 DATA + ALARM = DB9

DB-9 CONFIGURATION	
PIN	FUNCTION
1	Laser Enable (+12 v = Laser ON)
2	Data INPUT (Tx RS232)/ OR NC
3	Data OUTPUT (Rx RS232)/ OR NC
4	+12 volts (320 mA max)
5	Ground
6	Laser Bias Monitor (0.1 V = 10 mA)
7	Laser Bias Alarm (open collector, 25 mA)
8	Received Power Monitor (1V = 1mW)
9	Received Power Alarm (open collector, 25 mA)

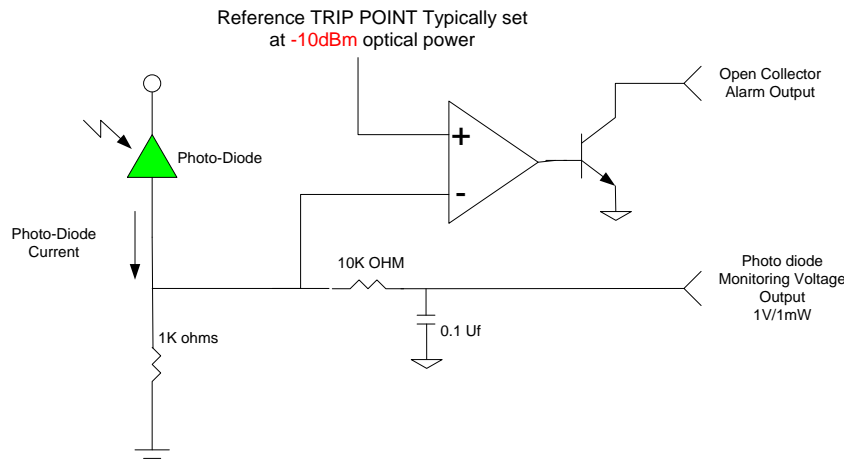


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INDIVIDUAL Tx ALARM & MONITORING CIRCUIT DIAGRAM

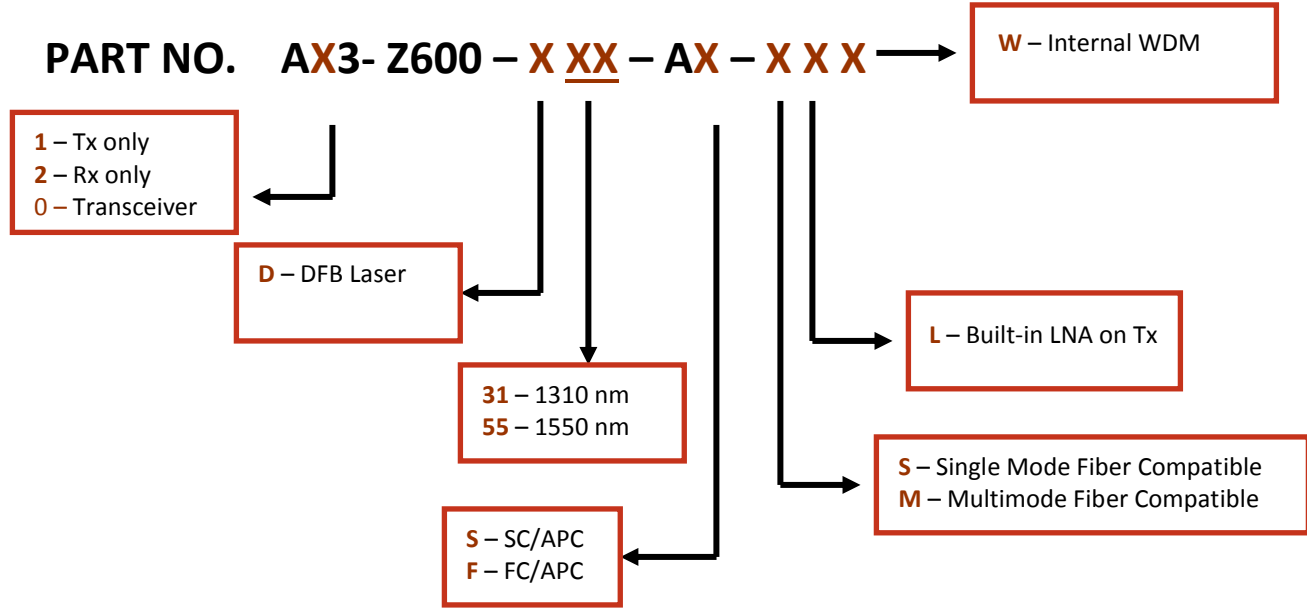


INDIVIDUAL Rx ALARM & MONITORING CIRCUIT DIAGRAM



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.

ORDERING INFORMATION





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