

# Multi-Rate 155 Mb/s – 2.7 Gb/s 1550 nm Single mode, 30 – 110 km SFP Dual LC Connector



Small Form Pluggable (SFP) Transceivers

## Description

OptixCom's multi-rate fiber optics transceiver is designed for OC3/OC12/FC/GbE/2xFC/OC48 applications with data rate up to 2.7 Gb/s. This single mode module uses high performance 1550 nm DFB laser and is compliant with Small Form Pluggable (SFP) specifications.

The module is compliant with SFP Multi-Source Agreement (MSA). The transceiver reaches 30 - 110 km of distance with standard single mode fibers and 15 - 30 dB of power budget. The products are RoHS compliant.



Lead-Free

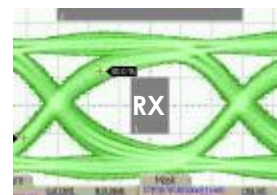
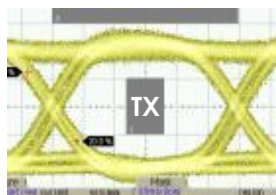
**SFP-2670EX-ATXXK**  
(**XX** = 30, 50, 80, 90, 110)



## Key Features

- 1550 nm single mode
- Multi-rate 155 Mb/s to 2.67 Gb/s
- 30 – 110 km with 15 – 30 dB power budget
- Duplex LC connector optical interface
- Z-axis hot pluggable
- AC coupling LVPECL differential I/O logics
- SFF-8472 MSA Compliant with DDM function
- TTL Signal detect to monitor optical signals
- Single 3.3 V power supply
- RoHS compliant

2.5 Gb/s, 2<sup>23</sup>-1 NRZ Data Eye Pattern



## Applications

- ✓ OC3/OC12/FC/GbE/2xFC/OC48
- ✓ High speed I/O for file server
- ✓ Media converter
- ✓ Data Communication for SAN and LAN
- ✓ Bus extension
- ✓ Central offices routers and switches
- ✓ Mass storage systems interconnect
- ✓ Computer cluster cross-connect

## Ordering Information

**Part Number:** SFP-2670EX-ATXXK

### Description:

1550 nm single mode, multi-rate 155Mb/s - 2.7 Gb/s SFP Transceiver, **XX** km reach. 0 - 70°C.

## Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
Data Rate	---	---	2.67	Gb/s
Supply Voltage	3.1	3.3	3.5	V

**Absolute Maximum Ratings**

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	$T_{st}$	-40	85	°C
Supply Voltage	$V_{cc}$	-0.5	5.0	V
Input Voltage	$V_{IN}$	-0.5	$V_{cc}$	V
Operating Current	$I_{op}$	---	400	mA
Output Current	$I_o$	---	50	mA
Soldering Temperature (10 sec. on leads)	$T_{sd}$	---	260	°C

**General Transmitter Characteristics**

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage <sup>1</sup>	$\Delta V_i$	0.4	---	2.0	V
Differential Input Impedance <sup>2</sup>	$Z$	---	100	---	ohm
Relative Intensity Noise	$RIN$	---	---	-120	dB/Hz
Rise/Fall Time (20% - 80%)	$T_r/T_f$	---	---	160	ps
Total Jitter	$T_j$	---	---	0.1	Ulp-p
TX Disable Asserted	$P_{OFF}$	---	---	-45	dBm
TX Fault Output - High	$V_{FH}$	2.4	---	$V_{cc}$	V
TX Fault Output - Low	$V_{FL}$	0	---	0.5	V
TX Disable Voltage – High	$V_{DH}$	2.4	---	$V_{cc}$	V
TX Disable Voltage - Low	$V_{DL}$	0	---	0.5	V
TX Disable Assert Time	$T_{ass}$	---	---	10	μs
TX Disable Deassert Time	$T_{disass}$	---	---	1.0	ms
Time to Initialize	$T_{as}$	---	---	300	ms
TX Fault from Fault to Assertion	$T_{fault}$	---	---	100	μs
TX Disable Time to Start Reset	$T_{reset}$	10	---	---	μs

Notes:

1. Module is designed for AC coupling. DC voltage will be filtered by internal capacitor.
2. Single ended will be 50 ohm for each signal line.

**Class 1 Laser Product  
Complies with  
21 CFR 1040.10 and 1040.11**



**General Receiver Characteristics**

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Output Voltage <sup>1</sup>	$\Delta V_o$	0.5	---	1.2	V
Differential Input Impedance <sup>2</sup>	Z	---	100	---	Ohm
Optical Return Loss	OL	27	---	---	dB
Rise/Fall Time	$T_r/T_f$	---	---	250	ps
RX Signal Loss Output - High	$V_{RL+}$	2.4	---	$V_{cc}$	V
RX Signal Loss Output - Low	$V_{RL-}$	0	---	0.5	V
RX Signal Loss Assert Time	$T_{RL+}$	---	---	100	$\mu$ s
RX Signal Loss Deassert Time	$T_{RL-}$	---	---	100	$\mu$ s
Serial ID Clock Rate	$f_c$	---	---	100	kHz

Notes:

1. Module is designed for AC LVPECL coupling. See the design guide for proper termination.
2. Single ended will be 50 ohm for each signal line.

Class 1 Laser Product  
Complies with  
21 CFR 1040.10 and 1040.11



### Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Optical Output Power <sup>1</sup>	$P_o$	0	---	+5	dBm
Optical Wavelength	$\lambda_o$	1530	1550	1570	nm
Extinction Ratio	$ET$	8.2	---	---	dB
Spectral Width (-20 dB)	$\Delta\lambda$	---	---	1	nm
Side Mode Suppression Ratio	$SMSR$	30	---	---	dB

### Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	$\lambda_c$	1260	---	1610	nm
Receiver Overload	$P_{max}$	-8	---	---	dBm
Receiver Sensitivity <sup>2</sup>	$P_I$	---	---	-30	dBm
RX Signal Loss – Asserted	$P_{RL+}$	---	---	-30	dBm
RX Signal Loss – Deasserted	$P_{RL-}$	-45	---	---	dBm

Notes:

1. Output of coupling optical power into 9/125  $\mu$ m SMF.
2. Test at 2.5 Gb/s, 2<sup>7</sup> – 1 PRBS data pattern, and > 1x10<sup>-12</sup> of Bit-Error-Rate (BER).
3. Optical eye diagram is compliant with IEEE 802.3z standard.
4. Maximum supply current for the transceiver from Vcc is 300 mA.

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