10Gb/s BIDI SFP+ 1270nm/1330nm Transceiver(V1.0)

The 1270nm/1330nm 10Gb/s 10km bidirectional transceiver is designed to transmit and receive serial optical data links up from 2.5 to 10.3 Gb/s data rate over G.652 single mode fiber. The transceiver is compliant with SFF-8432, and applicable portions of SFF-8431. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472.

Features

- Compliant to SFP+ MSA
- Fully RoHS compliant
- Operating data rate 2.5 to 10.3Gb/s
- Transmission distance up to 10km
- 1270nm/1330nm DFB laser
- LC single connector
- Hot pluggable 20pin connector
- Wide temperature range
- Low power consumption <1W
- Single +3.3V±5% power supply
- Digital monitoring SFF-8472 Rev 10 compliant

Applications

- 10GBASE-LR/LW
- 10G Ethernet
- OBSAI rates 3.072 Gb/s, 6.144Gb/s
- CPRI rates 2.4576 Gb/s, 4.9152Gb/s, 6.144Gb/s,9.8304 Gb/s

Standards

- IEEE 802.3ae 10GBASE-LR
- SFF-8431 Rev 4
- SFF-8472 Rev 10

Specifications

(Tested under recommended operating conditions, unless otherwise noted)

Parameter		Symbol	Unit	Min	Typ	Max	Note
Optical Transmitter Characteristics							
Data Rate		-	Gbps	2.5		10.3	
Transmission Distance		L	km			10	
Center Wavelength		λ	nm	1260	1270	1280	
				1320	1330	1340	
Spectral Width(-20dB)		Δλrms	nm			1	1
SMSR		-	dB	30			
Optical Output Power		P_O	dBm	-8.2		+0.5	2
Optical Modulation Amplitude		P_{OMA}	dBm	-5.2			
Average Launch Power of OFF Transmitter		P_{OFF}	dBm			-30	
Extinction Ratio		ER	dB	3.5			
Relative Intensity Noise		R_{IN}	dB/Hz			-128	
Optical Output Eye		-	-	Compliant with IEEE 802.3ae			
Optical Receiver Characteristics							
Data Rate		-	Gbps	2.5		10.3	
Center Wavelength		$λ_C$	nm	1320	1330	1340	
				1260	1270	1280	
Receiver Sensitivity		R_{SEN}	dBm			-14.4	3
Receiver Overload		-	dBm	0.5			3
Receiver Reflectance		R_{REFL}	dB			-12	
LOS	Optical Assert	LOS_A	dBm	-30			
	Optical Dessert	LOS_D	dBm			-15	
LOS Hysteresis		-	dB	0.5		6	

Note 1: Spectral width has to be defined over -20dBm.

Note 2: Minimum output optical level is at end of life.

Note 3: Sensitivity for PRBS 2^{31}-1 and BER better than or equal to 10^{-12}.

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Ordering Information

Part No.	Specifications									Application
	Package	Data rate	Laser	Optical Power	Detector	Sensitivity	Temp	Reach	Others	
RTXM228-461	SFP+	2.5~10.3Gb/s	1270nm DFB	-8.2~ +0.5dBm	1330nm PIN	<-14.4dBm	-40~85 °C	10km	DDM	10GBASE-LR/LW OBSAI/CPRI
RTXM228-462	SFP+	2.5~10.3Gb/s	1330nm DFB	-8.2~ +0.5dBm	1270nm PIN	<-14.4dBm	-40~85 °C	10km	DDM	10GBASE-LR/LW OBSAI/CPRI
RTXM228-463	SFP+	2.5~10.3Gb/s	1270nm DFB	-8.2~ +0.5dBm	1330nm PIN	<-14.4dBm	0~70 °C	10km	DDM	10GBASE-LR/LW OBSAI/CPRI
RTXM228-464	SFP+	2.5~10.3Gb/s	1330nm DFB	-8.2~ +0.5dBm	1270nm PIN	<-14.4dBm	0~70°C	10km	DDM	10GBASE-LR/LW OBSAI/CPRI

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	Ts	°C	-40	85
Relative Humidity	RH	%	5	95
Supply Voltage	V_{CC}	V	-0.3	4.0

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Operating Case Temperature Range	Tc	°C	-40		85
			0		70
Power Supply Voltage	Vcc	V	3.14	3.3	3.46
Bit Rate	BR	Gb/s	2.5		10.3
Bit Error Ratio	BER				10^{-12}
Max Supported Link Length	L	km			10

Principle diagram