

Features:

- Compliant with IEEE Std 802.3-2005
- Electrical interface specifications per SFF-8431
- Management interface specifications per SFF-8431 and SFF-8472
- SFP+ MSA package with duplex LC connector
- Uncooled 1310nm DFB Laser
- Up to 10.13Gb/s bi-directional data links
- Single +3.3V power supply
- Class 1 laser safety certified
- Operating temperature:
Industrial: -40°C to +85°C



- Up to 10km on 9/125µm SMF
- RoHS Compliant

Applications:

- CPRI 2/3/4/5/6/7/8 and OBSAI 2X/4X/8X

1. Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Minimum	Maximum	Unit
Storage Temperature	TS	-40	85	°C
Relative Humidity	RH	5	95	%
Supply Voltage	VCC	-0.5	4.0	V

2. Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature	Te	-40	25	85	°C
Supply Voltage	VCC	3.135	3.3	3.465	V
Data Rate	-	1.25-	10.13	-	Gb/s

3. Transceiver Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes	
Module Supply Current	I _{CC}	-	-	300	mA	-	
Power Dissipation	PD	-	-	1000	mW	-	
Transmitter							
Input Differential Impedance	Z _{IN}	-	100	-	Ω	-	
Differential Data Input Swing	V _{IN, P-P}	180	-	700	mV _{P-P}	-	
TX_FAULT	Transmitter Fault	V _{OH}	2.0	-	V _{CCHOST}	V	-
	Normal Operation	V _{OL}	0	-	0.8	V	-
TX_DISABLE	Transmitter Disable	V _{IH}	2.0	-	V _{CCHOST}	V	-
	Transmitter Enable	V _{IL}	0	-	0.8	V	-
Receiver							
Output Differential Impedance	Z _O	-	100	-	Ω	-	
Differential Data Output Swing	V _{OUT, P-P}	300	-	850	mV _{P-P}	1	
Data Output Rise Time, Fall Time	t _r , t _f	28	-	-	ps	2	
RX_LOS	Loss of signal (LOS)	V _{OH}	2.0	-	V _{CCHOST}	V	3
	Normal Operation	V _{OL}	0	-	0.8	V	3

Notes:

1. Internally AC coupled, but requires a external 100Ω differential load termination.
2. 20 – 80 %.
3. LOS is an open collector output. Should be pulled up with 4.7kΩ on the host board.

4. Transmitter Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Launch Optical Power	P _o	-6.0	-	0	dBm	1
Center Wavelength Range	λ _c	1260	1310	1355	nm	-
Extinction Ratio	EX	3.5	-	-	dB	2
Spectral Width (-20dB)	Δλ	-	-	1	nm	-
Side Mode Suppression Ratio	SMSR	30	-	-	dB	-
Transmitter and Dispersion Penalty	TDP	-	-	1	dB	-
Optical Return Loss Tolerance	ORLT	-	-	12	dB	-
Pout @TX-Disable Asserted	P _{off}	-	-	-30	dBm	1
Eye Diagram	IEEE Std 802.3-2005 10Gb Ethernet 10GBASE-LR compatible					

Notes:

1. The optical power is launched into 9/125µm SMF.
2. Measured with a PRBS 231-1 test pattern @10.3125Gbps

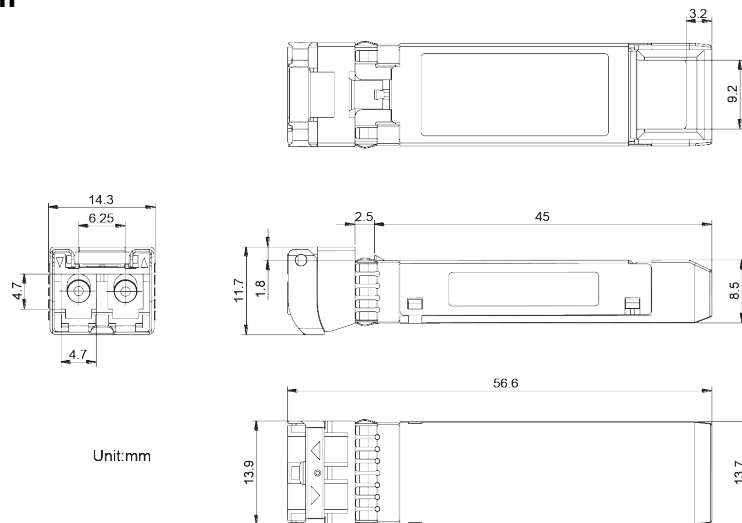
5. Receiver Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Center Wavelength	λ_c	1260	1310	1355	nm	-
Receiver Sensitivity (Pavg)	S	-	-	-14.4	dBm	1
Receiver Sensitivity (OMA)	SOMA	-	-	-12.6	dBm	1
Receiver Overload (Pavg)	POL	0.5	-	-	dBm	1
Stressed Sensitivity (OMA)	-	-	-	-10.3	dBm	2
Damage threshold	-	+2.0	-	-	dBm	-
Optical Return Loss	ORL	12	-	-	dB	-
LOS De-Assert	LOSD	-	-	-15	dBm	-
LOS Assert	LOSA	-30	-	-	dBm	-
LOS Hysteresis	-	0.5	-	5	dB	-

Notes:

1. Measured with PRBS 231-1 test pattern, 10.3125Gb/s, BER<10⁻¹².
2. Comply with IEEE 802.3-2005.

6. Mechanical Diagram



Note: External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

7. Contact Information

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