



Datasheet: Transceivers

1G HD CWDM Transceivers

Key Features

- 1.25Gbps
- Hot Pluggable
- Customized Bi-directional CWDM wavelength Tx(DFB-LD) / Rx(PIN/PD)
- Compliant with SFP MSA
- Operating case temperature: -40°C to 85°C
- TEC wavelength stabilization

Application

- 1000BASE Ethernet: 1.25Gb/s
- CPRI: 1.2288Gb/s
- Fibre Channel: 1.0625Gb/s
- Digital Repeater and Base Station

Specifications

General specifications

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
<i>Absolute Maximum Ratings</i>						
Storage Temperature	T _{STO}	- 40		85	°C	Ambient temperature
Ambient Humidity	H _{op}	5		95	%	w/o condensation
Power Supply Voltage	V _{cc}			4	V	For electrical power interface
<i>Recommended Operating Conditions</i>						
Power Supply Voltage	V _{cc}	+3.125	+3.3	+3.465	V	
Power Supply Current	I _{cc}	-	-	500	mA	Cooled Type
Power Supply Noise Rejection	PSNR	-	-	100	mVp-p	From 100Hz to 1MHz
Operating Temperature	T _c	-40	-	+85	C	Case with Airflow

Fiber Link Distances

Center Wavelength	Max Fiber Distance ¹	Fiber Loss dB/KM ²	Fiber Type
1271 ~ 1451	Up to 40KM ²	0.5	9/125um OS2 SMF
1471 ~ 1611	Up to 80KM ²	0.3	9/125um OS2 SMF

1 Estimate, does not include overhead for passive mux, connector or splice loss

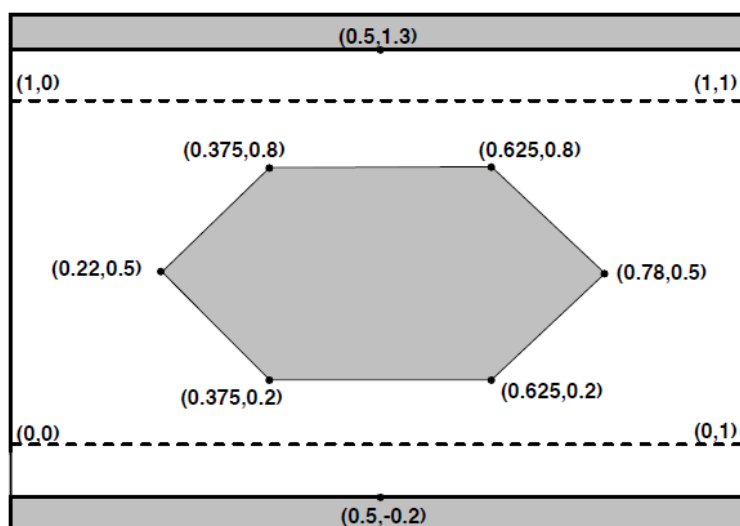
2 Fiber loss assumptions do not account for local fiber conditions.

Optical Characteristics

Transmitter							
Parameter		Symbol	Min	Typ	Max	Unit	Remarks
Output Optical Power		P _{opt}	-2.5	-	+2.0	dBm	
Transmitter Disable(off) Power		P _{off}	-		-35	dBm	@Tx_Disable is High
Optical Center Wavelength	Downstream	λ_p	λ_c -6.5		λ_c +1.5	nm	CWDM, DFB-LC, Note1
	Upstream		λ_c +2.0		λ_c +6.5		
Spectral Width (RMS)		$\Delta\lambda$			1	nm	@-20dB
Side Mode Suppression Ratio		SMSR	30		-	dB	-
RIN ₁₂ OMA		RIN			-117	dB/Hz	-
Dispersion Penalty		DP	-	-	1.5	dB	
Extinction Ratio@1.25GBd		ER	8.2		-	dB	@PRBS27-1 figure 1
Eye Pattern Mask		IEEE -02.3/2008 Section 3 Figure 1					
Receiver							
Parameter		Symbol	Min	Typ	Max	Unit	Remarks
Optical Sensitivity		P _{MIN}	-		-26.5	dBm	PRBS2 ⁷ -1, BER1x10 ⁻¹² Source ER=8.2[dB]
Optical Overload		P _{MAX}	2.0		-	dBm	
Optical Center Wavelength	Downstream	λ_o	λ_c +2.0		λ_c +6.5	nm	Note 1
	Upstream		λ_c -6.5		λ_c -1.5		
Loss of Signal-Asserted		P _A	- 38		-	dBm	
Loss of Signal-Deasserted		P _D	-	-	- 26.5	dBm	
Loss of Signal-Hysteresis		P _A - P _D	0.5	2.0	5.0	dB	
Receiver Reflectance		-	-	-	-27	dB	@ λ_o
RSSI Calibration		Rcal	Internal Calibration (The host side can be read by an external way)				-

Note 1) λ_c =

1271,1291,1311,1331,1351,1371,1391,1411,1431,1451,1471,1491,1511,1531,1551,1571,1591,1611nm



Electrical Characteristics

Transmitter						
Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Data Rate	DR _T	1.0625	-	1.25	Gb/s	
Differential Input Voltage	V _{INpp}	150		1000	mV	
Input differential impedance	Z _{IN}	90	100	110	Ω	
Tx_Disable Input_Low	V _{IL}	0	-	0.8	V	LVTTL, Normal at Low, High shutdown is (Poff)
Tx_Disable Input_High	V _{IH}	2	-	Vcc	V	
Tx_Disable Assert Time	t _{OFF}	-	-	10	us	High
Tx_Disable Negate Time	t _{ON}	-	-	1	ms	Low
Tx Disable to Rest	t _{reset}	10	-	-	Us	High
Time to initialize_Cooled, including reset of Tx_Fault	t _{init_cooled}	-	-	10	sec	Cooled version, for wavelength stabilization at worst case (Low & High temperature)
Tx_Fault Output_Low	V _{toL}	0	-	0.8	V	LVTTL, Low is Normal
Tx_Fault Output_High	V _{toH}	2	-	Vcc+0.3	V	
Receiver						
Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Data Rate	DR _R	1.0625	-	1.25	Gb/s	
Differential Output Data	V _{out}	480	-	1080	mV	
Differential Output Impedance	Z _{out}	90	100	110	Ω	
Loss of signal-Output Low	V _{IOL}	0	-	0.8	V	LVTTL
Loss of signal-Output High	V _{IOH}	2	-	Vcc+0.3	V	
Loss of signal – Assert Time	t _{LOS-ON}	-	-	100	us	Low ->High
Loss of signal – Deassert Time	t _{LOS-OFF}	-	-	100	us	High -> Low

Industry Compliance

MSA	INF-8074i, SFF-8472
Compliance	IEC 6100-4-2 CE: Directive 89/336/EEC FCC: Part 15 Class B Class 1 Laser Safety Compliant RoHS: 2011/65/EU
Performance	IEE 802.3z

