



SA-SFP-LXDH

1.25 Gb/s RoHS Compliant Long-Wavelength
Pluggable SFP Transceiver

DESCRIPTION

Small Form Factor Pluggable (SFP) transceivers are compatible with the Small Form Factor Pluggable Multi-Sourcing Agreement (MSA). They simultaneously comply with Gigabit Ethernet as specified in IEEE STD 802.3 and 1x Fibre Channel as defined in FC-PI-2 Rev. 10.0. They are RoHS compliant and lead-free.

APPLICATIONS

- 1.25Gb/s 1000Base-LX Ethernet
- 1.06 Gb/s Fibre Channel

PRODUCT SELECTION

Part	Operating Case temperature	DDMI
SA-SFP-LXD	Commercial (0~70°C)	Yes
SA-SFP-LXDH	Industrial (-40~85°C)	Yes

FEATURES

- Up to 1.25Gb/s dual data links
- Hot-pluggable SFP footprint
- 1310nm FP laser transmitter
- Duplex LC connector
- Up to 20km on 9/125µm SMF
- Metal enclosure for lower EMI
- Single +3.3V power supply
- Low power dissipation <700mW
- Case operating temperature
Commercial: 0°C to +70°C
Industrial: -40°C to +85°C

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Maximum Supply Voltage	Vcc	-0.5		+4.0	V	
Storage Temperature	TS	-40		+100	°C	
Case Operating Temperature	TOP	0		+70	°C	
Relative Humidity	RH	0		85	%	1

ELECTRICAL CHARACTERISTICS (TOP=25°C, VCC=3.3VOLTS)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Supply Voltage	Vcc	3.00		3.60	V	
Supply Current	Icc		180	300	mA	
Transmitter						
Input differential impedance	Rin		100		Ω	2
Single ended data input swing	Vin, pp	250		1200	mV	
Transmit Disable Voltage	VD	Vcc – 1.3		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+ 0.8	V	
Transmit Disable Assert Time				10	us	
Receiver						
Single ended data output swing	Vout, pp	300	400	800	mV	3
Data output rise time	tr			300	ps	4
Data output fall time	tf			300	ps	4
LOS Fault	VLOS fault	Vcc – 0.5		VccHOST	V	5
LOS Normal	VLOS norm	Vee		Vee+0.5	V	5
Deterministic Jitter Contribution	RXΔDJ			80	ps	6
Total Jitter Contribution	RXΔTJ			122.4	ps	

Notes:

1. Non condensing.
2. AC coupled.
3. Into 100 ohm differential termination.
4. 20 - 80 %
5. LOS is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
6. Measured with DJ-free data input signal. In actual application, output DJ will be the sum of input DJ and ΔDJ.

OPTICAL CHARACTERISTICS (TOP=25°C, VCC=3.3 VOLTS)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Output Opt. Power	PO	-9	-	-3	dBm	1
Optical Wavelength	λ	1275	1310	1350	nm	
Spectral Width	σ	-	-	3	nm	
Optical Rise/Fall Time	tr/tf	-	170	260	ps	2
Deterministic Jitter Contribution	TXΔDJ	-	-	0.07	UI	3
Total Jitter Contribution	TXΔTJ	-	-	0.007	UI	
Optical Extinction Ratio	ER	9	-	-	dB	
Receiver						
Average Rx Sensitivity	RSSENS	-	-	-24	dBm	4
Maximum Received Power	RXMAX	0	-	-	dBm	
Optical Center Wavelength	λC	1270	-	1600	nm	
LOS De-Assert	LOSD	-	-	-25	dBm	
LOS Assert	LOSA	-36	-	-	dBm	
LOS Hysteresis		0.5	-	-	dB	

OPTICAL CHARACTERISTICS (TOP=25°C, VCC=3.3 VOLTS) (CONT.)

Notes:

1. Class 1 Laser Safety.
2. Unfiltered, 20-80%.
3. Measured with DJ-free data input signal .In actual application, output DJ will be the sum of input DJ and Δ DJ.
4. Measured with PRBS 27-1 at 10-12 BER.

GENERAL SPECIFICATIONS

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Data Rate	BR	-	-	1250	Mb/sec	1
Bit Error Rate	BER	-	-	10^{-12}		2
Max. Supported Link Length on 9/125µm SMF @ Gigabit Ethernet	LMAX	-	-	20	km	3,4

Notes:

1. Gigabit Ethernet and 1x Fibre Channel compliant.
2. Tested with a PRBS 27-1 data pattern.
3. Dispersion limited per FC-PI-2 Rev. 10.
4. Attenuation of 0.55 dB/km is used for the link length calculations. Please refer to the Optical Specifications in Table IV to calculate a more accurate link budget based on specific conditions in your application.

ENVIRONMENTAL SPECIFICATIONS

1310nm Commercial Temperature SFP transceivers have an operating temperature range from 0°C to +70°C case temperature.

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Case Operating Temperature	Top	0		+70	°C	
Storage Temperature	Tsto	-40		+100	°C	

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Performance specifications are typical. Due to constant research, specifications are subject to change without notice. For the most up-to-date specifications, please contact an authorized Starview representative.

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