

CWDM-SFP-40-I-XX

1GBASE, SFP, EX, CWDM, SMF TRANSCEIVER
1xx0nm, 40km REACH, DUPLEX LC CONNECTOR

Features

- Up to 1.25Gb/s Data Links
- Hot-Pluggable
- Duplex LC connector
- Up to 40km on 9/125µm SMF
- 1470nm~1610nm DFB laser transmitter
- PIN Receiver
- Single +3.3V Power Supply
- Monitoring Interface Compliant with SFF-8472
- Low power dissipation <1W typically
- Industrial operating temperature range: -40°C to 85°C
- RoHS compliant and Lead Free



Applications

- Metro/Access Networks
- 1.25 Gb/s 1000Base-EX Ethernet
- 1×Fibre Channel
- CWDM Networks

1. Absolute Maximum Ratings

Operation in excess of any absolute maximum ratings might cause permanent damage to this module.

Parameter	Symbol	Min	Typ	Max	Units
Storage Temperature	TS	-40		+85	°C
Power Supply Voltage	VCC	-0.5		4	V
Relative Humidity	RH	0		85	%

2. Recommended Operating Environment

Parameter	Symbol	Min	Typ	Max	Unit
Case operating Temperature	TC	-40		85	°C
Supply Voltage	VCC	3.135		3.465	V
Supply Current	Icc			300	mA
Inrush Current	I _{surge}			I _{cc} +30	mA
Maximum Power	P _{max}			1	W

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3. Electrical Characteristics

(TOP = -40 to 85°C, VCC = 3.135 to 3.465 Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Note
Transmitter Section:						
Input differential impedance	Rin	90	100	110	Ohm	1
Single ended data input swing	Vin PP	250		1200	mVpp	
Transmit Disable Voltage	VD	Vcc -1.3		Vcc	V	2
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Transmit Disable Assert Time	Tdessert			10	us	
Receiver Section:						
Single ended data output swing	Vout,pp	250		800	mv	3
LOS Fault	Vlosfault	Vcc -0.5		VCC_host	V	5
LOS Normal	Vlosnorm	Vee		Vee+0.5	V	5
Power Supply Rejection	PSR	100			mVpp	6

Notes:

1. AC coupled.
2. Or open circuit.
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. All transceiver specifications are compliant with a power supply sinusoidal modulation of 20 Hz to 1.5MHz up to specified value applied through the power supply filtering network shown on page 23 of the Small Form-factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA), September 14, 2000.

4. Optical Parameters

(TOP = -40 to 85°C, VCC = 3.135 to 3.465 Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter Section:						
Center Wavelength	λ_c	$\lambda-3$	λ	$\lambda+3$	nm	
Spectral Width	σ			1	nm	
Side Mode Supression Ratio	SSRmin	30			dB	
Optical Output Power	Pout	-5		0	dBm	1
Extinction Ratio	ER	9			dB	

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Optical Rise/Fall Time	tr / tf			260	ps	2
Relative Intensity Noise	RIN			-120	dB/Hz	
Total Jitter Contribution	TX Δ TJ			0.284	UI	3
Output Eye Mask	Compliant with IEEE802.3 z (class 1 laser safety)					
Receiver Section:						
Optical Input Wavelength	λc	1270		1610	nm	
Receiver Overload	Pol	-7			dBm	4
RX Sensitivity	Sen			-24	dBm	4
RX_LOS Assert	LOS A	-40			dBm	
RX_LOS De-assert	LOS D			-25	dBm	
RX_LOS Hysteresis	LOS H	0.5			dB	
General Specifications:						
Data Rate	BR		1.25		Gb/s	
Bit Error Rate	BER			10 ⁻¹²		
Max. Supported Link Length on 9/125μm SMF@1.25Gb/s	LMAX		40		Km	
Total System Budget	LB	19			dB	

Notes:

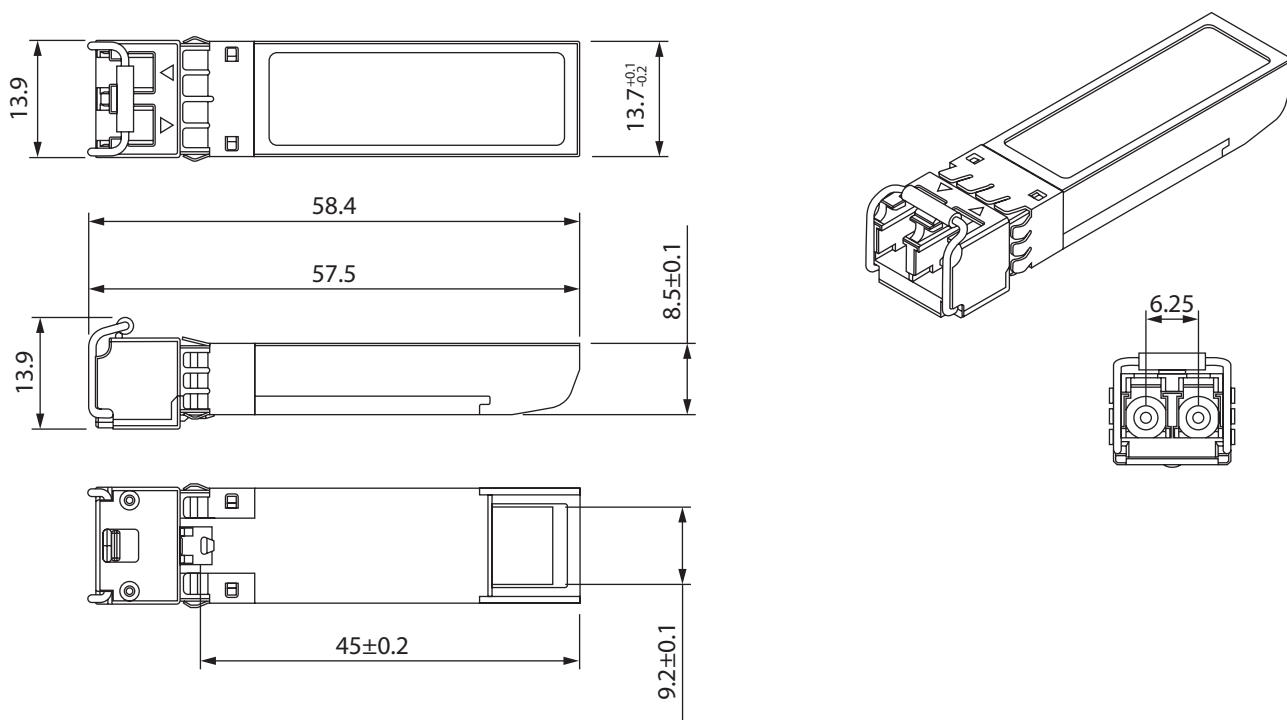
1. The optical power is launched into SMF.
2. 20-80%.
3. Jitter measurements taken using Agilent OMNIBERT 718 in accordance with GR-253.
4. Measured with PRBS 2^{7-1} at 10^{-12} BER

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5. 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.

6. Ordering Information

OEM	Part Number	OEM	Part Number
Ciena	NTK59127-L	Extreme	1G-SFP-CWDM40-1450-L
Ciena	NTK59129-L	Extreme	1G-SFP-CWDM40-1470-L
Ciena	NTK59131-L	Extreme	1G-SFP-CWDM40-1490-L
Ciena	NTK59133-L	Extreme	1G-SFP-CWDM40-1510-L
Ciena	NTK59135-L	Extreme	1G-SFP-CWDM40-1530-L
Ciena	NTK59137-L	Extreme	1G-SFP-CWDM40-1550-L
Ciena	NTK59139-L	Extreme	1G-SFP-CWDM40-1570-L
Ciena	NTK59141-L	Extreme	1G-SFP-CWDM40-1590-L
Ciena	NTK59143-L	Extreme	1G-SFP-CWDM40-1610-L
Ciena	NTK59145-L	Juniper	SFP-GE40KCW1270-L
Ciena	NTK59147-L	Juniper	SFP-GE40KCW1290-L
Ciena	NTK59149-L	Juniper	SFP-GE40KCW1310-L
Ciena	NTK59151-L	Juniper	SFP-GE40KCW1330-L

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Ciena	NTK59153-L	Juniper	SFP-GE40KCW1350-L
Ciena	NTK59155-L	Juniper	SFP-GE40KCW1370-L
Ciena	NTK59157-L	Juniper	SFP-GE40KCW1390-L
Ciena	NTK59159-L	Juniper	SFP-GE40KCW1410-L
Ciena	NTK59161-L	Juniper	SFP-GE40KCW1430-L
Cisco	CWDM-SFP-1270-40-L	Juniper	SFP-GE40KCW1450-L
Cisco	CWDM-SFP-1290-40-L	Juniper	SFP-GE40KCW1470-L
Cisco	CWDM-SFP-1310-40-L	Juniper	SFP-GE40KCW1490-L
Cisco	CWDM-SFP-1330-40-L	Juniper	SFP-GE40KCW1510-L
Cisco	CWDM-SFP-1350-40-L	Juniper	SFP-GE40KCW1530-L
Cisco	CWDM-SFP-1370-40-L	Juniper	SFP-GE40KCW1550-L
Cisco	CWDM-SFP-1390-40-L	Juniper	SFP-GE40KCW1570-L
Cisco	CWDM-SFP-1410-40-L	Juniper	SFP-GE40KCW1590-L
Cisco	CWDM-SFP-1430-40-L	Juniper	SFP-GE40KCW1610-L
Cisco	CWDM-SFP-1450-40-L	MSA	CWDM-SFP-40-27-L
Cisco	CWDM-SFP-1470-40-L	MSA	CWDM-SFP-40-29-L
Cisco	CWDM-SFP-1490-40-L	MSA	CWDM-SFP-40-31-L
Cisco	CWDM-SFP-1510-40-L	MSA	CWDM-SFP-40-33-L
Cisco	CWDM-SFP-1530-40-L	MSA	CWDM-SFP-40-35-L
Cisco	CWDM-SFP-1550-40-L	MSA	CWDM-SFP-40-37-L
Cisco	CWDM-SFP-1570-40-L	MSA	CWDM-SFP-40-39-L
Cisco	CWDM-SFP-1590-40-L	MSA	CWDM-SFP-40-41-L
Cisco	CWDM-SFP-1610-40-L	MSA	CWDM-SFP-40-43-L
Extreme	1G-SFP-CWDM40-1270-L	MSA	CWDM-SFP-40-45-L
Extreme	1G-SFP-CWDM40-1290-L	MSA	CWDM-SFP-40-47-L
Extreme	1G-SFP-CWDM40-1310-L	MSA	CWDM-SFP-40-49-L
Extreme	1G-SFP-CWDM40-1330-L	MSA	CWDM-SFP-40-51-L
Extreme	1G-SFP-CWDM40-1350-L	MSA	CWDM-SFP-40-53-L
Extreme	1G-SFP-CWDM40-1370-L	MSA	CWDM-SFP-40-55-L
Extreme	1G-SFP-CWDM40-1390-L	MSA	CWDM-SFP-40-57-L
Extreme	1G-SFP-CWDM40-1410-L	MSA	CWDM-SFP-40-59-L
Extreme	1G-SFP-CWDM40-1430-L	MSA	CWDM-SFP-40-61-L