

SFP-1G-CWDM-40

1000BASE, SFP CWDM, EX, SMF TRANSCEIVER
1270-1610nm, 40km REACH, DUPLEX LC CONNECTOR

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1000Base SFP CWDM EX 1270-1610nm SMF 40km Transceiver

Product Features

- Up to 1.25Gb/s data links
- CWDM DFB laser transmitter and PIN photo-detector.
- Up to 40km on 9/125um SMF
- Hot-pluggable SFP footprint
- Duplex LC/UPC type pluggable optical interface.
- Low power dissipation
- RoHS-10 compliant and lead-free
- Support Digital Monitoring interface.
- Single +3.3V power supply
- Compliant with SFF-8472
- Metal enclosure, for lower EMI
- Meet ESD requirements, resist 8KV direct contact voltage.
- Available operating temperature ranges:
 - Commercial: 0°C to 70°C
 - Industrial: -40°C to 85°C



Product Applications

- 1000BASE-EX Ethernet
- OTN / FC
- Other optical links

I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Units
Storage Temperature	TS	-40		+85	°C
Power Supply Voltage	Vcc	-0.5		3.6	V
Relative Humidity	RH	5		95	%
Damage Threshold	THd	5			dBm

II. Operating / Environment Specifications

Parameter		Symbol	Min.	Typ.	Max.	Units
Case Operating Temperature	Commercial	TC	0		+70	°C
	Industrial		-40		+85	°C
Supply Voltage		VCC	3.135		3.465	V
Data Rate			1.25			Gb/s
Control Input Voltage High			2		Vcc	V
Control Input Voltage Low			0		0.8	V
Link Distance (SMF)		D			40	km

III. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_c	1270		1610	nm	
Spectrum Bandwidth (RMS)	σ			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Optical Power	Pavg	-5		0	dBm	
Extinction Ratio	ER	9			dB	
Transmitter OFF Output Power	Poff			-45	dBm	
Output Eye Mask	Compliant with 802.3z(class 1 laser safety)					1
Receiver						
Center Wavelength	λ_c	1270		1610	nm	
Sensitivity (Average Power)	Pol			-24	dBm	2
Input Saturation Power (overload)	Sen	-1			dBm	
RX_LOS Assert	LOS A	-36			dBm	3
RX_LOS De-assert	LOS D			-25	dBm	3
RX_LOS Hysteresis	LOS H	0.5			dB	

Notes:

1. Transmitter eye mask definition.
2. Measured with Light source 1270~1610nm, ER=9dB; BER \leq 1E-12 @PRBS=2⁷-1 NRZ
3. When LOS de-asserted, the RX data+/- output is High-level (fixed).

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IV. Electrical Characteristics



















Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Consumption	P			0.95	W	commercial
				1.00		Industrial
Supply Current	Icc			280	mA	commercial
				300		Industrial
Transmitter						
Single-ended Input Voltage Tolerance	Vcc	-0.3		4.0	V	
Differential Input Voltage Swing	Vin,pp	200		2400	mVpp	
Differential Input Impedance	Zin	90	100	110	Ohm	
Transmit Disable Assert Time				5	us	
Transmit Disable Voltage	Vdis	Vcc-1.3		Vcc	V	
Transmit Enable Voltage	Ven	Vee-0.3		0.8	V	
Receiver						
Differential Output Voltage Swing	Vout,pp	500		900	mVpp	
Differential Output Impedance	Zout	90	100	110	Ohm	
Data output rise/fall time	Tr/Tf		100		ps	20% - 80%
LOS Assert Voltage	VlosH	Vcc-1.3		Vcc	V	
LOS De-Assert Voltage	VlosL	Vee-0.3		0.8	V	

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V. Ordering Details

Part Number	Data Rate	Applications	Case Temp.	xWDM λ Channel
SFP-CXX-40-GD	1.25Gbps	10GHz / peak ch:17-61 / 100km	0 ~ +70°C	XX
SFP-CXX-40-GDI			-40 ~ +85°C	

CWDM ITU Grid (18-Channel)							
Wavelength (nm)	CXX	Typical Bail Color		Wavelength (nm)	CXX	Typical Bail Color	
1270	C27	Light Purple		1450	C45	Yellow/Orange	
1290	C29	Sky Blue		1470	C47	Gray	
1310	C31	Yellow/Green		1490	C49	Violet	
1330	C33	Yellow/Ochre		1510	C51	Blue	
1350	C35	Pink		1530	C53	Green	
1370	C37	Beige		1550	C55	Yellow	
1390	C39	White		1570	C57	Orange	
1410	C41	Silver		1590	C59	Red	
1430	C43	Black		1610	C61	Brown	

Notes: ITU-T G.694.2 defines 18 wavelengths for CWDM transport ranging from 1270 to 1610 nm, spaced at 20 nm apart.

Warranty

All transceivers feature a limited lifetime warranty.

Disclaimer

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.