

SFP-1G-CWDM-40

SFP 1.25Gb/s CWDM Single-mode 40KM DDM

PRODUCT FEATURES

- Up to 1.25Gb/s Data Links
- Hot-Pluggable SFP footprint
- 18 wavelengths 1270~1610nm CWDM DFB laser transmitter
- Duplex LC connector
- Up to 40 km on 9/125μm SMF
- Single +3.3V Power Supply
- Compliant with SFF-8431 SFF-8432 and IEE802.3ae
- Operating temperature range:
Commercial: 0°C to 70°C
Industrial: -40°C to 85°C
- RoHS compliant and Lead Free

APPLICATIONS

- 1x Fiber channel
- Gigabit Ethernet
- CWDM Networks
- Other Optical Link

PRODUCT DESCRIPTION

The SFP-1G-CWDM-40 transceiver is a high performance, cost effective module which have a Duplex LC optics interface, standard AC coupled CML for high speed signal and LVTTTL control and monitor signals. Digital diagnostics functions are available via a 2-wire serial interface, as specified inSFF-8472. Transceivers are RoHS compliant per Directive 2011/65/EU. The high performance cooled 1270~1610nm CWDM DFB transmitter and high sensitivity PIN receiver provide superior performance for Ethernet applications at up to 40km links.

Ordering information

Package	Part NO.	Data Rate	Laser	Interface	Reach (km)	Temp
SFP	SFP-1G-CWDM-40	1.25Gb/s	CWDM DFB	LC	40	0~70 °C
SFP	SFP-1G-CWDM-40-1	1.25Gb/s	CWDM DFB	LC	40	-40~85 °C

CWDM Wavelength

xx of Part Number	Central Wavelength(nm) C band
27	1270
29	1290
31	1310
33	1330
35	1350
37	1370
39	1390
41	1410
43	1430
45	1450
47	1470
49	1490
51	1510
53	1530
55	1550
57	1570
59	1590
61	1610

I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage Temperature	T _s	-40		+85	°C
Supply Voltage	V _{CC}	-0.5		3.6	V

Relative Humidity	RH	0		70	%
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II. Electrical Characteristics (TOP = Tc, VCC = 3.135 to 3.465 Volts)

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Supply Voltage	V _{CC}	3.14	3.30	3.47	V	
Supply Current	I _{CC}		150	280	mA	
Inrush Current	I _{surge}			I _{CC} +30	mA	
Maximum Power	P _{max}			1	W	
Transmitter						
Input differential impedance	R _{in}	90	100	110	Ω	1
Tx Input Single Ended DC Voltage Tolerance (Ref V _{ee} T)	V	-0.3		4	V	
Single ended data input swing	V _{in PP}	250		1200	mVp-p	2
Transmit Disable Voltage	V _D	V _{CC} -1.3		V _{CC}	V	3
Transmit Enable Voltage	V _{EN}	V _{ee}		V _{ee} + 0.8	V	
Transmit Disable Assert Time	T _{dessert}			10	us	
Receiver						
Rx Output Diff Voltage	V _o	300		800	mV	3
Data output rise time	t _r			260	ps	4
Data output fall time	t _f			260	ps	4
LOS Fault	V _{losfault}	V _{CC} -0.5		V _{CC_host}	V	5
LOS Normal	V _{los norm}	V _{ee}		V _{ee} +0.5	V	5
Total Generated Receiver Jitter (peak to peak)	JRXp-p			0.07	UI	
Total Generated Receiver Jitter (rms)	JRXrms			0.007	UI	

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.

III. Optical Parameters(TOP = Tc, VCC = 3.135 to 3.465Volts)

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Transmitter						
Optical Wavelength-End Of Life	λ _c	λ-6.5		λ+6.5	nm	1
Spectral Width	Δλ			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	

Optical Output Power	P_{out}	-5		0	dBm	2
Optical Power OMA	P_{OMA}				dBm	
Optical Rise/Fall Time	t_r / t_f			260	ps	3
Laser Off Power	P_{off}			-30	dBm	
Extinction Ratio	ER	9			dB	
Transmitter Dispersion Penalty	TDP			3.2	dB	2
Relative Intensity Noise	RIN			-128	dB/Hz	3
Optical Return Loss Tolerance		20			dB	
Eye Mask for Optical Output	Compliant with IEEE802.3 z (class 1 laser safety)					
Receiver						
Optical Input Wavelength	λ_c	1270		1610	nm	
Receiver Overload	P_{ol}	-3			dBm	4,5
RX Sensitivity	Sen			-24	dBm	4,5
Stressed Sensitivity (OMA)	Sen_{ST}				dBm	
RX_LOS Assert	LOS_A	-38			dBm	
RX_LOS Deassert	LOS_D			-25	dBm	
RX_LOS Hysteresis	LOS_H	0.5			dB	
Receiver Reflectance	R_{rx}			-12	dB	
General Specifications						
Data Rate	BR		1.25		Gb/s	
Bit Error Rate	BER			10^{-12}		
Max. Supported Link Length on 9/125 μ m SMF @ 1.25Gb/s	LMAX			40	km	
Total System Budget	LB	20			dB	

Notes:

- Also specified to meet curves in FC-PI 13.0 Figures 18 and 19, which allow trade-off between wavelength spectral widths.
- Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
- Unfiltered, 20-80%. Complies with IEEE 802.3 (Gig. E), FC 1x and 2x eye masks when filtered.
- Measured with conformance signals defined in FC-PI 13.0 specifications.
- Measured with PRBS 27 -1 at 10^{-12} BER
- Dispersion limited per FC-PI Rev. 13
- Attenuation of 0.25dB/km is used for the link length calculations. Distances are indicative only. Please refer to the Optical Specifications in Table IV to calculate a more accurate link budget based on specific conditions in your application.

X. Mechanical Specifications(Unit: mm)

