SFP-1GB-DW26-160-C

MSA and TAA 1000Base-DWDM SFP Transceiver C-Band 100GHz (SMF, 1556.55nm, 160km, LC, DOM)

Features:

- Compliant with SFP MSA
- Duplex LC Connector
- Single-mode Fiber
- Single 3.3V Supply
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- Commercial Temperature 0 to 70 Celsius
- RoHS Compliant and Lead Free

Applications:

- Gigabit Ethernet over DWDM
- Access and Enterprise

Product Description

This MSA Compliant SFP transceiver provides 1000Base-DWDM throughput up to 160km over single-mode fiber (SMF) using a wavelength of 1556.55nm via an LC connector. It is built to MSA standards and is uniquely serialized and data-traffic and application tested to ensure that they will integrate into your network seamlessly. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."

TAA COMPLIANT

Rev. 122023

SFP+ Channel Number and Wavelength

Channel	Frequency	Center Wavelength (nm)	Channel	Frequency (THz)	Center Wavelength (nm)
0	190.0	1577.86	**50**	195.0	1537.40
1	190.1	1577.03	**51**	195.1	1536.61
2	190.2	1576.20	**52**	195.2	1535.82
3	190.3	1575.37	**53**	195.3	1535.04
4	190.4	1574.54	**54**	195.4	1534.25
5	190.5	1573.71	**55**	195.5	1533.47
6	190.6	1572.89	**56**	195.6	1532.68
7	190.7	1572.06	**57**	195.7	1531.90
8	190.8	1571.24	**58**	195.8	1531.12
9	190.9	1570.42	**59**	195.9	1530.33
10	191.0	1569.59	**60**	196.0	1529.55
11	191.1	1568.77	**61**	196.1	1528.77
12	191.2	1567.95	**62**	186.2	1610.06
13	191.3	1567.13	**63**	186.3	1609.19
14	191.4	1566.31	**64**	186.4	1608.33
15	191.5	1565.50	**65**	186.5	1607.47
16	191.6	1564.68	**66**	186.6	1606.60
17	191.7	1563.86	**67**	186.7	1605.74
18	191.8	1563.05	**68**	186.8	1604.88
19	191.9	1562.23	**69**	186.9	1604.03
20	192.0	1561.42	**70**	187.0	1603.17
21	192.1	1560.61	**71**	187.1	1602.31
22	192.2	1559.79	**72**	187.2	1601.46
23	192.3	1558.98	**73**	187.3	1600.60
24	192.4	1558.17	**74**	187.4	1599.75
25	192.5	1557.36	**75**	187.5	1598.89
26	192.6	1556.55	**76**	187.6	1598.04
27	192.7	1555.75	**77**	187.7	1597.19
28	192.8	1554.94	**78**	187.8	1596.34
29	192.9	1554.13	**79**	187.9	1595.49
30	193.0	1553.33	**80**	188.0	1594.64
31	193.1	1552.52	**81**	188.1	1593.79
32	193.2	1551.72	**82**	188.2	1592.95
33	193.3	1550.92	**83**	188.3	1592.10
34	193.4	1550.12	**84**	188.4	1591.26
35	193.5	1549.32	**85**	188.5	1590.41
36	193.6	1548.51	**86**	188.6	1589.57
37	193.7	1547.72	**87**	188.7	1588.73
38	193.8	1546.92	**88**	188.8	1587.88
39	193.9	1546.12	**89**	188.9	1587.04
40	194.0	1545.32	**90**	189.0	1586.20

41	194.1	1544.53	**91**	189.1	1585.36
42	194.2	1543.73	**92**	189.2	1584.53
43	194.3	1542.94	**93**	189.3	1583.69
44	194.4	1542.14	**94**	189.4	1582.85
45	194.5	1541.35	**95**	189.5	1582.02
46	194.6	1540.56	**96**	189.6	1581.18
47	194.7	1539.77	**97**	189.7	1580.35
48	194.8	1538.98	**98**	189.8	1579.52
49	194.9	1538.19	**99**	189.9	1578.69

Absolute Maximum Ratings

Parameter		Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage		Vcc	-0.5		3.6	V
Storage Temperature		Tstg	-40		85	°C
Operating Case Temperature		Tc	0		70	°C
Operating Humidity		RH			95	%
Data Rate	**GBE**			1.25		Gbps
	FC			1.063		

Electrical Characteristics

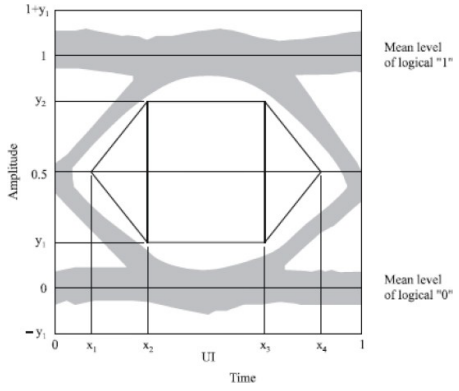
Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage		Vcc	3.15	3.3	3.45	V	
Power Supply Current		Icc			450	mA	
Transmitter							
CML Differential Inputs		VIN	400		1600	mVp-p	AC Coupled Inputs
Input Differential Impedance		ZIN	85	100	115	Ω	RIN>100kΩ @ DC
Tx_Disable	**Disable**		2		Vcc	V	
	Enable		0		0.8		
Tx_Fault	**Fault**		2		Vcc	V	
	Normal		0		0.8		
Receiver							
CML Differential Outputs		VOUT	400	800	1200	mVp-p	AC Coupled Outputs
Output Impedance		ZOUT	85	100	115	Ω	
Rx_LOS	**LOS**		2		Vcc	V	
	Normal		0		0.8	V	
MOD-DEF (0:2)		VOH	2.5			V	
		VOL	0		0.8	V	

Optical Characteristics

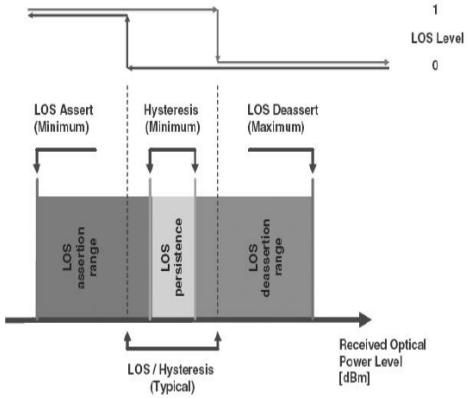
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Optical Center Wavelength	λC	1528		1610	nm	
Spectral Width (-20dB)	Δλ			0.3	nm	
Side-Mode Suppression Ratio	SMSR	30			dB	
Channel Spacing	Δf		100		GHz	
Deviation From Central Frequency @ EOL		-12		12	GHz	
Average Output Power	POUT	2		5	dBm	1
Average Launch Power (Tx Off)	Poff			-45	dBm	
Extinction Ratio	ER	8.2			dB	1
Rise/Fall Time (20-80%)	Tr/Tf			150	ps	
Tx_Disable Assert Time	Toff			10	us	
POUT @ Tx_Disable Asserted	POUT			-45	dBm	
Optical Signal Noise Ratio @ 0.1nm	OSNR		40		dB	3
Relative Intensity Noise	RIN			-135	dB/Hz	
Dispersion Tolerance	DT		2400		Ps/nm	
Output Optical Eye	Compatible with IEEE 802.3					1, 4
Receiver						
Optical Input Wavelength	λ	1528		1620	nm	
Receiver Sensitivity	Pmin			-31	dBm	2
Receiver Overload	Pmax	-9			dBm	
LOS De-Assert	LOSD			-32	dBm	
LOS Assert	LOSA	-45			dBm	
LOS Hysteresis			0.5		dB	5

Notes:

1. Filtered. Measured with a PRBS 2^{23}-1 test pattern at 2.5Gbps.
2. Measured with a PRBS 2^{23}-1 test pattern at 2.5Gbps, G.652 SMF, and BER ≤1x10^{-12}.
3. OSNR at BER of $10e^{-12}$.
4. Eye Pattern Mask.



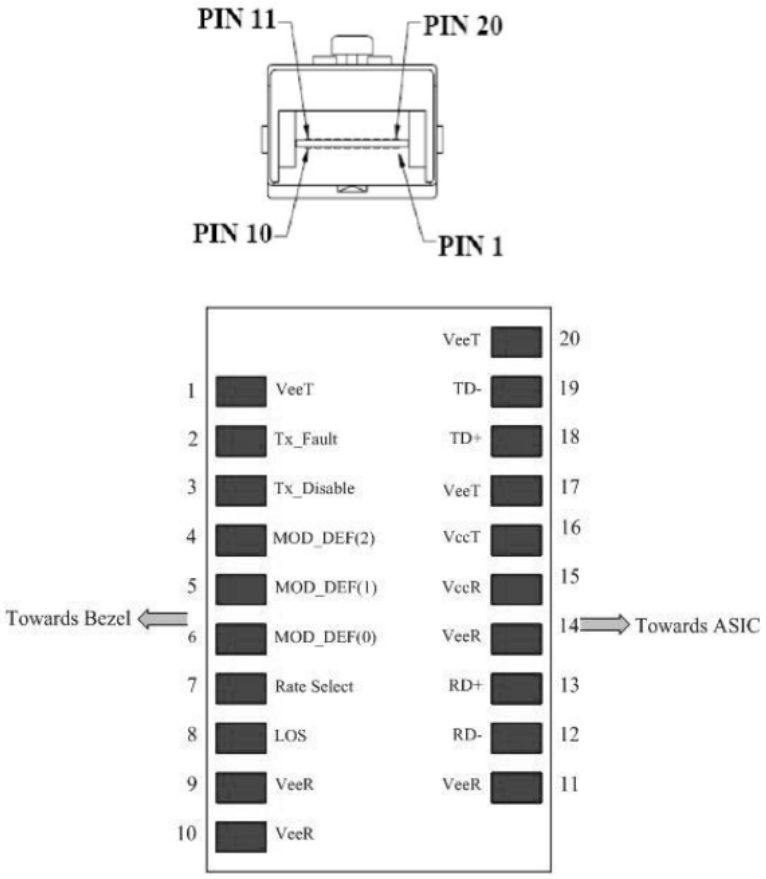
5. LOS Hysteresis.



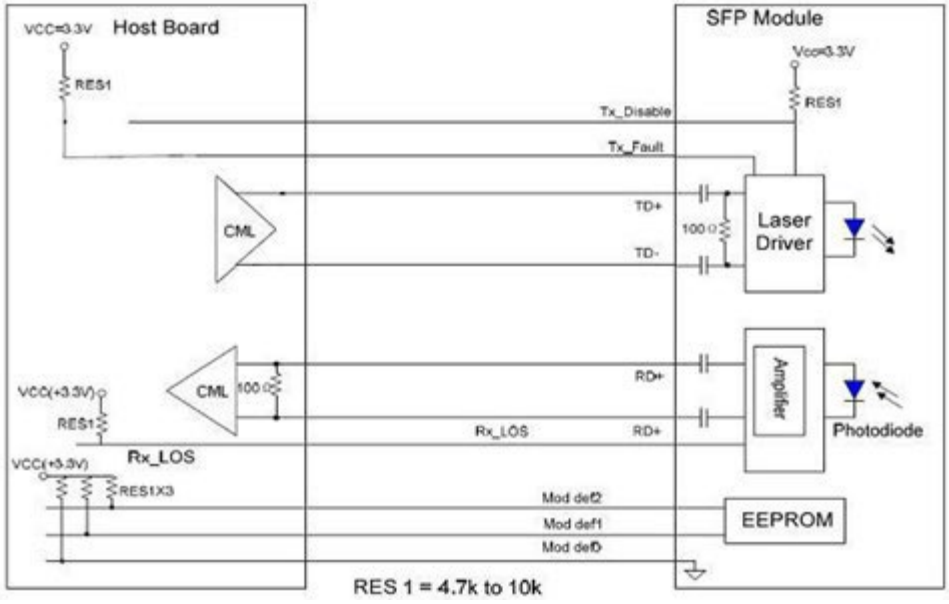
Pin Descriptions

Pin	Symbol	Name/Description	Note
1	VeeT	Transmitter Ground.	
2	Tx_Fault	Transmitter Fault Indication. Open Collector/Drain Output.	
3	Tx_Disable	Transmitter Disable.	
4	MOD-DEF2	Module Definition 2. 2-Wire Serial Interface Data.	
5	MOD-DEF1	Module Definition 1. 2-Wire Serial Interface Clock.	
6	MOD-DEF0	Module Definition 0. Grounded within the module.	
7	Rate Select	Rate Select 0. Not Used.	
8	LOS	Loss of Signal. Open Collector/Drain Output.	
9	VeeR	Receiver Ground.	
10	VeeR	Receiver Ground.	
11	VeeR	Receiver Ground.	
12	RD-	Inverted Receiver Data Out.	
13	RD+	Received Data Out.	
14	VeeR	Receiver Ground.	
15	VccR	Receiver Power. 3.3 ± 5%.	
16	VccT	Transmitter Power. 3.3 ± 5%.	
17	VeeT	Transmitter Ground.	
18	TD+	Transmitter Data In.	
19	TD-	Inverted Transmit Data In.	
20	VeeT	Transmitter Ground.	

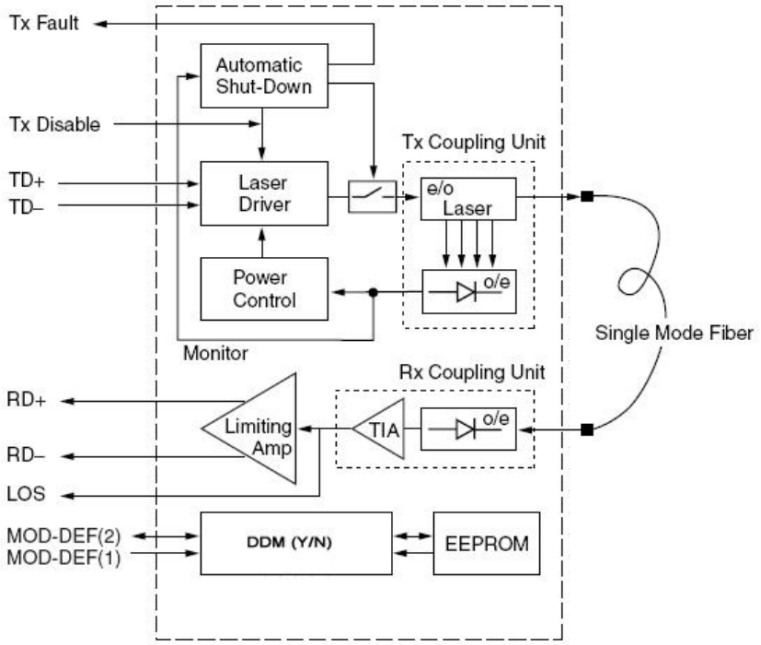
Electrical Pad Layout



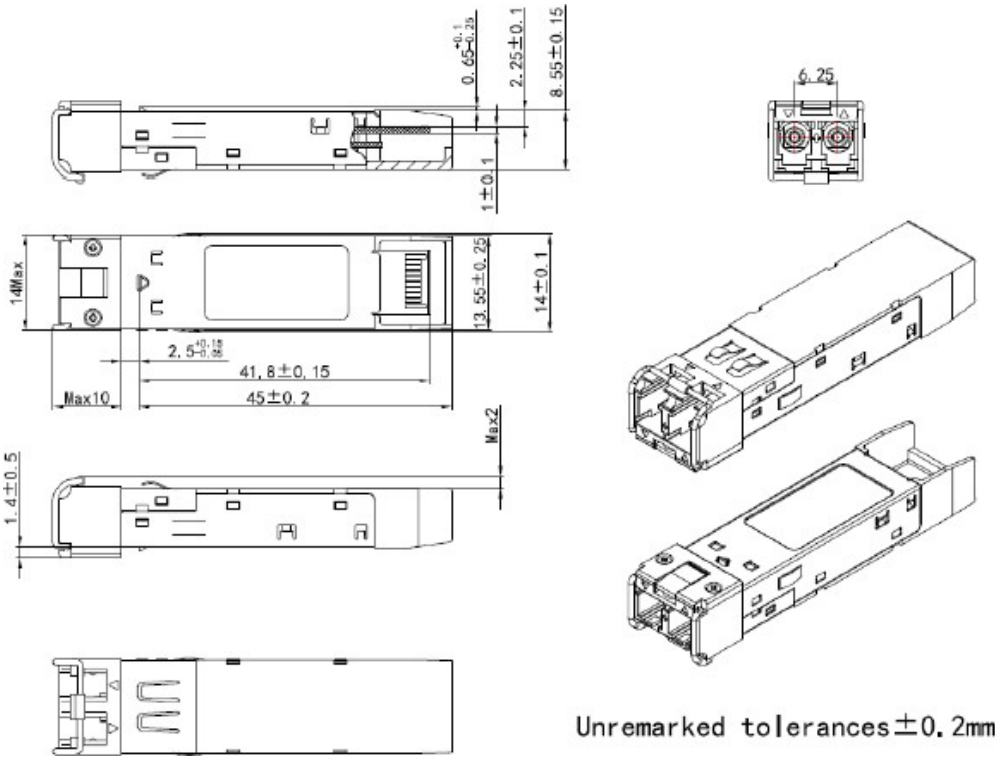
Recommended Circuit Schematic



Functional Description of Transceiver

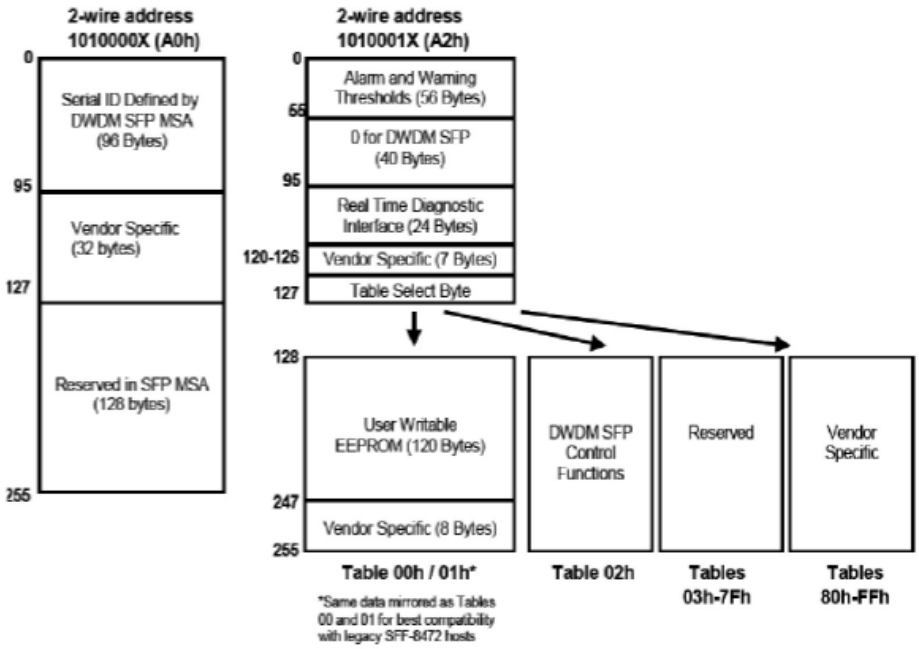


Mechanical Specifications



EEPROM Information

EEPROM memory map-specific data field description is as below:



About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.

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