Product Features

- Compliant with SFF-8431,SFF-8432 and IEE802.3ae
- Suitable for use in 100GHz channel spacing DWDM systems
- Cooled EML transmitter and APD receiver
- Digital Diagnostic Monitor Interface
- Hot pluggable
- Link length up to 40km
- 10GBASE-ZR Fiber Channel applications.
- Low power consumption
- Operating case temperature: 0 to 70 °C

Applications

- 10Gigabit Ethernet
- 10G Fiber Channel
- Switched backplane applications
- Router/Server interface
- Other Optical Links

General

SFP+-DWDM-40-xxCh - are high performance transceiver is designed to transmit and receive optical data over single mode optical fiber for link length 40km.

The transceiver consists of two sections: The transmitter section incorporates a colded EML laser. And the receiver section consists of a APD photodiode integrated with a TIA. All modules satisfy class I laser safety requirements. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472, which allows real-time access to device operating parameters such as transceiver temperature, laser bias current, transmitted optical power, received optical power and transceiver supply voltage.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Supply Voltage	Vcc	-0.5	4.0	V	
Storage Temperature	Ts	-40	85	°C	
Relative Humidity	RH	0	85	%	

Note: Stress in excess of the maximum absolute ratings can cause permanent damage to the module

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General Operating Characteristics

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Supply Voltage	Vcc	3.13	3.3	3.47	V	
Supply Current	Icc5			450	mA	
Operating Case Temp.	Tc	0		+70	°C	

Electrical Input/Output Characteristics

Parameter		Symbol	Min.	Typ	Max.	Unit	Note
Transmitter							
Diff. input voltage swing			120		820	mVpp	1
Tx Disable input	**H**	VIH	2.0		Vcc+0.3	V	
	L	VIL	0		0.8		
Tx Fault output	**H**	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.8		
Input Diff. Impedance		Zin		100		Ω	
Receiver							
Diff. output voltage swing			340	650	800	mVpp	3
Rx LOS Output	**H**	VOH	2.0		Vcc+0.3	V	2
	L	VOL	0		0.8		

Notes:
1. TD+/- are internally AC coupled with 100Ω differential termination inside the module.
2. Tx Fault and Rx LOS are open collector outputs, which should be pulled up with 4.7k to 10kΩ resistors on the host board. Pull up voltage between 2.0V and Vcc+0.3V.
3. RD+/- outputs are internally AC coupled, and should be terminated with 100Ω (differential) at the user SERDES.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter						
Operating Wavelength	λ		xx		nm	4
Ave. output power (Enabled)	PAVE	0		5	dBm	1
Extinction Ratio	ER	8.2			dB	1
RMS spectral width	Δλ			1	nm	
Rise/Fall time (20%~80%)	Tr/Tf			50	ps	2
Output Optical Eye	Compliant with IEEE802.3 z (class 1 aser safety)					

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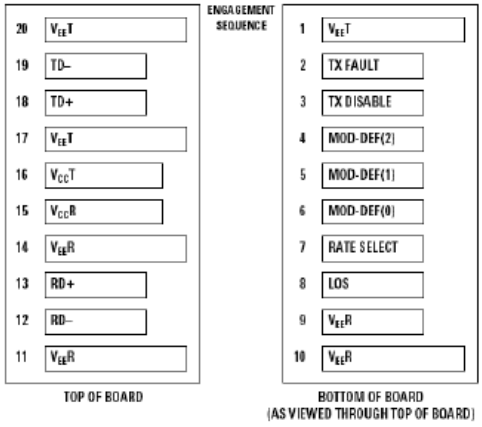
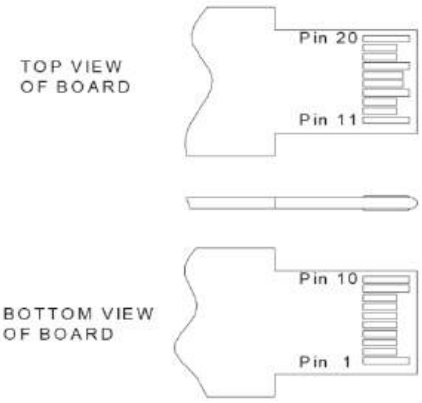
Receiver						
Operating Wavelength	λ	1525		1610	nm	
Receiver Sensitivity	PSEN1			-23	dBm	3
Overload	PAVE	-7			dBm	
LOS Assert	Pa	-32			dBm	
LOS De-assert	Pd			-25	dBm	
LOS Hysteresis	Pd-Pa	0.5		4	dB	

Notes:
1. Measured at 10.3125b/s with PRBS 231 – 1 NRZ test pattern.
2. 20%~80%
3. Under the ER worst case, measured at 10.3125 Gb/s with PRBS 231 - 1 NRZ test pattern for BER < 1x10-12
4. If there is DWDM Product ,the wavelength XX— CH 17-61

Pin Definitions and Functions





Pin	Symbol	Name/Description	Notes
1	VeeT	Tx ground	
2	Tx Fault	Tx fault indication, Open Collector Output, active “H”	1
3	Tx Disable	LVTTL Input, internal pull-up, Tx disabled on “H”	2
4	MOD-DEF2	2 wire serial interface data input/output (SDA)	3
5	MOD-DEF1	2 wire serial interface clock input (SCL)	3
6	MOD-DEF0	Model present indication	3
7	Rate select	No connection	
8	LOS	Rx loss of signal, Open Collector Output, active “H”	4
9	VeeR	Rx ground	
10	VeeR	Rx ground	
11	VeeR	Rx ground	
12	RD-	Inverse received data out	5
13	RD+	Received data out	5
14	VeeR	Rx ground	

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15	VccR	Rx power supply	
16	VccT	Tx power supply	
17	VeeT	Tx ground	
18	TD+	Transmit data in	6
19	TD-	Inverse transmit data in	6
20	VeeT	Tx ground	

Notes:

1. When high, this output indicates a laser fault of some kind. Low indicates normal operation. And should be pulled up with a 4.7 – 10KΩ resistor on the host board.

2. TX disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7 – 10KΩ resistor. Its states are:

Low (0 – 0.8V): Transmitter on (>0.8, < 2.0V): Undefined
High (2.0V~Vcc+0.3V): Transmitter Disabled Open: Transmitter Disabled

3. Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a 4.7K – 10KΩ resistor on the host board. The pull-up voltage shall be between 2.0V~Vcc+0.3V.

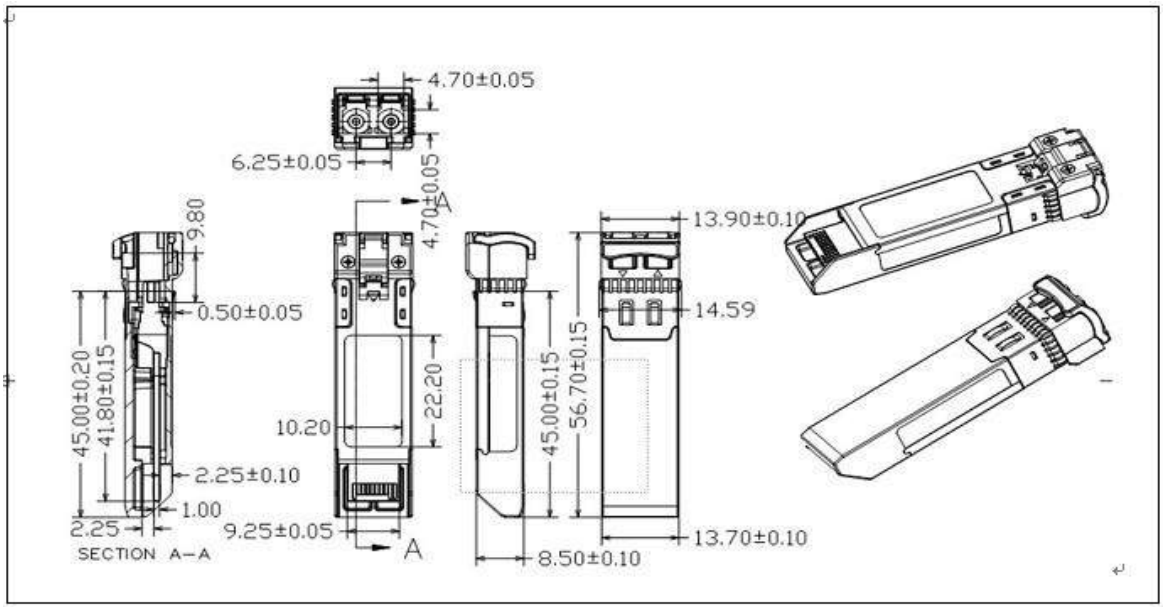
Mod-Def 0 has been grounded by the module to indicate that the module is present
Mod-Def 1 is the clock line of two wire serial interface for serial ID
Mod-Def 2 is the data line of two wire serial interface for serial ID

4. When high, this output indicates loss of signal (LOS). Low indicates normal operation.

5. RD+/-: These are the differential receiver outputs. They are AC coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board.

6. TD+/-: These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board.

Functional Diagram



SFP+-DWDM-40-xxCh

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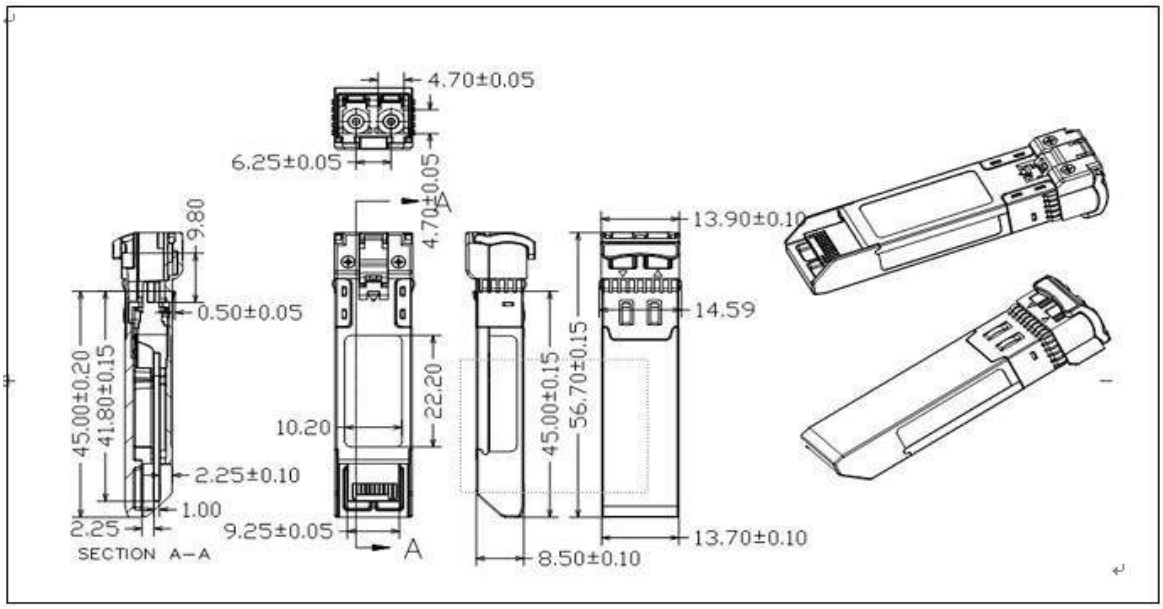
Package Dimensions



Ordering Infromation

Part Number	Output Power	Rec. Sens	Data Rate	Wavelength	Distance
SFP-DWDM-40-xxCh	*-3~+3dBm*	*-15dBm*	1.25-11.1G	*C-brand*	*40km*

Product Selection C-band λc Wavelength Guide Pin Descriptions

Channel#	Product Code	Frequency (THz)	Cent Wavelength (nm)
17	*XFP-DWDM-80-17Ch*	191.7	1563.86
18	*XFP-DWDM-80-18Ch*	191.8	1563.05
19	*XFP-DWDM-80-19Ch*	191.9	1562.23
20	*XFP-DWDM-80-20Ch*	192.0	1561.42
21	*XFP-DWDM-80-21Ch*	192.1	1560.61
22	*XFP-DWDM-80-22Ch*	192.2	1559.79
23	*XFP-DWDM-80-23Ch*	192.3	1558.98
24	*XFP-DWDM-80-24Ch*	192.4	1558.17
25	*XFP-DWDM-80-25Ch*	192.5	1557.36

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26	XFP-DWDM-80-26Ch	192.6	1556.55
27	XFP-DWDM-80-27Ch	192.7	1555.75
28	XFP-DWDM-80-28Ch	192.8	1554.94
29	XFP-DWDM-80-29Ch	192.9	1554.13
30	XFP-DWDM-80-30Ch	193.0	1553.33
31	XFP-DWDM-80-31Ch	193.1	1552.52
32	XFP-DWDM-80-32Ch	193.2	1551.72
33	XFP-DWDM-80-33Ch	193.3	1550.92
34	XFP-DWDM-80-34Ch	193.4	1550.12
35	XFP-DWDM-80-35Ch	193.5	1549.32
36	XFP-DWDM-80-36Ch	193.6	1548.51
37	XFP-DWDM-80-37Ch	193.7	1547.72
38	XFP-DWDM-80-38Ch	193.8	1546.92
39	XFP-DWDM-80-39Ch	193.9	1546.12
40	XFP-DWDM-80-40Ch	194.0	1545.32
41	XFP-DWDM-80-41Ch	194.1	1544.53
42	XFP-DWDM-80-42Ch	194.2	1543.73
43	XFP-DWDM-80-43Ch	194.3	1542.94
44	XFP-DWDM-80-44Ch	194.4	1542.14
45	XFP-DWDM-80-45Ch	194.5	1541.35
46	XFP-DWDM-80-46Ch	194.6	1540.56
47	XFP-DWDM-80-47Ch	194.7	1539.77
48	XFP-DWDM-80-48Ch	194.8	1538.98
49	XFP-DWDM-80-49Ch	194.9	1538.19
50	XFP-DWDM-80-50Ch	195.0	1537.40
51	XFP-DWDM-80-51Ch	195.1	1536.61
52	XFP-DWDM-80-52Ch	195.2	1535.82
53	XFP-DWDM-80-53Ch	195.3	1535.04
54	XFP-DWDM-80-54Ch	195.4	1534.25
55	XFP-DWDM-80-55Ch	195.5	1533.47
56	XFP-DWDM-80-56Ch	195.6	1532.68
57	XFP-DWDM-80-57Ch	195.7	1531.90
58	XFP-DWDM-80-58Ch	195.8	1531.12
59	XFP-DWDM-80-59Ch	195.9	1530.33
60	XFP-DWDM-80-60Ch	196.0	1529.55
61	XFP-DWDM-80-61Ch	196.1	1528.77

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