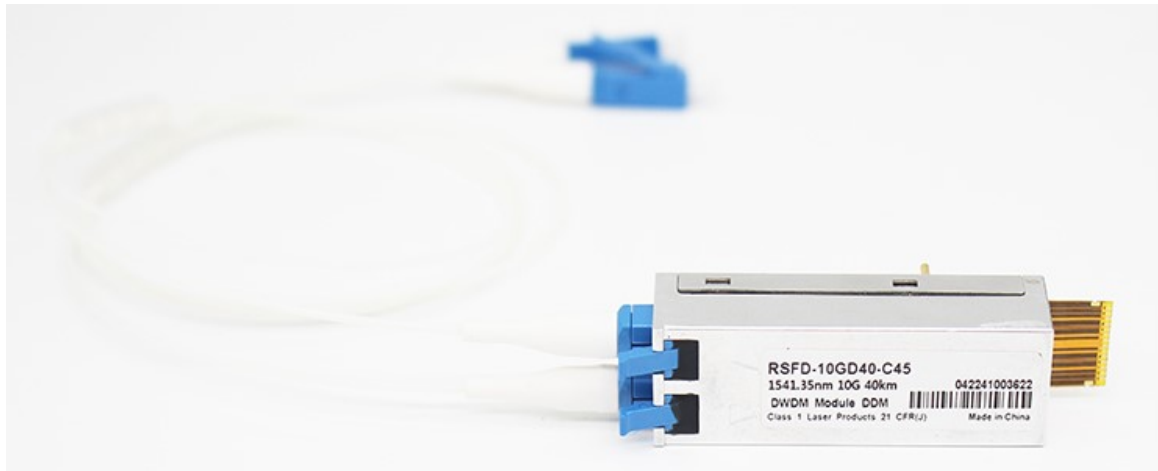


RSFD-10GD-CXX Series

155M~10Gb/s 40km DWDM SFF Transceiver Module, Duplex LC, +3.3V, 50GHz, DWDM EML, Single mode



FIBERWDM's RSFD-10GD40-Cxx is a surface mounted transceiver module, it supports 155-9.95 GBIT/s bit rate in the CDR off-line mode, and 9.95-10.3125 GBIT/s bit rate in CDR mode. Suitable for 40km SMF connection, and -40°C to 85°C Working Industrial Temperature, it grate used in DWDM transfer mission system.

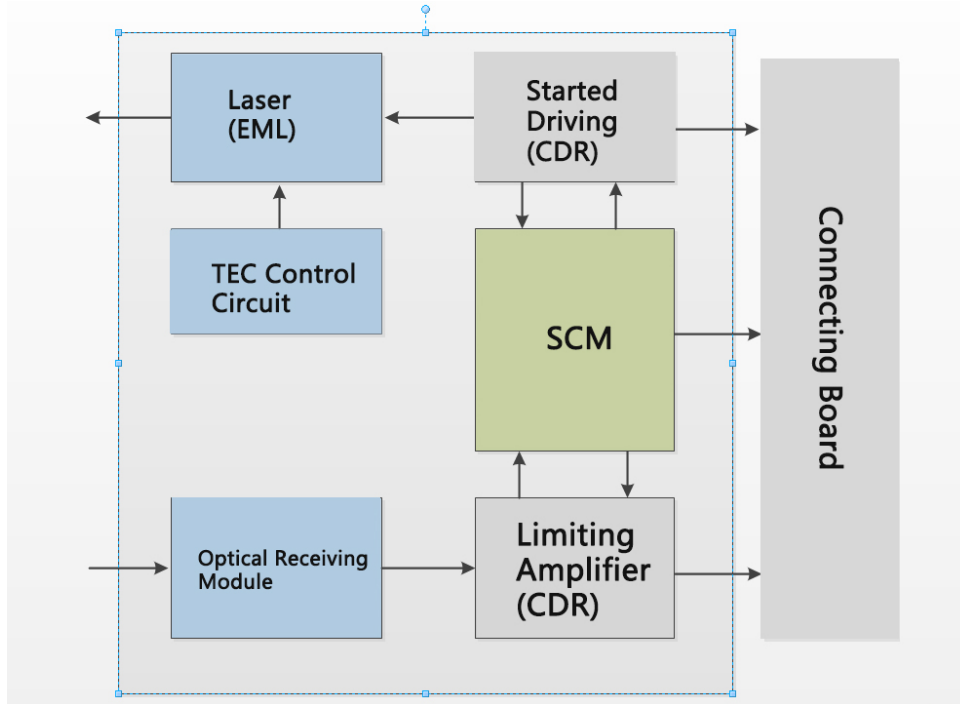
Features

- ◆ 1550nm or DWDM EML Laser with TEC, Available in all C - Band Wavelengths on the 50GHz
- ◆ PIN- TIA Receiver
- ◆ LC duplex connector or customizable pigtail fiber
- ◆ Single Channel+ 3.3V Power Supply
- ◆ The CDR off-line mode supports 155-9.95 GBIT/s bit rate, and the CDR mode supports 9.95-10.3125 GBIT/s bit rate
- ◆ Internal Transmitting/Receiving CDR
- ◆ -40°C to 85°C Working Industrial Temperature
- ◆ Suitable for 40km SMF connection
- ◆ Comply with SFF-8472 Rev 10.2
- ◆ Whole Metal Shell and Excellent electromagnetic interference performance
- ◆ Completely comply with RoHS Standard

Application

- ◆ 10GBASE-ER/10G Ethernet
- ◆ 10G Optical Fiber Channel
- ◆ SONET OC-192/SDH STM-6
- ◆ DWDM System

Diagrammatic Layout



P1, Transceiver function diagram

Product Information

Table 1-Product Information

Type	Bite Rate	Wavelength of Laser (nm)	Transmission Range (km)	Fiber Type	Connector	Temperature
1550	155M-10.3125G	1550	40	SMF	LC	-40~+85℃
DWDM	155M-10.3125G	50Ghz DWDM	40	SMF	LC	-40~+85℃

DWDM wavelength Guide

Table 2-DWDM wavelength guide

ITU channel (***)	Frequency (THz)	Wavelength (nm)	ITU Channel (***)	Frequency (THz)	Wavelength (nm)
C13	191.3	1567.13	C37	193.7	1547.72
H13	191.35	1566.72	H37	193.75	1547.32
C14	191.4	1566.31	C38	193.8	1546.92
H14	191.45	1565.90	H38	193.85	1546.52
C15	191.5	1565.50	C39	193.9	1546.12
H15	191.55	1565.09	H39	193.95	1545.72

C16	191.6	1564.68	C40	194	1545.32
H16	191.65	1564.27	H40	194.05	1544.92
C17	191.7	1563.86	C41	194.1	1544.53
H17	191.75	1563.45	H41	194.15	1544.13
C18	191.8	1563.05	C42	194.2	1543.73
H18	191.85	1562.64	H42	194.25	1543.33
C19	191.9	1562.23	C43	194.3	1542.94
H19	191.95	1561.83	H43	194.35	1542.54
C20	192	1561.42	C44	194.4	1542.14
H20	192.05	1561.01	H44	194.45	1541.75
C21	192.1	1560.61	C45	194.5	1541.35
H21	192.15	1560.20	H45	194.55	1540.95
C22	192.2	1559.79	C46	194.6	1540.56
H22	192.25	1559.39	H46	194.65	1540.16
C23	192.3	1558.98	C47	194.7	1539.77
H23	192.35	1558.58	H47	194.75	1539.37
C24	192.4	1558.17	C48	194.8	1538.98
H24	192.45	1557.77	H48	194.85	1538.58
C25	192.5	1557.36	C49	194.9	1538.19
H25	192.55	1556.96	H49	194.95	1537.79
C26	192.6	1556.55	C50	195	1537.40
H26	192.65	1556.15	H50	195.05	1537.00
C27	192.7	1555.75	C51	195.1	1536.61
H27	192.75	1555.34	H51	195.15	1536.22
C28	192.8	1554.94	C52	195.2	1535.82
H28	192.85	1554.54	H52	195.25	1535.43
C29	192.9	1554.13	C53	195.3	1535.04
H29	192.95	1553.73	H53	195.35	1534.64
C30	193	1553.33	C54	195.4	1534.25
H30	193.05	1552.93	H54	195.45	1533.86
C31	193.1	1552.52	C55	195.5	1533.47
H31	193.15	1552.12	H55	195.55	1533.07
C32	193.2	1551.72	C56	195.6	1532.68
H32	193.25	1551.32	H56	195.65	1532.29
C33	193.3	1550.92	C57	195.7	1531.90
H33	193.35	1550.52	H57	195.75	1531.51
C34	193.4	1550.12	C58	195.8	1531.12
H34	193.45	1549.72	H58	195.85	1530.72
C35	193.5	1549.32	C59	195.9	1530.33
H35	193.55	1548.91	H59	195.95	1529.94
C36	193.6	1548.51	C60	196	1529.55
H36	193.65	1548.11	H60	196.05	1529.16

Absolute Maximum Ratings

Table 3- Absolute Maximum Ratings

Parameter	Simbol	Min	Typical	Max	Unit	Annotation
Power Voltage	V _{CC3}	-0.5	-	+3.6	V	2

Temp of Storage	T_s	-40	-	+85	°C	2
Humidity of Working	RH	0	-	+95	%	2

Note 2: Exceeding any of these values can permanently destroy the device.

Recommended Working Environment

Table 4- Recommended Working Environment

Parameter	Simbol	Min	Typical	Max	Unit	Annotation
Working Temperature of Shell	T_c	-40	-	+85	°C	
Working Voltage	V_{cc}	3.14	3.3	3.47	V	
Working Current	I_{cc}	-	-	600	mA	
Working Rate Bit	BR	155	-	10.3125	Mbps	

Electrical Property

Table 5- Electrical Property

Parameter	Simbol	Min	Typical	Max	Unit	Annotation
Transmitter						
Differential Input Voltage Swing	$V_{in,P-P}$	180	-	700	mV _{pp}	
Differential Input Impedance	Z_{IN}	80	100	120	Ω	
Transmitting Fault	Running Normal	V_{OL}	0	-	0.8	V
	Transmitter Fault	V_{OH}	2.4	-	$V_{CC}+0.4$	V
Transmitter OFF	Running Normal	V_{IL}	0	-	0.8	V
	Laser OFF	V_{IH}	2.4	-	$V_{CC}+0.3$	V
Receiver						
Differential data output swing	V_{out}	400	600	850	mV	
Differential Output Impedance	Z_D	80	100	120	Ω	
Output Rising Time (20-80%)	T_R	25	-	-	ps	
Output Falling Time (20-80%)	T_F	25	-	-	ps	
Receiving Signal Detection	Running Normal	V_{OL}	0	-	0.4	V
	Loss of Receiving signal	V_{OH}	2.4	-	V_{CC}	V

Optical Property

Table 6-Optical Property

Parameter	Simbol	Min	Min	Typical	Max	Annotation
Optical Emission Characteristics						
Bit Rate	BR	155	-		Mbps	
				10.3125	Gbps	
Range of Central Wavelength	λ_{c1}	-	1550	-	nm	
	λ_{c2}	1529.16	-	1547.72	nm	
Transmit off optical power	P_{off}	-	-	-30	dBm	
Average Optical Power	P_0	-3	-	2	dBm	1

Extinction Ratio	ER	8.2	-	-	dB	
Side Mode Suppression Ratio	$\Delta\lambda$	30			nm	
Optical Receiving Characteristics						
Bit Rate	BR	155	-		Mbps	
				10.3125	Gbps	
Receive Sensitivity	P_{min}	-	-	-16	dBm	2
Receiving overload sensitivity	P_{max}	2	-	-	dBm	2
Range of Receiving Wavelength	λ_{c1}	-	1550	-	nm	
	λ_{c2}	1529.16	-	1547.72	nm	
Received signal detection judgment	LOS_D	-	-	-27	dBm	
Received Signal Loss Judgment	LOS_A	-40	-	-	dBm	
Signal detection lag	LOS_H	0.5	-	6	dB	

Note:

1. Fiber is 9/125 Single Mode
2. Test Condition is Code Pattern: PRBS $2^{31}-1$, Test Rate: 10.3125Gbps, BER= $10E^{-12}$

Defination of PINS

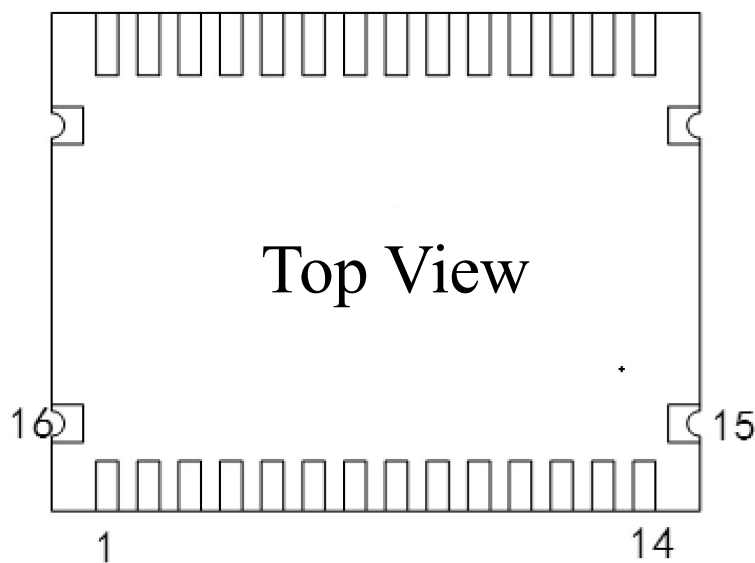


Table 7- Pin Function Definition

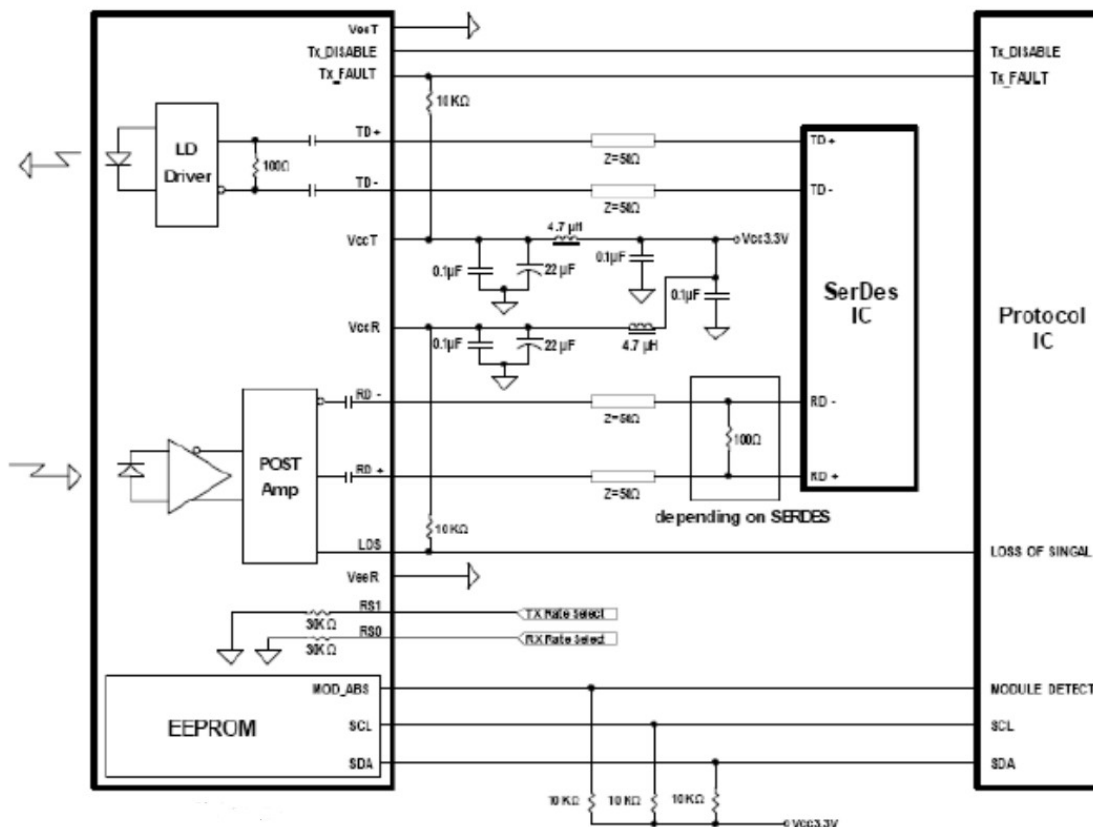
PIN	Simbol	Description	Annotati
1	RX_LOS	Signal loss indication. Logical 0 indicates that the operation is normal	1
2	TX_Disable	The transmitter is disabled. Laser output is disabled when high or open	2
3	GND	Ground	
4	RD-	Receiving data reverse end output (CML level)	
5	RD+	Received data forward output (CML level)	

6	GND	Ground	
7	VccR	Receiver power supply	
8	VccT	Transmitter Power Supply	
9	GND	Ground	
10	TD+	Forward input of originating data (CML level)	
11	TD-	Originator data reverse input (CML level)	
12	GND	Ground	
13	SCL	2-wire serial interface clock cable	1
14	SDA	2-wire serial interface data cable	1
15	GND	Ground	
16	GND	Ground	

Note

1. Apply 4.7K-10K Ω to the 3.15V to 3.6V voltage on the motherboard
2. Laser output is disabled or turned on on TDIS >2.0V and enabled on TDIS <0.8V.

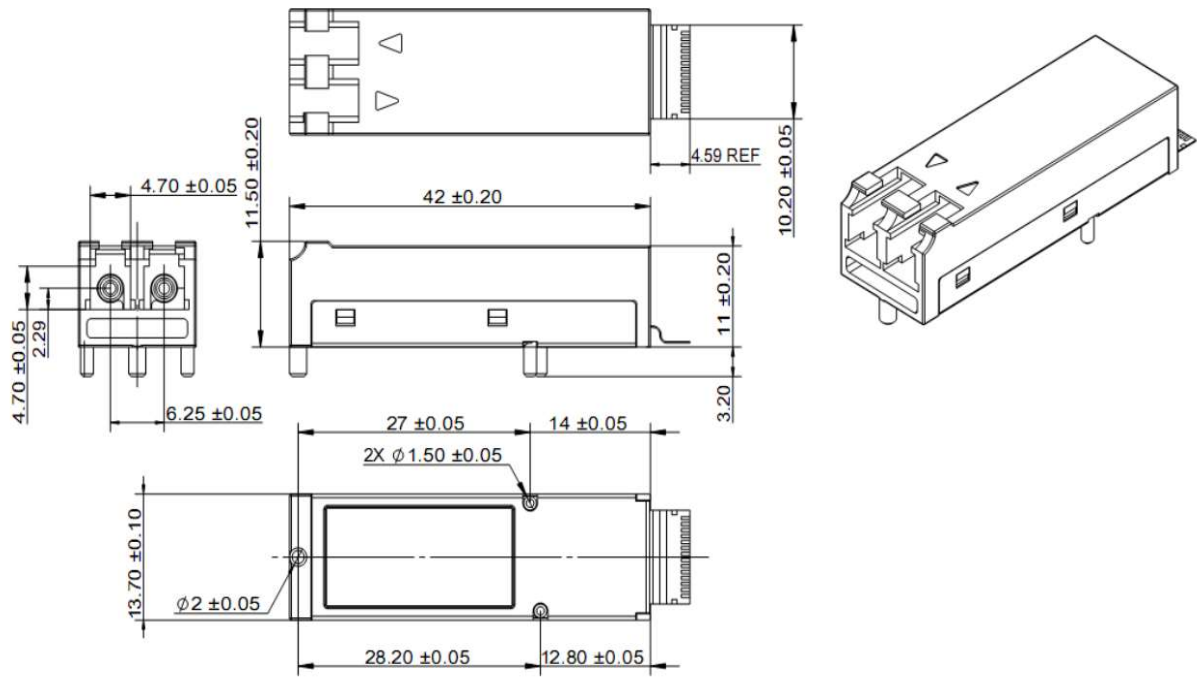
Recommended Interface Circuit



P3, Recommended Interface Circuit

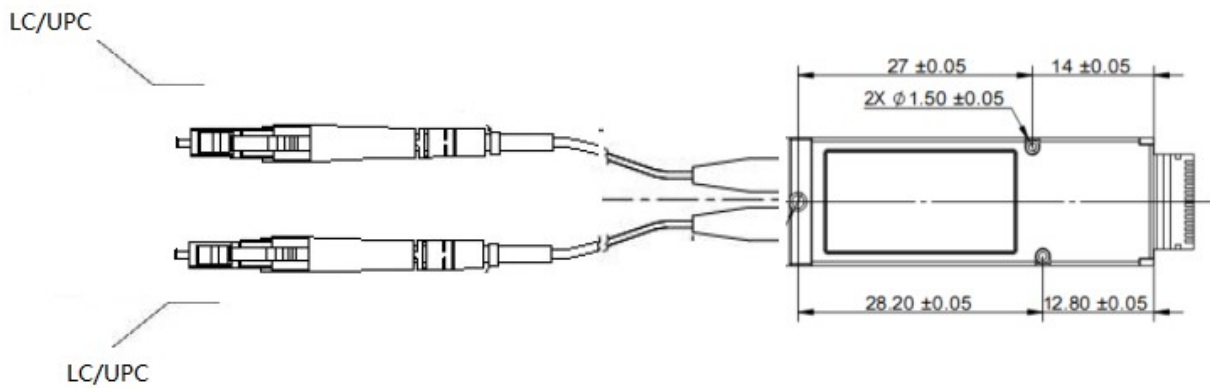
Structure Diagram

1.LC duplex connector

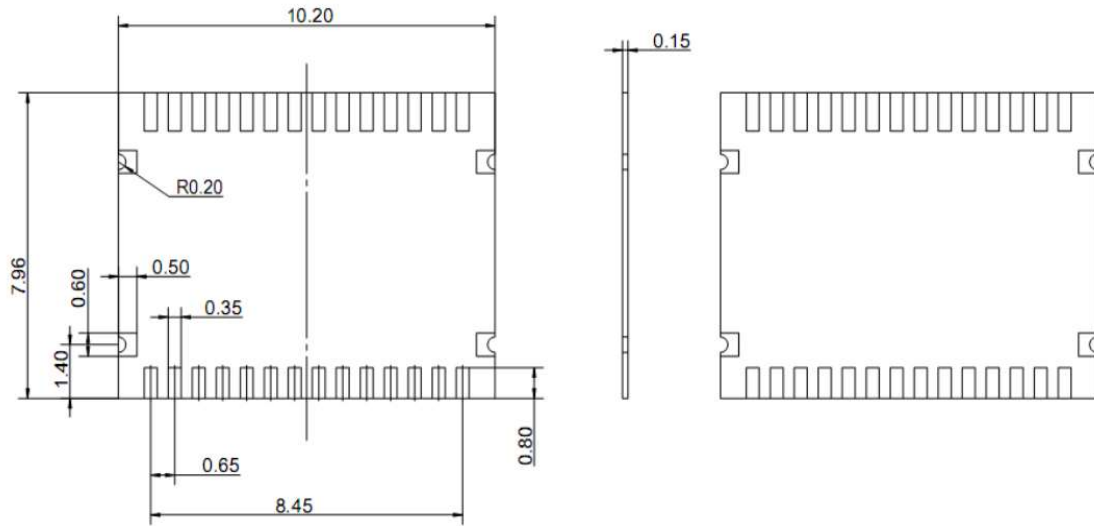


P4, LC duplex connector

2. Customizable pigtail fiber (the pigtail fiber length is 0.9mm to 1m)



P5, Customizable pigtail fiber



P6, Mechanical Principle Diagram