

OPD10G-xx80DxR

10GBASE-ZR DWDM SFP+ Transceiver, Single mode, 100GHz, 80km Reach

Features

- Supports 9.95 to 11.3Gb/s bit rates
- Duplex LC connector
- Hot pluggable SFP+ footprint
- Cooled EML transmitter, PIN photo-detector
- Applicable for 80km SMF link distance
- Low power consumption, < 1.5W
- 100GHz channel spacing
- Digital Diagnostic Monitor Interface
- Optical interface compliant to IEEE 802.3ae 10GBASE-ZR
- Electrical interface compliant to SFF-8431
- ROHS compliant and lead-free
- Operating Temperature: Standard 0~70°C, Extended -10~85°C, Industrial -40~85°C

Applications

- 10GBASE-ZR/10GBASE-ZW Ethernet
- 10G Fibre Channel
- 10G Data Center Switches and Routers
- 10G Network interface cards and Fiber Media Converters
- ITU-T G.698.1

Description

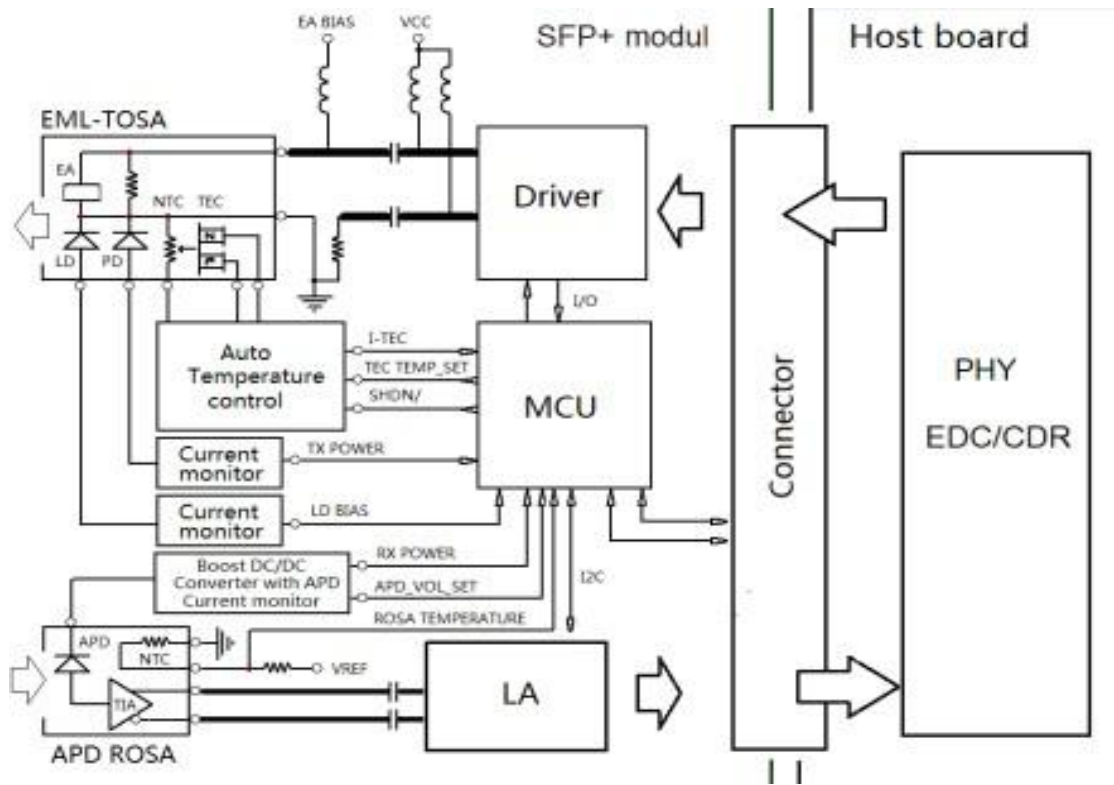
Optcore's OPD10G-xx80DCR is a high performance and cost effective 10GBASE-ZR DWDM (Dense Wavelength-Division Multiplexing) SFP+ transceiver module, which provides a extended high capacity, high bandwidth communication solutions for multiplexed optical networks. This DWDM SFP+ transceiver module is designed for 10 Gigabit Ethernet links up to 80km over single mode fiber. It features a highly performance DWDM EML transmitter and APD photodiode integrated with a TIA into a duplex LC optical connector. This DWDM SFP+ module operates on a nominal wavelength of 100GHz ITU Grid DWDM wavelength.

The DWDM SFP+ transceiver module is comply with SFP+ MSA specifications (SFF-8431, SFF-8432, SFF-8472), 10 Gigabit Ethernet specifications (10GBASE-ZR/ZW per IEEE 802.3ae), and 10G Fibre Channel. It's suitable for use with 10G Ethernet switches, routers, network interface cards (NICs), fiber media converters and storage networking equipment. Additionally, the DWDM SFP+ module has been integrated with an enhanced digital diagnostic monitoring interface (DDMI) per SFF-8472, which providing real-time monitoring of the transceiver temperature, laser bias current, optical power, received optical power and transceiver supply voltage.

There are three versions of the series 10GBASE-ZR DWDM SFP+ transceiver for different applications. The Standard grade (0~70°C) is for commonly commercial application, the Extended grade (-10~85°C) is for Extended temperature application, and the Industrial grade (-40~85°C) is made with robust and reliable components to meet the needs of Industrial Ethernet application under harsh environmental conditions.

The DWDM SFP+ transceiver need use with *DWDM Multiplexer/Demultiplexer (DWDM Mux/Demux)* that is separately sold by Optcore.

Transceiver functional diagram



Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5	4.5	V	
Storage Temperature	T _s	-40	85	°C	
Operating Humidity	RH	5	85	%	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.13	3.3	3.47	V	
Power Supply Current	Icc			450	mA	
Case Operating Temperature	T _c	0		70	°C	Standard
		-10		85	°C	Extended
		-40		85	°C	Industrial
Data Rate		9.95	10.3125	11.3	Gbps	
Maximum Link Length	L _{MAX}			80	km	

Optical Characteristics

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
<i>Transmitter</i>						

Operating Wavelength	λ	1528.77		1563.86	nm	
Ave. output power (Enabled)	P_{AVE}	0		5.0	dBm	1
Side-Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	8.2			dB	
RMS spectral width	$\Delta\lambda$			1	nm	
Rise/Fall time (20%~80%)	Tr/Tf			50	ps	
Dispersion penalty	TDP			3	dB	
Relative Intensity Noise	RIN			-128	dB/Hz	
Output Optical Eye	Compliant with IEEE 0802.3ae					
Receiver						
Operating Wavelength	λ	1260		1620	nm	
Receiver Sensitivity	P_{SEN}			-24.0	dBm	2
Overload	P_{AVE}			-7.0	dBm	
LOS Assert	Pa	-35			dBm	
LOS De-assert	Pd			-25	dBm	
LOS Hysteresis	Pd-Pa	0.5			dB	

Note :

1. Measured at 10.3125b/s with PRBS 2³¹ -1 NRZ test pattern.
2. Under the ER=8.2dB, measured at 10.3125 Gb/s with PRBS 2³¹ -1 NRZ test pattern for BER < 1x10⁻¹²

Electrical Characteristics

Parameter	Symbol	Min.	Typ	Max.	Unit	Note
Transmitter						
Differential data input swing	$V_{IN,PP}$	120		850	mVpp	1
Transmit Disable Voltage	VD	$V_{CC}-0.8$		Vcc	V	
Transmit Enable Voltage	V_{EN}	Vee		Vee+0.8		
Input differential impedance	Rin		100		Ω	
Receiver						
Differential data output swing	$V_{out,pp}$	300		850	mVpp	2
Output rise time and fall time	Tr, Tf	28			Ps	3
LOS asserted	V_{LOS_F}	$V_{CC}-0.8$		Vcc	V	4
LOS de-asserted	V_{LOS_N}	Vee		Vee+0.8	V	4

Notes:

1. Connected directly to TX data input pins. AC coupling from pins into laser driver IC.
2. Into 100 Ω differential termination.
3. 20 – 80%. Measured with Module Compliance Test Board and OMA test pattern. Use of four 1's and four 0's sequence in the PRBS 9 is an acceptable alternative.
4. LOS is an open collector output. Should be pulled up with 4.7k Ω – 10k Ω on the host board. Normal operation is logic 0; loss of signal is logic 1.

Diagnostics

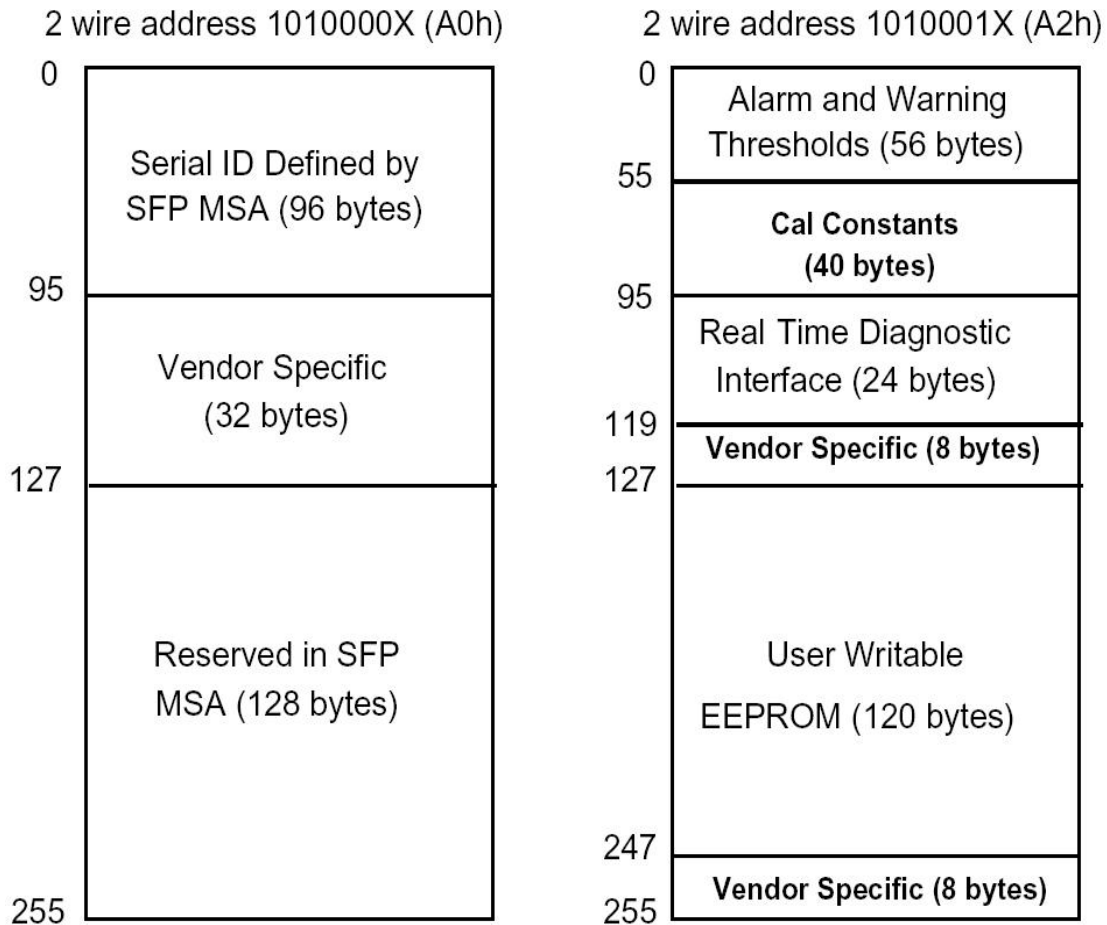
Parameter	Range	Unit	Accuracy	Calibration
Temperature	0 to +70	°C	±3°C	Internal
	-10 to +85			
	-40 to +85			
Voltage	3.0 to 3.6	V	±3%	Internal
Bias Current	0 to 15	mA	±10%	Internal
TX Power	-6.0 to -0.5	dBm	±3dB	Internal
RX Power	-16 to -1	dBm	±3dB	Internal

Digital Diagnostic Memory Map

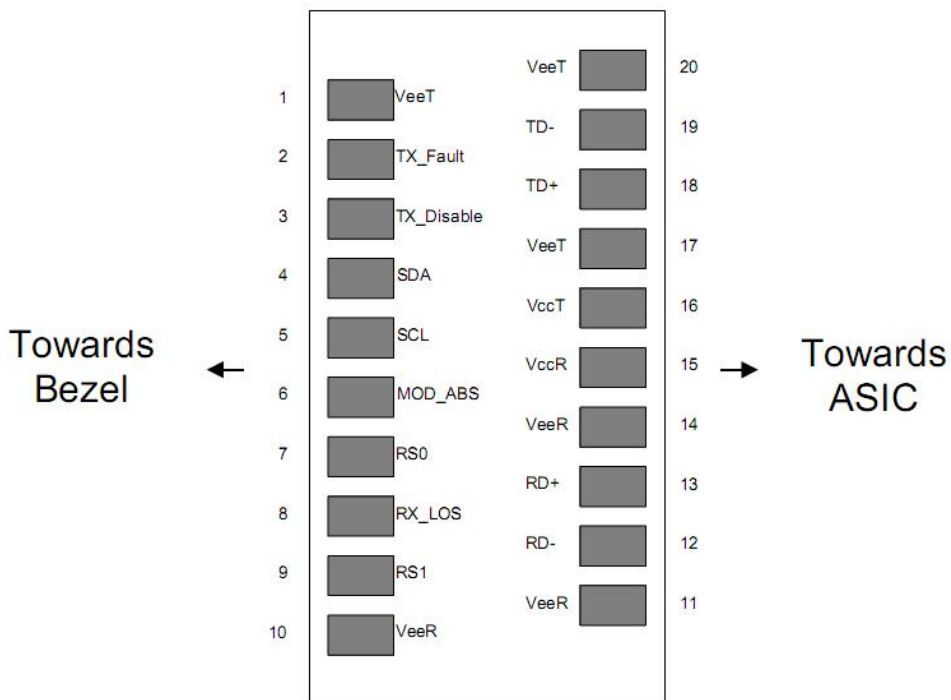
The 10GBASE-ZR SFP+ DWDM transceivers provide serial ID memory contents and diagnostic information about the present operating conditions by the 2-wire serial interface (SCL, SDA).

The diagnostic information with internal calibration or external calibration all are implemented, including received power monitoring, transmitted power monitoring, bias current monitoring, supply voltage monitoring and temperature monitoring.

The digital diagnostic memory map specific data field defines as following.



Pin Definitions



Pin Descriptions

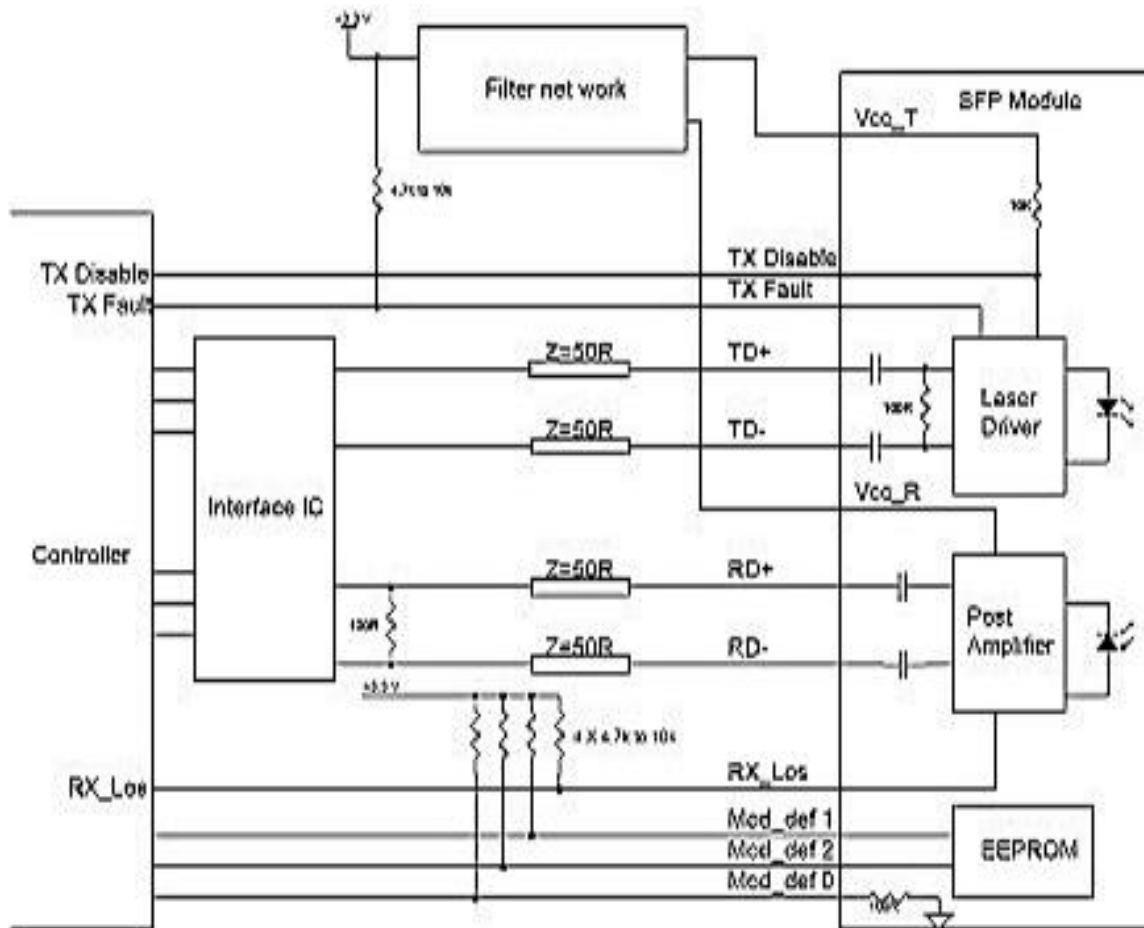
Pin	Signal Name	Description	Plug Seq.	Notes
1	V _{EET}	Transmitter Ground	1	
2	TX FAULT	Transmitter Fault Indication	3	Note 1
3	TX DISABLE	Transmitter Disable	3	Note 2
4	SDA	SDA Serial Data Signal	3	
5	SCL	SCL Serial Clock Signal	3	
6	MOD_ABS	Module Absent. Grounded within the module	3	
7	RS0	Not Connected	3	
8	LOS	Loss of Signal	3	Note 3
9	RS1	Not Connected	3	
10	V _{EER}	Receiver ground	1	
11	V _{EER}	Receiver ground	1	
12	RD-	Inv. Received Data Out	3	Note 4
13	RD+	Received Data Out	3	Note 4
14	V _{EER}	Receiver ground	1	
15	V _{CCR}	Receiver Power Supply	2	
16	V _{CCT}	Transmitter Power Supply	2	
17	V _{EET}	Transmitter Ground	1	
18	TD+	Transmit Data In	3	Note 5
19	TD-	Inv. Transmit Data In	3	Note 5
20	V _{EET}	Transmitter Ground	1	

Notes:

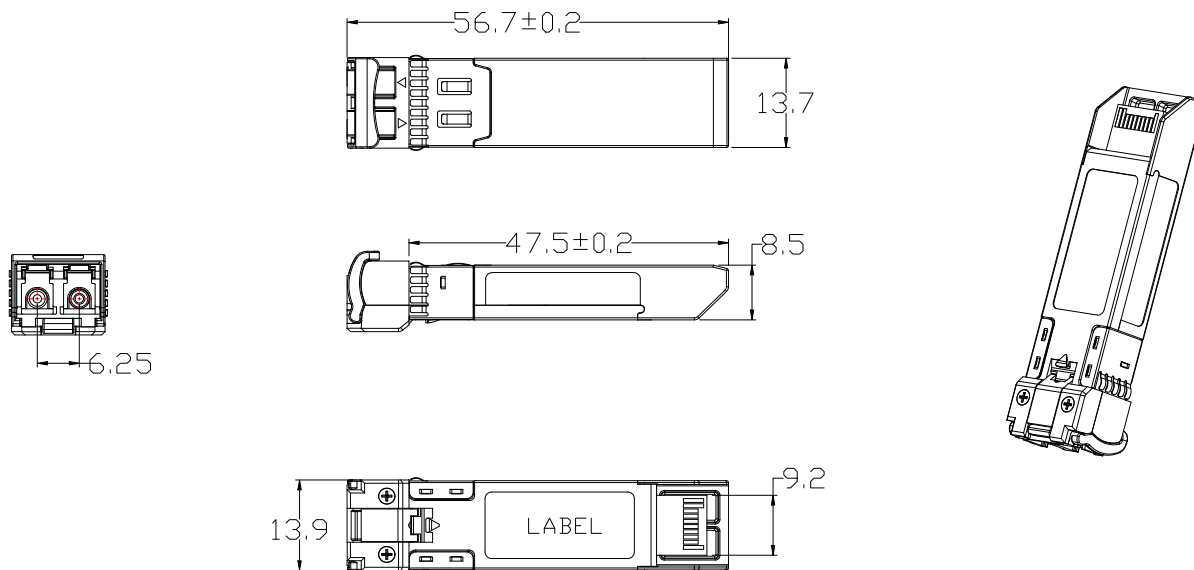
Plug Seq.: Pin engagement sequence during hot plugging.

1. TX Fault is an open collector output, which should be pulled up with a 4.7k~10kΩ resistor on the host board to a voltage between 2.0V and Vcc+0.3V. Logic 0 indicates normal operation; Logic 1 indicates a laser fault of some kind. In the low state, the output will be pulled to less than 0.8V.
2. Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
3. LOS is open collector output. Should be pulled up with 4.7k~10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.
4. RD-/+ : These are the differential receiver outputs. They are internally AC-coupled 100 differential lines which should be terminated with 100Ω (differential) at the user SERDES.
5. TD-/+ : These are the differential transmitter inputs. They are internally AC-coupled, differential lines with 100Ω differential termination inside the module.

Recommended Interface Circuit



Mechanical Dimensions



Dimensions are in Millimeter

Tolerance without indication is ±0.1mm

Ordering information

Commercial Temperature

Part number	Description	ITU Ch.	Frequ ency(THz)	Wavelen gth
OPD10G-1780DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1563.86nm, 80km, LC, DDM, 0~70°C	17	191.7	1563.86
OPD10G-1880DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1563.05nm, 80km, LC, DDM, 0~70°C	18	191.8	1563.05
OPD10G-1980DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1562.23nm, 80km, LC, DDM, 0~70°C	19	191.9	1562.23
OPD10G-2080DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1561.42nm, 80km, LC, DDM, 0~70°C	20	192.0	1561.42
OPD10G-2180DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1560.61nm, 80km, LC, DDM, 0~70°C	21	192.1	1560.61
OPD10G-2280DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1559.79nm, 80km, LC, DDM, 0~70°C	22	192.2	1559.79
OPD10G-2380DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1558.98nm, 80km, LC, DDM, 0~70°C	23	192.3	1558.98
OPD10G-2480DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1558.17nm, 80km, LC, DDM, 0~70°C	24	192.4	1558.17
OPD10G-2580DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1557.36nm, 80km, LC, DDM, 0~70°C	25	192.5	1557.36
OPD10G-2680DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1556.55nm, 80km, LC, DDM, 0~70°C	26	192.6	1556.55
OPD10G-2780DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1555.75nm, 80km, LC, DDM, 0~70°C	27	192.7	1555.75
OPD10G-2880DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1554.94nm, 80km, LC, DDM, 0~70°C	28	192.8	1554.94
OPD10G-2980DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1554.13nm, 80km, LC, DDM, 0~70°C	29	192.9	1554.13
OPD10G-3080DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1553.33nm, 80km, LC, DDM, 0~70°C	30	193.0	1553.33
OPD10G-3180DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1552.52nm, 80km, LC, DDM, 0~70°C	31	193.1	1552.52
OPD10G-3280DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1551.72nm, 80km, LC, DDM, 0~70°C	32	193.2	1551.72

OPD10G-3380DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1550.92nm, 80km, LC, DDM, 0~70°C	33	193.3	1550.92
OPD10G-3480DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1550.12nm, 80km, LC, DDM, 0~70°C	34	193.4	1550.12
OPD10G-3580DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1549.32nm, 80km, LC, DDM, 0~70°C	35	193.5	1549.32
OPD10G-3680DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1548.51nm, 80km, LC, DDM, 0~70°C	36	193.6	1548.51
OPD10G-3780DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1547.72nm, 80km, LC, DDM, 0~70°C	37	193.7	1547.72
OPD10G-3880DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1546.92nm, 80km, LC, DDM, 0~70°C	38	193.8	1546.92
OPD10G-3980DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1546.12nm, 80km, LC, DDM, 0~70°C	39	193.9	1546.12
OPD10G-4080DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1545.32nm, 80km, LC, DDM, 0~70°C	40	194.0	1545.32
OPD10G-4180DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1544.53nm, 80km, LC, DDM, 0~70°C	41	194.1	1544.53
OPD10G-4280DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1543.73nm, 80km, LC, DDM, 0~70°C	42	194.2	1543.73
OPD10G-4380DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1542.94nm, 80km, LC, DDM, 0~70°C	43	194.3	1542.94
OPD10G-4480DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1542.14nm, 80km, LC, DDM, 0~70°C	44	194.4	1542.14
OPD10G-4580DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1541.35nm, 80km, LC, DDM, 0~70°C	45	194.5	1541.35
OPD10G-4680DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1540.56nm, 80km, LC, DDM, 0~70°C	46	194.6	1540.56
OPD10G-4780DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1539.77nm, 80km, LC, DDM, 0~70°C	47	194.7	1539.77
OPD10G-4880DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1538.98nm, 80km, LC, DDM, 0~70°C	48	194.8	1538.98
OPD10G-4980DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1538.19nm, 80km, LC, DDM, 0~70°C	49	194.9	1538.19
OPD10G-5080DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1537.4nm, 80km, LC, DDM, 0~70°C	50	195.0	1537.4
OPD10G-5180DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1536.61nm, 80km, LC, DDM, 0~70°C	51	195.1	1536.61
OPD10G-5280DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1535.82nm, 80km, LC, DDM, 0~70°C	52	195.2	1535.82
OPD10G-5380DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1535.04nm, 80km, LC, DDM, 0~70°C	53	195.3	1535.04
OPD10G-5480DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1534.25nm, 80km, LC, DDM, 0~70°C	54	195.4	1534.25
OPD10G-5580DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1533.47nm, 80km, LC, DDM, 0~70°C	55	195.5	1533.47
OPD10G-5680DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1532.68nm, 80km, LC, DDM, 0~70°C	56	195.6	1532.68
OPD10G-5780DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1531.9nm, 80km, LC, DDM, 0~70°C	57	195.7	1531.9
OPD10G-5880DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1531.12nm, 80km, LC, DDM, 0~70°C	58	195.8	1531.12
OPD10G-5980DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1530.33nm, 80km, LC, DDM, 0~70°C	59	195.9	1530.33
OPD10G-6080DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1529.55nm, 80km, LC, DDM, 0~70°C	60	196.0	1529.55
OPD10G-6180DCR	10GBASE-ZR DWDM SFP+ Transceiver, 1528.77nm, 80km, LC, DDM, 0~70°C	61	196.1	1528.77

Industrial Temperature

Part number	Description	ITU Ch.	Frequency(THz)	Wavelength
OPD10G-1780DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1563.86nm, 80km, LC, DDM, -40~85°C	17	191.7	1563.86
OPD10G-1880DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1563.05nm, 80km, LC, DDM, -40~85°C	18	191.8	1563.05
OPD10G-1980DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1562.23nm, 80km, LC, DDM, -40~85°C	19	191.9	1562.23
OPD10G-2080DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1561.42nm, 80km, LC, DDM, -40~85°C	20	192.0	1561.42
OPD10G-2180DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1560.61nm, 80km, LC, DDM, -40~85°C	21	192.1	1560.61

OPD10G-2280DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1559.79nm, 80km, LC, DDM, -40~85°C	22	192.2	1559.79
OPD10G-2380DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1558.98nm, 80km, LC, DDM, -40~85°C	23	192.3	1558.98
OPD10G-2480DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1558.17nm, 80km, LC, DDM, -40~85°C	24	192.4	1558.17
OPD10G-2580DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1557.36nm, 80km, LC, DDM, -40~85°C	25	192.5	1557.36
OPD10G-2680DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1556.55nm, 80km, LC, DDM, -40~85°C	26	192.6	1556.55
OPD10G-2780DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1555.75nm, 80km, LC, DDM, -40~85°C	27	192.7	1555.75
OPD10G-2880DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1554.94nm, 80km, LC, DDM, -40~85°C	28	192.8	1554.94
OPD10G-2980DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1554.13nm, 80km, LC, DDM, -40~85°C	29	192.9	1554.13
OPD10G-3080DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1553.33nm, 80km, LC, DDM, -40~85°C	30	193.0	1553.33
OPD10G-3180DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1552.52nm, 80km, LC, DDM, -40~85°C	31	193.1	1552.52
OPD10G-3280DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1551.72nm, 80km, LC, DDM, -40~85°C	32	193.2	1551.72
OPD10G-3380DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1550.92nm, 80km, LC, DDM, -40~85°C	33	193.3	1550.92
OPD10G-3480DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1550.12nm, 80km, LC, DDM, -40~85°C	34	193.4	1550.12
OPD10G-3580DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1549.32nm, 80km, LC, DDM, -40~85°C	35	193.5	1549.32
OPD10G-3680DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1548.51nm, 80km, LC, DDM, -40~85°C	36	193.6	1548.51
OPD10G-3780DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1547.72nm, 80km, LC, DDM, -40~85°C	37	193.7	1547.72
OPD10G-3880DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1546.92nm, 80km, LC, DDM, -40~85°C	38	193.8	1546.92
OPD10G-3980DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1546.12nm, 80km, LC, DDM, -40~85°C	39	193.9	1546.12
OPD10G-4080DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1545.32nm, 80km, LC, DDM, -40~85°C	40	194.0	1545.32
OPD10G-4180DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1544.53nm, 80km, LC, DDM, -40~85°C	41	194.1	1544.53
OPD10G-4280DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1543.73nm, 80km, LC, DDM, -40~85°C	42	194.2	1543.73
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OPD10G-4480DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1542.14nm, 80km, LC, DDM, -40~85°C	44	194.4	1542.14
OPD10G-4580DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1541.35nm, 80km, LC, DDM, -40~85°C	45	194.5	1541.35
OPD10G-4680DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1540.56nm, 80km, LC, DDM, -40~85°C	46	194.6	1540.56
OPD10G-4780DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1539.77nm, 80km, LC, DDM, -40~85°C	47	194.7	1539.77
OPD10G-4880DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1538.98nm, 80km, LC, DDM, -40~85°C	48	194.8	1538.98
OPD10G-4980DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1538.19nm, 80km, LC, DDM, -40~85°C	49	194.9	1538.19
OPD10G-5080DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1537.4nm, 80km, LC, DDM, -40~85°C	50	195.0	1537.4
OPD10G-5180DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1536.61nm, 80km, LC, DDM, -40~85°C	51	195.1	1536.61
OPD10G-5280DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1535.82nm, 80km, LC, DDM, -40~85°C	52	195.2	1535.82
OPD10G-5380DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1535.04nm, 80km, LC, DDM, -40~85°C	53	195.3	1535.04
OPD10G-5480DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1534.25nm, 80km, LC, DDM, -40~85°C	54	195.4	1534.25
OPD10G-5580DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1533.47nm, 80km, LC, DDM, -40~85°C	55	195.5	1533.47
OPD10G-5680DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1532.68nm, 80km, LC, DDM, -40~85°C	56	195.6	1532.68
OPD10G-5780DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1531.9nm, 80km, LC, DDM, -40~85°C	57	195.7	1531.9
OPD10G-5880DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1531.12nm, 80km, LC, DDM, -40~85°C	58	195.8	1531.12
OPD10G-5980DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1530.33nm, 80km, LC, DDM, -40~85°C	59	195.9	1530.33
OPD10G-6080DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1529.55nm, 80km, LC, DDM, -40~85°C	60	196.0	1529.55

OPD10G-6180DTR	10GBASE-ZR DWDM SFP+ Transceiver, 1528.77nm, 80km, LC, DDM, -40~85°C	61	196.1	1528.77
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⚠ Warnings

Process plug

The transceiver optics is supplied with a dust cover. This plug protects the transceiver optics during standard manufacturing processes by preventing contamination from air borne particles. It is recommended that the dust cover remain in the transceiver whenever an optical fiber connector is not inserted.

Handling Precautions

The transceiver optics is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety

The transceiver optics is a Class 1 laser product per international standard IEC 60825-1. Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

For more product information, visit us on the web at www.optcore.net



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