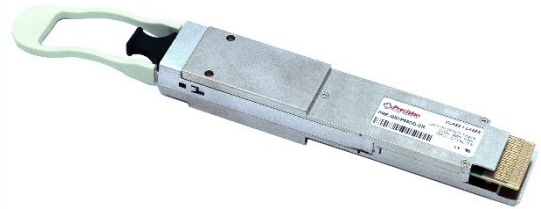


# PRE-QSFP56DD-ZR

QSFP-DD, OIF 400ZR, Tunable, DWDM, 400G, SMF/LC, C-Temp

## Product Features:

- C-band Tunable w/ 75/100GHz Grid Spacing
- 7nm Coherent DSP
- 425Gbps Nominal Data Rate
- 400GAUI-8 PAM4 Host Interface
- DP-16QAM Network Side Modulation
- 120km Reach (Amplification Dependent)
- Duplex LC-UPC Connector
- Digital Diagnostics Monitoring (DDM)
- C-Temp
- <19W Power Consumption



## Product Applications:

- Data Center Interconnect
- Metro Networks
- DWDM 100G-400GBase Ethernet

## Standards:

- OIF 400ZR
- QSFP-DD MSA 6.0
- CMIS 5.0 and C-CMIS 1.0
- Telcordia GR-468-CORE Reliability
- RoHS Compliant

## General Specifications

Parameter	Min	Typ	Max	Unit
Case Operating Temperature	0	-	75	°C
Power Consumption	-	-	19	W
Power Supply Voltage	3.14	3.3	3.46	V
Operating Humidity	5	-	85	%
Storage Temperature	-40	-	85	°C
Transmission Distance <sup>1</sup>	40	-	120	km
Data Rate (Total)	-	-	478.75	Gbps
Signaling Rate per Lane (PAM4)	-	53.125	-	GBd
FEC Type		C-FEC		
Post FEC BER		1.00E-15		

<sup>1</sup> Amplified OSNR limited links. Max reach will depend on data rate, amplifiers, fiber quality and network design.

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## Transmitter Characteristics

Parameter	Min	Typ	Max	Unit
Transmitter Frequency (Tunable)	191.3	-	196.1	THz
Laser Frequency Accuracy	-1.8	-	1.8	GHz
TX Spectral Excursion	-	-	32	GHz
Channel Spacing	75	-	100	GHz
Transmitter Output Power	-10	-	-	dBm
Transmitter Output Power w/ Tx Disabled	-	-	-30	dBm
Output Power Range (Tunable)	-15	-	-8	dBm
Output Optical Power Tuning Step Size	0.1	-	-	dB
Laser RIN (0.2GHz ≤ f ≤ 10 GHz Avg)	-	-	-145	dB/Hz
Laser RIN (0.2GHz ≤ f ≤ 10 GHz Peak)	-	-	-140	dB/Hz
Inband (IB) OSNR	40	-	-	dB/0.1nm
Out-of-band (OOB) OSNR	40	-	-	dB/0.1nm
Transmitter Reflectance	-	-	-20	dB
Transmitter Back Reflectance Tolerance	-	-	-24	dB
Transmitter Polarization Dependent Power	-	-	1.5	dB
X-Y Skew	-	-	5	ps
DC I-Q Offset (Mean per Polarization)	-	-	-26	dB
I-Q Instantaneous Offset	-	-	-20	dB
Mean I-Q Amplitude Imbalance	-	-	1	dB
I-Q Phase Imbalance	-5	-	5	Deg
I-Q Skew	-	-	0.75	ps

# PRE-QSFP56DD-ZR

QSFP-DD, OIF 400ZR, Tunable, DWDM, 400G, SMF/LC, C-Temp



## Receiver Characteristics

Parameter	Min	Typ	Max	Unit
Input Power Range	-12	-	0	dBm
Frequency Offset between Received Carrier and LO	-3.6	-	3.6	GHz
OSNR Tolerance (C-FEC)	-	-	26	dB/0.1nm
Optical Return Loss	20	-	-	dB
CD Tolerance	2400	-	-	ps/nm
Optical Path OSNR Penalty Tolerance	-	-	0.5	dB
Average PMD Tolerance (DGD, SOPMD) (C-FEC)	10	-	-	ps
Peak PDL Tolerance	3.5	-	-	dB
Tolerance to Change in SOP	50	-	-	krad/s
Optical Input Power Transient Tolerance	+/-2	-	-	dB
Optical Rx_LOS Assert Threshold	-20	-18	-16	dBm
Optical Rx_LOS Hysteresis	-	1	2.5	dB
Damage Threshold (Total)			17	dBm

## Product Ordering Information

Part Number	Description
PRE-QSFP56DD-ZR	QSFP-DD, OIF 400ZR, Tunable, DWDM, 400G, SMF/LC, C-Temp