400G OSFP DD Dual LR4

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Variants

Dual 10Km

Details

400G QSFP-DD LR4 Transceiver Module

Features

No.	Feature
1	QSFP-DD MSA and CMIS compliant
2	Compliant to 400G-LR4 technical specification
3	8 × 53.125Gbit/s PAM4 electrical interface (400GAUI-8)
4	4 × 106.25Gbps optics architecture
5	Power consumption < 11W
6	Up to 10Km over G.652 SMF with KP-FEC
7	Duplex LC connector
8	Built-in digital diagnostic functions
9	Operating case temperature: 0°C to +70°C
10	3.3V power supply voltage
11	RoHS compliant (lead free)

Applications

No.	Application
1	400G-LR4-10 rev1p0
2	CEI-56G-VSR-PAM4
3	Data center network

Description

This YV-400GDD-LR4 module is designed for 10Km optical communication applications. It converts 8 channels of 50Gb/s PAM4 electrical input into 4 channels of CWDM optical signals and multiplexes them into a single 400Gb/s optical output. On the receiver side, it de-multiplexes the optical input into 4 CWDM channels and converts them back to 8 channels of 50Gb/s PAM4 electrical output.

The module operates on CWDM4 wavelengths of 1271 / 1291 / 1311 / 1331nm. It integrates EML drivers, EML lasers, optical multiplexers, de-multiplexers, and a 4-channel photodiode array. It is a cost-effective and low-power solution for 400GBASE data center applications.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.3	3.6	V
Input Voltage	Vin	-0.3	Vcc+0.3	V
Storage Temperature	Tst	-40	85	°C
Case Operating Temperature	Top	0	70	°C
Humidity (Non-condensing)	Rh	5	95	%

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	3.13	3.47	V
Operating Case Temperature	Tca	0	70	°C
Data Rate Per Lane	fd	106.25	106.25	Gbit/s
Humidity	Rh	15	85	%
Power Dissipation	Pm	-	11	W

Electrical Specifications

Parameter	Symbol	Min	Max	Unit
Differential Input Impedance	Zin	90	110	ohm
Differential Output Impedance	Zout	90	110	ohm
Differential Input Voltage	?Vin	900	-	mVp-p
Differential Output Voltage	?Vout	-	900	mVp-p
Bit Error Rate	BER	-	2.4E-4	-

Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit

Centre Wavelength ?0	?0	1264.5	1271	1277.5	nm
Centre Wavelength ?1	?1	1284.5	1291	1297.5	nm
Centre Wavelength ?2	?2	1304.5	1311	1317.5	nm
Centre Wavelength ?3	?3	1324.5	1331	1337.5	nm
Side-mode Suppression Ratio	SMSR	30	-	-	dB
Average Launch Power	Pout	-2.7	-	5.1	dBm
OMA	OMA	-0.3	-	4.4	dBm
TDECQ	TDECQ	-	-	3.9	dB
Extinction Ratio	ER	3.5	-	-	dB
Receiver Sensitivity	RXsen	-	-	-6.8	dBm
Average Receiver Power	Pin	-9	-	5.1	dBm

Regulatory Compliance

Feature	Standard

Laser Safety	IEC 60825-1:2014, IEC 60825-2, EN 60825-1, EN 60825-2
Electrical Safety	EN 62368-1, IEC 62368-1, UL 62368-1
Environmental Protection	Directive 2011/65/EU with amendment (EU)2015/863
CE EMC	EN55032:2015, EN55035:2017, EN61000-3-2:2014, EN61000-3-3:2013
FCC	FCC Part 15, Subpart B, ANSI C63.4-2014

Ordering Information

Part Number	Product Description
DT-400GDD-LR4	QSFP-DD, 400GBASE-LR4, 10Km on Single Mode Fiber (SMF), with DSP, power consumption <11W, duplex LC connector