800G (2x400G-VR4) OSFP

S-OS800G85DM12A50M-CD

Product Features

- Hot-pluggable OSFP Type2 form factor with finned top
- Support 2x425Gb/s aggregate bit rate
- Power dissipation < 16W
- Commercial case temperature range of 0°C to 70°C
- Single 3.3V power supply
- Aligned with IEEE 802.3db
- 8x100G PAM4 retimed 106.25Gb/s PAM4 electrical interface
- Dual MPO-12 APC receptaclel
- I2C management interface

Product Applications

- InfiniBand NDR
- 800G VR8 application with FEC
- 2x400G VR4 applications with FEC
- 8 x 100GbE breakout application

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Maximum Supply Voltage	Vcc	-0.5		4.0	V	
Storage Temperature	T_S	-40		85	oC	
Case Operating Temperature	T_{OP}	0		70	oC	
Relative Humidity	RH	15		85	%	
Receiver Damage Threshold, per Lane	P_{Rdmg}	5			dBm	

Optical Characteristics

Transmitter	Symbol	Unit	Notes
Signaling rate, each lane	53.125 ± 100 ppm	GBd	
Modulation format	PAM4		
Center wavelengths (range)	842 to 948	nm	
RMS spectral width (max)	0.65	nm	
Average launch power, each lane (max)	4	dBm	
Average launch power, each lane (min)	-4.6	dBm	
Outer OMA, each lane (max)	3.5	dBm	

Outer OMA, each lane (min) For max (TECQ, TDECQ) ≤ 1.8dB For 1.8 < max (TECQ, TDECQ) ≤4.4dB	 -2.6 -4.4 + max (TECQ, TDECQ)	 dBm dBm	
Transmitter and dispersion eye closure for PAM4 (TDECQ), each lane (max)	4.4	dB	
Transmitter eye closure for PAM4 (TECQ), each lane (max)	4.4	dB	
Overshoot/undershoot (max)	29	%	
Transmitter power excursion, each lane (max)	2.3	dBm	
Extinction ratio, each lane (min)	2.5	dB	
Transmitter transition time, each lane (max)	17	ps	
Average launch power of OFF transmitter, each line (max)	-30	dBm	
$RIN_{14}OMA$ (max)	-132	dB/Hz	
Optical return loss tolerance (max)	18	dB	
Receiver	**Symbol**	**Unit**	**Notes**
Signaling rate, each lane	53.125 ± 100 ppm	GBd	
Modulation format	PAM4		
Center wavelengths (range)	842 to 948	nm	
Damage threshold (min)	5	dBm	2
Average receive power, each lane (max)	4	dBm	
Average receive power, each lane (min)	-6.3	dBm	3
Receive power, each lane (OMA_{outer}) (max)	3.5	dBm	
Receiver reflectance (max)	-15	dB	
Receiver sensitivity (OMA_{outer}) (max) For TECQ≤1.8dB For 1.8<TECQ≤4.4dB	 -4.4 -6.2 + TECQ	dBm	
Stressed receiver sensitivity (OMA_{outer}) (max)	-1.8	dBm	4
Conditions of stressed receiver sensitivity test			
Stressed eye closure for PAM4 (SECQ), lane under test	4.4	dB	
OMA_{outer} of each aggressor lane	3.5	dBm	

Notes:

1.RMS spectral width is the standard deviation of the spectrum.

2.The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level on one lane. The receiver does not have to operate correctly at this input power.

3.Average receive power, each lane (min)is not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.

4.Measured with conformance test signal at TP3 for the BER specified in 167.1.1.

Electrical Interface Characteristics

Aligned to IEEE P802.3ck

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Supply Voltage	Vcc	3.135		3.465	V	
Supply Current	Icc			5	A	
Module total power	P			16	W	1
Transmitter						
Signaling rate per lane		53.125 ± 100ppm			GBd	
Differential pk-pk voltage tolerance		750			mV	
Differential-mode to common mode return loss		Per equation (120G-2)			dB	
Effective return loss, ERL		8.5			dB	
Differential termination mismatch				10	%	
Module stressed input tolerance		Per 120G.3.4.3				2
Single-ended voltage tolerance range		-0.4		3.3	V	
DC common-mode voltage tolerance		-350		2850	mV	3
Receiver						
Signaling rate per lane		53.125			GBd	4
AC common-mode voltage				80	mV	
Differential pk-pk output voltage				845	mV	
Eye height		15			mV	
Vertical eye closure, VEC				12	dB	
Common-mode to differential-mode return loss		Per equation (120G-1)			dB	
Effective return loss, ERL		8.5			dB	
Differential termination mismatch				10	%	
Transition time (min, 20% to 80%)		8.5			ps	
DC common-mode voltage		-350		2850	mv	3

Notes:

1.Maximum total power value is specified across the full temperature and voltage range.

2.Meets BER specified in 120G.1.1.

3.DC common-mode voltage is generated by the host. Specification includes effects of ground offset voltage.

4.The signaling rate range is derived from the PMD receiver input.

General Specifications

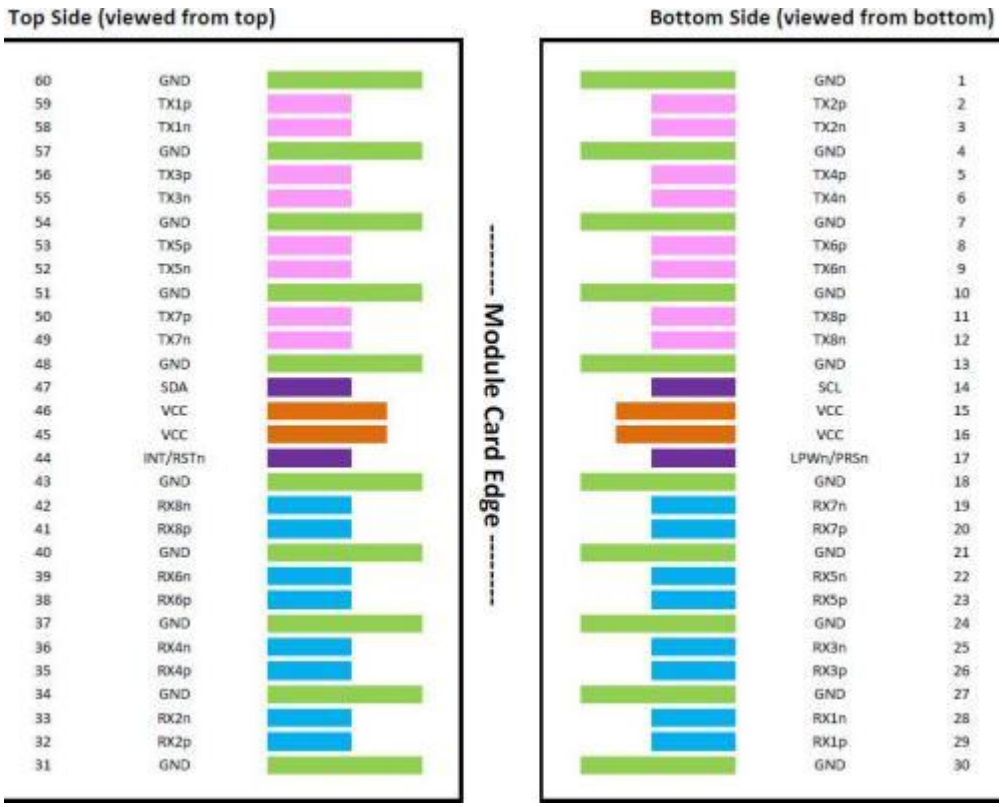
Parameter	Symbol	2x400GBASE-VR4	Unit	Note
Bit Rate per Lane	BR	53.125± 100 ppm	GBd	1
PRE-FEC Bit Error Ratio (max)	BER	2.4E-4		2
Maximum Supported Distances				
OM3 MMF	Lmax1	30	m	
OM4/OM5 MMF	Lmax2	50	m	

Notes:

1.Supports Ethernet and InfiniBand NDR.

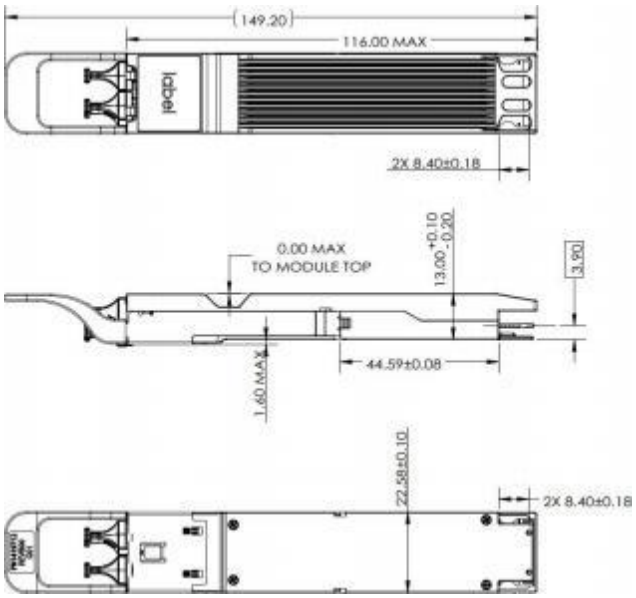
2.Tested with a PRBS 231-1 test pattern.

Pin Definitions



Package Dimensions

S-OS800G85DM12A50M-CD 2x400G-VR4 OSFP transceivers are compatible with the OSFP specification for pluggable form factor Type 2 modules.



Unit:mm

Order Information

Part Number	Description
S-OS800G85DM12A50M-CD	800Gb/s OSFP, 50m OM4, 2x400G VR4, 8x850nm VCSEL, MM, pull tab, Dual MPO12, Finned, 0/70C