QDD-800G-DR8-ETH-5

800GBase-DR8, QSFPDD, 2x DR4 SMF TRANSCEIVER
1310nm, 500m REACH, DUAL MPO-12 APC CONNECTORS

Features

- Compliant with IEEE 802.3cu-2021:
  - 8x100GBASE-DR optical interface
- Compliant with IEEE 802.3ck-2022:
  - 8x100GAUI-1 C2M electrical interface
- Compliant with QSFP-DD MSA HW Rev 7.0 type 2B with Dual MPO-12 connector
- Compliant with CMIS Rev 5.0
- Case operating temperature 0°C to 70°C
- Two wire serial Interface with digital diagnostic monitoring
- Complies with EU Directive 2011/65/EU (RoHS compliant)
- Class 1 Laser

Absolute Maximum Ratings				
Parameter	**Symbol**	**Minimum**	**Maximum**	**Unit**
Storage Temperature	TS	-40	85	°C
Supply Voltage	VCC	-0.5	3.6	V
Relative Humidity (non-condensing)	RH	5	95	%
Data Input Voltage Differential	IVDIP-VDINI	-	1	V
Control Input Voltage	VI	-0.3	VCC+0.5	V
Control Output Current	IO	-20	20	mA

Recommended Operating Conditions					
Parameter	**Symbol**	**Minimum**	**Typical**	**Maximum**	**Unit**
Operating Case Temperature	TOPR	0	-	70	°C
Power Supply Voltage	VCC	3.135	3.3	3.465	V
Instantaneous peak current at hot plug	ICC_IP	-	-	6600	mA
Sustained peak current at hot plug	ICC_SP	-	-	5446	mA
Maximum Power Dissipation	PD	-	-	16.5	W
Maximum Power Dissipation, Low Power Mode	PDLP	-	-	2	W

Recommended Operating Conditions					
Parameter	**Symbol**	**Minimum**	**Typical**	**Maximum**	**Unit**
Signalling Speed per Lane	DRL	-	53.125	-	GBd
Control Input Voltage High	VIH	VCC*0.7	-	VCC+0.3	V
Control Input Voltage Low	VIL	-0.3	-	VCC*0.3	V
Two Wire Serial Interface Clock Rate	-	-	-	400	kHz
Power Supply Noise 1 kHz - 1 MHz (p-p)	-	-	-	66	mVpp
Operating Distance	-	2	-	500	m

Optical Characteristics						
Parameter	**Symbol**	**Minimum**	**Typical**	**Maximum**	**Unit**	**Notes**
Transmitter						
Wavelength	λC	1304.5	1311	1317.5	nm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Average Launch Power, each lane	AOPL	-2.9	-	4.0	dBm	1
Outer Optical Modulation Amplitude (OMAouter), each Lane	TOMA	-0.8	-	4.2	dBm	
Launch power in OMAouter minus TDECQ, each lane for extinction ratio >= 5 dB for extinction ratio < 5 dB	TOMA-TDECQ	 -2.2 -1.9	 - -	 - -	dBm	
Transmitter and Dispersion Eye Closure for PAM4 (TDECQ), each lane	TDECQ	-	-	3.4	dB	
TDECQ – 10log10(Ceq), each lane	Ceq	-	-	3.4	dB	
Average Launch Power of OFF Transmitter, each lane	TOFF	-	-	-15	dBm	
Extinction Ratio	ER	3.5	-	-	dB	
Transmitter transition time	Tr			17	ps	
RIN15.5OMA	RIN	-	-	-136	dB/Hz	
Optical return loss tolerance	ORL	-	-	15.5	dB	
Transmitter Reflectance	TR	-	-	-26	dB	2
Receiver						
Wavelength	λC0	1304.5	1311	1317.5	nm	
Damage Threshold, each Lane	AOPD	5	-	-	dBm	
Average Receive Power, each Lane	AOPR	-5.9	-	4	dBm	
Receive Power (OMAouter), each Lane	OMAR	-	-	4.2	dBm	
Receiver Reflectance	RR	-	-	-26	dB	
Receiver Sensitivity (OMAouter), each Lane	SOMA	-	-	(–3.9, SECQ – 5.3)	dBm	3
Stressed Receiver Sensitivity (OMAouter), each Lane	SRS	-	-	-1.9	dBm	4
Conditions of stressed receiver sensitivity test						
Stressed eye closure for PAM4 (SECQ), lane under test	SECQ	-	3.4	-	dB	
SECQ – 10log10(Ceq), lane under test	Ceq	-	-	3.4	dB	
OMAouter of each aggressor lane	-	-	4.2	-	dBm	

Notes:

1. Average launch power, each lane (min) is informative and not the principal indicator of signal strength.

2. Transmitter reflectance is defined looking into the transmitter.

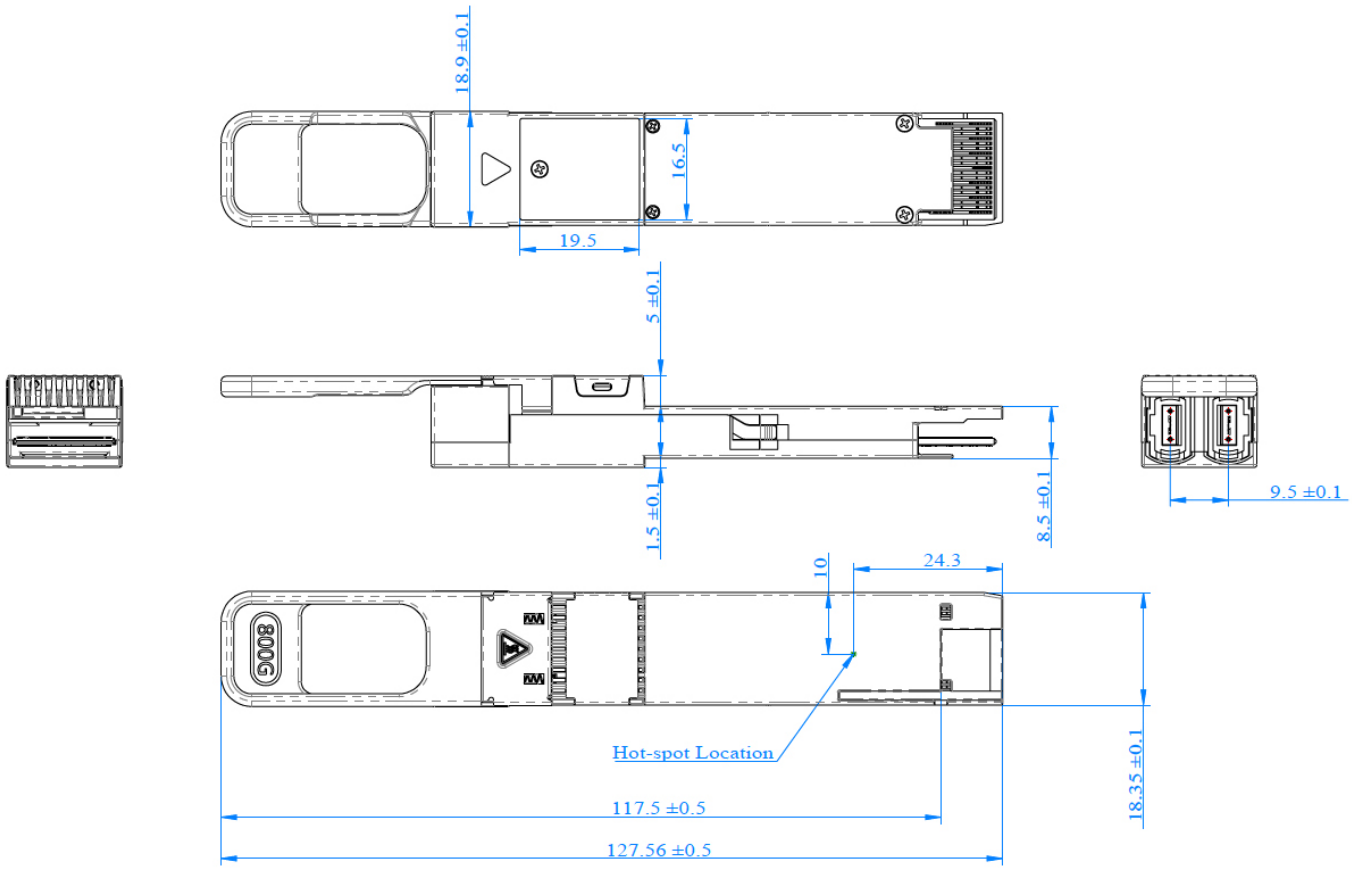
3. Receiver sensitivity (OMAouter), each lane (max) is informative and is defined for a transmitter with a value of SECQ up to 3.4 dB.

4. Measured with conformance test signal at TP3 for the BER = 2.4×10^{-4}

Electrical Specification - High Speed Signal (compliant with IEEE802.3df C2M)					
Parameter	**Symbol**	**Minimum**	**Typical**	**Maximum**	**Unit**
Receiver (Module Output, TP4)					
Peak-to-peak AC common-mode voltage	-				
Low-frequency, VCMLF Full-band, VCMFB		-	-	32	
80	mV				
Differential peak-to-peak output voltage Short mode Long mode	- -	- -	- -	600 845	mV
Eye height	EH	15	-	-	mV
Vertical eye closure	VEC	-	-	12	dB
Common-mode to differential-mode return loss	RLDc	802.3ck 120G-1			dB
Effective return loss	ERL	8.5	-	-	dB
Differential termination mismatch	-	-	-	10	%
Transition time	-	8.5	-	-	ps
DC common-mode voltage tolerance	-	-0.35	-	2.85	V
Transmitter (Module Input, TP1)					
Differential pk-pk input Voltage tolerance (TP1a)	-	750	-	-	mV
Peak-to-peak AC common-mode voltage tolerance Low-frequency, VCMLF Full-band, VCMFB	- -	32 80	- -	- -	mV
Differential-mode to common-mode return loss	RLcd	802.3ck 120G-2	dB		
Effective return loss	ERL	8.5	-	-	dB
Differential termination mismatch	-	-	-	10	%
Single-ended voltage tolerance range	-	-0.4	-	3.3	V
DC common-mode voltage tolerance	-	-0.35	-	2.85	V

Electrical Specification Low Speed Control and Sense Signals					
Parameter	**Symbol**	**Minimum**	**Maximum**	**Unit**	**Condition**
Module output SCL and SDA	VOL	0	0.4	V	
Module Input SCL and SDA	VIL	-0.3	VCC*0.3	V	
	VIH	VCC*0.7	VCC+0.5	V	
InitMode, ResetL and ModSelL	VIL	-0.3	0.8	V	
	VIH	2	VCC+0.3	V	
IntL	VOL	0	0.4	V	
	VOH	VCC-0.5	VCC+0.3	V	

Mechanical Diagram



Note:
External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

Ordering Information

OEM	Part Number	OEM	Part Number
Juniper	QDD-2X400G-DR4-P-A	MSA	AN-QDD-800G-DR8-ETH

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