Features

- Hot-pluggable QSFP28 form factor
- Supports 103.1Gb/s aggregate bit rate
- Power dissipation < 3.5W
- RoHS-6 compliant
- Commercial case temperature range- 0°C to 70°C
- Single 3.3V power supply
- Maximum link length of 75m/100m/150m on OM3/OM4/OM5 Duplex Multimode Fiber (MMF)
- 4x25Gb/s 850 - 940nm VCSEL-based transmitter
- 4x25G CAUI-4 electrical interface
- Duplex LC receptacles
- I2C management interface

Applications

- 100G Ethernet over Duplex MMF

1. Absolute Maximum Ratings

Module performance is not guaranteed beyond the standard operating range (see Section VI). Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Maximum Supply Voltage	Vcc	-0.5		3.6	V	
Storage Temperature	TS	-40		85	˚C	
Case Operating Temperature	TOP	0		70	˚C	1
Relative Humidity	RH	15		85	%	2
Receiver Damage Threshold, per Lane	PRdmg	3.8			dBm	

Notes:

1. Temporary excursions case operating temperature of -5 to -75°C not exceeding 72 hours.
2. Non-condensing.

2. Environmental Specifications

This module has a commercial operating case temperature range of 0°C to +70°C. They can support temporary excursions to case temperatures of -5°C and +75°C without permanent damage.

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Case Operating Temperature	Top	0		70	°C	
Storage Temperature	Tsto	-40		85	°C	

3. Electrical Characteristics (EOL, TOP = 0 to 70 °C, VCC = 3.135 to 3.465 Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	3.135		3.465	V	
Supply Current	Icc			1.5	A	
Module total power	P			3.5	W	1
Transmitter						
Signaling rate per lane		25.78125 ± 100ppm			Gb/s	
Differential pk-pk input voltage tolerance	Vin,pp,diff			900	mV	
Single-ended voltage tolerance	Vin,pp	-0.35		+3.3	V	
Module stress input test		Per Section 83E.3.4.1, IEEE 802.3bm				
Receiver						
Signaling rate per lane		25.78125 ± 100ppm			Gb/s	
Differential data output swing	Vout,pp	100		400	mVpp	2
		300		600		
		400	600	800		
		600		1200		
Eye width		0.57			UI	
Eye height, differential		228			mV	
Vertical eye closure	VEC	5.5			dB	
Transition time (20% to 80%)	tr, tf	12			ps	

Notes:

1. Maximum total power value is specified across the full temperature and voltage range.
2. Output voltage is settable in 4 discrete ranges via I2C. Default range is Range 2 (400 – 800 mV).

4. Optical Characteristics (EOL, TOP = 0 to 70 °C, VCC = 3.135 to 3.465 Volts)

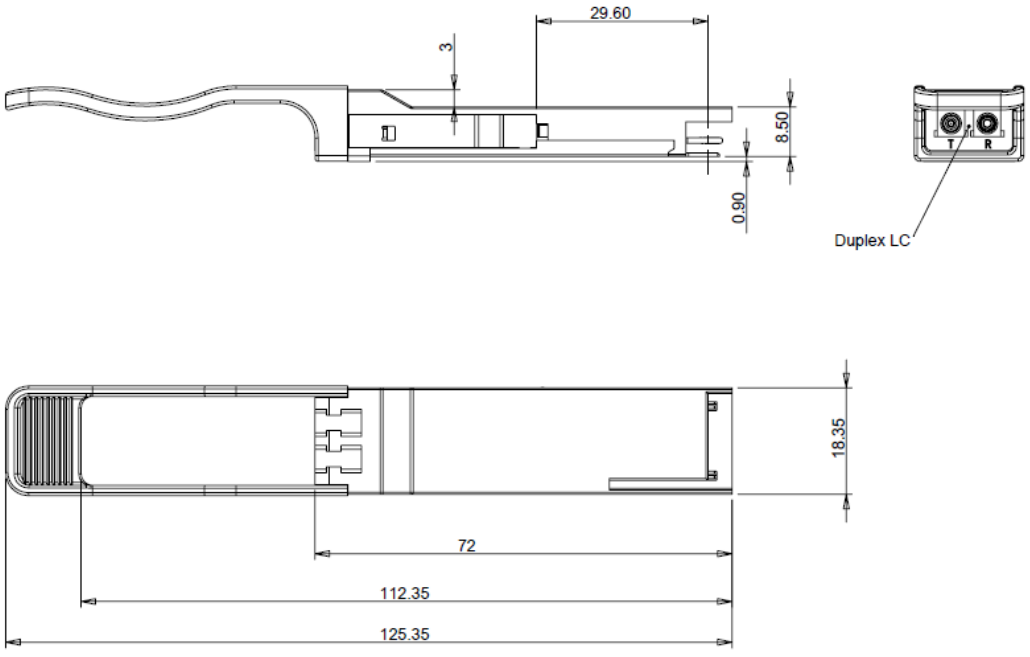
Parameter	Symbol	λ1	λ2	λ3	λ4	Unit	Notes
Transmitter							
Signaling Speed per Lane		25.78125 ± 100ppm				Gb/s	1
Lane center wavelengths (range)	λ	850	880	910	940	nm	
RMS Spectral Width	SW	0.59	0.59	0.59	0.59	nm	
TxOMA min at max TDEC		-3	-3	-3	-2.9	dBm	
TDEC (OM3)	TDEC	3.3	3.5	3.7	4.2	dB	
TxOMA - TDEC	P-TDEC	-6.3	-6.5	-6.7	-7.1	dBm	
TxOMA min	TxOMA	-5.5	-5.5	-5.5	-5.5	dBm	
Relative Intensity Noise	RIN	-130				dB/Hz	2
Optical Extinction Ratio	ER	2	2	2	2	dB	
Optical Return Loss Tolerance	ORL	12	dB				
Average launch power of OFF transmitter, per lane		-30	dBm				
Transmitter eye mask definition {X1, X2, X3, Y1, Y2, Y3}		{0.3,0.38,0.45,0.35,0.41,0.5}					3
Receiver							
Signaling Speed per Lane		25.78125 ± 100ppm				GBd	4
Lane center wavelengths (range)	λ	850	880	910	940	nm	
Damage Threshold	DT	3.8	3.8	3.8	3.8	dBm	
Average Receive Power per Lane (min)	RXPmin	-9.5	-9.4	-9.4	-9.4	dBm	
Average Receive Power per Lane (max)	RXPmax	3.4	3.4	3.4	3.4	dBm	
Receiver Reflectance (max)	Rfl	-12	dB				
Stressed Receiver Sensitivity (OMA) per Lane	SRS	-5.2	-5.2	-5.2	-5.2	dBm	5
Back to Back Receiver Sensitivity (OMA) per Lane	RxSens	-8.2	-8.4	-8.6	-8.8	dBm	6
Stressed Conditions:							
Stressed eye closure	SEC	3.3	3.5	3.7	4.2	dB	
Stressed eye J2 jitter	J2	0.39	UI				
Stressed eye J4 jitter	J4	0.53	UI				
Stressed Receiver Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}		{0.28,0.5,0.5,0.33,0.33,0.4}					7
LOS De-Assert (max)	LOSD	-11	dBm				8
LOS Assert (min)	LOSA	-30	dBm				8
LOS Hysteresis		0.5	dB				

Notes:

1. Transmitter consists of 4 lasers and a 4:1 optical multiplexer.
2. Informative, link controlled by TDEC
3. Hit Ratio 1.5 x 10-3 hits/sample.
4. Receiver consists of a 1:4 optical de-multiplexer and 4 photodetectors.
5. 5 x 10-5 BER (pre-FEC).
6. Unstressed receiver sensitivity is information, and assumes 5 x 10-5 BER (pre-FEC).
7. Hit Ratio 5 x 10-5 hits/sample.
8. DC values.

5. Mechanical Diagram

The QSFP-100G-SWDM4 QSFP28 transceivers are compatible with the QSFP28 MSA. The pull tab color is grey (Pantone 424U).



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.

6. Ordering Information

OEM	Part Number	OEM	Part Number
Arista	QSFP-100G-SWDM4-A	Cisco	QSFP-100G-SWDM4-S-A
MSA	AN-QSFP28-SWDM4	Dell	Q28-100G-SWDM4-A
Dell	407-BBVN-A	Extreme	10406-A
Finisar	FTLC9152RGPL-A	H3C	QSFP-100G-SWDM4-MM850-A
Hp	JH419A-A	Huawei	02311QUK-A
Juniper	JNP-QSFP-100G-SWDM4-A	Juniper	QSFP-100GBASE-SWDM4-A
MSA OnePort	OP-QSFP28-SWDM4		

7. Contact Information

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