

Features:

- Compliant with QSFP28 Standard SFF-8636 Rev 2.9
- Compliant with 100G Lambda MSA
- High speed I/O electrical interface (CAUI-4)
- QSFP28 MSA package with duplex LC connector
- Maximum power consumption 4.5W
- Operating case temperature: 0 to 70°C
- 1311nm EML laser and PIN Receiver Array
- Single 3.3V Supply Voltage
- Two Wire Serial Interface with Digital Diagnostic Monitoring
- Complies with EU Directive 2011/65/EU
- RoHS compliant
- Class 1 Laser



1. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Storage Temperature	TS	-40	-	+85	°C	
Supply Voltage	VCC	-0.3	-	3.6	V	
Relative Humidity (non-condensing)	RH	5	-	95	%	
Data Input Voltage - Differential	IVDIP-VDINI	-	-	1.0	V	
Control Input Voltage	VI	-0.3	-	Vcc+0.3	V	
Control Output Current	IO	-20	-	20	mA	

2. Recommended Operating Conditions

Parameter	Symbol	Min.	Typ	Max.	Unit	Notes
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	-	-	1800	mA	
Sustained peak current at hot plug	ICC_SP	-	-	1485	mA	
Maximum Power Dissipation	PD	-	-	4.5	W	

Maximum Power Dissipation, Low Power Mode	PDLP	-	-	1.5	W	
Signalling Rate	SR	-	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	-	-	-	66	mVpp	10Hz -10MHz
Rx Differential Data Output Load	-	-	100	-	ohms	
Operating Distance	-	2	-	10000	m	

3. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Wavelength	λC	1304.5	1311	1317.5	nm	
Side mode suppression ratio	SMSR	30	-	-	dB	
Average Optical Launch Power	POUT	-1.4	-	4.5	dBm	
Average Launch Power Tx_Off	POUT_OFF	-	-	-15	dBm	
Extinction Ratio	ER	3.5	-	-	dB	
Outer Optical Modulation Amplitude	OMAouter	0.7	-	4.7	dBm	
Launch Power in OMAouter minus TDECQ for ER \geq 4.5dB	OMAouter-TDECQ	-0.7	-	-	dBm	
Launch Power in OMAouter minus TDECQ for ER < 4.5dB	OMAouter-TDECQ	-0.6	-	-	dBm	
Transmitter and dispersion eye closure	TDECQ	-	-	3.4	dB	
TDECQ - 10*log10 (Ceq)				3.4	dB	
RIN15.6OMA	RIN	-	-	-136	dB/Hz	
Optical return loss tolerance	ORLT	-	-	15.6	dB	
Transmitter transition time		-	-	17	ps	
Transmitter reflectance	TR	-	-	-26	dB	
Receiver						
Wavelength	λC	1304.5	1311	1317.5	nm	
Damage Threshold		5.5	-	-	dBm	
Average receive power		-7.7	-	4.5	dBm	
Receive power (OMAouter)	RP	-	-	4.7	dBm	
Receiver reflectance	RR			-26	dB	
Receiver sensitivity (OMAouter)	RS	max(-6.1, SECQ-7.5)			dBm	
Stressed receiver sensitivity	SRS	-	-	-4.1	dBm	

Stressed Receiver Sensitivity Test Conditions:						
Stressed eye closure for PAM4 (SECQ)	SECQ	-	-	3.4	dB	
SECQ - 10*log10(Ceq)				3.4	dB	

4. Electrical Specifications

High-Speed Signal: Compliant to CAUI-4 (IEEE 802.3bm)

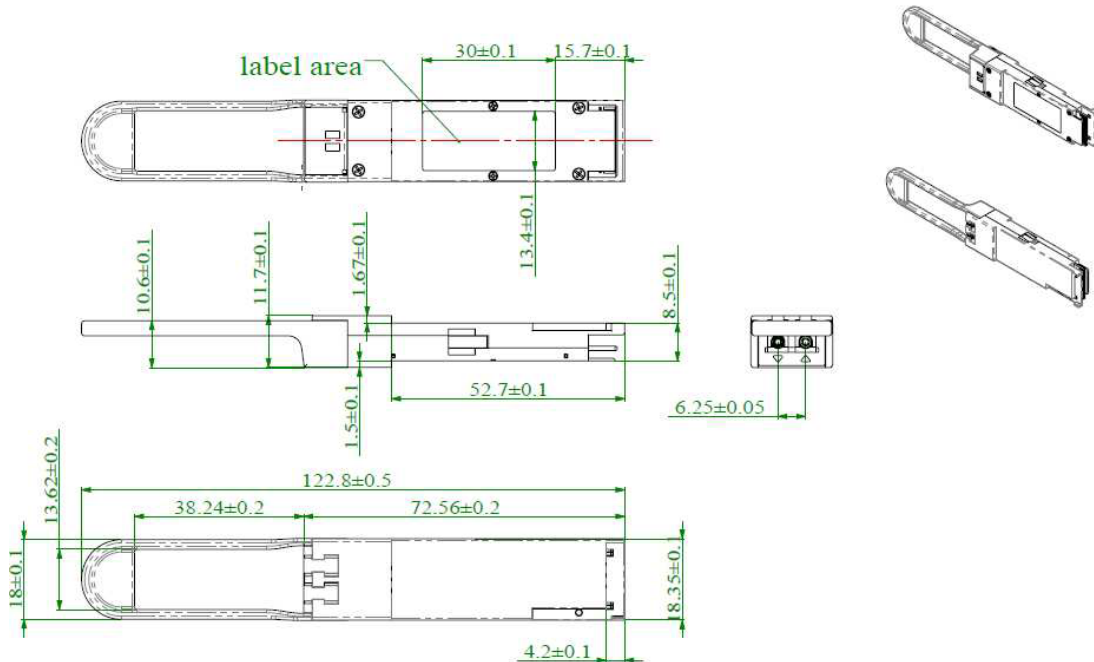
Low-Speed Signal: Compliant to SFF-8679

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter (Module Input)						
Differential Data Input Amplitude	VIN,P-P	95	-	900	mVpp	1
Differential Termination Mismatch		-	-	10	%	
LPMODE, Reset and ModSelL	VIL	-0.3	-	VCC*0.3	V	
	VIH	VCC*0.7	-	VCC+0.3	V	
Receiver (Module Output)						
Differential Data Output Amplitude	VOUT,P-P	250	-	900	mVpp	1
Differential Termination Mismatch		-	-	10	%	
Output Rise/Fall Time, 20%~80%	TR	9.5	-	-	ps	
ModPrsL and IntL	VOL	0	-	0.4	V	IOL=4mA
	VOH	VCC-0.5	-	VCC+0.3	V	IOL=-4mA

Notes:

1. Amplitude customization beyond these specs is dependent on validation in customer system

5. 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.

6. Ordering Information

OEM	Part Number	OEM	Part Number
Arista	QSFP-100G-LR1-A	Cisco	QSFP-100G-LR-S-A
OnePort	OP-QSFP28-LR1	Juniper	JNP-QSFP-100G-LR1-A
MSA Champion ONE	100GQSFP28E-LR1	MSA Generic	AN-QSFP28-LR1

7. Contact Information

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