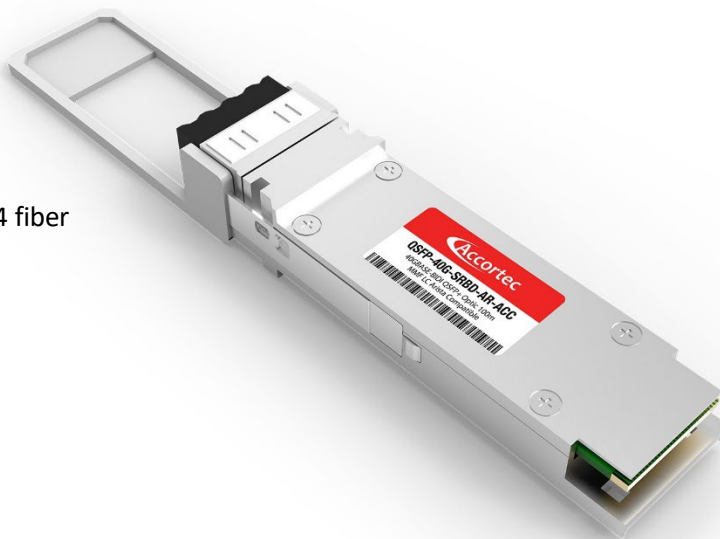


The **QSFP-40G-SRBD-AR-ACC** is programmed to be fully compatible and functional with all intended Arista switching devices. This QSFP+ optical transceiver is compliant with SFF-8436 and QSFP+ MSA standards. This module internally multiplexes a 4x10G interface into two 20Gb/s electrical signals, transmitting and receiving each optically over one simplex LC fiber using bi-directional optics. This module is designed for multimode fiber using LC duplex connection up to 100m over OM3 and 150m over OM4 fiber.

Features:

- Up to 10.3125 Gb/s per channel
- Hot-pluggable QSFP+ footprint
- Duplex LC connector
- Built-in digital diagnostic function
- Up to 100m over OM3, 150m over OM4 fiber
- Single power supply 3.3V
- Operating temperature range
C-Temp: 0°C to 70°C



Compliance:

- QSFP+ MSA
- MSA SFF-8436
- IEEE 802.3ba
- RoHS Compliant

Applications:

- 40GB Ethernet

Warranty:

Lifetime Warranty

General Specifications - Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Storage Temperature	T_{STO}	-40		85	°C	Ambient Temperature
Bit Error Rate	BER			10^{-12}		
Input Voltage	V_{CC}	3.14	3.3	3.47	V	
Maximum Voltage	V_{MAX}	-0.5		3.6	V	Electrical Power Interface

Link Distances

Parameter	Fiber Type	Distance Range (Km)
41.2 GBd	50/125um MMF	500 (OM2) 30
	50/125um MMF	2000 (OM3) 100
	50/125um MMF	4700 (OM4) 150 (engineered link)

Optical Characteristics - Transmitter

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Optical Center Wavelength 1	λ_C	832	850	868	nm	
Optical Center Wavelength 2	λ_C	882	900	918	nm	
Optical Output Power (Per Channel)	P_{OUT}	-4	-2.5	5.0	dBm	Average
Extinction Ratio	ER	3.5			dB	
Spectral Width (-20 dB)	$\Delta\lambda$		0.5	0.65	nm	EIA/TIA-455-127
Side Mode Suppression Ratio	$SMSR$	30			dB	
Relative Intensity Noise (OMA)	RIN			-128	dB/Hz	
Optical Return Loss Tolerance				12	dB	
Launch Power of OFF Transmit	P_{OUT_OFF}			-30	dBm	Average
Transmitter Eye Mask	Compliant to IEEE 802.3ba Standard					

Optical Characteristics - Receiver

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Optical Center Wavelength 1	λ_C	882	900	918	nm	
Optical Center Wavelength 2	λ_C	832	850	868	nm	
Maximum Input Power	P_{MAX}	0.5			dBm	
Receiver Sensitivity (Per Channel)	R_{X_SEN1}		-11		dBm	
Receiver Reflectance	R_{RX}			-12	dB	
LOS Assert	LOS_A	-30			dBm	
LOS De-Assert	LOS_D			-14	dBm	
LOS Hysteresis		0.5			dB	

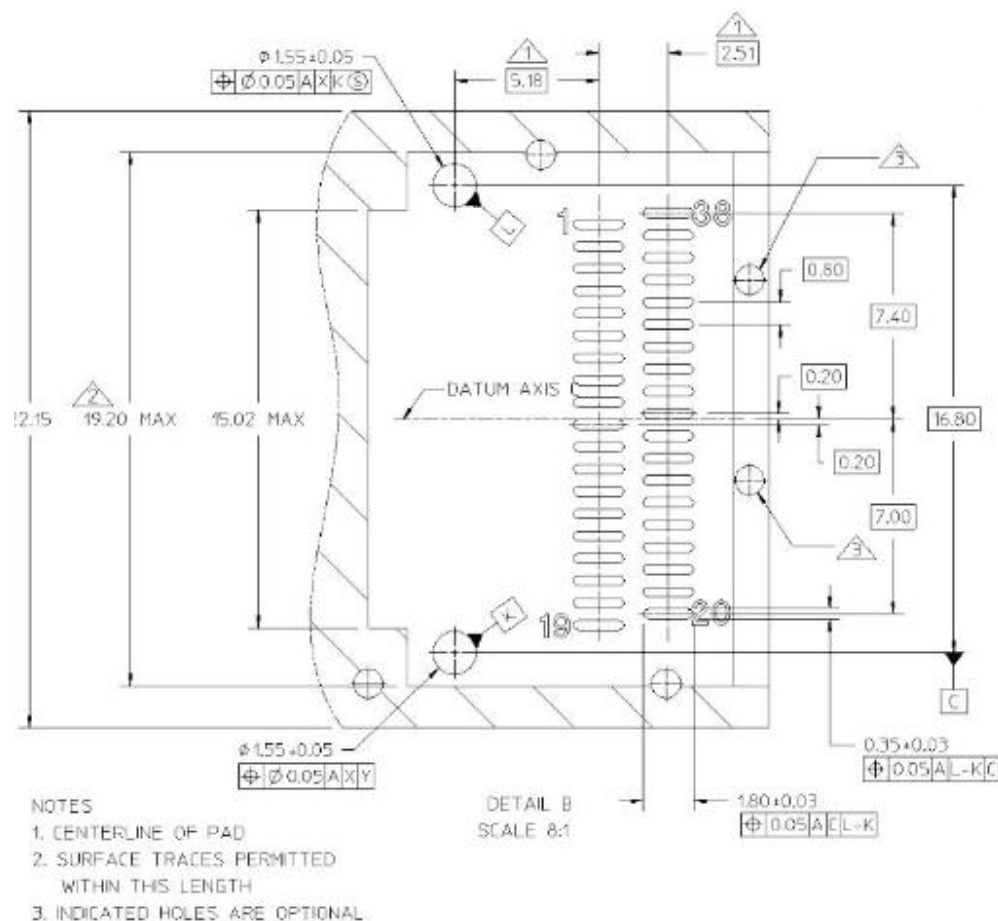
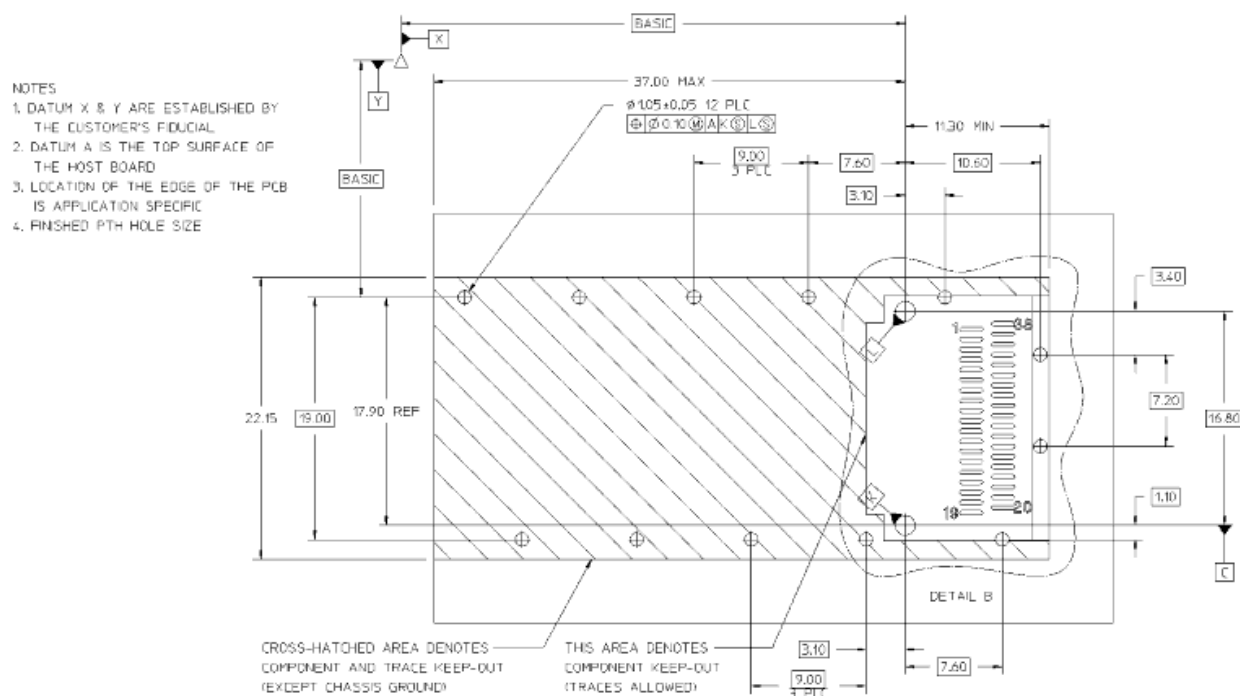
Electrical Characteristics – Transmitter

<i>Parameter</i>	<i>Symbol</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>	<i>Remarks</i>
Single Ended Voltage Tolerance		0.3		4	V	
Common Mode Voltage Tolerance		15			mV	
Transmit Input Diff Voltage	V_{IN}	120		1200	mV	
Transmit Input Diff Impedance	Z_{IN}	80	100	120		
Data Independent Input Jitter	DDJ			0.1	UI	
Data Dependent Total Jitter	T_J			0.28	UI	
Transmit Disable Voltage	V_D	$V_{CC}-1.3$		V_{CC}	V	
Transmit Enable Voltage	V_{EN}	V_{EE}		$V_{EE}+0.8$	V	

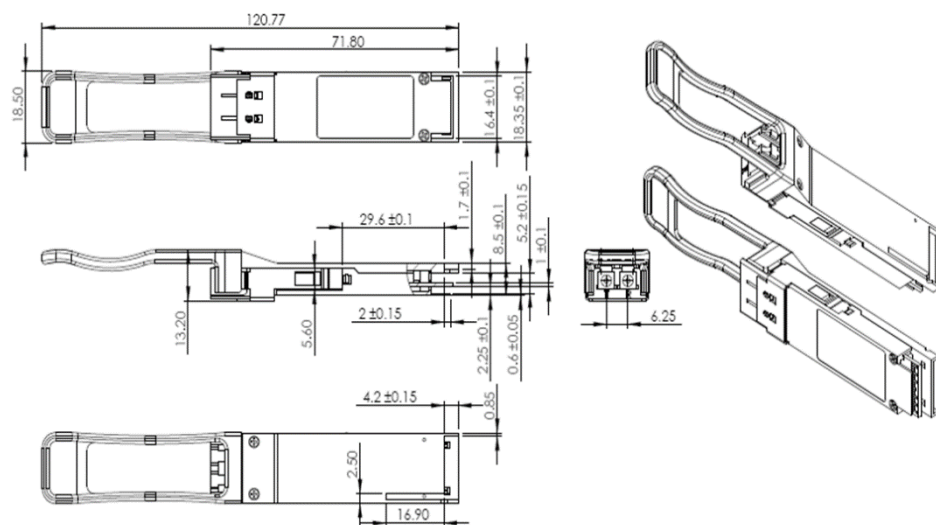
Electrical Characteristics – Receiver

<i>Parameter</i>	<i>Symbol</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>	<i>Remarks</i>
Single Ended Voltage Tolerance		0.3		4	V	
Receive Output Diff Voltage	V_{OUT}		600	800	mV	
Data Output Rise Time (20%-80%)	T_R		35		ps	
Data Output Fall Time (20%-80%)	T_F		35		ps	
Total Jitter	T_J			0.7	UI	
Deterministic Jitter	DJ			0.42	UI	
LOS Fault	V_{LOS_F}	$V_{CC}-1.3$		V_{CC_HOST}	V	
LOS Normal	V_{LOS_N}	V_{EE}		$V_{EE}+0.5$	V	

PCB Layout Recommendation

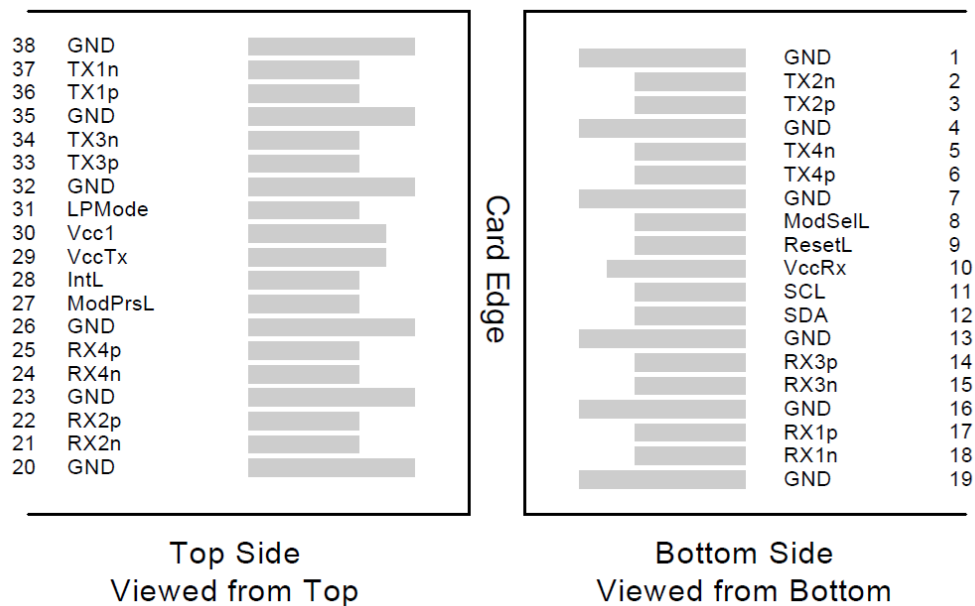


Dimensions



ALL DIMENSIONS ARE $\pm 0.2\text{mm}$ UNLESS OTHERWISE SPECIFIED UNIT: mm

Electrical Pad Layout



Pin Assignment

PIN #	Symbol	Description	Remarks
1	GND	Ground	
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc RX	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	
20	GND	Ground	
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc TX	+3.3V Power Supply transmitter	
30	Vcc1	+3.3V Power Supply	
31	LPMode	Low Power Mode	
32	GND	Ground	
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	

References

1. IEEE standard 802.3ba. IEEE Standard Department, 2010.
2. QSFP+ 10Gbs 4X PLUGGABLE TRANSCEIVER – SFF-8436