

# PRODUCT SPECIFICATION

<b>Part No.:</b>	AC-QP-3G100-10	
<b>Description:</b>	100G QSFP28 LR1 Transceiver, SMF 1310nm 10KM	
<b>Release Date</b>	<b>Rev.</b>	<b>Revision Change Description</b>
2015/06/07	A0	New Release
2020/12/28	A1	Template Update

## Features

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- ✧ Compliant with QSFP28 Standard: SFF-8636 Rev 2.10a
- ✧ Compliant with IEEE802.3cu D3.2 100GBASE-LR1
- ✧ High speed I/O electrical interface (CAUI-4)
- ✧ Single 3.3V Supply Voltage
- ✧ Maximum power consumption 4.5W
- ✧ 0-70 °C Case Operating Temperature
- ✧ 1311nm EML laser and PIN Receiver
- ✧ Hermetically sealed TO Based design
- ✧ QSFP28 MSA package with duplex LC connector
- ✧ Two Wire Serial Interface with Digital Diagnostic Monitoring
- ✧ KP4 FEC termination inside module
- ✧ Supporting 10km reach of single mode fiber
- ✧ Complies with EU Directive 2011/65/EU (RoHS)

## Application

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- ✧ 100GBASE-LR1

## Standard

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- ✧ CEI-28G-VSR
- ✧ QSFP28 MSA
- ✧ SFF-8636

## Specification

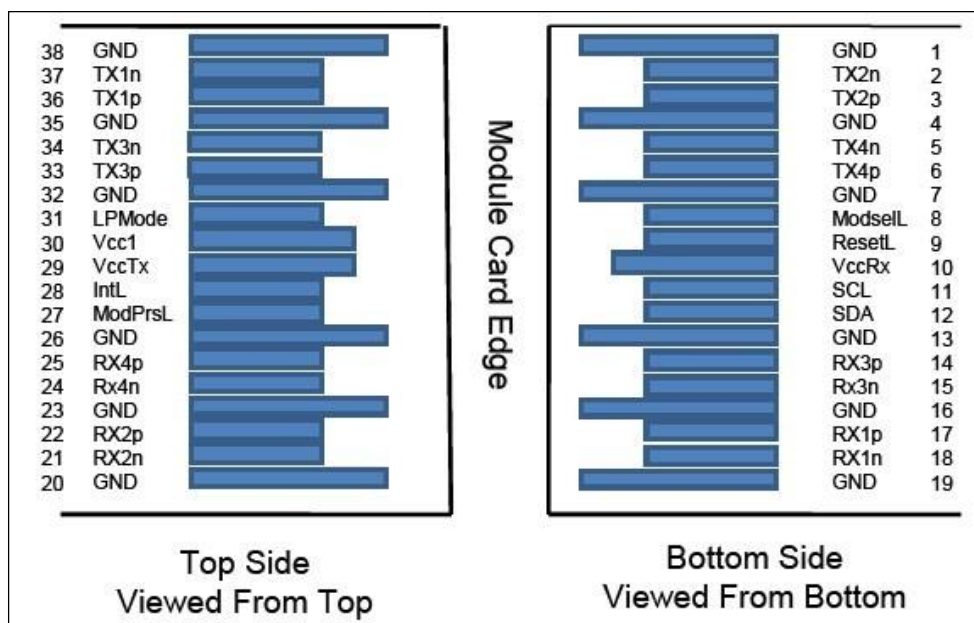
Absolute Maximum Ratings				
Parameter	Symbol	Min	Max	Unit
Storage Temperature	$T_s$	-40	+85	°C
Supply Voltage	$V_{CC}$	-0.3	3.6	V
Relative Humidity (non-condensing)	RH	5	95	%
Data Input Voltage – Differential	$ V_{DIP}-V_{DIN} $	-	1.0	V
Control Input Voltage	$V_I$	-0.3	$V_{CC}+0.3$	V
Control Output Current	$I_o$	-20	20	mA

Recommended Operating Conditions					
Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	$T_{OPR}$	0		70	°C
Power Supply Voltage	$V_{CC}$	3.135	3.3	3.465	V
Instantaneous peak current at hot plug	$I_{CC\_IP}$			1800	mA
Sustained peak current at hot plug	$I_{CC\_SP}$			1480	mA
Maximum Power Dissipation	$P_D$			4.5	W
Maximum Power Dissipation, Low Power Mode	$P_{DLP}$			1.5	W
Signalling Rate	SR		53.125		GBd
Control Input Voltage High	$V_{IH}$	$V_{CC}*0.7$		$V_{CC}+0.3$	V
Control Input Voltage Low	$V_{IL}$	-0.3		$V_{CC}*0.3$	V
Two Wire Serial Interface Clock Rate				400	kHz
Power Supply Noise				66	mVpp
Rx Differential Data Output Load			100		ohms
Operating Distance		2		10000	m

Optical transmitter Characteristics						
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Wavelength	$\lambda_c$	1304.5	1311	1317.5	nm	
Side mode suppression ratio	SMSR	30			dB	
Average Optical Launch Power	$P_{OUT}$	-1.9		4.8	dBm	1
Average launch power of OFF transmitter	$P_{OUT\_OFF}$			-15	dBm	
Extinction Ratio	ER	3.5			dB	
Outer Optical Modulation Amplitude( $OMA_{outer}$ )	$OMA_{outer}$			5	dBm	



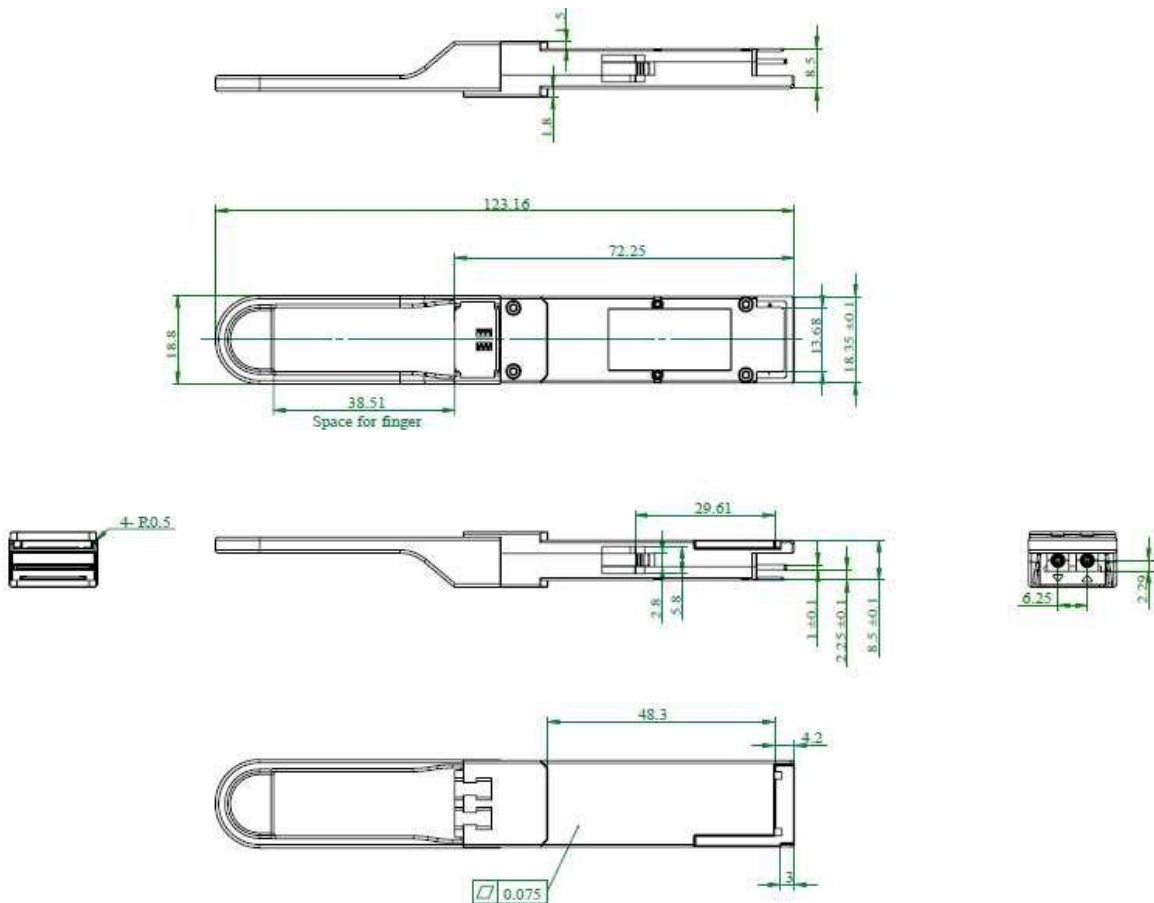
## Pin Definition



Pin	Symbol	Name/Description	Notes
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	VccRx	+3.3V Power Supply Receiver	2
11	SCL	2-Wire Serial Interface Clock	
12	SDA	2-Wire Serial Interface Data	
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	

22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	VccTx	+3.3 V Power Supply transmitter	2
30	Vcc1	+3.3 V Power Supply	2
31	LPMODE	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

## Package Outline



## Regulatory Compliance

Feature	Test	Method
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1(>1000V for SFI pins, >2000Vfor other pins.)
Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	Class 2(>4.0kV)
Electromagnetic Interference (EMI)	CISPR22 ITE Class B FCC Class B CENELEC EN55022 VCCI Class 1	Comply with standard
Immunity	IEC61000-4-3	Comply with standard
Eye Safety	FDA 21CFR 1040.10 and 1040.11 EN (IEC) 60825-1,2	Compatible with Class I laser Product

## Ordering information

Part. No	Specifications								
	Pack	Rate (Gbps)	Tx (nm)	Po (dBm)	RX	Sen (dBm)	Temp (°C)	Reach (KM)	DDM
AC-QP-3G100-10	QSFP28	100	EML	-1.9~4.8	PIN	-6.1	0~70	10	Y