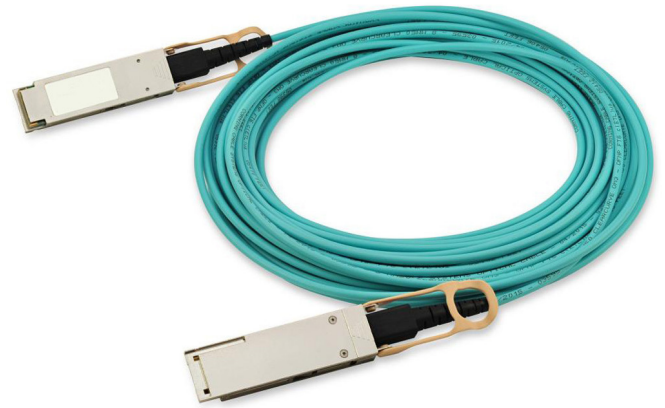


100G QSFP28 Active Optical Cables

Leader Optec’s 100G QSFP28 Active Optical Cables (AOC) are high-performance, cost-effective interconnect solution which supports InfiniBand EDR as well as other optical links. The cables are designed with form factor, and optical/electrical connection according to the QSFP Multi-Source Agreements (MSA). 100G AOC cables with QSFP28 transceiver have a wide range of applications in Data Centres, Rack-to-rack optical links, and 100G Ethernet.



Features & Benefits

- 4 independent full-duplex channels
- Hot-pluggable QSFP form factor
- Maximum length of 100m OM4 MMF transmission
- Maximum power consumption 3.5W each terminal
- Up to 25.78Gb/s data rate per channel
- Wide operating temperature: 0 to 70 °C
- Compliant to QSFP28 electrical MSA SFF-8636
- Single 3.3V power supply
- MTP/MPO optical connector receptacle
- RoHS-6 compliant
- System compatibility
- Customized designs possible
- Breakouts possible from:
 - 100G QSFP28 to 2x50G QSFP28
 - 100G QSFP28 to 4x25G SFP28

Application

- 100GBASE-SR4 at 25.78125Gbps per lane
- Data centres
- InfiniBand EDR
- Other optical links

Product Specifications

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Storage temperature	Tst	-40	-	85	°C
Relative humidity	RH	0	-	85	%
Case operating temperature	Top	0	-	70	°C
Power supply voltage	Vcc	-0.5	-	3.6	V

Product Specifications

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Case temperature range	Top	0	-	70	°C
Power supply voltage	Vcc	3.135	3.3	3.465	V
Data rate, each channel	-	-	25.78125	-	Gb/s
Data rate accuracy	-	-100	-	100	Ppm
Pre-FEC bit error ratio	-	-	-	5e-5	-
Post-FEC error ratio	-	-	-	1e-12	-

Note: FEC provided by host systems

Electrical Specifications

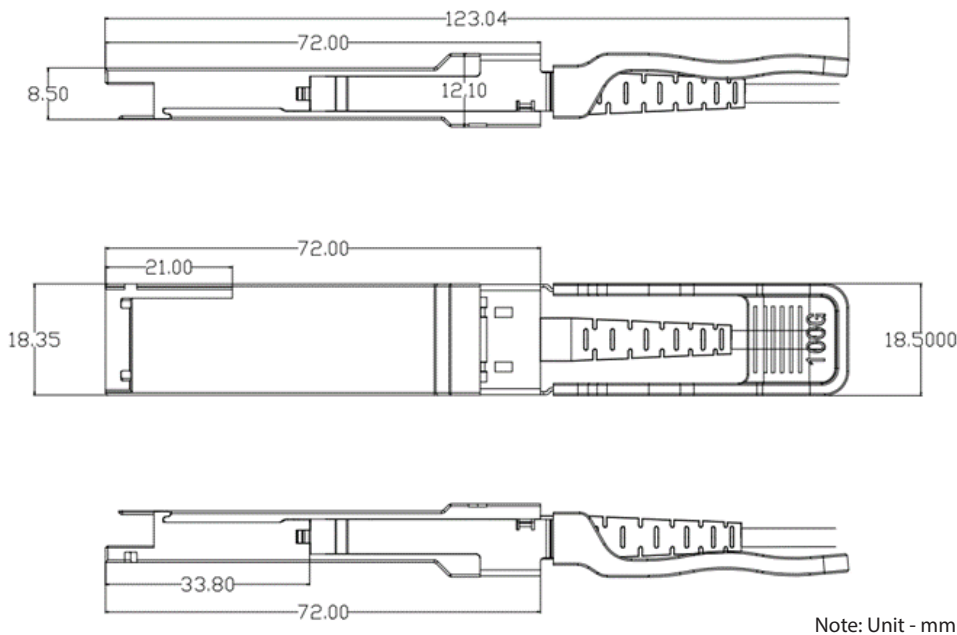
Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply current, each terminal	Icc	-	-	750	mA
Power consumption	Pc	-	-	2.5	W
Transmitter					
Differential input voltage swing threshold	Vin,pp	180	-	1000	mVpp
AC common mode input voltage tolerance	-	15	-	-	mV
Single-ended input voltage tolerance	-	-0.3	-	3.9	V
Receiver					
Differential output voltage swing threshold	Vout,pp	300	-	1000	mVpp
Single-ended output voltage tolerance	-	-0.3	-	4	V
AC common mode voltage	Vcm	-	-	7.5	mV

Receiver Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Transmitter					
Centre wavelength	λ_c	840	850	860	nm
Average launch power, each channel	Pout	-8.4	-	2.4	dBm
Extinction ratio	ER	3	-	-	dB
Transmitter and dispersion eye closure	TDEC	-	4.3	-	dB
Receiver					
Centre wavelength	λ_c	840	850	860	nm
Maximum average power at receiver, each lane	-	-	-	2.4	dBm
Minimum average power at receiver, each lane	-	-	-	-10.3	dBm
Receiver reflectance	-	-	-	-12	dB

Mechanical Drawing

Fig 1: Package Outline



Pin Assignment

Fig 2: Electrical Pin-Out Details

Top Side - Viewed from top

38	GND	
37	TX1n	
36	TX1p	
35	GND	
34	TX3n	
33	TX3p	
32	GND	
31	LPMODE	
30	VCC1	
29	VCCTX	
28	INTL	
27	MODPRSL	
26	GND	
25	RX4p	
24	Rx4n	
23	GND	
22	RX2p	
21	RX2n	
20	GND	

Bottom Side - Viewed from bottom

	GND	1
	TX2n	2
	TX2p	3
	GND	4
	TX4n	5
	TX4p	6
	GND	7
	ModselL	8
	ResetL	9
	VCCRX	10
	SCL	11
	SDA	12
	GND	13
	RX3p	14
	Rx3n	15
	GND	16
	RX1p	17
	RX1n	18
	GND	19

Module Card Edge

Pin Definition Receiver Specifications

Pin	Logic	Symbol	Name/Description
1	-	GND	Ground
2	CML-I	Tx2n	Transmitter Inverted Data Input
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input
4	-	GND	Ground
5	CML-I	Tx4n	Transmitter Inverted Data Input
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input
7	-	GND	Ground
8	LVTTL-I	ModSelL	Module Select
9	LVTTL-I	ResetL	Module Reset
10	-	Vcc Rx	3.3 V Power supply receiver
11	LVCOMS-I/O	SCL	2-wire serial interface clock
12	VCOMS-I/O	SDA	2-wire serial interface data
13	-	GND	Ground
14	CML-O	Rx1p	Receiver Non-Inverted Data Output
15	CML-O	Rx1n	Receiver Inverted Data Output
16	-	GND	Ground
17	CML-O	GND	Receiver Non-Inverted Data Output
18	CML-O	Rx2n	Receiver Inverted Data Output
19	-	Rx2p	Ground
20	-	GND	Ground
21	CML-O	Rx2n	Receiver Inverted Data Output
22	CML-O	Rx2p	Receiver Non-Inverted Data Output
23	-	-	Ground
24	CML-O	Rx4n	Receiver Inverted Data Output
25	CML-O	Rx4p	Receiver Non-Inverted Data Output
26	-	GND	Ground
27	LVTTL-O	ModPrsL	Module Present
28	LVTTL-O	IntL	Interrupt
29	-	Vcc Tx	+3.3 V Power supply transmitter
30	-	Vcc1	+3.3 V Power Supply
31	LVTTL-I	LPMODE	Low Power Mode
32	-	GND	Ground
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input
34	CML-I	Tx3n	Transmitter Inverted Data Input
35	-	GND	Ground
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input
37	CML-I	Tx1n	Transmitter Inverted Data Input
38	-	GND	Ground