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Mellanox® MCA7J60-N005 Compatible 800GBase-CU OSFP112 to 2xOSFP112-RHS Direct Attach Cable (Active Twinax, 5m, Infiniband)

Product Description

This is a Mellanox® compatible 800GBase-CU OSFP112 to 2xOSFP112-RHS direct attach cable that operates over active copper with a maximum reach of 5.0m (16.4ft). It has been programmed, uniquely serialized, and data-traffic and application tested to ensure it is 100% compliant and functional. This direct attach cable is built to comply with MSA (Multi-Source Agreement) standards. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Skylane's transceivers are RoHS compliant and lead-free.

Features:

- OSFP Module Compliant to MSA Standards
- InfiniBand NDR Compatible
- Transmission Data Rate Up to PAM4 106.25Gbps Per Channel
- Enable Auto-Negotiation and Link Training
- Linear PAM4 Programmable Equalizer Optimized for 56GBaud Copper Link
- Low Power Consumption
- 3.3V Power Supply
- Supports Device Programming by MCU with I2C
- Operating Temperature Range: 0 to 70 Celsius
- Low Latency: 10ps
- RoHS Compliant and Lead-Free



Applications:

- 800GBase Ethernet

For your product safety, please read the following information carefully before any manipulation of the transceiver:



ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 / JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



LASER SAFETY

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.

General Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Supply Voltage	Vcc	-0.3	3.3	3.6	V
Relative Operating Humidity	RH	5		85	%
Data Rate	DR		800		Gbps

Physical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Length	L			5	M	
AWG			25		AWG	
Jacket Material		Plastic Braided Mesh Technology Net, Red				

Electrical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.1	3.3	3.5	V	
Input Amplitude		800		1200	mVp-p	
Input Low Voltage	VIL	-0.3		0.35*Vcc	V	
Input High Voltage	VIH	0.65*Vcc		Vcc+0.3	V	
Output Logic Low	VOL			0.25*Vcc	V	
I2C Master Mode Output Frequency			400		kHz	
800G End Power Consumption			1.2	1.5	W	
400G End Power Consumption			0.6	0.7	W	
Raw Cable Impedance	Zca	90	100	110	Ω	
Mated Connector Impedance	Zmated	85		115	Ω	
Maximum Insertion Loss @26.56GHz	SDD21	11		19.75	dB	
Differential to Common-Mode Return Loss	SDD11/22	$RL_{cd}(f) \geq \begin{cases} 22 - 10(f/26.56) & 0.05 \leq f < 26.56 \\ 15 - 3(f/26.76) & 26.56 \leq f \leq 40 \end{cases}$			dB	1
Differential to Common-Mode Conversion Loss	SCD21-SDD21	$Conversion_loss(f) - \begin{cases} 10 & 0.05 \leq f < 12.89 \\ 14 - 0.3108f & 12.89 \leq f \leq 40 \end{cases}$			dB	1
Common-Mode to Common-Mode Return Loss	SCC11/22	$RL_{cc}(f) \geq 1.08$			dB	1
Minimum COM	COM	3			dB	

Minimum Cable Assembly	ERL	8.25			dB	
BER				2.4×10^{-4}		

Notes:

1. For $0.05 \leq f \leq 40$ GHz, where f is the frequency in GHz.

Pin Descriptions

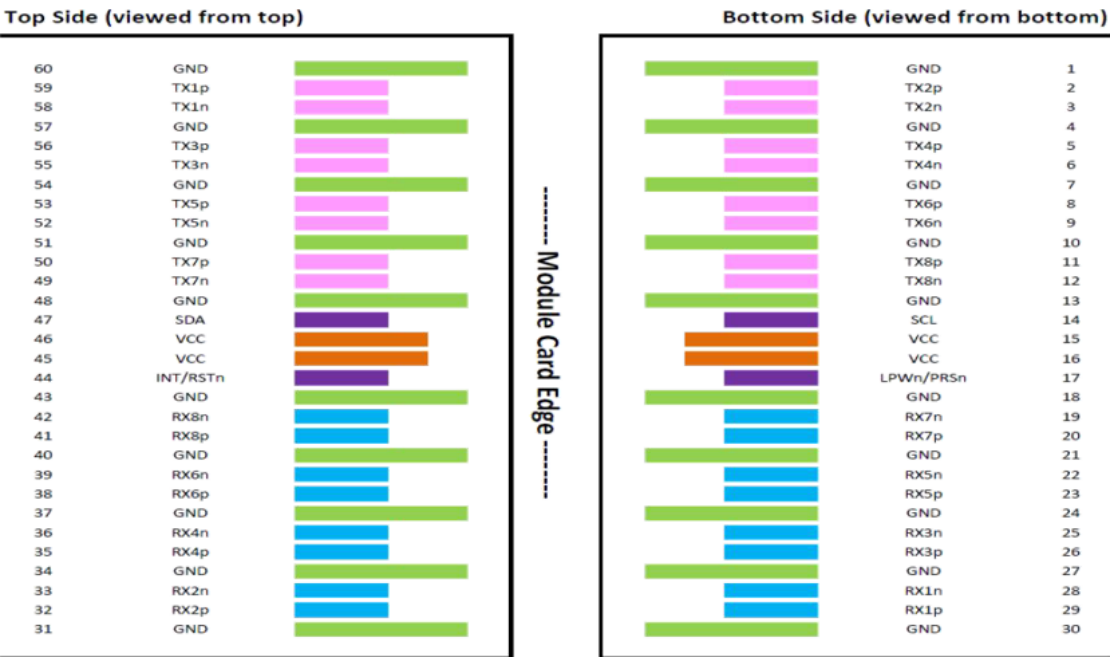
Pin	Symbol	Name/Description	Logic	Plug Sequence	Direction	Notes
1	GND	Module Ground.		1		
2	Tx2+	Transmitter Data Non-Inverted.	CML-I	3	Input from Host	
3	Tx2-	Transmitter Data Inverted.	CML-I	3	Input from Host	
4	GND	Module Ground.		1		
5	Tx4+	Transmitter Data Non-Inverted.	CML-I	3	Input from Host	
6	Tx4-	Transmitter Data Inverted.	CML-I	3	Input from Host	
7	GND	Module Ground.		1		
8	Tx6+	Transmitter Data Non-Inverted.	CML-I	3	Input from Host	
9	Tx6-	Transmitter Data Inverted.	CML-I	3	Input from Host	
10	GND	Module Ground.		1		
11	Tx8+	Transmitter Data Non-Inverted.	CML-I	3	Input from Host	
12	Tx8-	Transmitter Data Inverted.	CML-I	3	Input from Host	
13	GND	Module Ground.		1		
14	SCL	2-Wire Serial Interface Clock.	LVC MOS-I/O	3	Bi-Directional	1
15	Vcc	+3.3V Power.		2	Power from Host	
16	Vcc	+3.3V Power.		2	Power from Host	
17	LPWn/PRSn	Low-Power Mode/Module Present.	Multi-Level	3	Bi-Directional	2
18	GND	Module Ground.		1		
19	Rx7-	Receiver Data Inverted.	CML-O	3	Output to Host	
20	Rx7+	Receiver Data Non-Inverted.	CML-O	3	Output to Host	
21	GND	Module Ground.		1		
22	Rx5-	Receiver Data Inverted.	CML-O	3	Output to Host	
23	Rx5+	Receiver Data Non-Inverted.	CML-O	3	Output to Host	
24	GND	Module Ground.		1		
25	Rx3-	Receiver Data Inverted.	CML-O	3	Output to Host	
26	Rx3+	Receiver Data Non-Inverted.	CML-O	3	Output to Host	
27	GND	Module Ground.		1		
28	Rx1-	Receiver Data Inverted.	CML-O	3	Output to Host	
29	Rx1+	Receiver Data Non-Inverted.	CML-O	3	Output to Host	

30	GND	Module Ground.		1		
31	GND	Module Ground.		1		
32	Rx2+	Receiver Data Non-Inverted.	CML-O	3	Output to Host	
33	Rx2-	Receiver Data Inverted.	CML-O	3	Output to Host	
34	GND	Module Ground.		1		
35	Rx4+	Receiver Data Non-Inverted.	CML-O	3	Output to Host	
36	Rx4-	Receiver Data Inverted.	CML-O	3	Output to Host	
37	GND	Module Ground.		1		
38	Rx6+	Receiver Data Non-Inverted.	CML-O	3	Output to Host	
39	Rx6-	Receiver Data Inverted.	CML-O	3	Output to Host	
40	GND	Module Ground.		1		
41	Rx8+	Receiver Data Non-Inverted.	CML-O	3	Output to Host	
42	Rx8-	Receiver Data Inverted.	CML-O	3	Output to Host	
43	GND	Module Ground.		1		
44	INT/RSTn	Module Interrupt/Module Reset.	Multi-Level	3	Bi-Directional	2
45	Vcc	+3.3V Power.		2	Power from Host	
46	Vcc	+3.3V Power.		2	Power from Host	
47	SDA	2-Wire Serial Interface Data.	LVC MOS-I/O	3	Bi-Directional	1
48	GND	Module Ground.		1		
49	Tx7-	Transmitter Data Inverted.	CML-I	3	Input from Host	
50	Tx7+	Transmitter Data Non-Inverted.	CML-I	3	Input from Host	
51	GND	Module Ground.		1		
52	Tx5-	Transmitter Data Inverted.	CML-I	3	Input from Host	
53	Tx5+	Transmitter Data Non-Inverted.	CML-I	3	Input from Host	
54	GND	Module Ground.		1		
55	Tx3-	Transmitter Data Inverted.	CML-I	3	Input from Host	
56	Tx3+	Transmitter Data Non-Inverted.	CML-I	3	Input from Host	
57	GND	Module Ground.		1		
58	Tx1-	Transmitter Data Inverted.	CML-I	3	Input from Host	
59	Tx1+	Transmitter Data Non-Inverted.	CML-I	3	Input from Host	
60	GND	Module Ground.		1		

Notes:

1. Open-drain with pull-up resistor on the Host.
2. See “Pin Assignment” below for the required circuit.

Pin Assignments

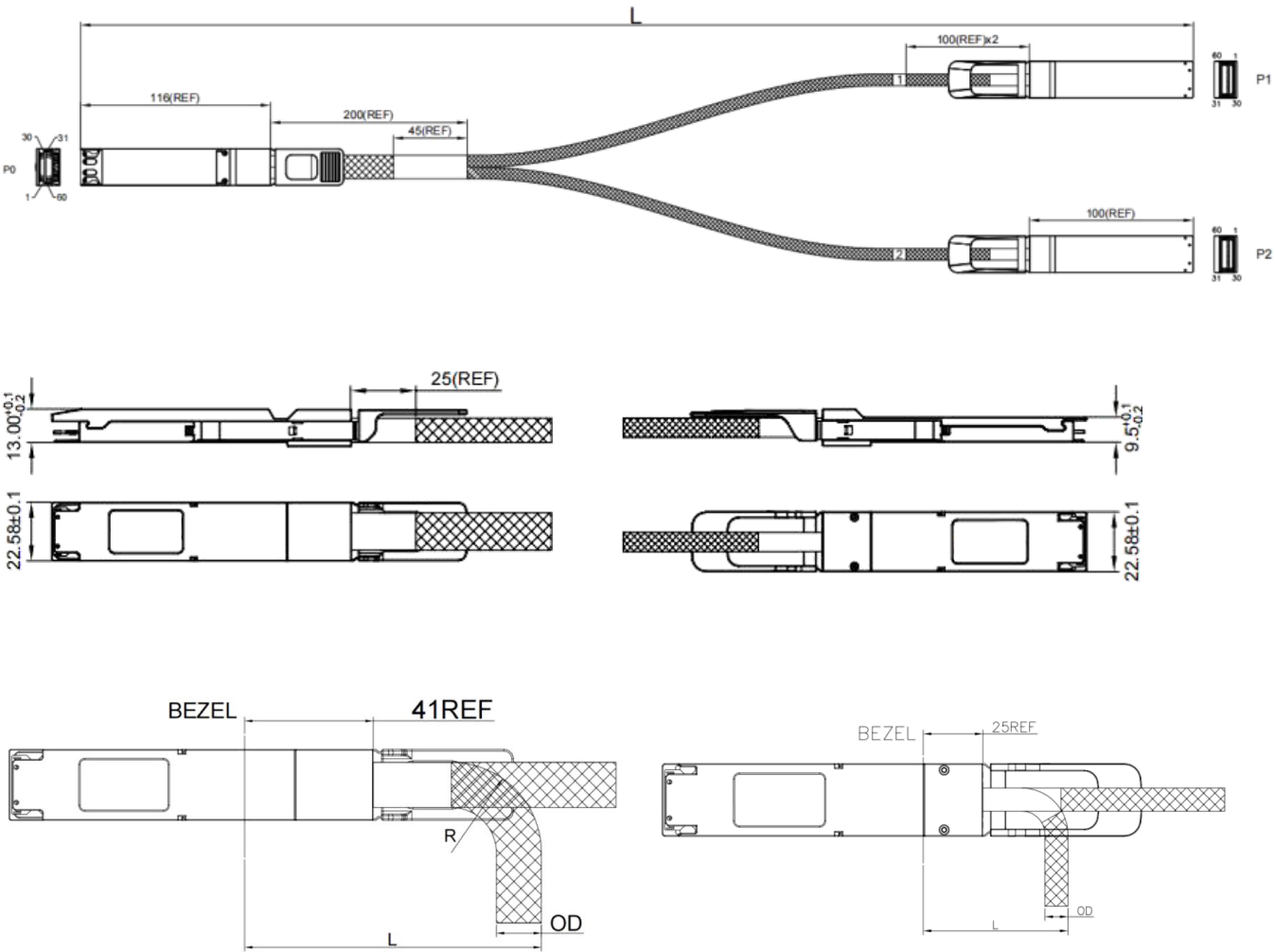


Wiring Diagram

WIRING DIAGRAM					
P0 END		—	P1 END		
58	TX1n	→	28	RX1n	
59	TX1p	→	29	RX1p	
28	RX1n	←	58	TX1n	
29	RX1p	←	59	TX1p	
2	TX2p	→	32	RX2p	
3	TX2n	→	33	RX2n	
32	RX2p	←	2	TX2p	
33	RX2n	←	3	TX2n	
55	TX3n	→	25	RX3n	
56	TX3p	→	26	RX3p	
25	RX3n	←	55	TX3n	
26	RX3p	←	56	TX3p	
5	TX4p	→	35	RX4p	
6	TX4n	→	36	RX4n	
35	RX4p	←	5	TX4p	
36	RX4n	←	6	TX4n	
GND GROUP 1/4/7/10/13/18/ 21/24/27/30/31/ 34/37/40/43/48/ 51/54/57/60		—	GND GROUP 1/4/7/10/13/18/ 21/24/27/30/31/ 34/37/40/43/48/ 51/54/57/60		
SHELL—SHIELDING—SHELL					

WIRING DIAGRAM					
P0 END		—	P2 END		
52	TX5n	→	28	RX1n	
53	TX5p	→	29	RX1p	
22	RX5n	←	58	TX1n	
23	RX5p	←	59	TX1p	
8	TX6p	→	32	RX2p	
9	TX6n	→	33	RX2n	
38	RX6p	←	2	TX2p	
39	RX6n	←	3	TX2n	
49	TX7n	→	25	RX3n	
50	TX7p	→	26	RX3p	
19	RX7n	←	55	TX3n	
20	RX7p	←	56	TX3p	
11	TX8p	→	35	RX4p	
12	TX8n	→	36	RX4n	
41	RX8p	←	5	TX4p	
42	RX8n	←	6	TX4n	
GND GROUP 1/4/7/10/13/18/ 21/24/27/30/31/ 34/37/40/43/48/ 51/54/57/60		—	GND GROUP 1/4/7/10/13/18/ 21/24/27/30/31/ 34/37/40/43/48/ 51/54/57/60		
SHELL—SHIELDING—SHELL					

Mechanical Specifications



Bending Radius

800G OSFP				OSFP RHS			
Wire Gauge	OD	Bend Radius "R"	Min. Bend Radius "L"	Wire Gauge	OD	Bend Radius "R"	Min. Bend Radius "L"
25AWG	12.1mm	25mm	86mm	25AWG	8.3mm	17mm	65mm

About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

