



SFPDD-50GB-PDAC3M-OPC

MSA and TAA 50GBase-CU SFP-DD to SFP-DD Direct Attach Cable (Passive Twinax, 3m, 27AWG)

Features

- SFP-DD module compliant to SFP-DD MSA Rev. 2.1
- Compliant to IEEE802.3cd & IEEE802.3bj high-frequency test standards
- SFP-DD-MIS Rev. 2.0
- 50Gbps transmission
- 27AWG
- Passive twinax
- Built-in EEPROM functions
- Operating Temperature 0 to 70 Celsius
- RoHS compliant and lead-free



Applications:

- 50GBase Ethernet

Product Description

This is an MSA compliant 50GBase-CU SFP-DD to SFP-DD direct attach cable that operates over passive copper with a maximum reach of 3.0m (9.8ft). 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 TAA (Trade Agreements Act) compliant, and 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.

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

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc	3.13	3.3	3.47	V
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Humidity	RH	5		85	%
Data Rate (FDR10)			50		Gbps

Physical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Length	L			3	m
AWG				27	AWG
Jacket Material	Black PVC				
Flame Rating	VW-1				

Electrical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Resistance	Rcon			3	Ω
Insulation Resistance	Rins			10	MΩ
Raw Cable Impedance	Zca	95		110	Ω
Mated Connector Impedance	Zmated	85		110	Ω
Maximum Insertion Loss at 13.28GHz	SDD21	8		17.16	dB
Differential to Common-Mode Return Loss	SCD11/22	$\text{Return_loss}(f) \geq \begin{cases} 22 - \left(\frac{20}{25.78}\right)f, & 0.01 \leq f < 12.89 \\ 15 - \left(\frac{6}{25.78}\right)f, & 12.89 \leq f \leq 19 \end{cases}$			dB
Differential to Common-Mode Conversion Loss	SCD21-SDD21	$\text{Conversion_loss}(f) - \text{IL}(f) \geq \begin{cases} 10, & 0.01 \leq f < 12.89 \\ 27 - \left(\frac{29}{22}\right)f, & 12.89 \leq f < 15.7 \\ 6.3, & 15.7 \leq f \leq 19 \end{cases}$			dB
Minimum COM	COM	3			dB
Rise Time (20-80%)				25	ps

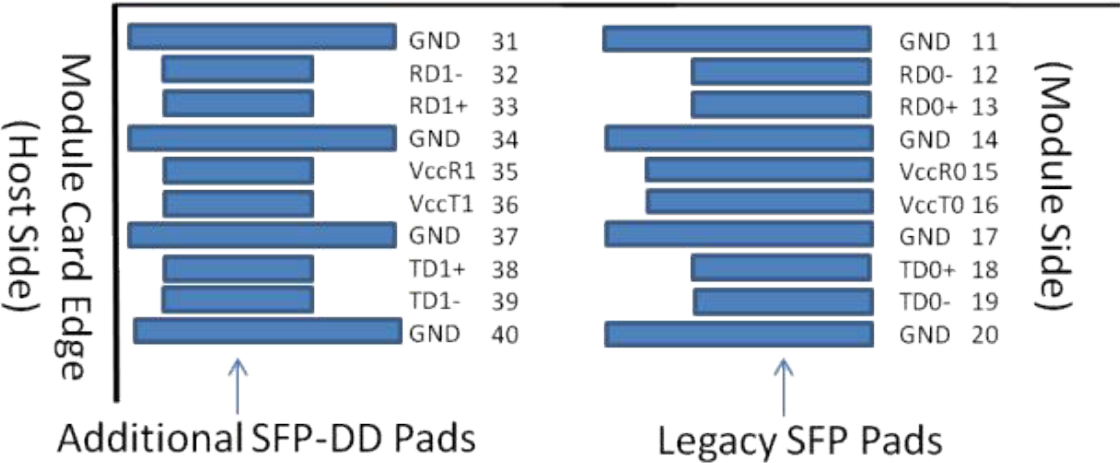
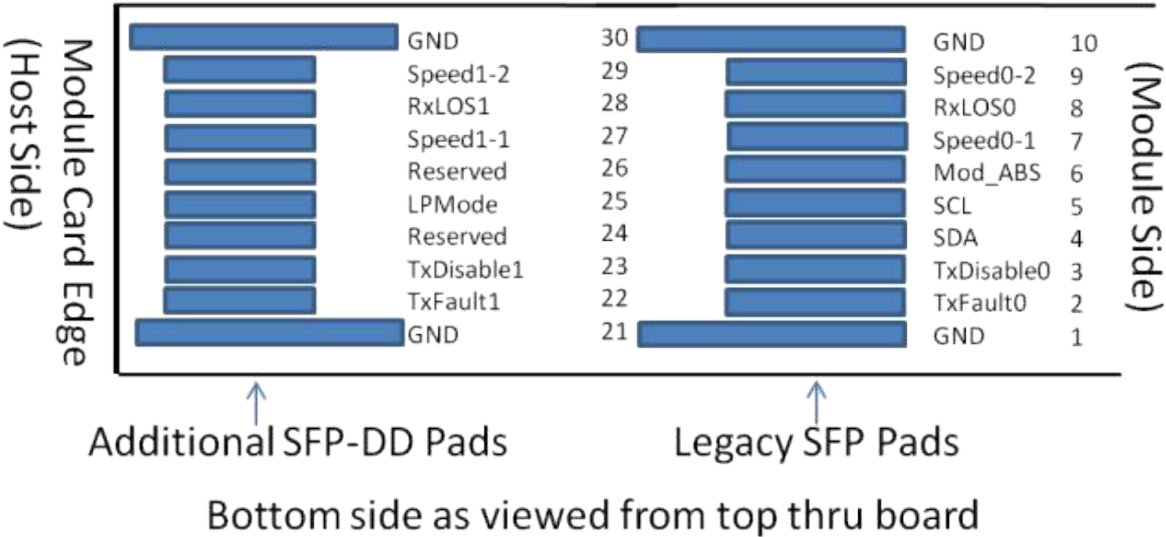
Pin Descriptions

Pin	Logic	Symbol	Name/Description	Plug Sequence	Notes
1		GND	Module Ground.	1A	1
2	LVTTL-O	Tx_Fault0	Transmitter Fault Indication for Channel 0.	3A	
3	LVTTL-I	Tx_Disable0	Transmitter Disable for Channel 0.	3A	
4	LVC MOS-I/O	SDA	Management I/F Data.	3A	
5	LVC MOS-I/O	SCL	Management I/F Clock.	3A	
6	LVTTL-O	MOD_ABS	Module Absent.	3A	
7	LVTTL-I	Speed0-1	Rx Rate Select for Channel 0.	3A	
8	LVTTL-O	RxLOS0	Rx Loss of Signal for Channel 0.	3A	
9	LVTTL-I	Speed0-2	Tx Rate Select for Channel 0.	3A	
10		GND	Module Ground.	1A	1
11		GND	Module Ground.	1A	1
12	CML-O	RD0-	Inverse Received Data Out for Channel 0.	3A	
13	CML-O	RD0+	Received Data Out for Channel 0.	3A	
14		GND	Module Ground.	1A	1
15		VccR0	Receiver Power.	2A	2
16		VccT0	Transmitter Power.	2A	2
17		GND	Module Ground.	1A	1
18	CML-I	TD0+	Transmit Data In for Channel 0.	3A	
19	CML-I	TD0-	Inverse Transmit Data In for Channel 0.	3A	
20		GND	Module Ground.	1A	1
21		GND	Module Ground.	1B	1
22	LVTTL-O	Tx_Fault1	Transmitter Fault Indication/Interrupt for Channel 1.	3B	
23	LVTTL-I	Tx_Disable1	Transmitter Disable for Channel 1.	3B	
24		Reserved	Reserved for Future Use.	3B	
25	LVTTL-I	LPMode	Low-Power Mode Control.	3B	
26		Reserved	Reserved for Future Use.	3B	
27	LVTTL-I	Speed1-1	Rx Rate Select for Channel 1.	3B	
28	LVTTL-O	RxLOS1	Loss of Signal for Channel 1.	3B	
29	LVTTL-I	Speed1-2	Tx Rate Select for Channel 1.	3B	
30		GND	Module Ground.	1B	1
31		GND	Module Ground.	1B	1
32	CML-O	RD1-	Inverse Received Data Out for Channel 1.	3B	
33	CML-O	RD1+	Received Data Out for Channel 1.	3B	
34		GND	Module Ground.	1B	1
35		VccR1	Receiver Power for Channel 1.	2B	2
36		VccT1	Transmitter Power for Channel 1.	2B	2
37		GND	Module Ground.	1B	1
38	CML-I	TD1+	Transmit Data In for Channel 1.	3B	
39	CML-I	TD1-	Inverse Transmit Data In for Channel 1.	3B	
40		GND	Module Ground.	1B	1

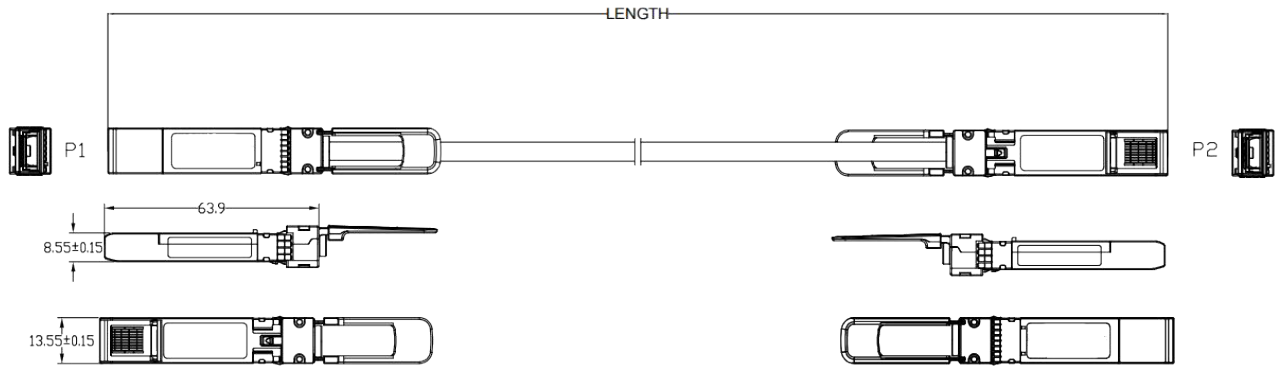
Notes:

- 1. GND is the symbol for signal and supply (power) common for the module. All are common within the module, and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
- 2. VccT0, VccT1, VccR0, and VccR1 are applied concurrently and may be internally connected within the module in any combination.

Electrical Pin-Out Details



Mechanical Specifications



Notes:

1. 4 pairs, black PVC jacket, and RoHS 2.0 compliant.
2. 100% conductor test conditions: voltage of 5V, insulation resistance of $10M\Omega$, and a conduction resistance of maximum 3Ω .
3. High-frequency test according to IEEE802.3bj & IEEE802.3cd standards.

OptioConnect

Innovation for the Future of High-Speed Networking

Who We Are

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

What We Do

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

Smarter Networks by Design

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

Our Team

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

Our Mission

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

Let's Connect

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