

Product Specification

25G SFPwire® SFP+ Direct Attach Cable

FDBC125SD1Cxx

PRODUCT FEATURES

- Up to 25.78125 Gb/s data rate
- Up to 5-meter transmission length
- Cable AWG from 26 to 30
- Compatible to SFP28 MSA
- Compatible to SFF-8402 and SFF-8432
- Temperature Range: 0°C-70 °C
- RoHS Compatible



APPLICATIONS

- 10G/25G Ethernet

25G SFPwire® FDBC125SD1Cxx DAC are SFP+ direct-attach cables designed for 25G Ethernet links. These copper cables are compliant with SFF-8432 and SFF-8402 specifications. Various choices of wire gauge are available from 30 to 26 AWG with various choices of cable length (up to 5m).

PRODUCT SELECTION

FDBC125SD1Cxx	Cable Length Options	
	xx = 01 → 1.0m	xx = Z5 → 0.5m
	xx = 02 → 2.0m	xx = A5 → 1.5m
	xx = 03 → 3.0m	xx = B5 → 2.5m
	xx = 04 → 4.0m	xx = C5 → 3.5m
	xx = 05 → 5.0m	xx = D5 → 4.5m

Please contact Coherent for other custom options.

I. Pin Descriptions

SFP28 Pin Function Definition

Pin	Logic	Symbol	Name/Description	Notes
1		VeeT	Transmitter Ground	
2	LV-TTL-O	TX_Fault	N/A	1
3	LV-TTL-I	TX_DIS	Transmitter Disable	2
4	LV-TTL-I/O	SDA	Tow Wire Serial Data	
5	LV-TTL-I	SCL	Tow Wire Serial Clock	
6		MOD_DEF0	Module present, connect to VeeT	
7	LV-TTL-I	RS0	N/A	1
8	LV-TTL-O	LOS	LOS of Signal	2
9	LV-TTL-I	RS1	N/A	1
10		VeeR	Reciever Ground	
11		VeeR	Reciever Ground	
12	CML-O	RD-	Reciever Data Inverted	
13	CML-O	RD+	Reciever Data Non-Inverted	
14		VeeR	Reciever Ground	
15		VccR	Reciever Supply 3.3V	
16		VccT	Transmitter Supply 3.3V	
17		VeeT	Transmitter Ground	
18	CML-I	TD+	Transmitter Data Non-Inverted	
19	CML_I	TD-	Transmitter Data Inverted	
20		VeeT	Transmitter Ground	

1. Signals not supported in SFP+ Copper pulled-down to VeeT with 30K ohms resistor
2. Passive cable assemblies do not support LOS and TX_DIS

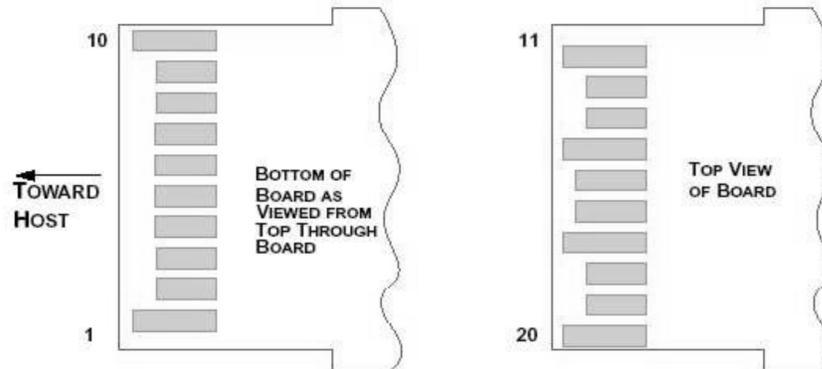


Figure 1. Diagram of Host Board Connector Block Pin Numbers and Names

II. General Product Characteristics

SFP DAC Specifications	
Number of Lanes	Tx & Rx
Channel Data Rate	25.78125 Gbps
Operating Temperature	0 to + 70°C
Storage Temperature	-40 to + 85°C
Supply Voltage	3.3 V nominal
Electrical Interface	20 pins edge connector
Management Interface	I ² C

III. High Speed Characteristics

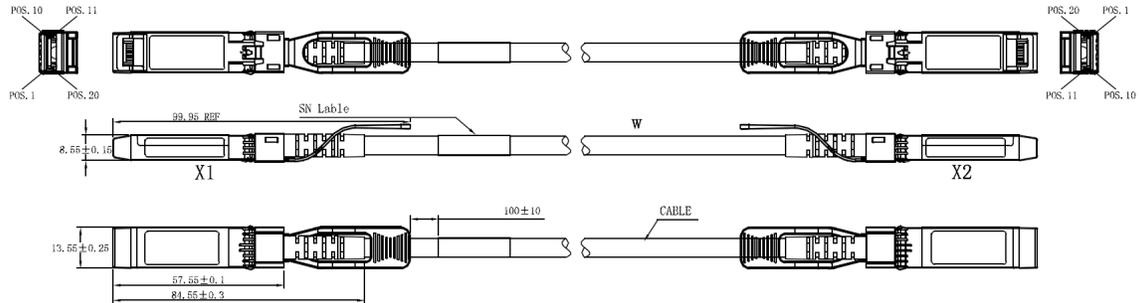
Parameter	Symbol	Min	Typical	Max	Unit	Note
Differential Impedance	TDR	90	100	110	Ω	
Insertion loss	SDD21	-22.48			dB	At 12.8906 GHz
Differential Return Loss	SDD11 SDD22			See 1	dB	At 0.05 to 4.1 GHz
				See 2	dB	At 4.1 to 19 GHz
Common-mode to common-mode output return loss	SCC11 SCC22			-2	dB	At 0.2 to 19 GHz
Differential to common-mode return loss	SCD11 SCD22			See 3	dB	At 0.01 to 12.89 GHz
				See 4		At 12.89 to 19 GHz
Differential to common Mode Conversion Loss	SCD21-IL			-10	dB	At 0.01 to 12.89 GHz
				See 5		At 12.89 to 15.7 GHz
				-6.3		At 15.7 to 19 GHz

Notes:

1. Reflection Coefficient given by equation $SDD11(\text{dB}) < -16.5 + 2 \times \text{SQRT}(f)$, with f in GHz
2. Reflection Coefficient given by equation $SDD11(\text{dB}) < -10.66 + 14 \times \log_{10}(f/5.5)$, with f in GHz
3. Reflection Coefficient given by equation $SCD11(\text{dB}) < -22 + (20/25.78)*f$, with f in GHz
4. Reflection Coefficient given by equation $SCD11(\text{dB}) < -15 + (6/25.78)*f$, with f in GHz
5. Reflection Coefficient given by equation $SCD21(\text{dB}) < -27 + (29/22)*f$, with f in GHz

IV. Mechanical Specifications

The connector is compatible with the SFF-8432 specification.



Cable length (m)	Cable AWG	Cable length (m)	Cable AWG
1.0	30	3.5	26
1.5	30	4.0	26
2.0	30	4.5	26
2.5	30	5.0	26
3.0	30		

V. Regulatory Compliance

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883C Method 3015.7	Class 1(>2000 Volts)
Electromagnetic Interference(EMI)	FCC Class B	Compliant with Standards
	CENELEC EN55022 Class B	
	CISPR22 ITE Class B	
RF Immunity(RFI)	IEC61000-4-3	Typically Show no Measurable Effect from a 10V/m Field Swept from 80 to 1000MHz
RoHS Compliance	RoHS Directive 2011/65/EU and it's Amendment Directives (EU) 2015/863	RoHS (EU) 2015/863 compliant
REACH Compliance	REACH Regulation (EC) No 1907/2006	REACH (EC) No 1907/2006 compliant

VI. References

- “Specifications for Enhanced 8.5 and 10 Gigabit Small Form Factor Pluggable Module ‘SFP+ ‘”, SFF Document Number SFF-8431, Revision 4.1.
- “Diagnostic Monitoring Interface for Optical Transceivers”, SFF Document Number SFF-8472, revision 12.2, November 21, 2014.
- “Improved Pluggable Formfactor”, SFF Document Number SFF-8432, Revision 4.2, April 18, 2007.
- Directive 2011/65/EU of the European Parliament and of the Council “on the restriction of the use of certain hazardous substances in electrical and electronic equipment”. Certain products may use one or more exemption as allowed by the directive.
- “Application Note AN-2038: Finisar Implementation of RoHS Compliant Transceivers”, Coherent Corp. January 21, 2005.

VII. For More Information

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