

# 25G SFP28 Direct Attach Cable (DAC)

## Datasheet

### General Description

SFP28 Direct Attach 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).

### Features

- Up to 25.78125 Gbps data rate
- Up to 5 meter transmission
- Hot-pluggable SFP 20PIN footprint
- Improved Pluggable Form Factor(IPF) compliant for enhanced EMI/EMC performance
- Compatible to SFP28 MSA
- Compatible to SFF-8402 and SFF-8432
- Temperature Range: 0~ 70 °C
- RoHS Compatible



### Benefits

- Cost-effective copper solution
- Lowest total system power solution
- Lowest total system EMI solution
- Optimized design for Signal Integrity

### Applications

- 25G Ethernet

### Product Description

- The SFP28 passive cable assemblies are high performance, cost effective I/O solutions for 25G Ethernet. SFP28 copper cables allow hardware manufactures to achieve high port density, configurability and utilization at a very low cost and reduced power budget

## High Speed Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Note
Differential Impedance	$R_{IN,P-P}$	90	100	110	$\Omega$	
Insertion loss	$SDD_{21}$	8		22.48	dB	At 12.8906 GHz
Differential Return Loss	$SDD_{11}$	12.45		See 1	dB	At 0.05 to 4.1 GHz
	$SDD_{22}$	3.12		See 2	dB	At 4.1 to 19 GHz
Common-mode to common-mode output return loss	$SCC_{11}$ $SCC_{22}$	2			dB	At 0.2 to 19 GHz
Differential to common-mode return loss	$SCD_{11}$ $SCD_{22}$	12 10.58		See 3 See 4	dB	At 0.01 to 12.89 GHz At 12.89 to 19 GHz
Differential to common Mode Conversion Loss	$SCD_{21-IL}$	10 6.3		See 5	dB	At 0.01 to 12.89 GHz At 15.7 to 19 GHz
Channel Operating Margin	$COM$	3			dB	

Notes:

1. Reflection Coefficient given by equation  $SDD_{11}(dB) < 16.5 - 2 \times \text{SQRT}(f)$ , with f in GHz
2. Reflection Coefficient given by equation  $SDD_{11}(dB) < 10.66 - 14 \times \log_{10}(f/5.5)$ , with f in GHz
3. Reflection Coefficient given by equation  $SCD_{11}(dB) < 22 - (20/25.78) \times f$ , with f in GHz
4. Reflection Coefficient given by equation  $SCD_{11}(dB) < 15 - (6/25.78) \times f$ , with f in GHz
5. Reflection Coefficient given by equation  $SCD_{21}(dB) < 27 - (29/22) \times f$ , with f in GHz

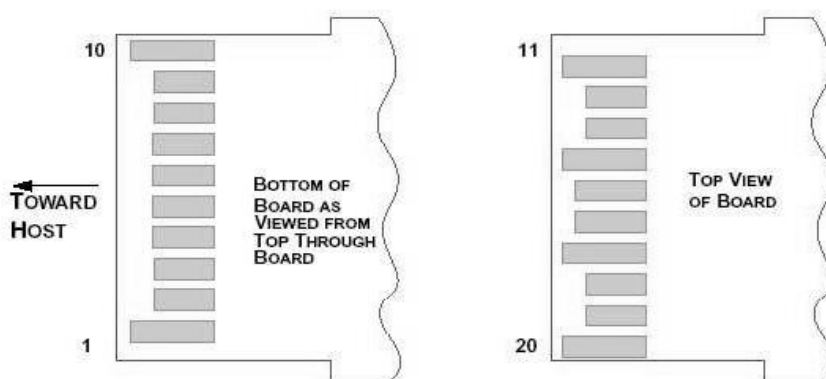
## Pin Descriptions

### 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	

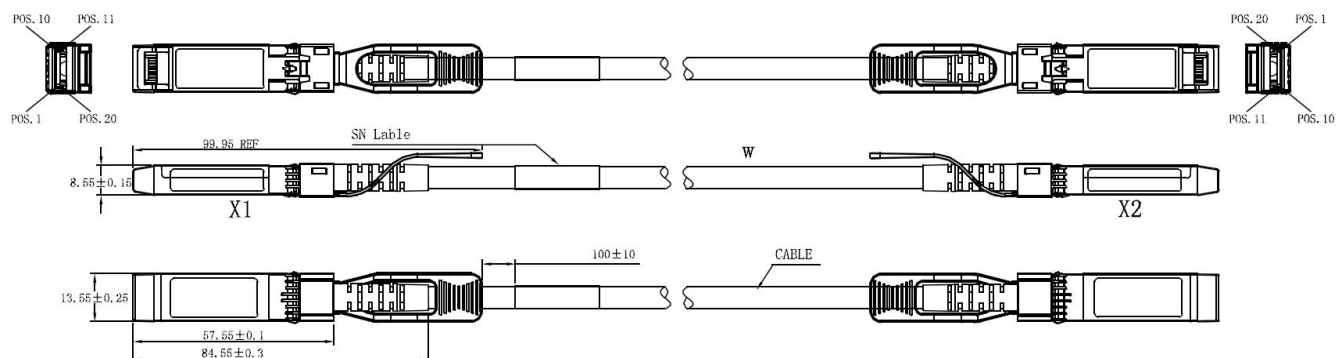
1. Signals not supported in SFP+ Copper pulled-downto VeeT with 30K ohms resistor

2. Passive cable assemblies do not support LOS and TX\_DIS



## Mechanical Specifications

The connector is compatible with the SFF-8432 specification.



Length (m)	Cable AWG
1	30
2	30
3	30/26
4	26
5	26

## 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 6/6	RoHS 6/6 compliant