

## Product Datasheet

### MCP2M00-A005-C

#### Mellanox® Compatible 25Gb/s SFP28 Direct Attach Cable Copper, Passive, 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
- Cost-effective copper solution
- Lowest total system power solution
- Lowest total system EMI solution
- Optimized design for Signal Integrity

##### APPLICATIONS

- Storage Area Networks (SAN), Network Attached Storage and Storage Servers
- 25G Ethernet
- Switched fabric I/O such as ultra-high bandwidth switches and routers
- Data center cabling infrastructure
- High density connections among network equipment

##### DESCRIPTION

ATGBICS SFP28 Copper cable assemblies are high-performance, cost effective I/O solutions for 25Gb Ethernet applications. It allows hardware manufacturers to achieve high port density, configurability and utilization at a very low cost and to reduce power budget. The high-speed cable assemblies meet and exceed the performance and reliability requirements stipulated by Gigabit Ethernet and Fiber Channel industry standard.

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### High Speed Characteristics:

Parameter	Symbol	Min	Typical	Max	Unit	Note
<b>Differential Impedance</b>	TDR	90	100	110	Ω	
<b>Insertion loss</b>	SDD21	-22.48			dB	At 12.8906 GHz
<b>Differential Return Loss</b>	SDD11			See 1	dB	At 0.05 to 4.1 GHz
	SDD22			See 2	dB	At 4.1 to 19 GHz
<b>Common-mode to common-mode output return loss</b>	SCC11 SCC22			-2	dB	At 0.2 to 19 GHz
<b>Differential to common mode return loss</b>	SCD11 SCD22			See 3	dB	At 0.01 to 12.89 GHz
				See 4		At 12.89 to 19 GHz
<b>Differential to common Mode Conversion Loss</b>	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  $SDD11(dB) < -16.5 + 2 \times \text{SQRT}(f)$ , with f in GHz
2. Reflection Coefficient given by equation  $SDD11(dB) < -10.66 + 14 \times \log_{10}(f/5.5)$ , with f in GHz
3. Reflection Coefficient given by equation  $SCD11(dB) < -22 + (20/25.78) * f$ , with f in GHz
4. Reflection Coefficient given by equation  $SCD11(dB) < -15 + (6/25.78) * f$ , with f in GHz
5. Reflection Coefficient given by equation  $SCD21(dB) < -27 + (29/22) * f$ , with f in GHz

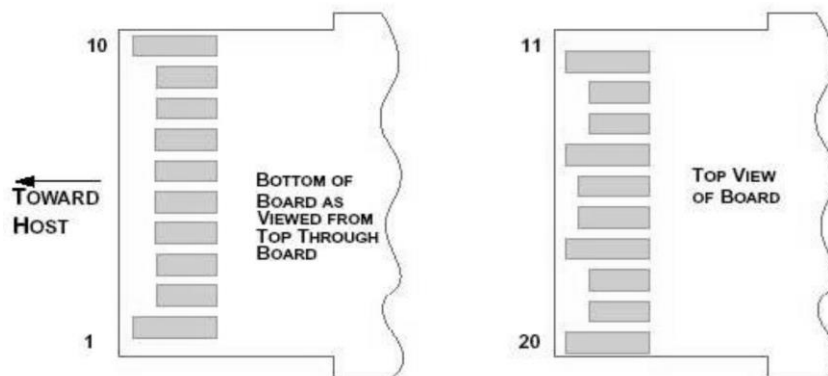
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### SFP28 Pin Function Definition

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	Receiver Ground	
11		VeeR	Receiver Ground	
12	CML-O	RD-	Receiver Data Inverted	
13	CML-O	RD+	Receiver Data Non-Inverted	
14		VeeR	Receiver Ground	
15		VccR	Receiver 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	

**Note:**

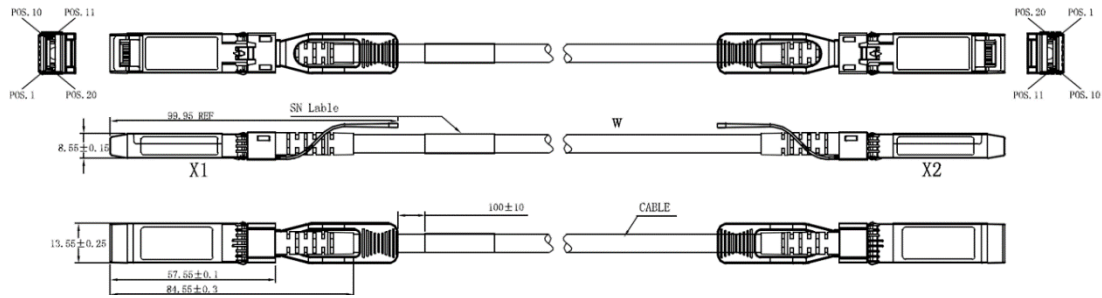
1. Signals not supported in SFP+ Copper pulled down to VeeT with 30K ohms resistor
2. Passive cable assemblies do not support LOS and TX\_DIS



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### Mechanical Information

The connector is compatible with the SFF-8432 specification



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

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### Regulatory Compliance

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

### AWG Information

Reach @ 10Gb/s (m)	AWG
0.5	30
1	30
3	30
5	24
7	24
10	24