
MBXRD1-DZC-XXXT

Features

- ◆ Hot-pluggable SFP28 cable ends
- ◆ Supports 25.78125Gbps bit rate
- ◆ Maximum link length of 70m on OM3 MMF and 100m on OM4 MMF
- ◆ Operating environment temperature 0 ~ 70°C
- ◆ Low power consumption
- ◆ SFP28 housing with enhanced EMI shielding
- ◆ Internal CDR on both Transmitter and Receiver channel
- ◆ Single 3.3V power supply

Application

- ◆ 25GBASE-SR Ethernet

Standard

- ◆ Compliant with SFF-8472
- ◆ Compliant with IEEE802.3by
- ◆ Compliant with SFF-8431
- ◆ RoHS complaint

General Description

MNC SFP28 Active Optical Cables are direct-attach fiber assemblies with SFP28 connectors. They are suitable for very short distances and offer a cost-effective way to connect within racks and across adjacent racks. MNC SFP+ Active Optical Cables's length is up to 70 meters on OM3 MMF or 100 meters on OM4 MMF.

Specification

Absolute Maximum Ratings				
Parameter	Symbol	Min	Max	Unit
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	RH	0	85	%
Supply Voltage	Vcc	-0.5	3.6	V

Recommended Operating Conditions					
Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Tc	0		+70	°C
Supply Voltage	Vcc	3.13	3.3	3.47	V
Supply Current	Icc			300	mA
Bit Rate	BR		25.78	28.05	Gb/s

Optical and Electrical Characteristics						
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter Characteristics						
Centre Wavelength	λ_c	840	850	860	nm	
Spectral Width(-20 dB)	σ			0.6	nm	
Average output power	Pavg	-8.4		2.4	dBm	
Extinction Ratio	ER	2			dB	
Input differential impedance	Rin		100		Ω	1
Differential data input swing	Vin,pp	40		1000	mV	
Transmit Disable Voltage	VD	2		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+0.8	V	
Receiver Characteristics						
Centre Wavelength	λ_c	840	850	860	nm	
Receiver Sensitivity	Sen			-5.2	dBm	
LOS De-Assert	LOS _D			-13	dBm	
LOS Assert	LOS _A	-30			dBm	

LOS Hysteresis		0.5			dB	
Differential data output swing	Vout,pp	500		1130	mV	2,5
Data output rise time, fall time	tr	28			ps	3
LOS Fault	V _{LOSfault}	2		V _{CCHOST}		4
LOS Normal	V _{LOS norm}	V _{ee}		V _{ee} +0.8		4

Note1. Connected directly to TX data input pins. AC coupling from pins into laser driver IC

Note2. Into 100Ω differential termination.

Note3. 20 – 80%. Measured with Module Compliance Test Board and OMA test pattern.

Note4. LOS is an open collector output. It should be pulled up with 4.7kΩ – 10kΩ on the host board. Normal operation is logic 0; loss of signal is logic 1.

Note5. The MBXRD1-DZC-XXXT is MNC Limiting. Host board designers using an EDC PHY IC should follow the IC manufacturer’s recommended settings for interoperating the host-board EDC PHY with a limiting receiver.

Pin definition

The SFP+ modules are hot-pluggable. Hot pluggable refers to plugging in or unplugging a module while the host board is powered. The SFP+ host connector is a 0.8 mm pitch 20 position right angle improved connector specified by SFF-8431, or stacked connector with equivalent electrical performance. SFP+ module contacts mates with the host in the order of ground, power, followed by signal as illustrated by Figure 1 and the contact sequence order listed in Table 1.

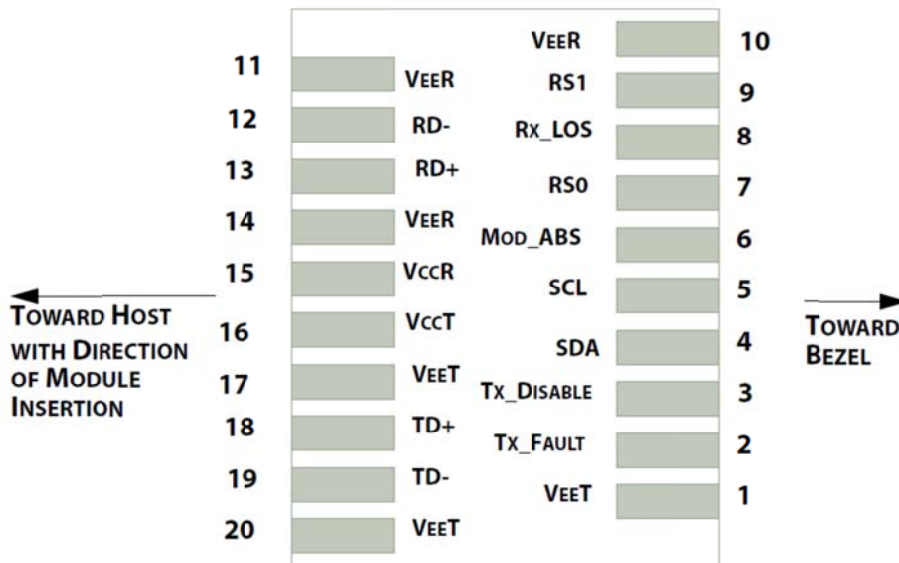


Figure1 SFP+ Pad assignment Top View

Table 1

Pin	Symbol	Name/Description	Power Seq.	Ref.
1	VeeT	Transmitter Ground	1st	1
2	TX_Fault	Transmitter Fault	3rd	2
3	TX_Disable	Transmitter Disable	3rd	3
4	SDA	2-Wire Serial Interface Data Line	3rd	4
5	SCL	2-Wire Serial Interface Data Line	3rd	4
6	Mod_ABS	Module Absent, Connect to VeeT or VeeR in Module	3rd	5
7	RS0	No connection required	3rd	6
8	RX_LOS	Receiver Loss of Signal indication	3rd	7
9	RS1	No connection required	3rd	8
10	VeeR	Receiver Ground	1st	1
11	VeeR	Receiver Ground	1st	1
12	RD-	Receiver Inverted DATA out. AC Coupled. CML-O	3rd	9
13	RD+	Receiver Non-inverted DATA out. AC Coupled. CML-O	3rd	9
14	VeeR	Receiver Ground	1st	1
15	VccR	Receiver Power Supply	2nd	10
16	VccT	Transmitter Power Supply	2nd	10
17	VeeT	Transmitter Ground	1st	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled. CML-I	3rd	11
19	TD-	Transmitter Inverted DATA in. AC Coupled. CML-I	3rd	11
20	VeeT	Transmitter Ground	1st	1

SFP28 Module PIN Definition

Power Seq.: Pin engagement sequence during hot plugging.

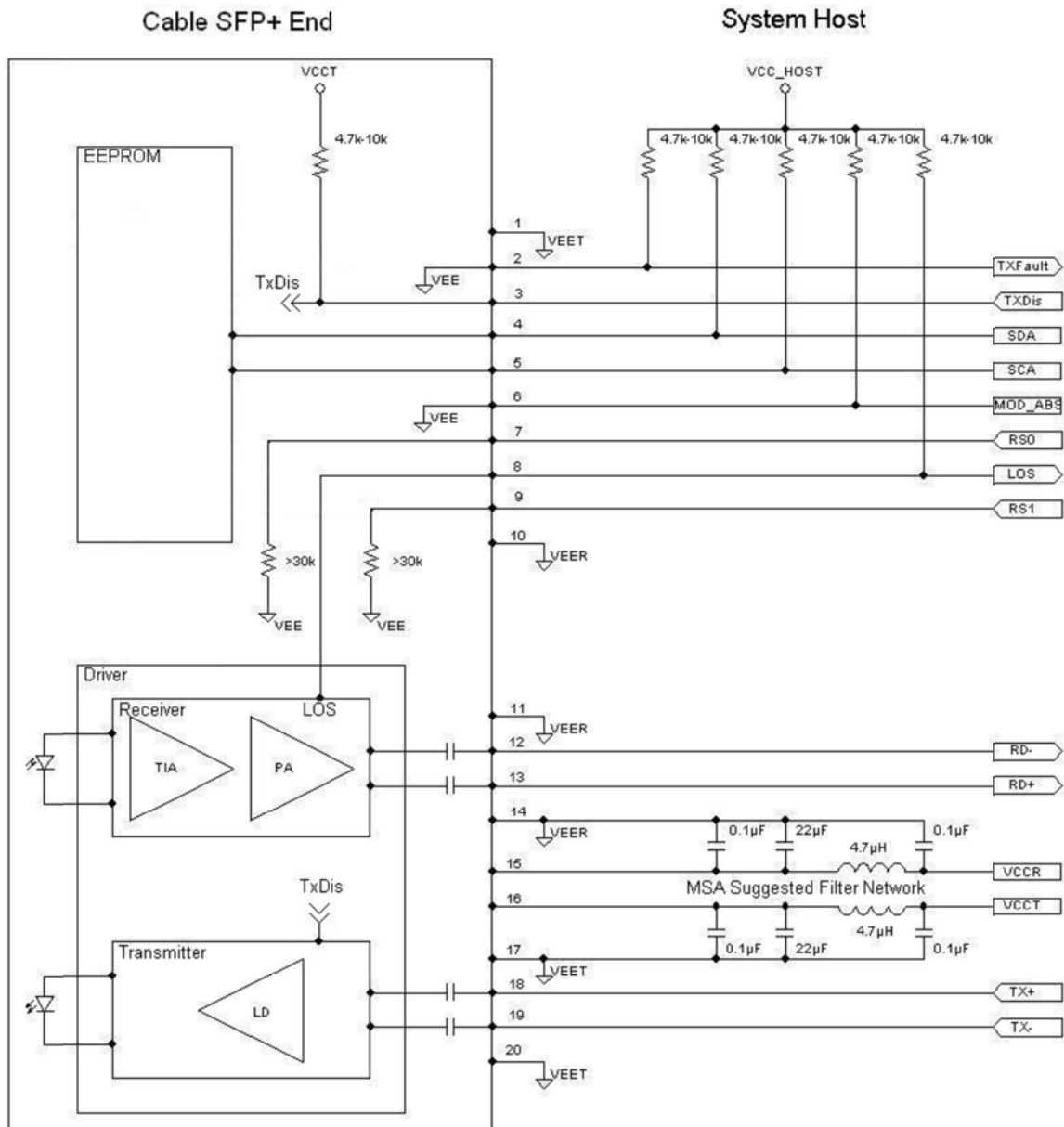
Notes:

1. The module signal ground contacts.
2. This pin is an open drain/collector and should be pulled up to Vcc-host in the host with a 4.7k~10k Ohm resistor.
3. This pin should be pulled up to Vcct with a 4.7k~10k Ohm resistor in modules.
4. SDA&SCL (IIC) are needed pull up 4.7k~10k Ohm resistors on host board.
5. Mod_ABS is connected to VeeT or VeeR in the SFP+ module.
6. Rate Select 0,no connection required.
7. Module RX_Los of signal indication need pull up 4.7k~10k Ohm resistor on host board.
8. Rate Select 1,no connection required.
9. RD -/+ : These are the differential receiver outputs. They are CML AC-coupled with 100 Ohm terminal resistor matching internal.

10. VccR and VccT are the receiver and transmitter power supplies.

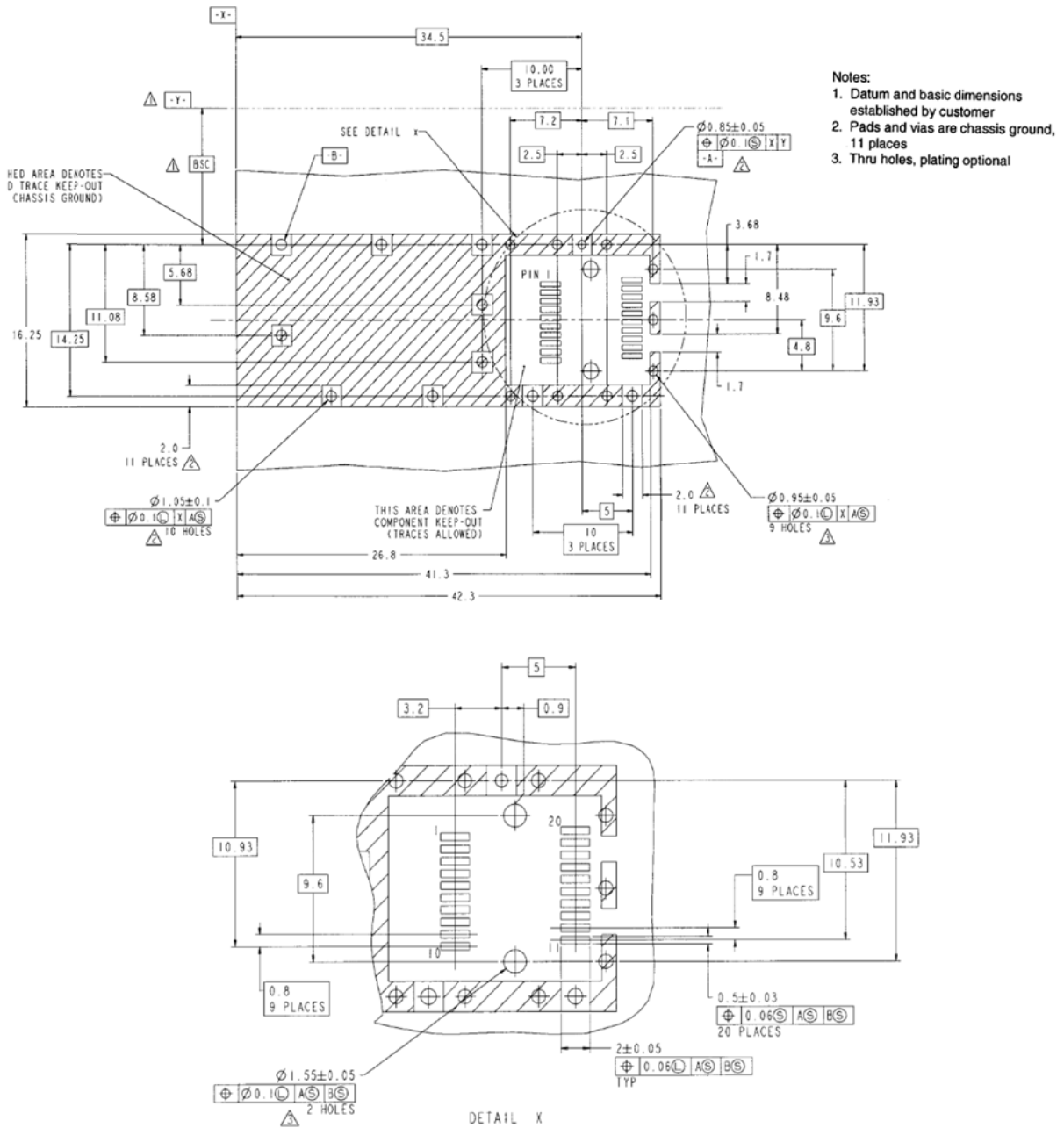
11. TD-/+ : These are the differential transmitter inputs. They are CML AC-coupled with 100 Ohm terminal resistor matching internal.

Host-Active optical cable end Interface Block Diagram



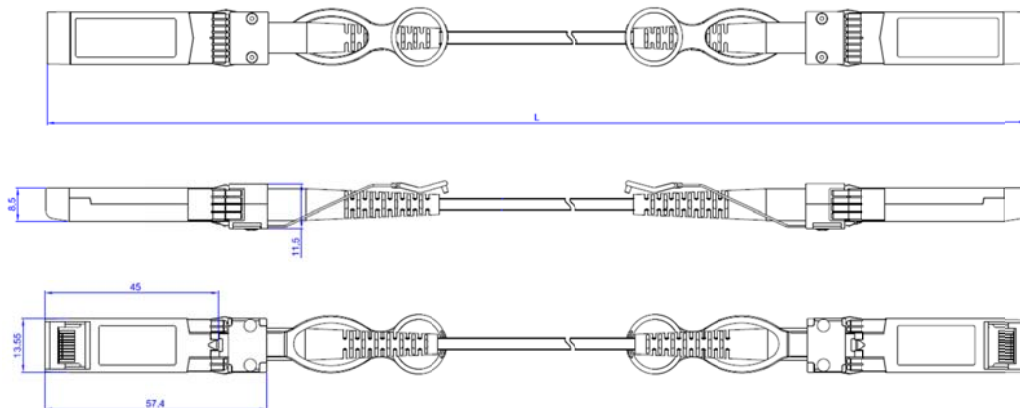
Host PCB Layout

Dimensions are in millimeters. (Unit: mm)



Mechanical Drawing

Dimensions are in millimeters. All dimensions are ± 0.1 mm unless otherwise specified. (Unit: mm)



Ordering information

Part. No	Specifications						
	Pack	Rate (Gbps)	Tx (nm)	Rx	Temp (°C)	Reach (m)	Others
MBXRD1-DZC-001T	SFP28	25.78125	850 VCSEL	PIN	0~+70	1	RoHS
MBXRD1-DZC-003T	SFP28	25.78125	850 VCSEL	PIN	0~+70	3	RoHS
MBXRD1-DZC-005T	SFP28	25.78125	850 VCSEL	PIN	0~+70	5	RoHS
MBXRD1-DZC-007T	SFP28	25.78125	850 VCSEL	PIN	0~+70	7	RoHS
MBXRD1-DZC-010T	SFP28	25.78125	850 VCSEL	PIN	0~+70	10	RoHS
MBXRD1-DZC-015T	SFP28	25.78125	850 VCSEL	PIN	0~+70	15	RoHS
MBXRD1-DZC-020T	SFP28	25.78125	850 VCSEL	PIN	0~+70	20	RoHS
MBXRD1-DZC-025T	SFP28	25.78125	850 VCSEL	PIN	0~+70	25	RoHS
MBXRD1-DZC-030T	SFP28	25.78125	850 VCSEL	PIN	0~+70	30	RoHS
MBXRD1-DZC-040T	SFP28	25.78125	850 VCSEL	PIN	0~+70	40	RoHS
MBXRD1-DZC-050T	SFP28	25.78125	850 VCSEL	PIN	0~+70	50	RoHS
MBXRD1-DZC-070T	SFP28	25.78125	850 VCSEL	PIN	0~+70	70	RoHS
MBXRD1-DZC-100T	SFP28	25.78125	850 VCSEL	PIN	0~+70	100	RoHS

*Note:

1. OM3 Cable length ≤ 70 m or OM4 Cable length ≤ 100 m
2. More detail product selection and cable lengths, please contact MNC