



## Features

- QSFP56 MSA compliant
- 4 parallel lanes on 850nm center wavelength
- Compliant to IEEE 802.3bs Specification
- Up to 70m transmission on multi-mode fiber (MMF) OM3 with FEC
- Operating case temperature: 0 to 70°C
- 4x53.125Gb/s and 2x53.125Gb/s electrical interface (200GAUI-4 and 100GAUI-2)
- Data Rate 53.125Gbps (PAM4) per channel.
- Maximum power consumption 5W per terminal
- RoHS compliant

## Applications

- Data Center Interconnect
- 200G Ethernet
- Infiniband interconnects
- Enterprise networking

## 1. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units
Storage Temperature	TS	-40	85	degC
Operating Case Temperature	TOP	0	70	degC
Power Supply Voltage	VCC	-0.5	3.6	V
Relative Humidity (non-condensation)	RH	0	85	%

## 2. Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Units	Notes
Operating Case Temperature	TOP	0		70	degC	
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Data Rate, each Lane			26.5625		GBd	PAM4

Data Rate Accuracy		-100		100	ppm	
Pre- FEC Bit Error Ratio				2.4x10 <sup>-4</sup>		
Post-FEC Bit Error Ratio				1x10 <sup>-12</sup>		1
Link Distance with OM3	D	0.5		70	m	2

**Notes:**

1. FEC provided by host system.
2. FEC required on host system to support maximum distance.

### 3. Electrical Characteristics

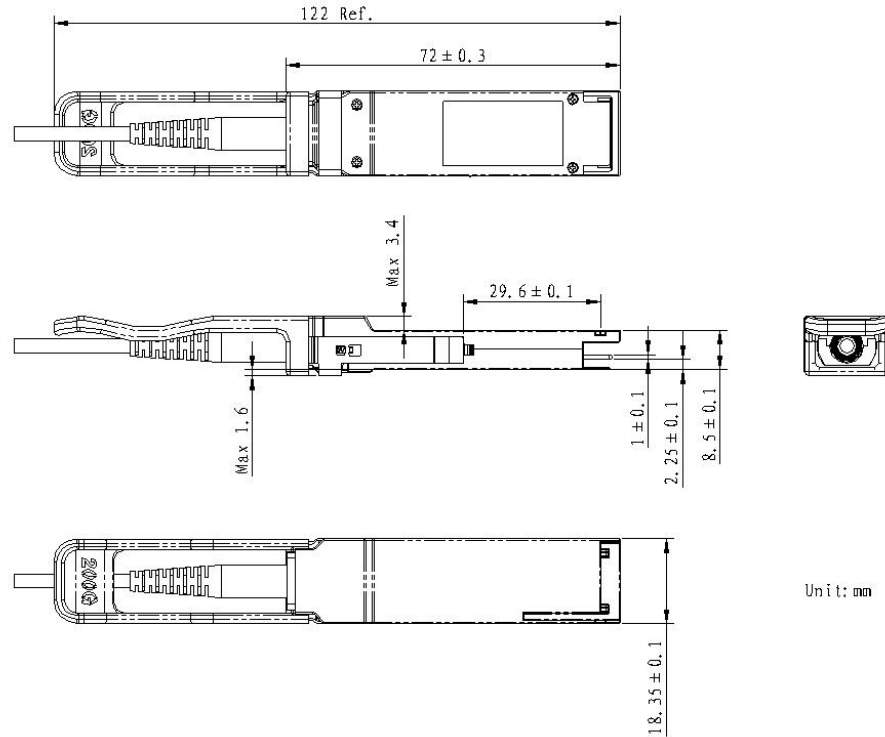
Parameter	Test Point	Min	Typical	Max	Units	Notes
Power Consumption				5	W	
Supply Current	I <sub>cc</sub>			1.52	A	
<b>Transmitter ( each Lane)</b>						
Signaling Rate, each Lane	TP1	26.5625 ± 100 ppm			GBd	
Differential pk- pk Input Voltage Tolerance	TP1a	900			mVpp	1
Differential Termination Mismatch	TP1			10	%	
Differential Input Return Loss	TP1	IEEE 802.3-2015 Equation (83E-5)			dB	
Differential to Common Mode Input Return Loss	TP1	IEEE 802.3-2015 Equation (83E-6)			dB	
Module Stressed Input Test	TP1a	See IEEE 802.3bs 120E.3.4.1 2				
Single- ended Voltage Tolerance Range (Min)	TP1a	-0.4 to 3.3			V	
DC Common Mode Input Voltage	TP1	-350		2850	mV	3
<b>Receiver ( each Lane)</b>						
Signaling Rate, each lane	TP4	26.5625 ± 100 ppm			GBd	
Differential Peak- to- Peak Output Voltage	TP4			900	mVpp	

Common Mode Voltage		-350		2850	mV	
AC Common Mode Output Voltage, RMS	TP4	17.5			mV	
Differential Termination Mismatch	TP4			10	%	
Differential Output Return Loss	TP4	IEEE 802.3-2015 Equation (83E-2)				
Common to Differential Mode Conversion Return Loss	TP4	IEEE 802.3-2015 Equation (83E-3)				
Transition Time, 20% to 80%	TP4	9.5		ps		
Near- end Eye Symmetry Mask Width ( ESMW)	TP4		0.265		UI	
Near- end Eye Height, Differential	TP4	70			mV	
Far- end Eye Symmetry Mask Width ( ESMW)	TP4		0.2		UI	
Far-end Eye Height, Differential	TP4	30			mV	
Far- end Pre-cursor ISI Ratio	TP4	-4.5		2.5	%	
Common Mode Output Voltage (Vcm)	TP4	-350		2850	mV	3

**Notes:**

1. With the exception to IEEE 802.3bs 120E.3.1.2 that the pattern is PRBS31Q or scrambled idle.
2. Meets BER specified in IEEE 802.3bs 120E.1.1.

## 4. Mechanical Diagram



**Note:** External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.

## 5. Ordering Information

OEM	Part Number	OEM	Part Number
Mellanox	MFS1S50-H001E-A	Mellanox	MFS1S50-H002E-A
Mellanox	MFS1S50-H003E-A	Mellanox	MFS1S50-H005E-A
Mellanox	MFS1S50-H007E-A	Mellanox	MFS1S50-H009E-A
Mellanox	MFS1S50-H010E-A	Mellanox	MFS1S50-H015E-A
Mellanox	MFS1S50-H020E-A	Mellanox	MFS1S50-H030E-A
MSA	AN-Q56200G-AOC-1M-HDR-AQ	MSA	AN-Q56200G-AOC-2M-HDR-AQ
MSA	AN-Q56200G-AOC-3M-HDR-AQ	MSA	AN-Q56200G-AOC-5M-HDR-AQ
MSA	AN-Q56200G-AOC-7M-HDR-AQ	MSA	AN-Q56200G-AOC-9M-HDR-AQ
MSA	AN-Q56200G-AOC-10M-HDR-AQ	MSA	AN-Q56200G-AOC-15M-HDR-AQ
MSA	AN-Q56200G-AOC-20M-HDR-AQ	MSA	AN-Q56200G-AOC-30M-HDR-AQ

## 6. Contact Information

Tel: 800.590.9535

Web: <http://www.approvednetworks.com>