

## Features

- Hot-pluggable QSFP112 form factor with a Flat Top (no heat sink)
- Maximum link length of 100m on OM4 fiber with FEC
- +3.3V single power supply
- Power dissipation < 8W
- Operating case temp Commercial: 0°C to +70 °C
- MPO-12 APC connector
- RoHS compliant



## Applications

- 400GBASE-SR4 per IEEE 802.3db
- InfiniBand NDR
- 400GAUI-4

## 1. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	TS	-40	85	°C
Supply Voltage	VCC	-0.5	3.6	V
Relative Humidity (non-condensing)	RH	5	85	%
Control Input Voltage	VI	-0.3	VCC+0.5	V

## 2. Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Operating Case Temperature	TOPR	0	-	70	°C	
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Maximum Power Dissipation	PD	-	-	9	W	

## 3. Optical Specifications

Parameter	Symbol	Min.	Typ	Max.	Unit
<b>Transmitter</b>					
Center wavelength	CW	844	850	863	nm
RMS Spectral Width	SW	-	-	0.6	dBm
Average Launch Power per Lane <sup>1</sup>	AOP	-4.6	-	4	dBm
Outer Optical Modulation Amplitude (OMA <sub>outer</sub> ), each lane	TxOMA	-2.6		3.5	dBm
Transmitter and dispersion eye closure for PAM4 (TDECQ), each lane	TDECQ	-	-	4.4	dB
Transmitter eye closure for PAM4 (TECQ), each lane	TECQ	-	-	4.4	dBm
Extinction Ratio, each lane	ER	2.5	-	-	dBm
Optical Return Loss Tolerance	ORL			12	dB
Transmitter Reflectance <sup>2</sup>	TR			-26	dBm
Average Launch Power of OFF Transmitter, per Lane				-30	dBm
<b>Receiver</b>					
Wavelength	W	842	-	865	nm
Damage Threshold	DT	5	-	-	dBm
Average Receive Power per Lane	RXP <sub>x</sub>	-6.3	-	4	dBm
Receive power, each lane (OMA <sub>outer</sub> )	RxOMA	-	-	3.5	dBm
Receiver Reflectance		-	-	-26	dB
LOS Hysteresis		0.5	1	-	dB
Receiver sensitivity (OMA <sub>outer</sub> ) each lane <sup>3</sup>	SOMA	-4.4	-	-	dBm

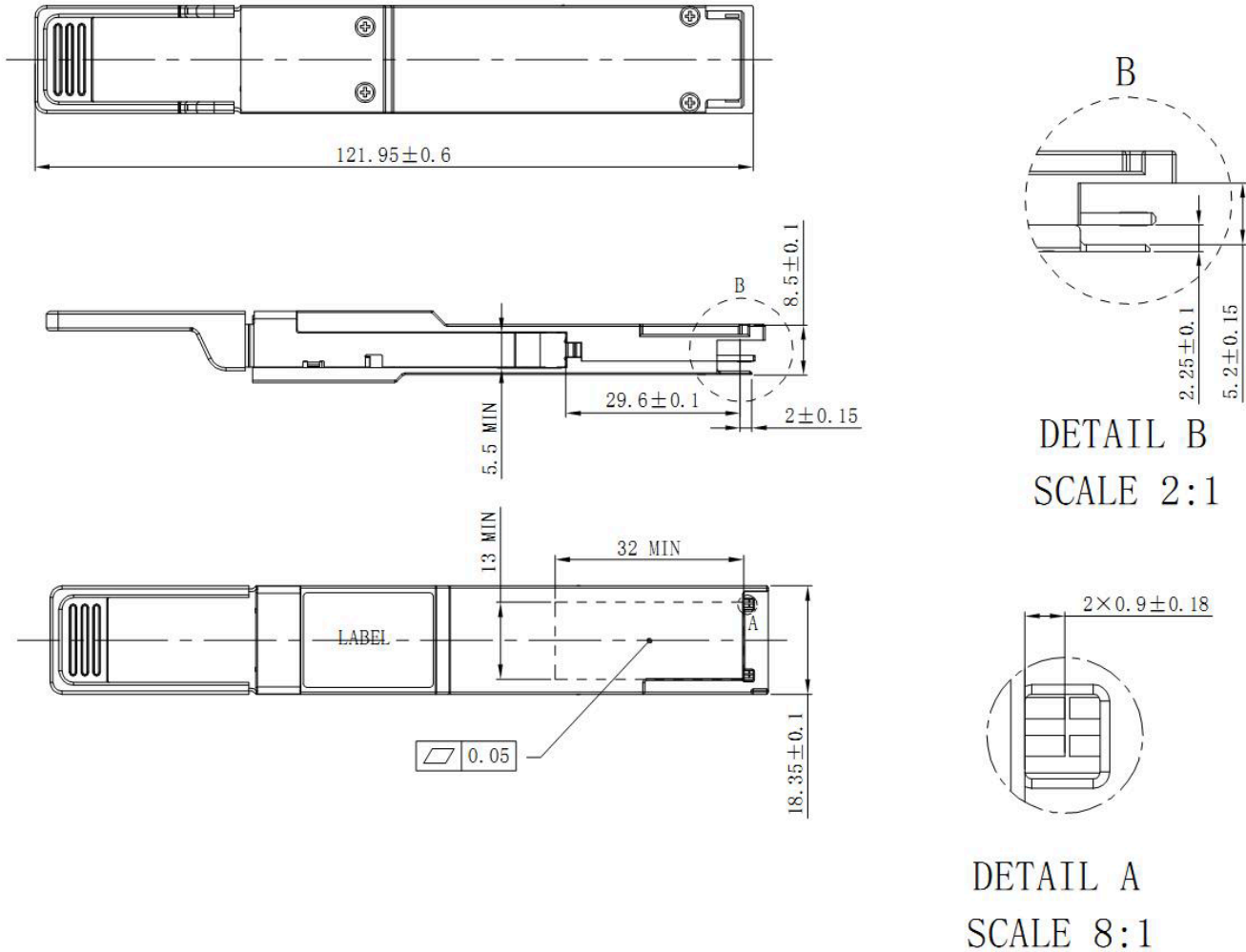
### Notes:

1. Minimum value is informative only and not the principal indicator of signal strength.
2. Transmitter reflectance is defined looking into the transmitter.
3. Receiver sensitivity (OMA<sub>outer</sub>), each lane (max) is informative and is defined for a transmitter with TDECQ ≤ 1.8 dB

## 4. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
<b>Transmitter</b>					
Signaling Rate per Lane	SR	53.125 ± 100 ppm			GBd
Modulation format		PAM4			
Differential pk-pk input Voltage tolerance	-	750	-	-	mV
Differential termination mismatch	-	-	-	10	%
Single-ended voltage tolerance range	-	-0.4	-	3.3	V
DC common-mode voltage	-	-350	-	2850	mV
<b>Receiver</b>					
Signaling Rate per Lane	SR	53.125 ± 100 ppm			GBd
Modulation format		PAM4			
Differential output Voltage (Long mode)	-	-	-	845	mV
Differential output Voltage (Short mode)	-	-	-	600	mV
Near-end Eye height, differential		70	-	-	mV
Far-end Eye height, differential		30	-	-	mV
Far end pre-cursor ratio		-4.5	-	2.5	%
Differential Termination Mismatch		-	-	10	%
Transition Time (min, 20% to 80%)		9.5	-	-	%
DC common mode Voltage		-350	-	2850	mV

## 5. 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.

## 6. Ordering Information

OEM	Part Number	OEM	Part Number
Nvidia	MMA1Z00-NS400-A	MSA	AN-Q400G-FLT-SR4

## 7. Contact Information

Tel: 800.590.9535

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