



Araknis Networks Transceiver Modules

QSFP28, 1310nm, 2km

AN-SFP-100-F-2K

This Araknis Networks QSFP28 Transceiver Module features 100Gbps data speeds over a 2-kilometer range on fiber optic cables, offering a great solution for large commercial applications requiring high-speed data transfers over long distances. The transceiver module is compatible with 1310nm fiber optic cables with MTP®/MPO connectors. It includes 8 single-mode fiber connections, with 4 for each direction of data transfer.

Product Features

- Hot-swappable QSFP28 footprint
- 4x25Gb/s 1210nm DFB transmitter and PIN receiver
- Supports 25G/28G Dual-Rate operation
- Supports 40G/100G Dual Mode operation with CDR auto-bypass mode
- MPO optical connector
- Transmission distance up to 2km
- Operating case temperature: 0~+70°C
- 100GBASEPSM4



Best Used with Araknis Networks

This QSFP28 transceiver module pairs best with the Araknis Networks AN-920 switch and requires the Araknis Networks QSFP28 100Gbps Expansion Module (AN-SFP-100G-10) sold separately.



Designed for Fiber Optic Cables

This QSFP28 transceiver module supports 1310nm fiber optic cables with MTP/MPO connectors and single-mode capabilities.



High-speed Data Transfer

This transceiver module is designed primarily for commercial installations that require 100GBase-PSM4 capabilities and supports data transfer over 2km.

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Absolute Maximum Ratings

Parameter	Min	Typ	Max	Notes/Conditions
Storage Temperature	-40°C		+85°C	
Maximum Supply Voltage	-0.3V		3.6V	
Relative Humidity	0%		+85%	

Recommended Operating Conditions

Parameter	Min	Typ	Max	Notes/Conditions
Data Rate		103.1Gbps		
Bit Error Rate BER 5E-5			5E-5	
Operating Case Temperature	0°C		70°C	
Supply Voltage	3.135V		3.465V	
Module Total Power			3.5W	
Fiber Length on SMF per G.652			2000m	1

Electrical Characteristics

Parameter	Min	Typ	Max	Notes/Conditions
Transmitter				
Signaling Rate Per Lane	25.78125±100ppmGbps			
Differential Input Impedance		100Ohm		
Differential Input Voltage Amplitude Per Lane	100mVp-p		1600mVp-p	
Differential Termination Mismatch			10%	
Receiver				
Signaling Rate Per Lane	25.78125±100ppmGbps			
Differential Output Impedance		100Ohm		
Differential output voltage amplitude per lane	100mVp-p		400mVp-p	
	300mVp-p		600mVp-p	
	400mVp-p		800mVp-p	
	600mVp-p		1200mVp-p	
Differential Termination Mismatch			10%	

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Optical Characteristics

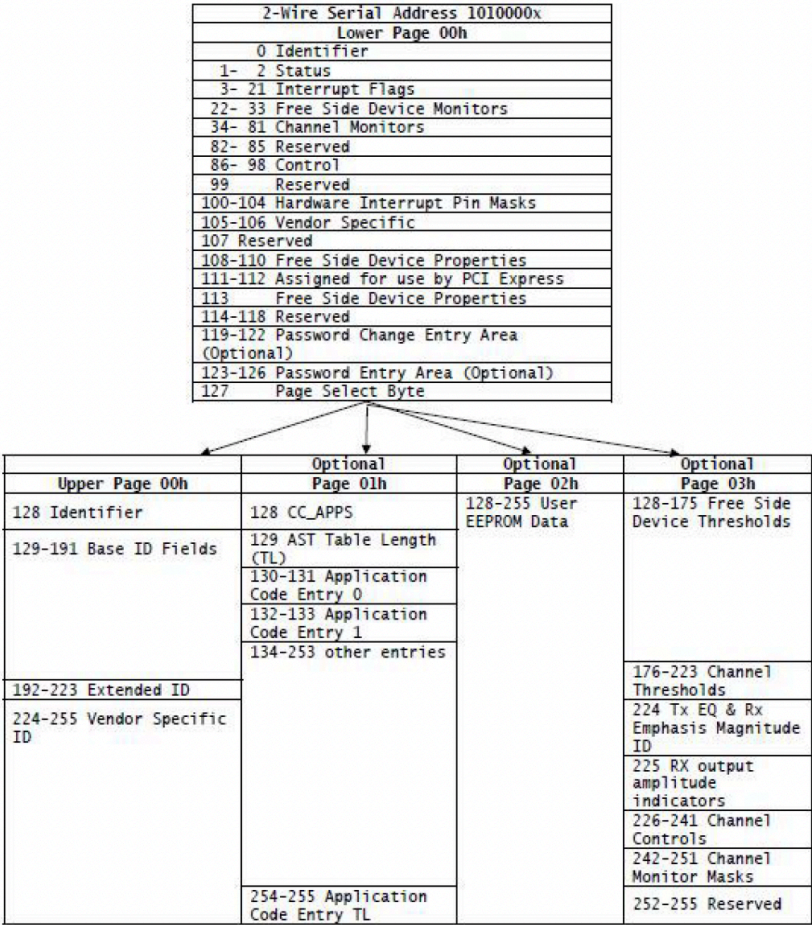
Parameter	Min	Typ	Max	Notes/Conditions
Transmitter				
Signaling Rate, Each Lane	25.78125±100ppmGbps			
Line Wavelengths (Range)	1295nm	1310nm	1325nm	
Side-Mode Suppression Ratio	30dB			
Total Average Launch Power			8dBm	1
Average Launch Power, Each Lane	-9.4dBm		2dBm	2
Transmit OMA, Each Lane			2.2dBm	
Optical Extinction Ratio	3.5dB			
Transmitter and Dispersion Penalty, Each Lane			2.9dB	
Average Launch Power of OFF Transmitter, Each Lane			-30dBm	
Transmitter Reflectance			-12dB	
Transmitter Eye Mask Definition {X1, X2, X3, Y1, Y2, Y3}	{0.31,0.4,0.45,0.34,0.38,0.4}dB			2
Receiver				
Signaling Rate, Each Lane	25.78125±100ppmGbps			
Line Wavelengths (Range)	1295nm	1310nm	1325nm	
Damage Threshold, Each Lane	3dBm			3
Average Receiver Power, Each Lane	-12.66dBm		3dBm	4
Unstressed Receiver Sensitivity (OMA), Each Lane			-9dBm	5
Stressed Receiver OMA Sensitivity			-7dBm	6
Conditions of Stressed Receiver Sensitivity Test				
Vertical Eye Closure Penalty	1.9dB			
Stressed J2 jitter, Each Lane	0.27UI			
Stressed J4 jitter, Each Lane	0.39UI			
SRS eye mask definition {X1, X2, X3, Y1, Y2, Y3}	{0.24,0.5,0.5,0.24,0.24,0.4}dB			
LOS De-Assert			-13dBm	
LOS Assert	-30dBm			
LOS Hysteresis	0.5dB		5dB	

Notes:

- Total average launch power is the combined average launch power from all four lanes.
- Average launch power, each lane (min) is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant; however, a value above this does not ensure compliance.
- The receiver shall be able to tolerate, without damage, continuous exposure to an optical input signal having this average power level.
- Average receive power, each lane (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.
- Receiver sensitivity (OMA), each lane (max) is informative.
- Measured with conformance test signal at TP3 (see IEEE 802.3-2012 clause 87.8.11 as an example for test method) for BER = 5E-5.

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Digital Diagnostic Functions

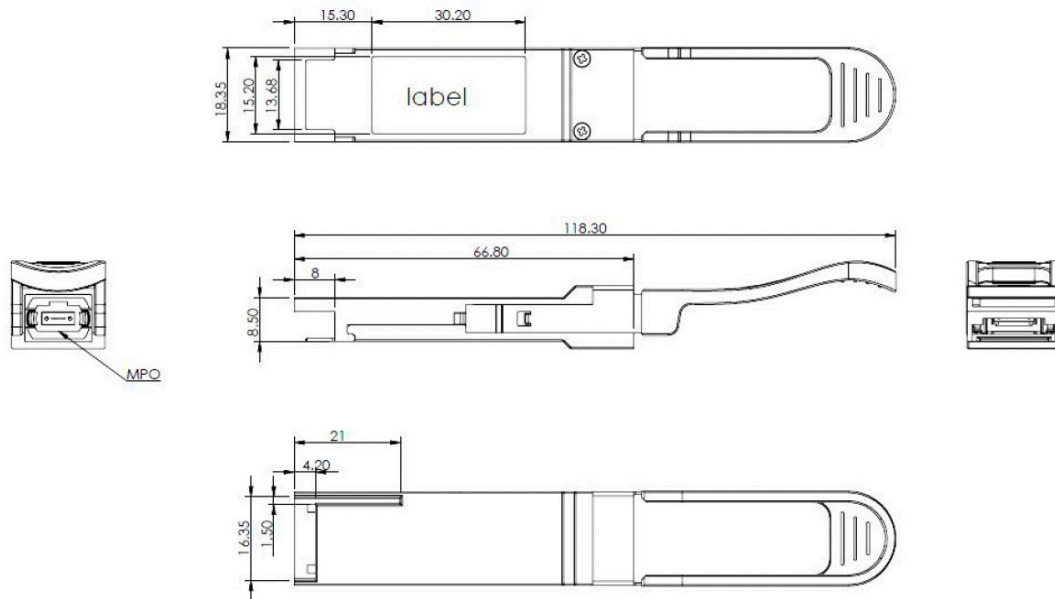


Digital Diagnostic Specifications

Parameter	Min	Max	Accuracy	Notes/Conditions
Transceiver Case Temperature	0°C	70°C	±5°C	
Transceiver Supply Voltage	3.15V	3.46V	±0.1V	
Transmitter Bias Current	0%	12%	±10%	
Transmitter Output Optical Power	-9dB	2.4dB	±3dB	
Receiver Average Input Optical Power	-11dB	2.4dB	±3dB	

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Mechanical Dimensions Unit mm



ESD Safety Cautions

This transceiver is specified as ESD threshold 1KV for high speed data pins and 2KV for all others electrical input pins, tested per MIL-STD-883, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.