APTICOM | ASX-759[48-57]

SFP+ 10G CWDM 23dB 0-70°C Optical Transceivers

Features

- Management interface specifications per SFF-8431 and SFF-8472
- Supports up to 11.3Gbps bit rate
- Class 1 Laser Safety Certified
- CWDM DFB Transmitter
- APD Receiver
- Up to 23dB Power Budget
- Operating Temperature 0 to 70°C
- Power dissipation ≤1.5W
- Single 3.3V power supply

Applications

- 10 Gigabit Ethernet
- 10G CWDM Networks

Description

The ASX-759[48-57] series are high-performance transceivers for up to 11.3Gbps CWDM links (power budget ≤23dB) over dual single mode fiber. It is compliant with the Small Form-factor Pluggable (SFP+) Multisource Agreement (MSA) and hot pluggable.

The transceiver module is RoHS 2 compliant per Directive 2011/65/EU.

CAUTION! Optical input power in excess of the maximum recommended value could cause irreparable damage to the APD receiver.

CAUTION! The transceiver is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling transceiver modules or coming into contact with modules.

Order Information

Part Number	Wavelength	Protocol	Tx Output Power	Rx Sensitivity [1]	Reach [2]	Temp.
ASX-759[48-57]	ITU CWDM	10GBASE	2 to 5dBm	≤-21dBm	≤23dB	0-70°C

1. Measured with 10.3125Gbps PRBS 2^31-1, BER≤10^-12 **2.** On standard single-mode fibre (SMF, G.652)

Channel Guide (ITU-T CWDM)

Part Number	Wavelength [nm]	Part Number	Wavelength [nm]
ASX-75948	1271	ASX-75953	1371
ASX-75949	1291	ASX-75954	1391
ASX-75950	1311	ASX-75955	1411
ASX-75951	1331	ASX-75956	1431
ASX-75952	1351	ASX-75957	1451

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Min	Typ	Max	Unit
Storage Temperature	-40		85	°C
Relative Humidity	5		95	%
Supply Voltage	-0.5		4.0	V

Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
Operating Case Temperature	0		70	°C
Supply Voltage	3.13	3.3	3.45	V
Data Rate		10.3125	11.3	Gbps

Transceiver Electrical Parameters

EOL, over the full temperature range, Vcc = 3.13 to 3.45V.

Parameter	Min	Typ	Max	Unit
Supply Current			430	mA
Power Dissipation			1.5	W
Transmitter				
Input Differential Impedance	90	100	110	Ω
Differential Data Input Swing	180		1000	mVpp
Tx_Fault (normal operation) [1]	0		0.8	V
Tx_Fault (fault condition) [1]	2.0		Vcc+0.3	V
Tx_Disable (normal operation)	0		0.8	V
Tx_Disable (transmitter disable)	2.0		Vcc+0.3	V
Receiver				
Output Differential Impedance	90	100	110	Ω
Differential Output Data Swing [2]	350		700	mVpp
Data Output Rise/Fall Time (20/80%)	28			ps
Rx_LOS (normal operation) [1]	0		0.8	V
Rx_LOS (loss of signal) [1]	2.0		Vcc+0.3	V

1. Open collector, to be pulled upp with 4.7kohm **2.** Internally AC-coupled, to be terminated with 100ohm differential load

Transmitter Optical Specification

EOL, over the full temperature range, Vcc = 3.13 to 3.45V.

Parameter	Min	Typ	Max	Unit
Launched Optical Power, Average [1]	2		5	dBm
Centre Wavelength Range	1264.5		1457.5	nm
Centre Wavelength [2]	λ-6.5	λ	λ+6.5	nm
Spectral Width (-20dB)			1	nm
Extinction Ratio	3.5			dB

1. Coupled into 9/125um SMF **2.** λ according to ITU-T G.694.2 CWDM 20nm grid

Receiver Optical Specification

EOL, over the full temperature range, Vcc = 3.13 to 3.45V.

Parameter	Min	Typ	Max	Unit
Operating Wavelength	1260		1620	nm
Receiver Sensitivity, Average Power [1]			-21	dBm
Receiver Overload	-6			dBm

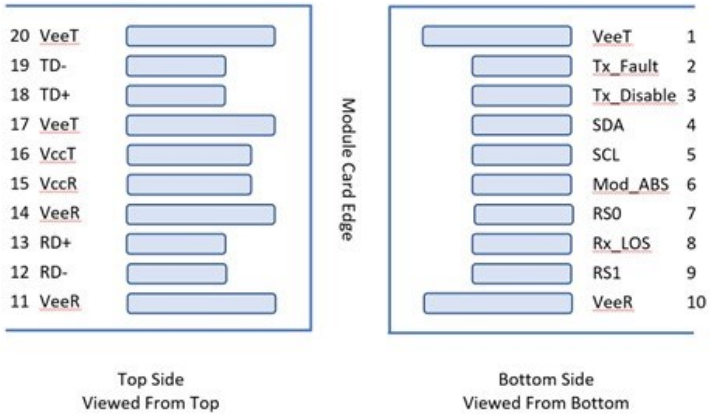
1. Measured with 10.3125Gbps PRBS 2^31-1, BER≤10^-12

Transceiver Pins

Pin #	Name	Description	Pin #	Name	Description
1	VeeT	Module Transmitter Ground	11	VeeR	Module Receiver Ground
2	Tx_Fault	Module Transmitter Fault	12	RD-	Receiver Inverted Data Output
3	Tx_Disable	Transmitter Disable	13	RD+	Receiver Non-Inverted Data Output
4	SDA	2-wire Serial Interface Data Line	14	VeeR	Module Receiver Ground
5	SCL	2-wire Serial Interface Clock	15	VccR	Module Receiver 3.3 V Supply
6	Mod_ABS	Module Absent	16	VccT	Module Transmitter 3.3 V Supply
7	RS0	Not Used	17	VeeT	Module Transmitter Ground
8	Rx_LOS	Receiver Loss of Signal Indication	18	TD+	Transmitter Non-Inverted Data Input
9	RS1	Not Used	19	TD-	Transmitter Inverted Data Input
10	VeeR	Module Receiver Ground	20	VeeT	Module Transmitter Ground

Transceiver Pad Layout

SFP+-compliant 20-pin connector as per SFF-8431.



Regulatory Compliance

The ASX-759[48-57] series of transceivers are Class 1 Laser Products and certified per the following standards:

Item	Agency	Standard
Laser Eye Safety	TÜV	EN 60825-1:2014 EN 60825-2:2004+A1+A2
Electrical Safety	TÜV	EN 60950-1:2006+A11+A1+A12+A2

Revision Information

Revision	Date	Description
A	2025-03-20	Initial release

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