

APTICOM | ASX-758[76-85]
SFP+ 10G CWDM 14dB 0-70°C
Optical Transceivers

Features

- Management interface specifications per SFF-8431 and SFF-8472
- Supports up to 10.3Gbps bit rate
- Class 1 Laser Safety Certified
- CWDM DFB Transmitter
- PIN Receiver
- Up to 14dB Power Budget
- Operating Temperature 0 to 70°C
- Power dissipation $\leq 1W$
- Single 3.3V power supply



Applications

- 10 Gigabit Ethernet
- 10G CWDM Networks

Description

The ASX-758[76-85] series are high-performance transceivers for up to 10.3Gbps CWDM links (power budget $\leq 14dB$) 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-6 compliant per Directive 2011/65/EU.

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-758[76-85] | ITU CWDM | 10GBASE | -1 to 4dBm | $\leq -15dBm$ | $\leq 14dB$ | 0-70°C |

1. Measured with 10.3125Gbps PRBS 2³¹-1, BER $\leq 10^{-12}$ **2.** On standard single-mode fibre (SMF, G.652)

Channel Guide (ITU-T CWDM)

| Part Number | Wavelength [nm] | Part Number | Wavelength [nm] |
|-------------|-----------------|-------------|-----------------|
| ASX-75876 | 1271 | ASX-75881 | 1371 |
| ASX-75877 | 1291 | ASX-75882 | 1391 |
| ASX-75878 | 1311 | ASX-75883 | 1411 |
| ASX-75879 | 1331 | ASX-75884 | 1431 |
| ASX-75880 | 1351 | ASX-75885 | 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.

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| Parameter | Min | Typ | Max | Unit |
|---------------------|------|-----|-----|------|
| Storage Temperature | -40 | | 85 | °C |
| Relative Humidity | 5 | | 95 | % |
| Supply Voltage | -0.3 | | 4.0 | V |

Recommended Operating Conditions

| Parameter | Min | Typ | Max | Unit |
|----------------------------|-------|---------|-------|------|
| Operating Case Temperature | 0 | | 70 | °C |
| Supply Voltage | 3.135 | 3.3 | 3.465 | V |
| Data Rate | | 10.3125 | 11.3 | Gbps |

Transceiver Electrical Parameters

EOL, over the full temperature range, Vcc = 3.135 to 3.465V.

| Parameter | Min | Typ | Max | Unit |
|-------------------------------------|-----|-----|------|----------|
| Supply Current | | | 350 | mA |
| Power Dissipation | | | 1.2 | W |
| Transmitter | | | | |
| Input Differential Impedance | | 100 | | Ω |
| Differential Data Input Swing | 150 | | 1200 | mVpp |
| Tx_Fault (normal operation) [1] | 0 | | 0.8 | V |
| Tx_Fault (fault condition) [1] | 2.0 | | Vcc | V |
| Tx_Disable (normal operation) | 0 | | 0.8 | V |
| Tx_Disable (transmitter disable) | 2.0 | | Vcc | V |
| Receiver | | | | |
| Output Differential Impedance | | 100 | | 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 | V |

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

Transmitter Optical Specification

EOL, over the full temperature range, Vcc = 3.135 to 3.465V.

| Parameter | Min | Typ | Max | Unit |
|---|---------------|-----------|---------------|------|
| Launched Optical Power, Average [1] | -1 | | 4 | dBm |
| Centre Wavelength Range | 1264.5 | | 1457.5 | nm |
| Centre Wavelength [2] | $\lambda-6.5$ | λ | $\lambda+6.5$ | nm |
| Spectral Width (-20dB) | | | 1 | nm |
| Extinction Ratio | 3.5 | | | dB |
| Transmitter and Dispersion Penalty, TDP | | | 2 | 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 = 3.135 to 3.465V.

| Parameter | Min | Typ | Max | Unit |
|---|------|-----|------|------|
| Operating Wavelength | 1260 | | 1620 | nm |
| Receiver Sensitivity, Average Power [1] | | | -15 | dBm |
| Receiver Overload | 0.5 | | | dBm |

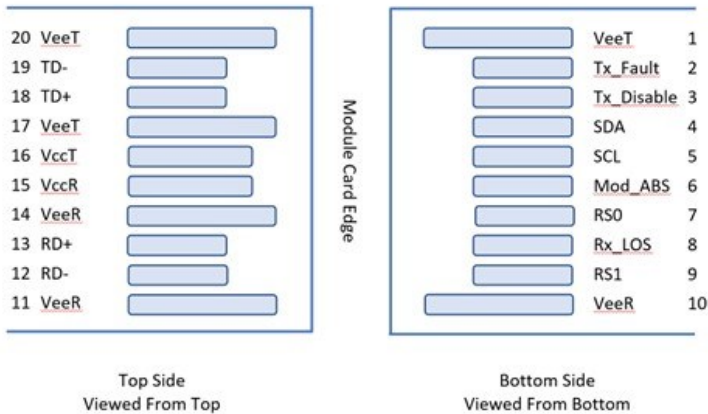
1. Measured with 10.3125Gbps PRBS 2³¹-1, BER \leq 10⁻¹²

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-758[76-85] 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 | 2023-08-29 | Initial release |

For more information

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