

Technical Datasheet

AOC-SFP28-25G-20M-AT

Universally Coded MSA 25Gb/s SFP28

Active Optical Cable, 20m

FEATURES

- Electrical interface compliant to SFF-8431
- 850nm VCSEL laser and PIN photo detector
- Low power consumption of max 3.5W
- Maximum link length of 70m on OM3 MMF and 100m on OM4 MMF
- Digital diagnostics functions are available via the I2C interface
- Hot pluggable electrical interface
- RoHS compliant
- 0 ~ 70°C case temperature operating range

APPLICATIONS

- 25GBASE-SR Ethernet
- InfiniBand QDR, SDR, DDR
- Servers, switches, storage and host card adapters

DESCRIPTION

ATGBICS® Universally Coded MSA AOC-SFP28-25G-20M-AT is a Single-Channel, Pluggable, Fiber-Optic SFP28 for 25 Gigabit Ethernet and Infini band EDR Applications. It is a high-performance module for short-range data communication and interconnect applications which operate at 25.78125 Gbps up to 70 m using OM3 fiber or 100 m using OM4 fiber. This module is designed to operate over multimode fiber systems using a nominal wavelength of 850nm. The electrical interface uses a 20 contact edge type connector.

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Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Unit |
|----------------------------|--------|------|-----|------|
| Storage Temperature | TST | -20 | 85 | °C |
| Relative Humidity | RH | 0 | 85 | % |
| Case Operating Temperature | TOPC | 0 | 70 | °C |
| Supply Voltage | VCC | -0.3 | 3.6 | V |

Recommended Operating Conditions

| Parameter | Symbol | Min | Typical | Max | Unit |
|----------------------------|--------|------|----------|------|------|
| Operating Case temperature | TA | 0 | | +70 | °C |
| Supply Voltage | VCC | 3.13 | 3.3 | 3.47 | V |
| Supply current | Icc | | | 300 | mA |
| Channel Data Rate | Dr | | 25.78125 | | Gbps |

Transmitter

Measured condition: Channel Data Rate 25.78125Gbps, VR_{CC}R=3.3V, PRBS31, Case Operating Temperature 0~70°C

| Parameter | Symbol | Min | Typical | Max | Unit |
|-------------------------------|--------|------|---------|------|------|
| Input differential impedance | Zin | 90 | 100 | 110 | Ω |
| Differential Data Input Swing | Vin PP | 300 | | 1100 | mV |
| Transmit Enable Voltage | VEN | | | 0.8 | V |
| Transmit Disable Voltage | VD | 2.0 | | | V |
| Average launch power | PAVG | -7.5 | -1 | +2.5 | dBm |
| Extinction Ratio | ER | 2.0 | | | dB |

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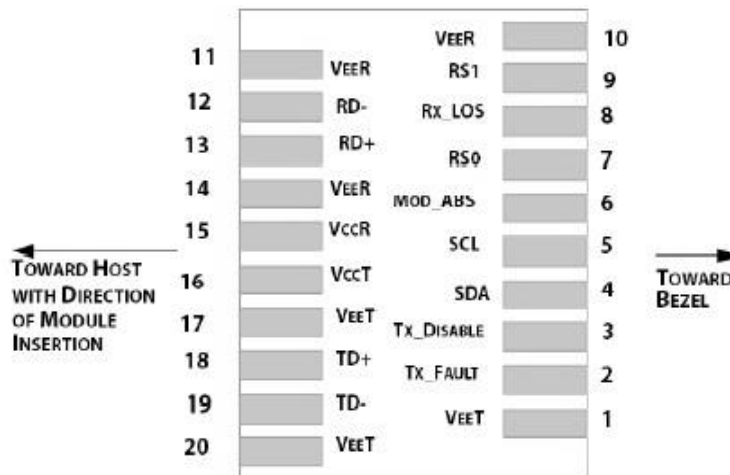
| | | | | | |
|--------------------------|-------------|-----|-----|-----|----|
| Centre Wavelength | λ_c | 840 | 850 | 860 | nm |
|--------------------------|-------------|-----|-----|-----|----|

Receiver

Measured condition: Channel Data Rate 25.78125Gbps, $V_{CCR}=3.3V$, PRBS31, Case Operating Temperature 0~70°C

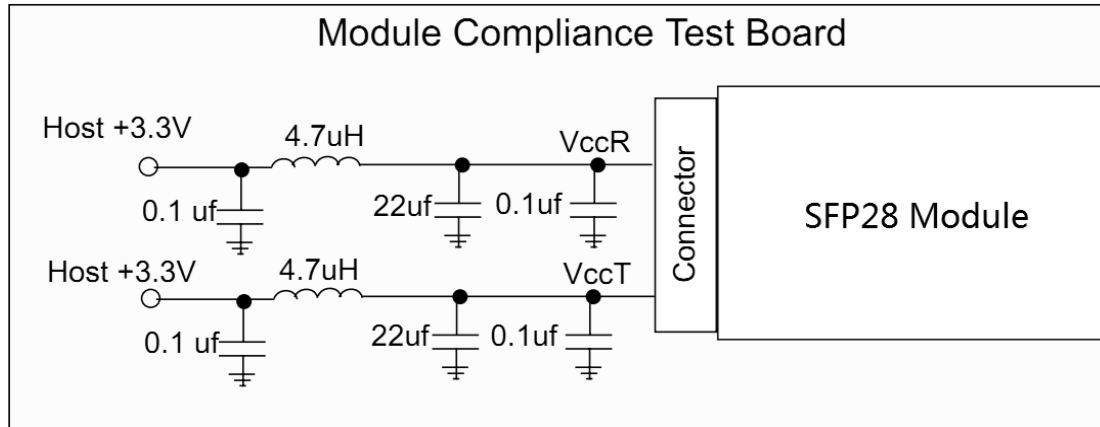
| Parameter | Symbol | Min | Typical | Max | Unit |
|---------------------------------------|-------------|-----|---------|------|------|
| Center Wavelength | λ_c | 840 | 850 | 860 | nm |
| Differential Data Output Swing | Vout PP | 500 | | 800 | mV |
| Bit Error Rate | BER | | | E-12 | |
| Receiver Overload | PinMAX | 2.5 | | | dBm |
| Output Differential Impedance | Zout | 90 | 100 | 110 | ohm |
| LOS Fault | V_{OH} | 2.4 | | | V |
| LOS Normal | V_{OL} | | | 0.4 | V |

Pin Descriptions



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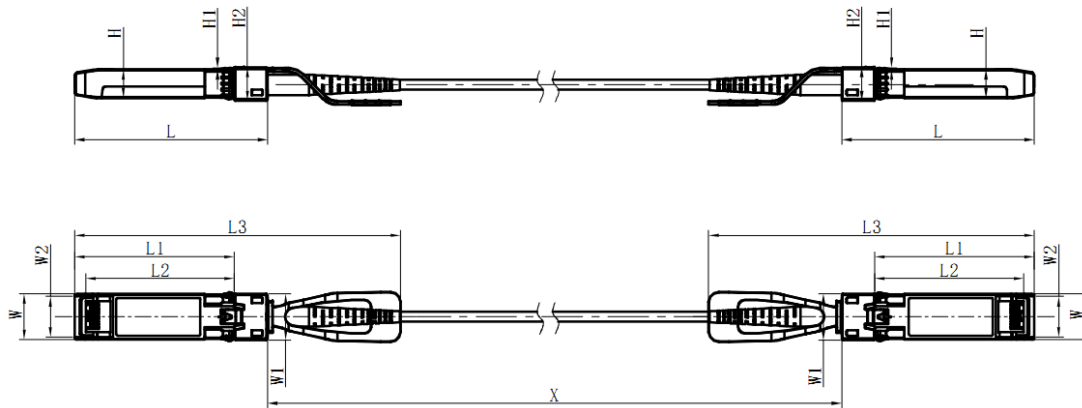
Module Power Supply Tolerance Filtering



| PIN | Name | Function/Description |
|-----|------------|---|
| 1 | VeeT | Transmitter Ground |
| 2 | Tx_Fault | Transmitter Fault - High indicates a fault condition |
| 3 | Tx_Disable | Transmitter Disable - High or open disables the transmitter |
| 4 | SDA | Two wire serial interface Data Line |
| 5 | SCL | Two wire serial interface Clock Line |
| 6 | MOD_ABS | Module Absent (Output), connected to VeeT or VeeR in the module |
| 7 | RS0 | Rx Rate Select, not used |
| 9 | RS1 | Tx Rate Select, not used |
| 10 | VeeR | Receiver Ground |
| 11 | VeeR | Receiver Ground |
| 12 | RD- | Receiver Inverted DATA out |
| 13 | RD+ | Receiver Non-inverted DATA out |
| 14 | VeeR | Receiver Ground |
| 15 | VccR | Receiver Power Supply |
| 16 | VccT | Transmitter Power Supply |
| 17 | VeeT | Transmitter Ground |
| 18 | TD+ | Transmitter Non-Inverted DATA in |
| 19 | TD- | Transmitter Inverted DATA in |
| 20 | VeeT | Transmitter Ground |

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Mechanical Design Diagram



Unit: mm

| | L | L1 | L2 | L3 | W | W1 | W2 | H | H1 | H2 |
|---------|-------|------|-------|-------|-------|------|-------|------|------|------|
| MAX | 57.75 | 48.0 | 44.65 | 102.5 | 13.75 | 14.0 | 12.25 | 8.65 | 0.55 | 10.4 |
| Typical | 57.55 | 47.8 | 44.45 | 101.5 | 13.65 | 13.9 | 12.15 | 8.55 | 0.5 | 10.2 |
| MIN | 57.35 | 47.6 | 44.25 | 100.5 | 13.55 | 13.8 | 12.05 | 8.45 | 0.45 | 10.0 |

| Length | Note |
|--------|-----------------|
| 1m | OM3 Round Cable |
| 5m | OM3 Round Cable |
| 10m | OM3 Round Cable |
| 20m | OM3 Round Cable |
| 30m | OM3 Round Cable |
| 50m | OM3 Round Cable |
| 70m | OM3 Round Cable |
| 100m | OM4 Round Cable |