

## Product Datasheet

### JNP-25G-AOC-4M-C

#### Juniper® Compatible 25Gb/s SFP28 Active Optical Cable, Active, 4m

##### 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 to 70°C case temperature operating range

##### APPLICATIONS

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

##### DESCRIPTION

ATGBICS JNP-25G-AOC-4M is a Single-Channel, Pluggable, Fiber-Optic SFP28 for 25 Gigabit Ethernet and Infiniband 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             | I <sub>cc</sub> |      |          | 300  | mA   |
| Channel Data Rate          | Dr              |      | 25.78125 |      | Gbps |

### Transmitter

**Measured condition:** Channel Data Rate 25.78125Gbps, V<sub>CC</sub>R=3.3V, PRBS31, Case Operating Temperature 0~70°C

| Parameter                     | Symbol             | Min  | Typical | Max  | Unit |
|-------------------------------|--------------------|------|---------|------|------|
| Input differential impedance  | Z <sub>in</sub>    | 90   | 100     | 110  | Ω    |
| Differential Data Input Swing | V <sub>in</sub> PP | 300  |         | 1100 | mV   |
| Transmit Enable Voltage       | V <sub>EN</sub>    |      |         | 0.8  | V    |
| Transmit Disable Voltage      | V <sub>D</sub>     | 2.0  |         |      | V    |
| Average launch power          | PAVG               | -7.5 | -1      | +2.5 | dBm  |
| Extinction Ratio              | ER                 | 2.0  |         |      | dB   |
| Centre Wavelength             | λ <sub>c</sub>     | 840  | 850     | 860  | nm   |

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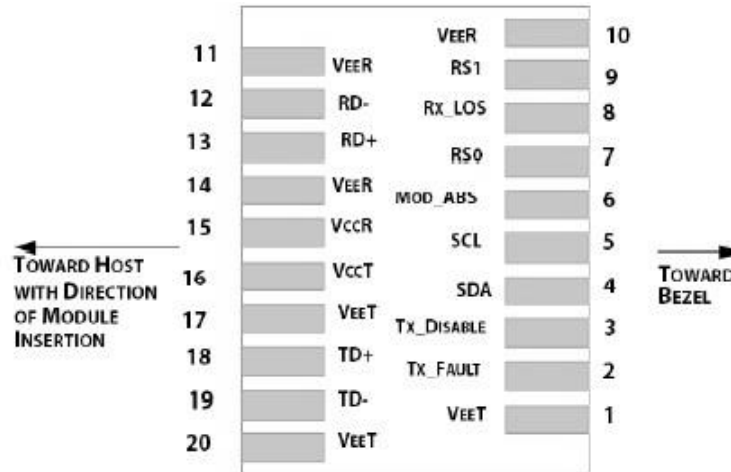
### Receiver

Measured condition: Channel Data Rate 25.78125Gbps, VR<sub>CC</sub>R=3.3V, PRBS31, Case Operating Temperature 0~70°C

| Parameter                      | Symbol              | Min | Typical | Max  | Unit |
|--------------------------------|---------------------|-----|---------|------|------|
| Center Wavelength              | $\lambda_c$         | 840 | 850     | 860  | nm   |
| Differential Data Output Swing | V <sub>out</sub> PP | 500 |         | 800  | mV   |
| Bit Error Rate                 | BER                 |     |         | E-12 |      |
| Receiver Overload              | PinMAX              | 2.5 |         |      | dBm  |
| Output Differential Impedance  | Z <sub>out</sub>    | 90  | 100     | 110  | ohm  |
| LOS Fault                      | V <sub>OH</sub>     | 2.4 |         |      | V    |
| LOS Normal                     | V <sub>OL</sub>     |     |         | 0.4  | V    |

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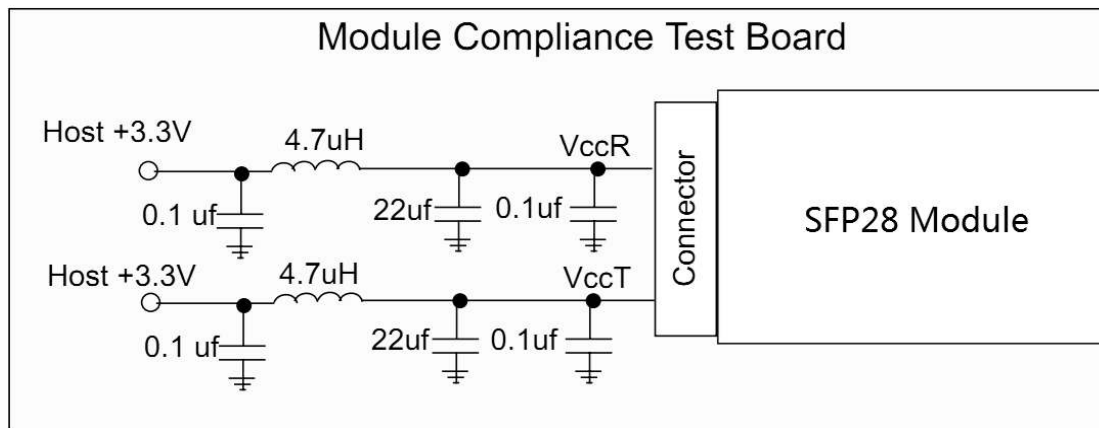
### Pin Descriptions



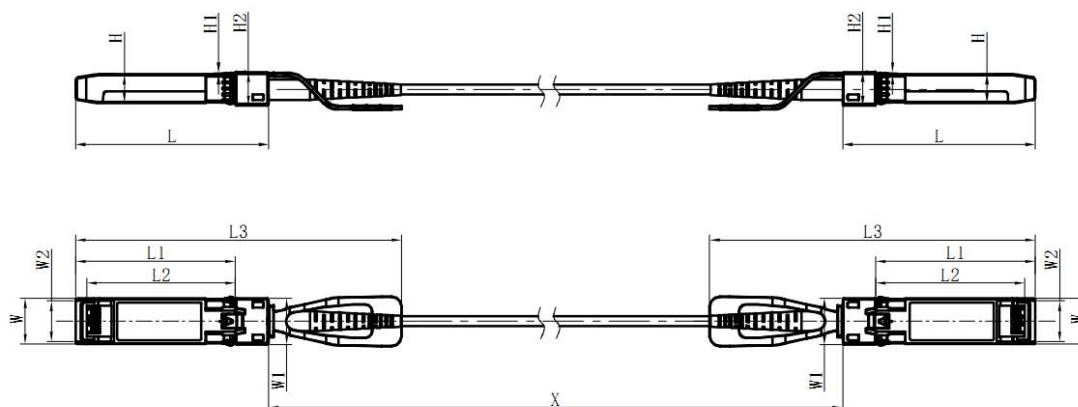
| PIN | Name       | Function/Description  |
|-----|------------|---|
| 1   | VeeT       | Transmitter Ground  |
| 2   | Tx_Fault   | Transmitter Fault - High indicates a fault condition            |
| 3   | Tx_Disable | Transmitter Disable - High or open disables the transmitter     |
| 4   | SDA        | 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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### Module Power Supply Tolerance Filtering



### 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            |
|-------------|-----------------|
| <b>3m</b>   | OM3 Round Cable |
| <b>5m</b>   | OM3 Round Cable |
| <b>10m</b>  | OM3 Round Cable |
| <b>20m</b>  | OM3 Round Cable |
| <b>30m</b>  | OM3 Round Cable |
| <b>50m</b>  | OM3 Round Cable |
| <b>70m</b>  | OM3 Round Cable |
| <b>100m</b> | OM4 Round Cable |

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