# Q2E15A17000DAED

QSFP28 Pluggable EDFA Preamplifier for DWDM, Duplex LC, Input power -30dBm to -10dBm, Nominal gain +17dB

**Product Description**

This QSFP28 pluggable EDFA preamplifier offers a optical input range and provides a +17dB nominal gain to a C-Band DWDM link. The pluggable EDFA connects to a composite DWDM link via an LC connector. It is configured for Automatic Gain Control (AGC) by default and can be further configured via CLI prompt in supported hosts or by our coding and tuning system.

**Features:**

- SFF-8661 compliant
- QSFP28 standard
- Narrowband amplification over C-band with built-in control circuits
- Low power consumption
- Up to 17dBm adjustable output power
- Duplex LC/UPC receptacle
- Commercial Temperature: 0˚C to 70˚C
- Hot pluggable amplifier
- Telcordia GR-1312-CORE qualified
- RoHS compliant and lead-free

*For your product safety, please read the following information carefully before any manipulation of the transceiver:*

*ESD*

*This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.*

*LASER SAFETY*

*This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).*

***The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.***

**General Specifications**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|---|
| **Supply Voltage** | Vcc | 3.15 | 3.3 | 3.45 | V | |
| **Storage Temperature** | Tstg | -40 | | 85 | °C | |
| **Operating Case Temperature** | Tc | 0 | | 70 | °C | |
| **Storage Humidity** | RH | 0 | | 95 | % | |
| **Operating Humidity** | RH | 5 | | 90 | % | |
| **Power Consumption** | | | | 2.5 | W | 1 |

**Notes:**

1. Steady state.

**Electrical Characteristics**

| Parameter | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|
| **Input Power Monitor Accuracy** | -0.5 | | 0.5 | dB | 1 |
| **Output Power Monitor Accuracy** | -0.5 | | 0.5 | dB | 2 |
| **Gain Accuracy** | -0.5 | | 0.5 | dB | |

**Notes:**

1. @-33~+7dBm.
2. @-20~+10dBm.

**Optical Characteristics**

| Parameter | Min. | Typ. | Max. | Unit | Notes |
|---|---|---|---|---|---|
| **Wavelength Range** | 1529 | | 1567 | nm | 1 |
| | 1545.32 | | 1557.36 | nm | 2 |
| **Input Power Range** | -30 | | -10 | dBm | |
| **Saturated Output Power** | 7 | | | dBm | |
| **Output Power Variation** | -0.5 | | 0.5 | dB | |
| **Nominal Gain** | | 17 | | dB | |
| **Gain Range** | 9 | | 24 | dB | |
| **Gain Flatness** | | 3.5 | 5.0 | dB | 3 |
| | | 1 | 1.5 | dB | 4 |
| **Output Monitor Range** | -20 | | 10 | dBm | |
| **Noise Figure** | | 5.5 | 6.5 | dB | 5 |
| **Input/Output Port Return Loss** | 40 | | | dB | |
| **PDG** | | | 0.3 | dB | |
| **PMD** | | | 0.5 | ps | |
| **Operation Mode** | AGC/APC | | | | |
| **Input LOS Threshold** | | -33 | | dBm | |
| **LOS Hysteresis** | | 1 | | dB | |

**Notes:**

1. 48 channels.
2. 16 channels.
3. 48 channels @ nominal gain.
4. 16 channels @ nominal gain.
5. Nominal gain @ Pin=-10dBm.

**Pin Descriptions**

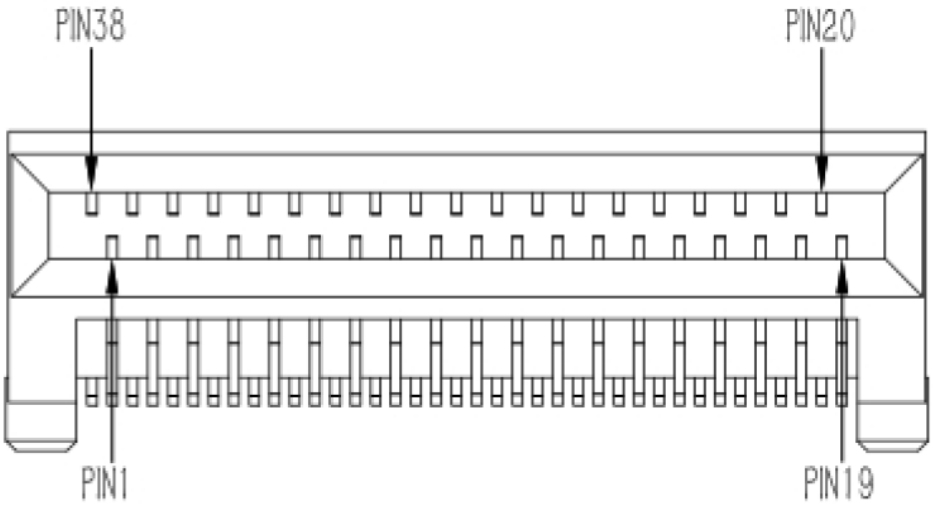
| Pin | Logic | Symbol | Name/Description | Plug Sequence | Notes |
|---|---|---|---|---|---|
| **1** | | GND | Module Ground. | 1 | 1 |
| **2** | | Reserved | Not connected within the module. | 3 | |
| **3** | | Reserved | Not connected within the module. | 3 | |
| **4** | | GND | Module Ground. | 1 | |
| **5** | | Reserved | Not connected within the module. | 3 | |
| **6** | | Reserved | Not connected within the module. | 3 | |
| **7** | | GND | Module Ground. | 1 | |
| **8** | LVTTL-I | ModSelL | Module Select. | 3 | |
| **9** | LVTTL-I | ResetL | Module Reset. Internal pull-up 10kΩ. | 3 | |
| **10** | | Vcc3 | +3.3V Power Supply. | 2 | |
| **11** | OC-I | SCL | I2C Serial Interface Clock. | 3 | 3 |
| **12** | OC-I/O | SDA | I2C Serial Interface Data. | 3 | 3 |
| **13** | | GND | Module Ground. | 1 | |
| **14** | | Reserved | Not connected within the module. | 3 | |
| **15** | | Reserved | Not connected within the module. | 3 | |
| **16** | | GND | Module Ground. | 1 | |
| **17** | | Reserved | Not connected within the module. | 3 | |
| **18** | | Reserved | Not connected within the module. | 3 | |
| **19** | | GND | Module Ground. | 1 | |
| **20** | | GND | Module Ground. | 1 | |
| **21** | | Reserved | Not connected within the module. | 3 | |
| **22** | | Reserved | Not connected within the module. | 3 | |
| **23** | | GND | Module Ground. | 1 | |
| **24** | | Reserved | Not connected within the module. | 3 | |
| **25** | | Reserved | Not connected within the module. | 3 | |
| **26** | | GND | Module Ground. | 1 | |
| **27** | LVTTL-O | ModPrsL | Module Present. Internally connected to the GND. | 3 | |
| **28** | LVTTL-O | IntL/INLOS | Interrupt. Optionally configurable as INLOS, EDFA loss of input signal. | 3 | |
| **29** | | Vcc3 | +3.3V Power Supply. | 2 | |
| **30** | | Vcc3 | +3.3V Power Supply. | 2 | |
| **31** | LVTTL-I | LPMode/TxDis | Low-Power Mode. Optionally configurable as TxDis via the management interface (SFF-8636). | 3 | |
| **32** | | GND | Module Ground. | 1 | |
| **33** | | Reserved | Not connected within the module. | 3 | |
| **34** | | Reserved | Not connected within the module. | 3 | |
| **35** | | GND | Module Ground. | 1 | |

| | | | | | |
|---|---|---|---|---|---|
| **36** | | Reserved | Not connected within the module. | 3 | |
| **37** | | Reserved | Not connected within the module. | 3 | |
| **38** | | GND | Module Ground. | 1 | |

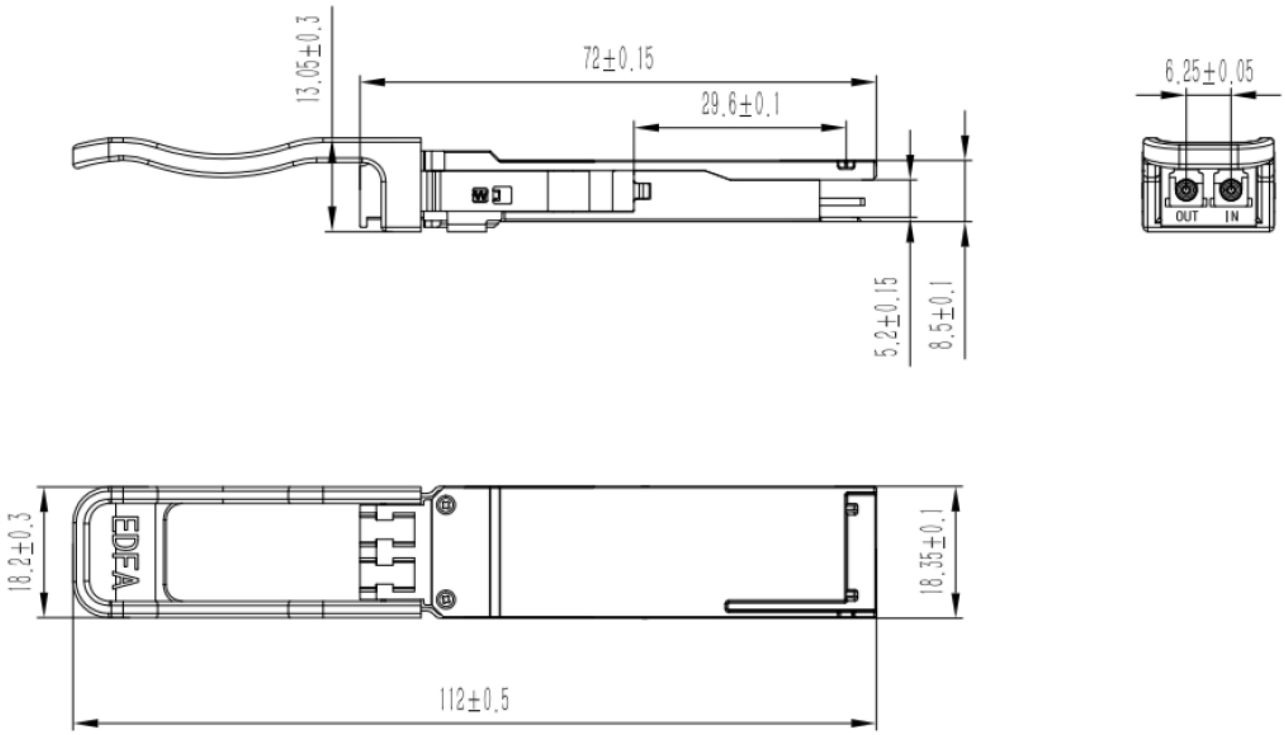
**Notes:**

1. GND is the symbol for signal and supply (power) common for the module. All are common within the module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
2. An alarm condition is present when Pin 4 changes from the normal condition of LVTTL “high” to a condition LVTTL “low.” The alarm condition can be for Output Power, Pump Laser Bias, Case Temperature, and/or Power Supply Voltage. Read specific alarm conditions through the I2C interface.
3. Pulled up in the module to a voltage between 3.15V and 3.45V.
4. Voltages applied to this pin do not impact operation or performance of the module.
5. Connected in series with a capacitor (0.1uF) and resistor (51Ω) to the GND in the module.

**QSFP28 Host Socket Connector**



**Mechanical Specifications**




Dimensions are in mm.

# About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box (SKYGATE).