

## Features

- Analog RF Bandwidth to 18 GHz
- RF Transport up to 20 km
- High Dynamic Range
- Low Noise
- Harsh Environment Options
- 1310nm, 1550nm, and DWDM Options

## Description

MACOM's Directly Modulated Fiber Optic Links provide high performance transmission of wideband RF signals up to 10 GHz over optical fiber. Featuring high reliability and small size, the DiLink transmitter and receiver modules are easily integrated into communications systems for a variety of applications including antenna remoting, radio-over-fiber, network infrastructure and multicarrier/subcarrier multiplexed analog transport.

All modules are easy to use, requiring no external tuning or alignment. They feature a single RF connector, an optical connector, and a single DB-9 for power, control, and status/Built-in/Test (BIT) functions. The units also support a communications interface that provides operating parameters and alarm status.

1310nm and 1550nm wavelength options allow for WDM bi-directional transmission over a single fiber. DWDM wavelength options can be used to increase the channel count within a single fiber.

The units come standard with an FC/APC connector but can be configured with an optical pigtail with FC/APC, LC/APC, SC/APC or E2000/APC connector.

The units can be customized based on the application. Wide temperature range operation with environmental sealing options are available. RF amplification to improve the gain and noise figure is also available.

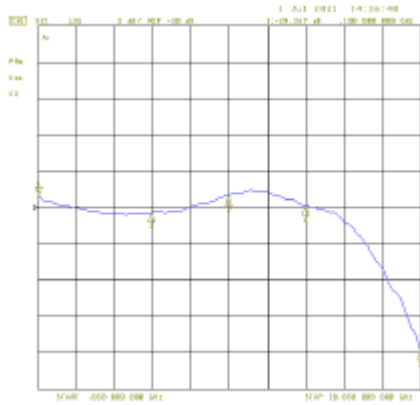
## Absolute Maximum Ratings

| Parameter                                   | Min | Max  | Unit |
|---|-----|------|------|
| Storage Temperature                         | -40 | 85   | °C   |
| Operating Temperature                       | 0   | 50   | °C   |
| RF Input Level (TX)                         |     | +20  | dBm  |
| Optical Output Level                        |     | +10  | dBm  |
| Transmitter Power Consumption (without LNA) |     | 12.3 | W    |
| Transmitter Power Consumption (with LNA)    |     | 13   | W    |

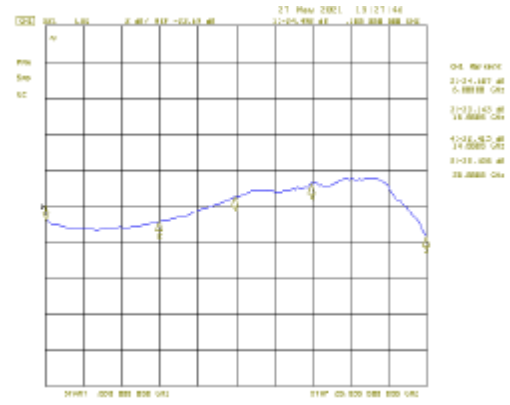
**Electrical/Optical Characteristics (Measured with XiMod Unamplified Receiver)**

| Parameter                       | Value |                    | Unit                 |
|---------------------------------|-------|--------------------|----------------------|
|                                 |       | With Pre-Amplifier |                      |
| RF Input Return Loss Minimum    | 10    | 10                 | dB                   |
| RF Connector, Female            | SMA   | SMA                |                      |
| Impedance                       | 50    | 50                 | SMA                  |
| Link Gain*                      | -33.1 | -8.1               | dB                   |
| Noise Figure*                   | 43.6  | 18.6               | dB                   |
| Input 1 dB Compression*         | 23.6  | -11                | dBm                  |
| SFDR*                           | 108   | 102                | dB Hz <sup>2/3</sup> |
| RIN                             | -150  | -150               | dB/Hz                |
| Electrical Back Reflection      | -10   | -10                | dB                   |
| Optical Isolation, Min.         | 30    | 30                 | dB                   |
| Optical Output Reflection, Max  | -40   | -40                | dB                   |
| Gain Flatness peak to peak, Max | 4     | 4                  | dB                   |

\*1310 unit measured at 10 GHz with 6.9 dB optical path loss



1550 nm S<sub>21</sub>



1310 nm S<sub>21</sub>

## Extended DiLink Ordering Info

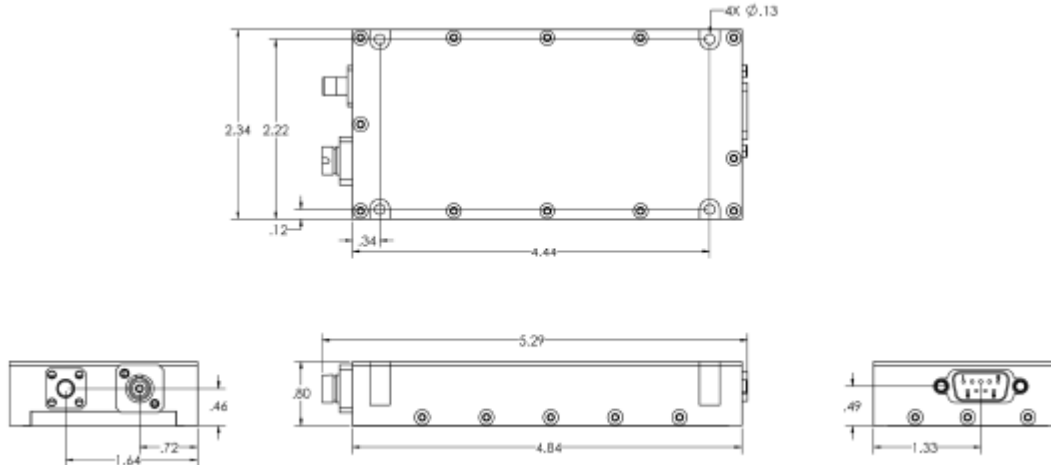
|                             | Wavelength                         | Frequency                                   | Output                    | Connect   | Amplifier           | Temperature  |
|-----------------------------|------------------------------------|---|---------------------------|---|---------------------|--------------|
| DLXT                        |                                    |   |                           |   |                     |              |
| Extended DiLink Transmitter | 3=1310 nm<br>5=1550 nm<br>C=Custom | 1=6 GHz<br>2=12 GHz<br>3=18 GHz<br>4=20 GHz | C=Connect<br>or P=Pigtail | F=FC/APC<br>L=LC/APC<br>S=SC/APC<br>E=E2000/<br>APC | N=None<br>A=Pre-Amp | C=0 to 50 °C |

# Extended DiLink 18 GHz Fiber Optic Link



Rev. V1

## Extended DiLink Outline



| PINOUT D-Sub 9 Pin Male |                       |                                       |
|-------------------------|-----------------------|---------------------------------------|
| Pin                     | Function              | Description                           |
| 1                       | Comm RX               | Communication RX at device*           |
| 2                       | +5V $\pm$ 0.25V       | Power Supply Input                    |
| 3                       | NC                    | No Connect                            |
| 4                       | Alarm Out             | TTL Low Output if Unit is in Alarm    |
| 5                       | Ground                | Power Supply Ground                   |
| 6                       | Optical Power Monitor | Analog Output 0.25V/mW                |
| 7                       | Power ON (Active Low) | Must ground this pin to enable output |
| 8                       | Laser Current Monitor | Analog Output 100 mA/V                |
| 9                       | Comm TX               | Communications TX from device         |

\*Interface includes laser status, alarm status, and laser enable

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