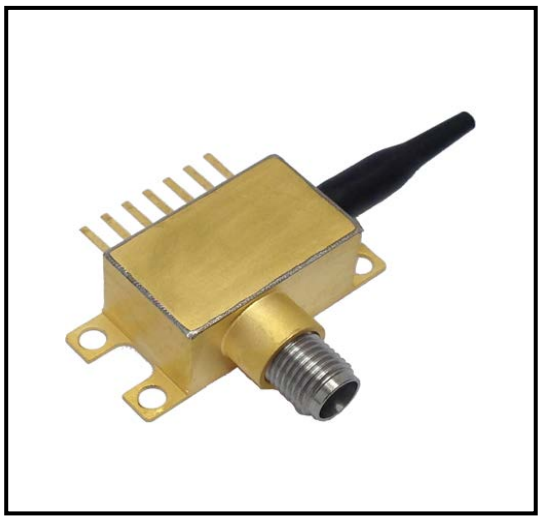
# CA-DY700X-**EX** 18 GHz **1310/1550nm** Directly Modulated DFB Laser

## Overview

The CA-DY700X-EX 18 GHz 1310/1550 nm directly modulated Distributed Feedback (DFB) Laser provides exceptional performance for linear fiber optics communications in very wide bandwidth applications. The linear fiber optics are an excellent alternative to using coaxial cable systems to transmit 10 MHz to 18 GHz signals. They offer significant improvements in reliability of microwave communications networks by transmitting the RF signal in its original format. As a result of these properties, the CA-DY700X-EX provides significant improvements in signal quality for a wide variety of applications including antenna remoting, telemetry, timing and reference signal distribution, measurement and delay lines



### Applications

- VSR, SR, IR and LR applications
- CATV
- SONET and 18 Gb/s Ethernet transponders and line cards

## Features

- High-Dynamic-Range
- Long Distance Communications
- 10 MHz to 18 GHz Bandwidth
- Built-in Optical Isolator
- 1550 nm C Band
- Analog RoF (RF over Fiber) links

# Electro- Optcal Specification

## Electro-Optical Characteristics (Tested under Tc=25°C)

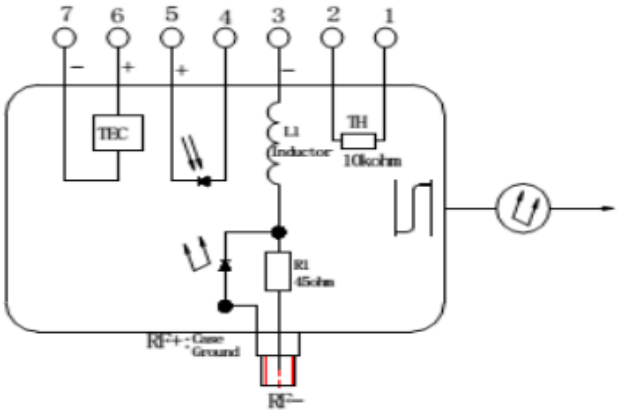
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Threshold Current | $I_{th}$ | $T_c$=25°C | - | 10 | 20 | mA |
| Output Power | $P_o$ | IF= $I_{op}$ | - | 10 | | mW |
| Laser Drive Current | $I_{op}$ | CW | | 70 | 100 | mA |
| Power Tracking Error | TE | | -1.5 | | 1.5 | dB |
| Center Wavelength | $\lambda_c$ | I=$I_{op}$<br>See Options | 1290<br>1540 | 1310<br>1550 | 1330<br>1560 | nm |
| Side-Mode Suppression Ratio | SMSR | Ith+20mA | 35 | 40 | - | dB |
| Monitor Current response | $I_m$@ $P_o$ | - | 100 | | | μA |
| Relative intensity noise | RIN | 0.1-3GHz | | -150 | | dB/Hz |
| Frequency Response Flatness | $\|S_{21}\|$ | See options | | | 4 | $dB_{p-p}$ |
| Electrical Back Reflection[1)] | $S_{11}$ | See options | | | - | dB |
| Modulation Input Matching | $Z_{in}$ | | | 50 | | Ω |
| Thermistor Resistance | $R_{TH}$ | $T_c$=25°C | 9.5 | 10 | 10.5 | kΩ |
| Thermistor Beta Coefficient | β | 0°C <$T_c$<50°C | | 3892 | | °K |
| Optical Isolation | ISO | - | 30 | 40 | - | dB |
| Polarization Extinction Ratio | PER | PMF Option | 17 | | | dB |

## Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

| Parameter | Sym. | Condition | Min | Max | Unit |
|---|---|---|---|---|---|
| Operating Case Temperature | $T_c$ | I=$I_{op}$ | -20 | 75 | °C |
| Storage Temperature | $T_{stg}$ | - | -40 | 85 | °C |
| Laser Forward Current | CW | - | - | 120 | mA |
| Laser Reverse Bias | $V_r$ | - | - | 2 | V |
| Photodiode Reverse Bias | $V_{rpd}$ | - | - | 10 | V |
| RF Input Power | $P_{in}$ | - | - | 20 | dBm |
| TEC Current | $I_{TEC}$ | - | - | 2.0 | A |
| TEC Voltage | $V_{TEC}$ | - | - | 4.0 | V |
| Bending Radius | | SMF28 | 10 | - | mm |
| Lead Soldering Temperature | | - | - | 250 | °C |
| Lead Soldering Time | | - | - | 10 | s |

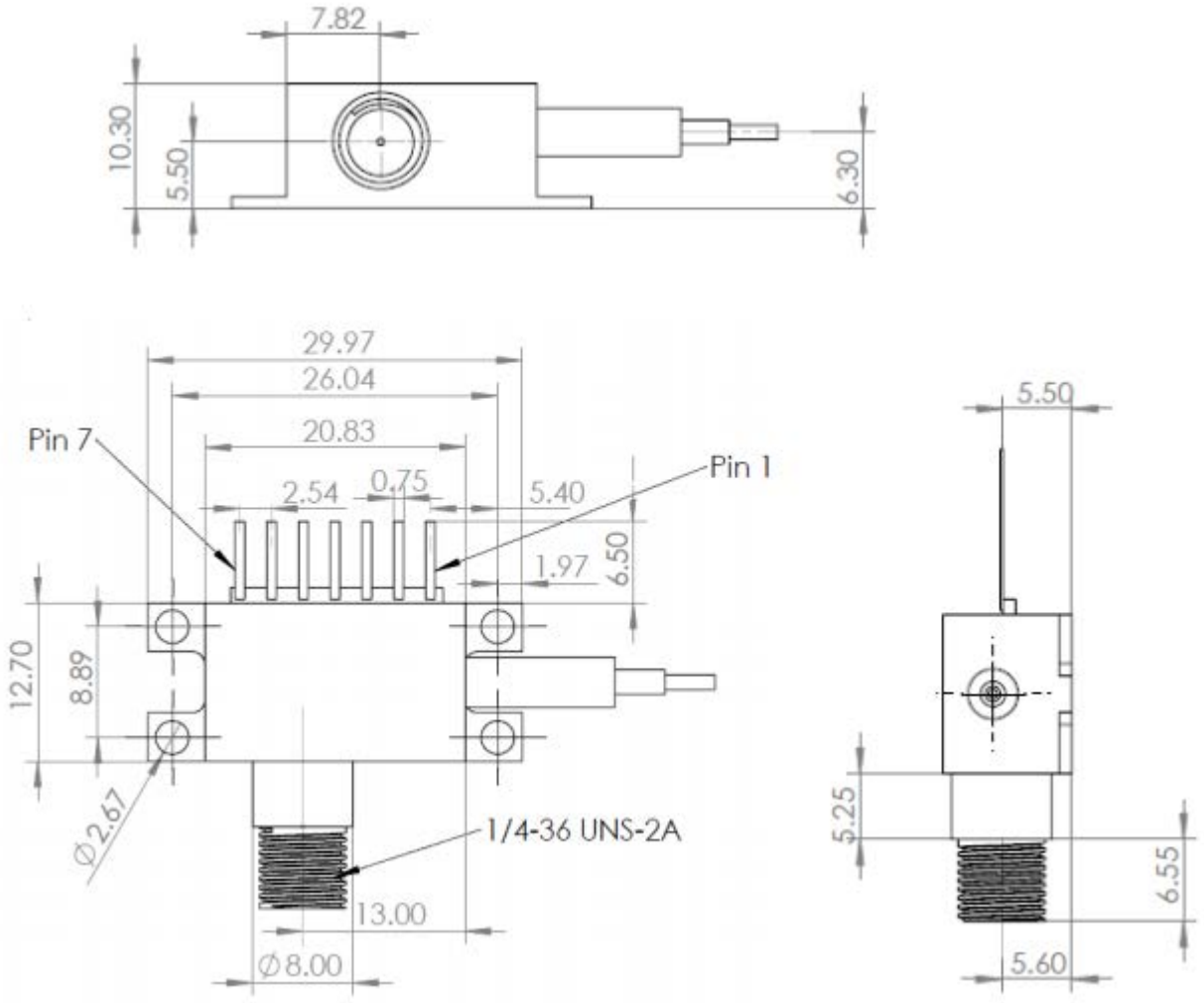
## Electrical Schematic/PIN Assignment



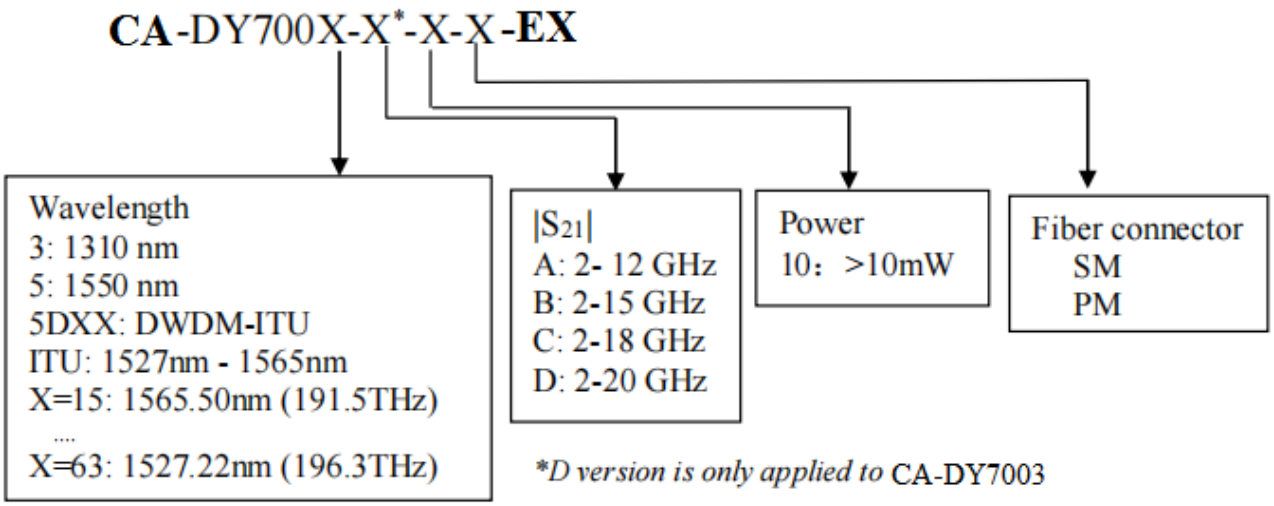

**Pin Assignment**

| | |
|---|---|
| 1 | Thermistor |
| 2 | Thermistor |
| 3 | Laser DC Bias (-) |
| 4 | MPD Anode |
| 5 | MPD Cathode |
| 6 | TEC (+) |
| 7 | TEC (-) |
| K / SMA connector | LD Anode (50 Ohm) |

## Outline Drawing



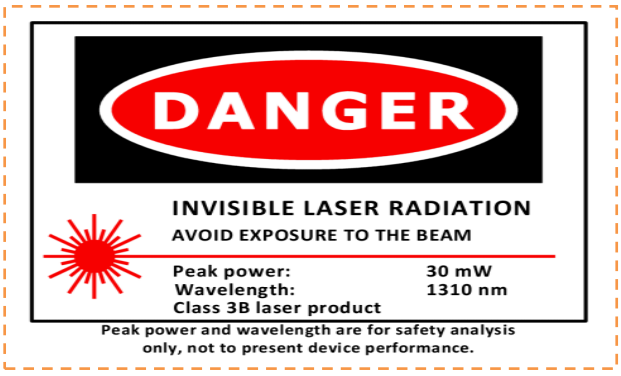
# Ordering **Information**




## Safety Information

- The laser light emitted from this laser diode is invisible and potentially harmful to the human eye. Avoid eye and skin exposure to the beam, both direct and reflected.
- Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload. Please ensure ESD protection prior to handling the products.
- These CA OPTRONICS products are not intended for use in systems where product malfunction can reasonably be expected to result in personal injury.

Package Dimensions（Unit：mm）

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