



1310nm DFB 10Gbit/s Laser

LDM3S510-002

Features

- *Data rate up to 10Gbit/s*
- *Input impedance is 50 Ω*
- *Uncooled FP laser diode with MQW structure*
- *Emission wavelength is the 1310nm band*
- *Built-in optical isolator*
- *Built-in InGaAs monitor photodiode*
- *Single-mode optical fiber pigtail*
- *Industry-standard TO-56 packaged (4-PIN)*

Application

- *SDH/SONET Transmission system up to 10Gbps*
- *10 Gigabit Ethernet*
- *other applications*

Absolute Maximum Ratings

| Parameter | Symbol | Unit | Min | Max |
|-----------------------------|----------|--------------------|-----|-----|
| Storage Temperature Range | T_s | $^{\circ}\text{C}$ | -40 | 80 |
| Laser Diode Reverse Voltage | V_{RL} | V | - | 1.8 |
| Laser Diode Forward Current | I_{FL} | mA | - | 150 |

| | | | | |
|-------------------------------|----------|-----|----|-----|
| Monitor Diode Reverse Voltage | V_{RD} | V | - | 15 |
| Monitor Diode Forward Current | I_{FD} | mA | - | 2 |
| Lead Solder Temperature | - | °C | - | 260 |
| Lead Soldering Time | - | s | - | 10 |
| Fiber yield strength | - | kgf | -- | 1 |
| Fiber bend radius | - | mm | 30 | - |


Recommended Operating Conditions

| Parameter | Symbol | Unit | Min | Typ | Max |
|----------------------------------|----------|------|-----|-----|-----|
| Case Operating Temperature Range | T_c | °C | -10 | - | 80 |
| Operating Voltage | V_{op} | V | | 1.2 | 1.5 |
| Relative Humidity | RH | % | - | - | 95 |

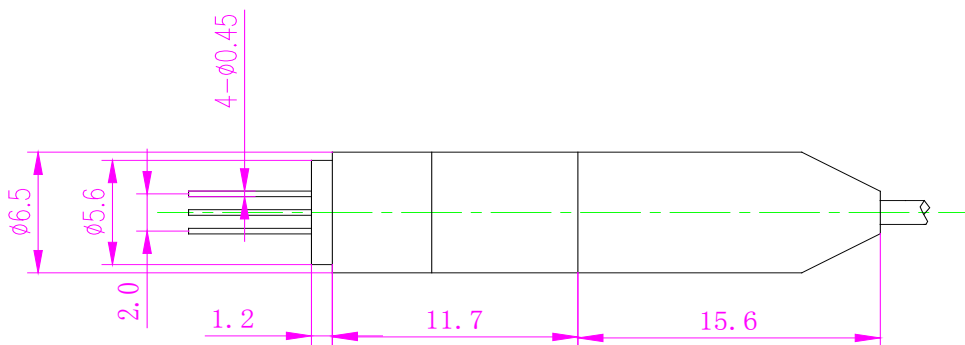
Specifications ($T=25^{\circ}\text{C}$, unless otherwise noted)

| Parameter | Symbol | Unit | Min | Typ | Max | Test condition |
|-----------------------------|-----------------|---------------|------|------|------|--|
| Electrical Characteristics | | | | | | |
| Threshold Current | I_{th} | V | - | 10 | 25 | CW |
| | | | - | - | 40 | CW, over temperature |
| Rise/Fall Time | $T_{r/f}$ | ps | - | 40 | 50 | $I_b = I_{th}$; 20%~80% |
| Monitor Current | I_m | μA | 100 | - | 1000 | CW, $V_{RD}=5\text{V}$ |
| Monitor Dark Current | I_d | nA | - | - | 10 | CW, $V_{RD}=5\text{V}$ |
| | | | - | - | 100 | CW, $V_{RD}=5\text{V}$, over temperature |
| Optical Characteristics | | | | | | |
| Optical Output Power | P_o | dBm | -6 | - | -2 | CW, $I_f = I_{th} + 30\text{mA}$ |
| Slope Efficiency | Se | mW/mA | 0.01 | - | - | |
| Central Wavelength | λ_c | nm | 1290 | 1310 | 1330 | CW |
| | | | 1270 | - | 1340 | CW, over temperature |
| Spectral Width | $\Delta\lambda$ | nm | - | - | 0.5 | CW, -20dB |
| Side Mode Suppression Ratio | SMSR | dB | 30 | - | - | CW |
| Optical Return Loss | ORL | dB | 18 | - | - | CW |
| Tracking Error | ΔP_f | dB | -1.0 | - | +1.0 | CW, over temperature $I_m = \text{const}@P_f(I_{th} + 20\text{mA})$ |
| Monitor PD Capacitance | C | pF | - | - | 10 | $V_{RD}=5\text{V}$, $f=1\text{MHz}$ |
| Connector Repeatability | - | dB | -1 | - | +1 | |

Pin Description

| Pin | Description | Bottom View |
|-----|-------------|---|
| 1 | LD(N) CASE |  |
| 2 | LD(P) | |
| 3 | Detector(N) | |
| 4 | Detector(P) | |

Package outline (Unit: mm)



Ordering Information

| Part No. | Specification | | | | | |
|--------------|-----------------|----------|------------|---------------|-----------|-----------|
| | Package | Datarate | Laser | Optical Power | Temp | Connector |
| LDM3S510-001 | Coaxial Pigtail | 10G | 1310nm DFB | -6 ~ -2dBm | -10~80 °C | SC/PC |
| LDM3S510-002 | Coaxial Pigtail | 10G | 1310nm FP | -6 ~ -2dBm | -10~80 °C | SC/PC |
| LDM3S510-003 | LC TOSA | 10G | 1310nm DFB | -6 ~ -2dBm | -10~80 °C | - |
| LDM3S510-004 | LC TOSA | 10G | 1310nm FP | -6 ~ -2dBm | -10~80 °C | - |

Note: Fiber length in the pigtail package is 1000mm±30mm

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