

Butterfly High Power Analog 1310nm DFB Laser Device

LDM3S735&LDM718

Features

- *High linearity high power MQW DFB LD chip*
- *Operating wavelength 1310nm*
- *Built-in isolator*
- *14-pin butterfly cooled package, single mode FC/PC connector or customized*
- *Output power 4~20mW*

Application

- *Analog CATV forward path*
- *1310nm broadcast and*
- *point-to-point application*
- *Other applications*

Description

The high quality MQW DFB laser diode with butterfly package can meet the requirements of high linearity (excellent CSO, CTB parameters) and high power of CATV optical transmitter system and analog AM system. Also, the built-in thermo-electric cooler (TEC) can make the laser diode work properly in various environments.

Absolute Maximum Ratings

| Parameter | Symbol | Unit | Min | Max |
|---------------------------|-----------------------|----------|-----|-------|
| Storage Temperature Range | T_s | °C | -40 | +85 |
| Relative Humidity | RH | % | - | 85 |
| Laser chip | Forward current | I_{FL} | mA | - 100 |
| | Reverse current | I_{RI} | mA | - 2 |
| | Reverse voltage | V_{RL} | V | - 2 |
| Monitor detector | Reverse voltage | V_{RD} | V | - 15 |
| | Reverse photo current | I_{RD} | mA | 1 |
| | Forward current | I_{FD} | mA | - 2 |
| Thermal electric cooler | Voltage | - | V | - 2 |
| | Current | - | A | - 1.5 |
| 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 | Max |
|----------------------------------|--------------|------|-----|-----|
| Case Operating Temperature Range | T_c | °C | -5 | 60 |
| Power supply Voltage | V_{cc} | V | - | 5 |
| Relative Humidity | RH | % | - | 80 |
| Bias current | I_b | mA | - | 70 |
| TEC cooler current | I_{cooler} | A | - | 1 |

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

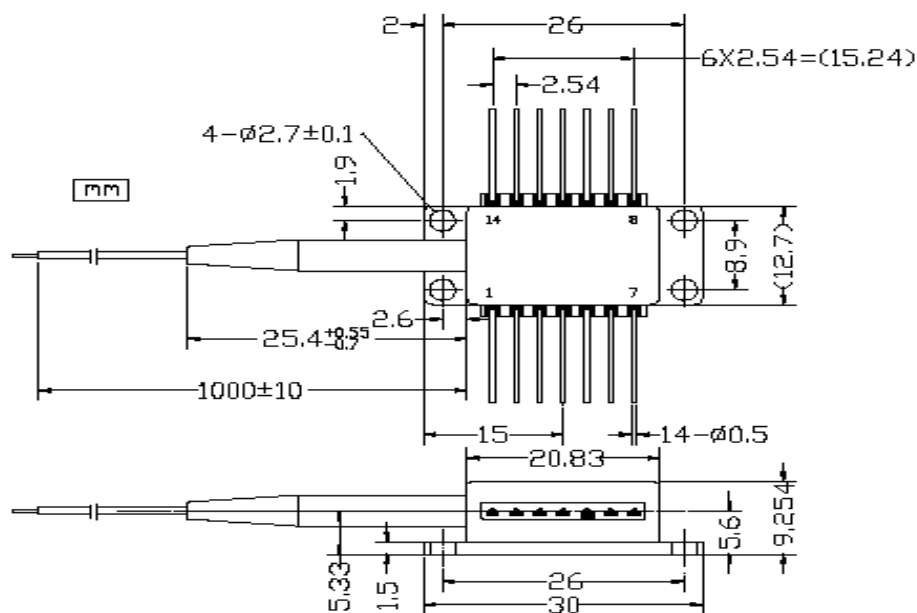
| Parameter | Symbol | Unit | Min | Type | Max | Test condition |
|-----------------------------------|----------|------|-----|------|-----|----------------|
| Electrical Characteristics | | | | | | |
| Operating Voltage | V_{op} | V | - | - | 1.8 | CW |
| Threshold Current | I_{th} | mA | - | 10 | 15 | CW |

| | | | | | | |
|--------------------------------|-----------------|-----------------|------|------|------|---|
| Thermistor | Rth | kΩ | 9.5 | 10 | 10.5 | 25 °C |
| Thermoelectric cooler current | Icooler | mA | - | - | 1000 | CW, -5 °C~60 °C |
| Thermoelectric cooler voltage | Vcooler | V | - | - | 1.5 | CW, -5 °C~60 °C |
| Monitor Current | Im | uA | 50 | - | 1000 | CW, VRD=5V |
| Monitor Dark Current | Id | nA | - | - | 200 | CW, VRD=5V |
| Optical Characteristics | | | | | | |
| Optical Output Power | P0 | mW | 4 | - | 20 | CW |
| Bias current | IB | mA | - | - | 70 | - |
| Side mode suppression ratio | SMSR | dB | 30 | - | - | CW, If=Ith+20mA |
| Slope Efficiency | Se | mw/mA | | 0.3 | - | CW |
| Central Wavelength | λc | nm | 1290 | 1310 | 1330 | CW |
| Spectral Width | Δλ | nm | - | - | 0.3 | CW, -20dB |
| Tracking Error | ΔP _f | dB | - | - | 0.5 | CW, 0~60 °C I _m = I _m @25 °C |
| Monitor PD Capacitance | C | pF | - | - | 10 | V _{RD} =5V, f=1MHZ |
| Connector Repeatability | - | dB | - | - | 0.3 | CW |
| Analog Characteristics | | | | | | |
| Composite Second Order | CSO | dB _c | - | -60 | -57 | 84 CH, PAL |
| Composite Triple Beat | CTB | dB _c | - | -67 | -65 | 84 CH, PAL |
| Carrier Noise Ratio | CNR | dB | 51 | - | - | 84 CH, PAL |
| Frequency range | F | MHz | 45 | | 870 | |

Pin Description

| Pin | Description | Pin | Description | Top View |
|-----|--------------|-----|-----------------------|------------------------|
| 1 | Thermistor | 8 | LD (P), ground | See "Package Outline " |
| 2 | Thermistor | 9 | LD (P), ground | |
| 3 | LD (N) bias | 10 | LD (P), ground | |
| 4 | Detector (P) | 11 | LD (P), ground | |
| 5 | Detector (N) | 12 | LD (N), RF modulation | |
| 6 | TEC (+) | 13 | LD (P), ground | |
| 7 | TEC (-) | 14 | LD (P), ground | |

Package Outline



Ordering Information

| Part No. | Specification | | | | |
|------------|-------------------------|-----------|------------|---------------|---------|
| | Package | Frequency | Laser | Optical Power | Temp |
| LDM3S735 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 4~6 mW | -5~60°C |
| LDM3S735 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 6~8mW | -5~60°C |
| LDM3S735 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 8~10mW | -5~60°C |
| LDM3S735 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 10~12mW | -5~60°C |
| LDM3S735 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 12~14 mW | -5~60°C |
| LDM3S735 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 14~16 mW | -5~60°C |
| LDM718-001 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 10~12 mW | -5~60°C |
| LDM718-001 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 12~14 mW | -5~60°C |
| LDM718-001 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 14~16 mW | -5~60°C |
| LDM718-001 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 16~18 mW | -5~60°C |
| LDM718-001 | 14-pin butterfly cooled | 45-870MHz | 1310nm DFB | 18~20 mW | -5~60°C |

WTD reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

Edition 2009-12-01

Published by Wuhan Telecommunication Devices Co.,Ltd.

Copyright © WTD

All Rights Reserved.