

### 1270 nm ~ 1610 nm DFB LD MODULES 1.25 Gbps CWDM MQW-DFB LD RECEPTACLE

### DL-5500-CXX0 SERIES

#### FEATURES

- ✧ 18-wavelength CWDM: from 1270 nm to 1610 nm, each Step 20 nm
- ✧ High reliability, long operation life
- ✧ 0 °C ~+70 °C operation
- ✧ Up to 1.25 / 2.5 Gbps Operation
- ✧ Single frequency operation with high SMSR
- ✧ Build-in InGaAs monitor
- ✧ Build-in single stage isolator

#### APPLICATION

OC-3, OC-12, and Gigabit Ethernet Optical communication system

#### DESCRIPTION

DL-5500-CXX0 series are MQW-DFB laser diodes that provide a durable, single frequency oscillation with emission wavelength from 1270 nm to 1610 nm CWDM, each step 20 nm.

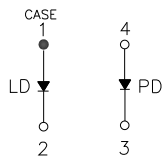
| ELECTRICAL AND OPTICAL CHARACTERISTICS (T <sub>C</sub> =25 °C) |                                                                                  |                                                                  |                   |      |                 |      |
|----------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------|------|-----------------|------|
| Symbol                                                         | Parameter                                                                        | Test Conditions                                                  | Min.              | Typ. | Max.            | Unit |
| I <sub>th</sub>                                                | Threshold Current                                                                | CW                                                               |                   | 10   | 20              | mA   |
| I <sub>OP</sub>                                                | Operating Current                                                                | CW, I <sub>th</sub> +20mA                                        |                   | 35   | 50              | mA   |
| V <sub>OP</sub>                                                | Operating Voltage                                                                | CW, I <sub>th</sub> +20mA                                        |                   | 1.2  | 1.5             | V    |
| P <sub>f</sub>                                                 | Optical Output Power<br>Part No: DL-552XX-CXX0<br>DL-553XX-CXX0<br>DL-554XX-CXX0 | CW, I <sub>th</sub> +20mA                                        | 1.0<br>2.0<br>3.0 |      | 2.0<br>3.0<br>- | mW   |
| λ <sub>c</sub>                                                 | Center Wavelength                                                                | CW, I <sub>th</sub> +20mA                                        | λ -3              | λ    | λ +2            | nm   |
| SMSR                                                           | Side Mode Suppression Ratio                                                      | CW, I <sub>th</sub> +20mA                                        | 30                | 35   |                 | dB   |
| t <sub>r</sub> , t <sub>f</sub>                                | Rise And Fall Times<br>Part No: DL-55XX-CXX0<br>DL-55XXS-CXX0                    | I <sub>F</sub> =I <sub>th</sub> , I <sub>th</sub> +20mA, 20~ 80% |                   |      | 226<br>150      | ps   |
| ΔP <sub>f</sub> / P <sub>f</sub>                               | Tracking Error                                                                   | APC, 0~+70 °C                                                    | -1.5              |      | 1.5             | dB   |
| I <sub>m</sub>                                                 | PD Monitor Current                                                               | CW, I <sub>th</sub> +20mA, V <sub>RD</sub> =1V                   | 50                |      |                 | μ A  |
| I <sub>D</sub>                                                 | PD Dark Current                                                                  | V <sub>RD</sub> =5V                                              |                   |      | 10              | nA   |
| C <sub>t</sub>                                                 | PD Capacitance                                                                   | V <sub>RD</sub> =5V, f=1MHz                                      |                   | 10   | 15              | pF   |

Note: Central CWDM wavelength is from 1270 nm to 1610 nm, each step 20 nm.

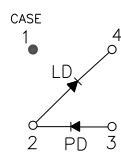
| ABSOLUTE MAXIMUM RATINGS (T <sub>C</sub> =25 °C) |                                             |         |      |
|--------------------------------------------------|---------------------------------------------|---------|------|
| Symbol                                           | Parameter                                   | Ratings | Unit |
| P <sub>o</sub>                                   | Optical Output Power<br>(552XX/553XX/554XX) | 1.5/3   | mW   |
| V <sub>RL</sub>                                  | LD Reverse Voltage                          | 2       | V    |
| V <sub>RD</sub>                                  | PD Reverse Voltage                          | 10      | V    |
| I <sub>FD</sub>                                  | PD Forward Current                          | 1.0     | mA   |
| T <sub>opr</sub>                                 | Operating Temperature                       | 0~+70   | °C   |
| T <sub>stg</sub>                                 | Storage Temperature                         | -40~+85 | °C   |

### MECHANICAL DIMENSION (mm) and PIN ASSIGNMENT

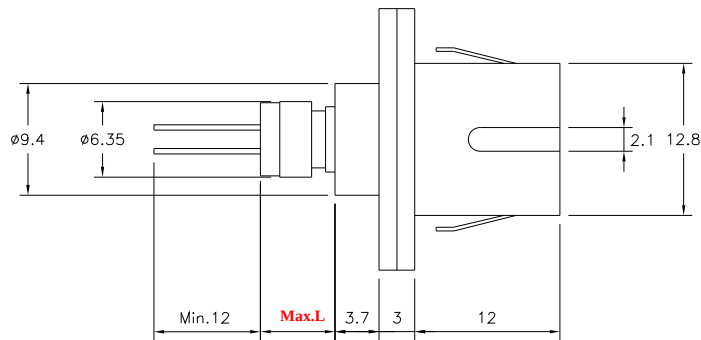
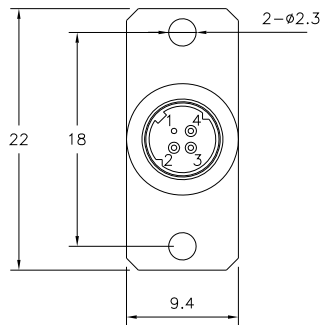
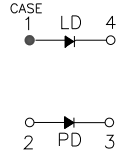
Type A



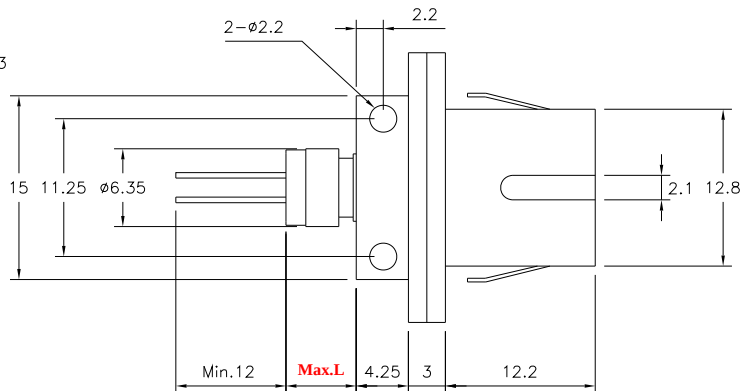
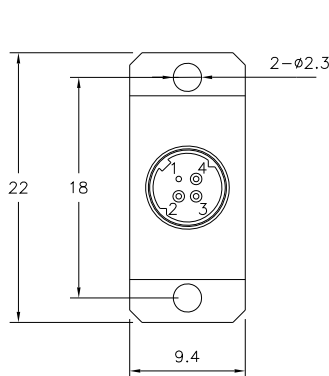
Type B



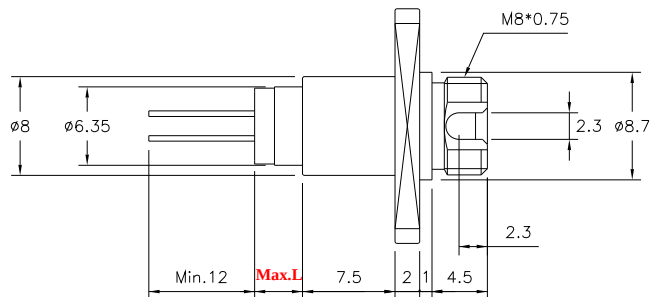
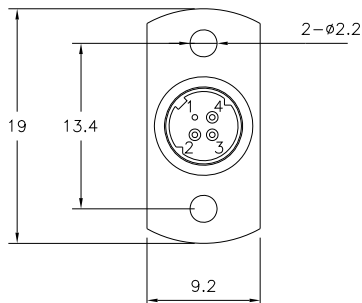
Type C



**SC RECEPTACLE  
(DL-55XXX-CXX0-SS)**

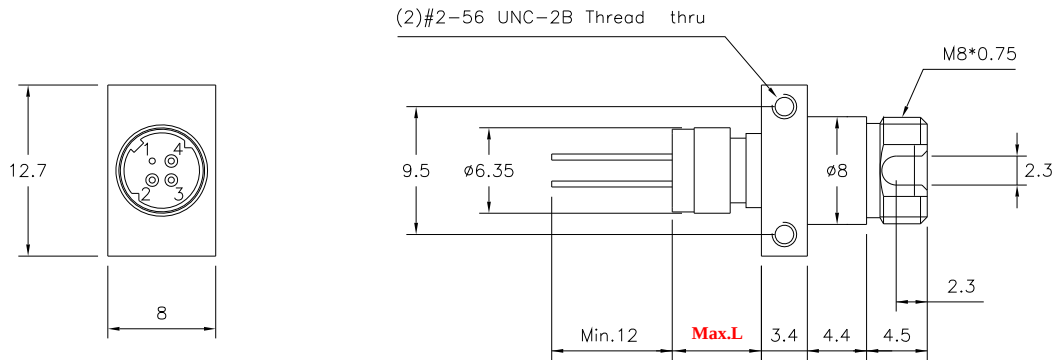


**SC RECEPTACLE (BOARD MOUNT)  
(DL-55XXX-CXX0-SBS)**

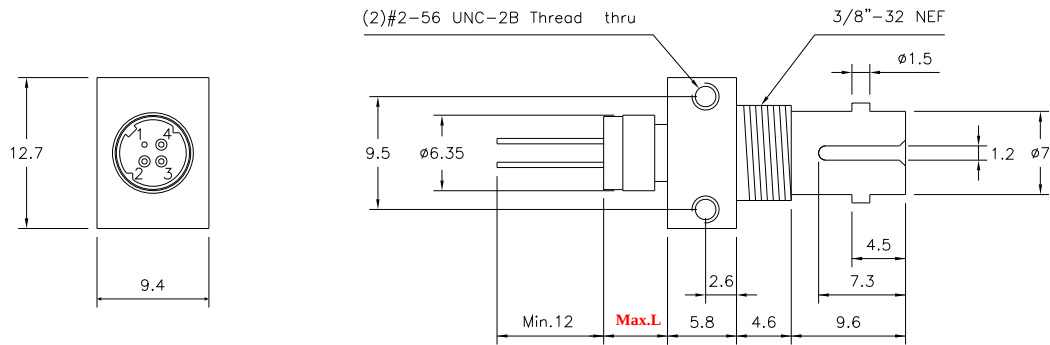


**FC RECEPTACLE  
(DL-55XXX-CXX0-FS)**

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**FC RECEPTACLE (BOARD MOUNT)**  
**(DL-55XXX-CXX0-FBS)**



**ST RECEPTACLE**  
**(DL-55XXX-CXX0-TS)**

| P//N          | Max. L Dimension |      |     |      |     |
|---------------|------------------|------|-----|------|-----|
|               | S                | SB   | F   | FB   | T   |
| 552XX-CXX0-XS | 8.6              | 8.0  | 6.2 | 8.9  | 7.7 |
| 553XX-CXX0-XS | 10.6             | 10.0 | 8.2 | 10.9 | 9.7 |

**Note:** Specifications subject to change without notice.

### ORDER INFORMATION

Part No.: D L - 5 5 ☐ ☐ ☐ - C ☐ ☐ 0 - ☐ ☐ S

| Code | Pout (mW) |
|------|-----------|
| 2    | 1         |
| 3    | 2         |
| 4    | 3         |

| Code | PIN Assignment |
|------|----------------|
| 0    | Type A         |
| 5    | Type B         |
| 8    | Type C         |

| Code  | Speed     |
|-------|-----------|
| Blank | 1.25 Gbps |
| S     | 2.5 Gbps  |

| Code | Wavelength |
|------|------------|
| 27   | 1270 nm    |
| 29   | 1290 nm    |
| 31   | 1310 nm    |
| 33   | 1330 nm    |
| 35   | 1350 nm    |
| 37   | 1370 nm    |
| 39   | 1390 nm    |
| 41   | 1410 nm    |
| 43   | 1430 nm    |
| 45   | 1450 nm    |
| 47   | 1470 nm    |
| 49   | 1490 nm    |
| 51   | 1510 nm    |
| 53   | 1530 nm    |
| 55   | 1550 nm    |
| 57   | 1570 nm    |
| 59   | 1590 nm    |
| 61   | 1610 nm    |

| Code | Isolator     |
|------|--------------|
| S    | Single-Stage |

| Code | Connector Type      |
|------|---------------------|
| F    | FC/PC               |
| FB   | FC/PC (Board Mount) |
| T    | ST/PC               |
| S    | SC/PC               |
| SB   | SC/PC (Board Mount) |

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### Revision History

| Version | Subject                                                                                                                                                                            | Release Date |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1.0     | Initial datasheet                                                                                                                                                                  | 12/1/2003    |
| 2.0     | 1. Combine 1.25G and 2.5G characteristics in one data sheet<br>2. Add 3mW products<br>3. Revise FC RECEPTACLE (BOARD MOUNT) thread thru dim.:<br>M2 => UNC-2B<br>4. Revise drawing | 12/1/2007    |
| 3.0     | Revise order information                                                                                                                                                           | 4/15/2009    |
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|         |                                                                                                                                                                                    |              |

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