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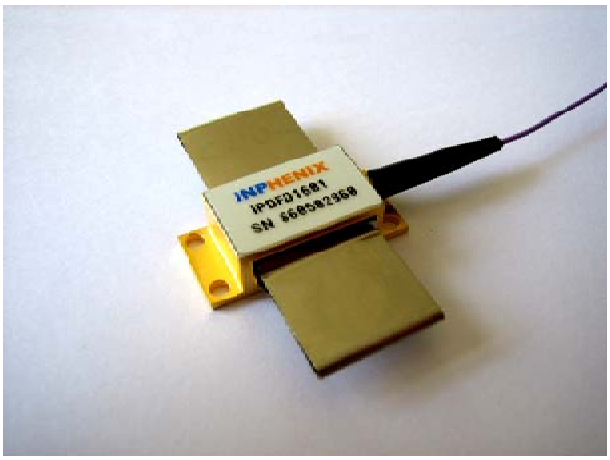
# 16XXnm Distributed Feedback Laser diode Device

IPDFD16XX (1665/1653nm)



## Features

- High output power
- Narrow Linewidth
- High side mode suppression

## Applications

- Fiber Optic Sensor
- Methane Sensor

## IPDFD16XX Distributed Feedback Laser Device Specifications

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Threshold current | $I_{th}$ | – | 10 | 25 | mA | CW |
| Operating current | $I_{op}$ | – | – | 80 | mA | CW, $P_f$= $P_{op}$ |
| Output power | $P_{op}$ | 3 | 5 | | mW | CW, I= $I_{op}$ |
| Slope efficiency | $S_e$ | 0.15 | 0.23 | – | W/A | CW, $P_f$= $P_{op}$ |
| Forward voltage | $V_f$ | – | – | 2 | V | CW, $P_f$= $P_{op}$ |
| Peak Wavelength(IPDFD1601) | $\lambda_p$ | 1660 | 1665 | 1670 | nm | CW, $P_f$= $P_{op}$ |
| Peak Wavelength(IPDFD1602) | | 1650 | 1653 | 1660 | | |
| Spectral Width | $\Delta\lambda$ | – | – | 0.2 | nm | CW, $P_f$= $P_{op,}$ 20 dB down |
| Peak Wavelength Drift | $D\lambda$ | – | – | 0.14 | nm/°C | CW, $P_f$= $P_{op}$ |
| Side mode suppression ratio | SMSR | 35 | – | – | dB | CW, $P_f$= $P_{op}$ |

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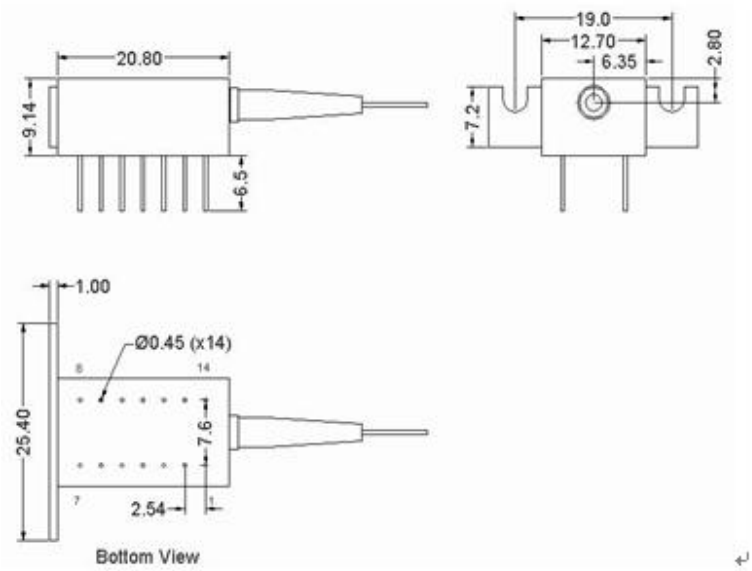
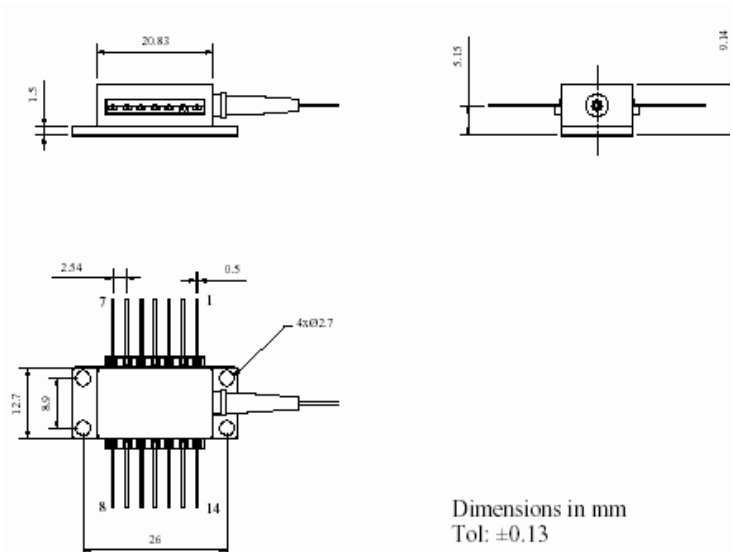
## Package Dimensions




**14-Pin DIL Package**




**14-Pin BUT Package**

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## Pin Definition

| 14-pin DIL package | | | | 14-pin BUT package | | | |
|---|---|---|---|---|---|---|---|
| Pin | Function | Pin | Function | Pin | Function | Pin | Function |
| 1 | TEC(+) | 8 | PD(+) | 1 | Thermistor | 8 | NC |
| 2 | NC | 9 | LD(-) | 2 | Thermistor | 9 | NC |
| 3 | NC | 10 | Case | 3 | LD(-) | 10 | NC |
| 4 | NC | 11 | Thermistor | 4 | PD(+) | 11 | case |
| 5 | LD(+) | 12 | Thermistor | 5 | PD(-) | 12 | LD(-) |
| 6 | NC | 13 | NC | 6 | TEC(+) | 13 | LD(+) |
| 7 | PD(-) | 14 | TEC(-) | 7 | TEC(-) | 14 | NC |

## Absolute Maximum Ratings

| Parameter | Min. | Max. | Unit |
|---|---|---|---|
| Operating Temperature | –20 | 70 | °C |
| Storage Temperature | – 40 | 85 | °C |
| TEC Drive Current | | 1.5 | A |
| TEC Drive Voltage | | 3.6 | V |
| Thermistor Resistance | 10 kΩ @ 25 ℃ | | |
| Laser Chip Temperature Setting | 25 ℃ | | |
| Fiber Type | SMF | | |
| Fiber Jacket | 900 μm or 250 μm tight buffer | | |
| Package | 14-pin DIL/14-pin BUT, Others available | | |

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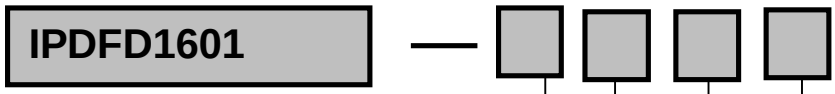
**Part Numbering Structure**




**Model-**
IPDFD1601: 1665nm DFB Laser Device
IPDFD1602: 1653nm DFB Laser Device

**Package-**
1: 14-pin DIL
3: 14-pin Butterfly

**Fiber Type:**
1- SM Fiber
2- PM Fiber

**Jacket Type:**
1- 900 µm
2- 250 µm tight buffer

**Connector Type**:

| | | |
|---|---|---|
| 0=No Connectors | 3=FC/APC | 6= Deleted |
| 1=Deleted | 4=FC/UPC | 7=SC/APC |
| 2= Deleted | 5= Deleted | 8=SC/UPC |

**Example**: IPDFD1602-1110: 1653nm DFB LD in 14-pin DIL with 900 µm SM fiber, without connector.