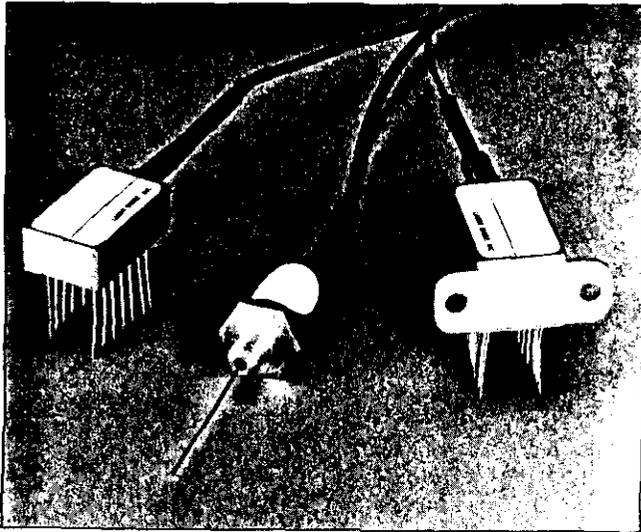


1300nm EDGE EMITTING LED SERIES



FEATURES

- ▶ High Peak Power
- ▶ Fast Rise Time
- ▶ Single and Multi mode Fiber Optic Pigtail Options
- ▶ Hermetic and Non-Hermetic Packages
- ▶ Thermo-electric Cooler Option
- ▶ Military Qualified Package Available
- ▶ High Reliability and Coupling Stability

DESCRIPTION

Laser Diode, Inc.'s (LDI) InGaAsP, edge emitting, light emitting diode (LED) has a peak transmission wavelength of 1300 nanometers (nm). The diode is offered in three package styles: a 14 pin dual inline package (DIP) with a flange, a low profile 14 pin DIP and an LDL-9F package. The DIP packages are hermetically sealed. These packages are offered

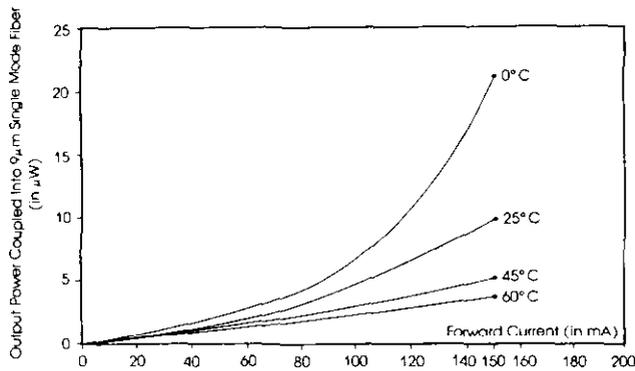
both with single and multi mode fiber optic pigtails. A thermo-electric cooler and thermistor may be included in the flange package to provide temperature stability. All of the package styles contain a similar diode with the high quality electro-optical specifications stated below.

ELECTRO-OPTICAL CHARACTERISTICS OF THE DIODE (AT 25°C)

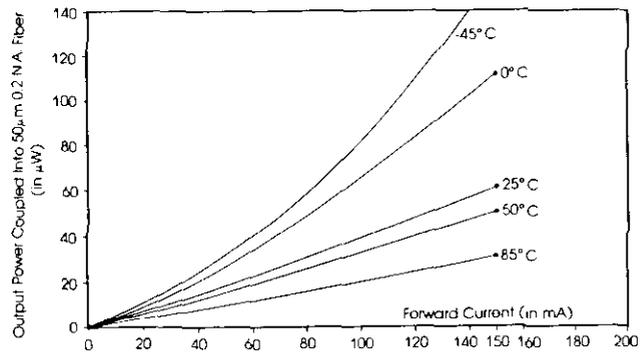
| Parameters | Symbol | Min. | Typ. | Max. | Units |
|--|-----------------|------|------|------|---------|
| Wavelength* | λ | 1270 | 1300 | 1330 | nm |
| Spectral Width | $\Delta\lambda$ | | 70 | 90 | nm |
| Spectrum vs. Temperature Coefficient | | | 0.5 | 0.65 | nm/°C |
| Spectral Width vs. Temperature Coefficient | | | 0.5 | | nm/°C |
| Optical Rise Time | T_R | | 4.0 | | nsec |
| Optical Fall Time | T_F | | 4.0 | | nsec |
| Output Power | P_o | | | | |
| • Into 50 micron core, 0.2 N.A. fiber at 150mA | | | | | |
| Option 1 | | 40 | 60 | | μW |
| Option 2 | | 80 | 100 | | μW |
| Option 3 | | 150 | 200 | | μW |
| • Into 9 micron core, single mode fiber at 150mA | | | | | |
| Option 1 | | 4 | | | μW |
| Option 2 | | 8 | | | μW |
| Option 3 | | 50 | | | μW |
| Avg. Power Decrease with Increase in Temperature | | | -1.5 | | %/°C |
| Avg. Power Increase with Decrease in Temperature | | | +5.0 | | %/°C |
| Absolute Maximum Ratings | | | | | |
| • Forward Current | I_{max} | | | 200 | mA |
| • Forward Voltage | V_F | | | 2.0 | V |
| • Soldering Time @ 260°C | | | | 10 | sec |

* Wavelength may be specified with a ± 20 nm tolerance for a central wavelength between 1240 and 1330 nm

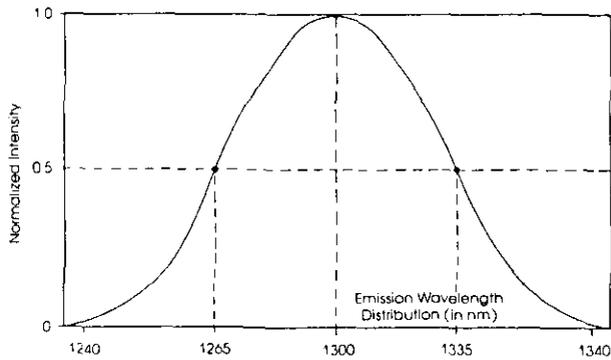
TYPICAL CHARACTERISTICS



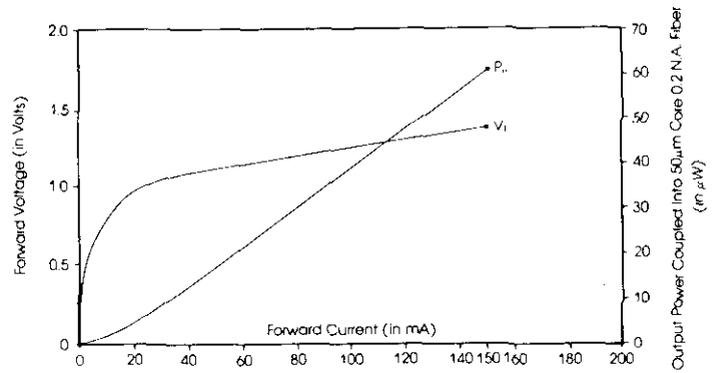
OUTPUT POWER VS. FORWARD CURRENT OF THE LDT-60005 CHARACTERISTICS



OUTPUT POWER VS. TEMPERATURE



EMISSION SPECTRA



OUTPUT POWER AND FORWARD VOLTAGE AS A FUNCTION OF FORWARD CURRENT (AT 25°C)

CHARACTERISTICS OF A PACKAGED DIODE

| Parameters | LDT-362 | LDT-362E | LDT-60005 | LDT-60005E | LDT-60001 |
|---------------------------|------------------------|------------------------|-----------------------|-----------------------|------------------------|
| Packaged Style | 14 pin DIP | 14 pin DIP | 14 pin DIP | 14 pin DIP | Coaxial LDL-9F |
| Hermetic Pkg. | Yes | Yes | Yes | Yes | No |
| Thermoelectric Cooler | No | Yes | No | Yes | No |
| Pigtails* | 1 meter Corning 50/125 | 1 meter Corning 50/125 | 1 meter Corning SMF** | 1 meter Corning SMF** | 1 meter Corning 50/125 |
| Operating Temperature | -45°C to +85°C | -40°C to +70°C | -45°C to +70°C | -40°C to +70°C | -20°C to 60°C |
| Storage Temperature Range | -50°C to +125°C | -50°C to +80°C | -50°C to +125°C | -50°C to +80°C | -20°C to +60°C |

* Other fiber pigtails available upon request

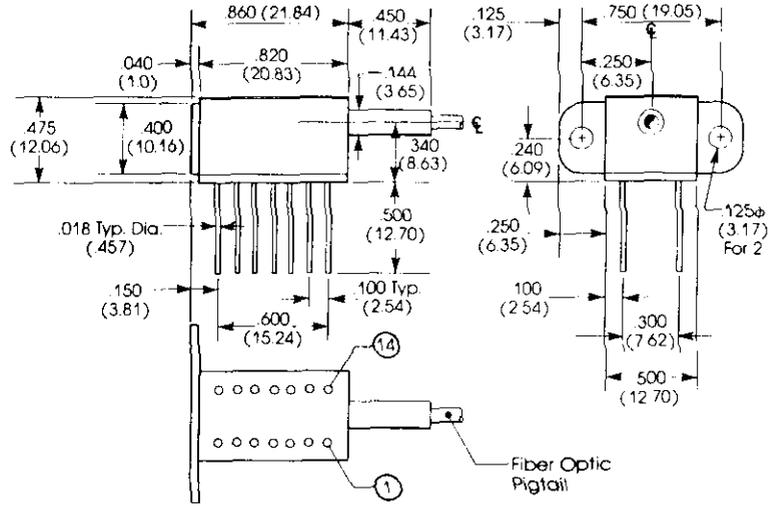
** 9 micron - Single Mode Fiber

LDT-362 and LDT-60005

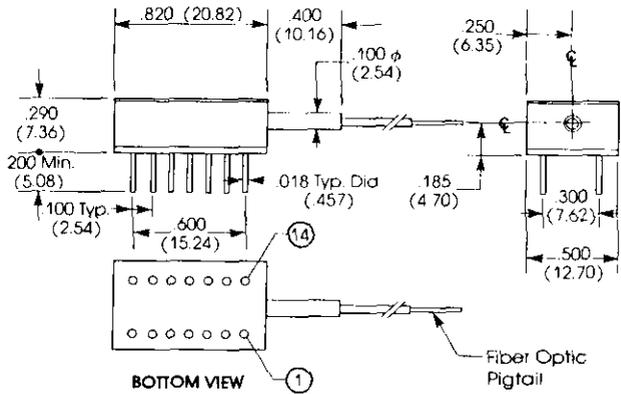
The LDT-362 consists of a 1300nm edge emitting LED within a hermetic, 14 pin DIP with a flange and a pigtail of one meter of Corning 50 micron core, 125 micron cladding fiber. The operating temperature range is from -45°C to +85°C and the storage range is -50°C to +125°C.

The LDT-60005 packages the diode in a hermetic, flanged 14 pin DIP with a one meter pigtail of Corning 9 micron core, 125 micron cladding single mode fiber. The operating temperature range is from -45°C to +70°C and the storage range is -50°C to +125°C.

Both of these devices may be packaged in a hermetic, low profile 14 pin DIP without a flange by specifying the suffix NF after the part number.



NF PACKAGE OPTION



PIN CONNECTIONS

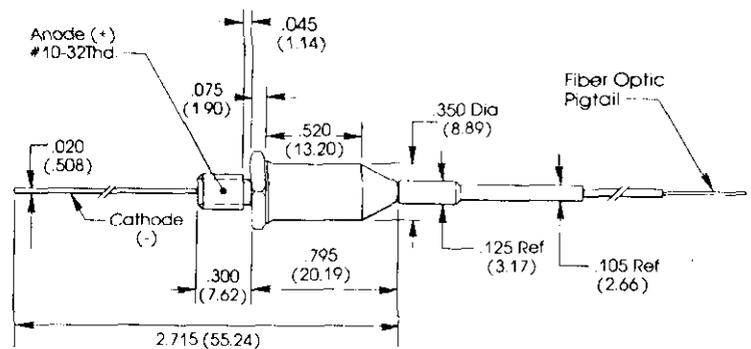
| PIN | FUNCTION |
|-----|-----------------|
| 1 | No Connection |
| 2 | NC |
| 3 | NC |
| 4 | NC |
| 5 | LED anode (+) |
| 6 | Case ground (+) |
| 7 | NC |
| 8 | NC |
| 9 | LED cathode (-) |
| 10 | Case ground (+) |
| 11 | NC |
| 12 | NC |
| 13 | NC |
| 14 | NC |

NOTES
1 Dimensions in inches, mm in parenthesis

2 Pin functions are identical for "NF" and Standard Packages

LDT-60001

For applications not requiring hermeticity and with less stringent temperature requirements, LDI offers the LDT-60001. This device is supplied in an LD-9F package pigtailed with Corning 50 micron core, 125 micron cladding fiber (other fiber pigtails available upon request). The operating temperature range of the LDT-60001 is from -20°C to +60°C and the storage temperature range is from -20°C to +60°C.



END VIEW

Dimensions in inches, mm in parenthesis

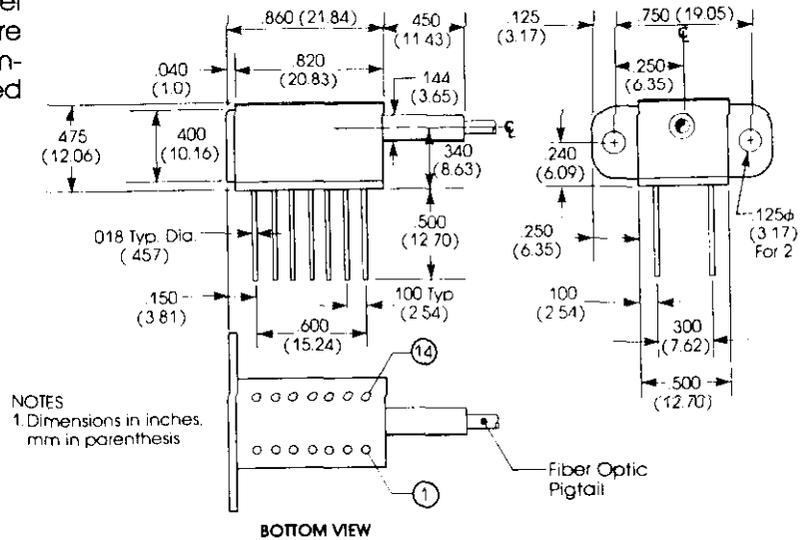
LDT-362E and LDT-60005E

For applications that require temperature stabilization an internal Peltier thermo-electric cooler and thermistor may be specified for either the LDT-362 or the LDT-60005 by specifying the suffix E after the part number. The complete unit is housed within a hermetic, 14 pin DIP with a flange and pigtailed with one meter of either single or multi mode fiber. The operating temperature range is from -40°C to +70°C and the storage temperature range is -50° to +80°C. The devices are offered with a back facet monitor detector.

PIN CONNECTIONS

| PIN | FUNCTION |
|-----|------------------------------|
| 1 | Cooler anode (+) |
| 2 | No Connection |
| 3 | NC |
| 4 | NC |
| 5 | LED anode (+) |
| | Case ground (+) |
| 6 | NC |
| 7 | Photodetector cathode (-)** |
| 8 | Photodetector anode (.) |
| 9 | LED cathode (-) |
| 10 | Thermistor*, case ground (+) |
| 11 | Thermistor |
| 12 | NC |
| 13 | NC |
| 14 | Cooler cathode (-) |

*Floating Thermistor Optional
**Optional



NOTES
1. Dimensions in inches, mm in parenthesis

CHARACTERISTICS OF THE THERMO-ELECTRIC COOLER USED IN THE LDT-362E and LDT-60005E

A thermo-electric cooler is incorporated within the LDT-362E and LDT-60005E package along with a thermistor to provide a temperature control monitor. The cooler used is a Peltier cooler with a 10 K ohm thermistor.

| Parameters | Symbol | Min. | Typ. | Max. | Units |
|---|------------|------|--------|------|-------|
| Cooler Characteristics | | | | | |
| - Cooling Capacity | ΔT | | 40 | | °C |
| - Current required to obtain ΔT | I_c | | 0.7 | 1.0 | Amps |
| - Voltage required to obtain ΔT | V_c | | 2.1 | 2.3 | Volts |
| Thermistor Characteristics | | | | | |
| - Resistance | | | 10K±5% | | Ohms |
| - Temperature Coefficient of Resistance | | | -4.4 | | % |

LASER DIODE, Inc., reserves the right to make changes at any time as deemed practical and/or necessary to improve the design and to supply the best possible product.

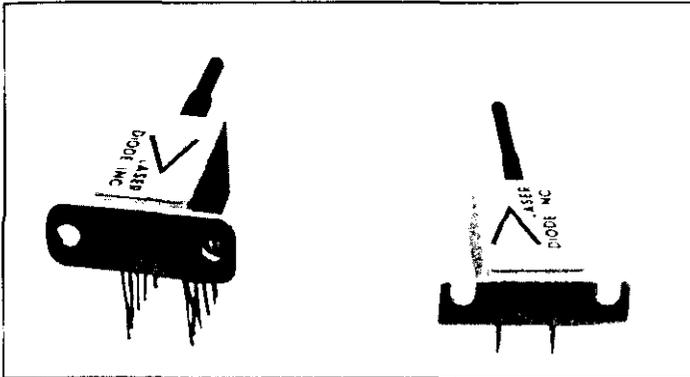
Information provided is believed at this time to be accurate and reliable. No responsibility is assumed for its use, nor for any infringements on the rights of others.

*For further information on this product or others of LASER DIODE, Inc., please call;



LASER DIODE, INC.
MORGAN ELECTRONICS DIVISION
1130 SOMERSET ST., NEW BRUNSWICK, NJ 08901
(201) 249-7000 (FAX) 201-249-9165 (TWX) 710-998-0597

1550nm Edge Emitting LED



FEATURES:

- ▶ High Output Power
- ▶ High Speed
- ▶ Single and Multimode Fiber Optic Pigtail Options
- ▶ Hermetic Packages
- ▶ Thermoelectric Cooler Option
- ▶ High Reliability and Coupling Stability

DESCRIPTION:

Laser Diode, Inc.'s (LDI) InGaAsP, Edge Emitting Light Emitting Diode (LED) has a typical transmission wavelength of 1550 nanometers (nm). The diode is offered as a chip on a submount or in one of two package styles: a low profile 14 pin dual in line long horn package or a high profile 14 pin DIP. The DIP packages are epoxy free

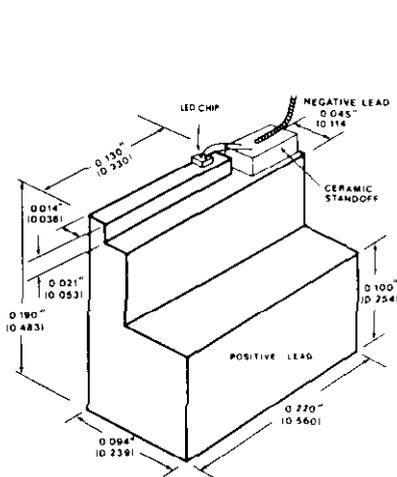
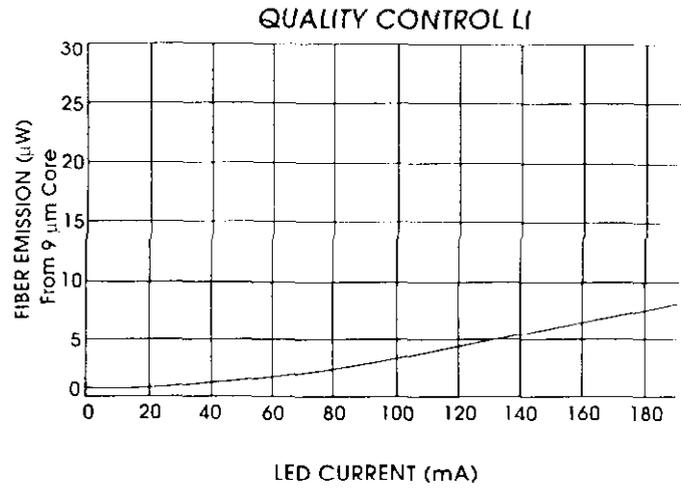
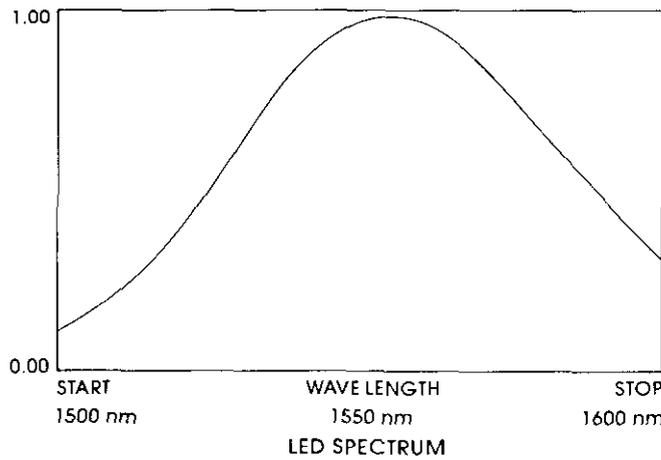
and hermetically sealed. These packages are offered with single or multimode fiber pigtails. A thermoelectric cooler and thermistor is included in the package to provide temperature stability. All of the package styles contain a similar diode with the high quality electro-optical specifications stated below.

ELECTRO-OPTICAL CHARACTERISTICS OF THE DIODE AT 25°C:

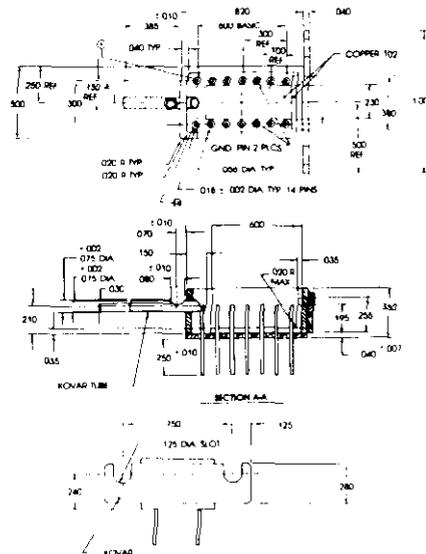
| | Symbol | Min. | Typ. | Max. | Units |
|------------------------------------|--------------------------|------|------|------|-----------------|
| Wavelength | λ | 1520 | 1550 | 1580 | nm |
| Spectral Width | $\Delta\lambda$ | | 90 | 120 | nm |
| Rise Time | T_R | | 3 | 5 | ns |
| Fall Time | T_F | | 3 | 5 | ns |
| Power/temp. coefficient above 25°C | $\%/\Delta T$ | | -2.0 | | $\%/^{\circ}C$ |
| Power/temp. coefficient below 25°C | $\%/\Delta T$ | | +5.0 | | $\%/^{\circ}C$ |
| Wavelength/temp. coefficient | $\Delta\lambda/\Delta T$ | | 0.8 | | nm/ $^{\circ}C$ |
| Forward Current | I_f | | | 200 | mA |
| Forward Voltage | V_f | | | 2.0 | V |
| Cooler Capacity | ΔT | 40 | | | $^{\circ}C$ |
| Current required for ΔT | I_{IC} | | 0.7 | 1.0 | A |
| Cooler Voltage | V_{IC} | | | 2.2 | V |
| Output Power at 100mA DC | P_o | | | | |
| - From Chip | | 300 | | | μW |
| - Option 001 (SMF) | | 5 | | | μW |
| - Option 002 (SMF) | | 10 | | | μW |
| - Option 003 (SMF) | | 15 | | | μW |
| Storage Temperature | T_{ST} | -20 | | +65 | $^{\circ}C$ |
| Operating Temperature | T_{OP} | -40 | | +85 | $^{\circ}C$ |

THERMO-ELECTRIC COOLER AND THERMISTOR (OPTIONAL)

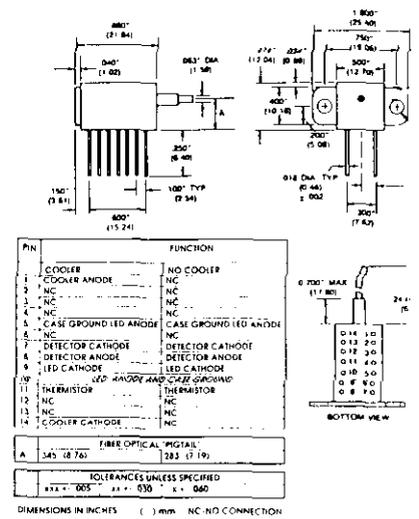
| Parameter | Symbol | Min. | Typ. | Max. | Units |
|---------------------------------------|------------|------|------|-------|----------------|
| Cooler Capacity | ΔT | 40 | | | $^{\circ}C$ |
| Current Required for ΔT | | | 0.7 | 1.0 | A |
| Voltage Required for ΔT | | | 1.8 | 2.3 | V |
| Thermistor Resistance | | 9.5K | 10K | 10.5K | Ω |
| Temperature Coefficient of Resistance | | | -4.4 | | $\%/^{\circ}C$ |



IRE-1500



IRE-1501



IRE-1502

ORDERING INFORMATION

| Part Number | Description |
|-----------------|--|
| IRE-1500 | Laser on Copper Submount |
| IRE-1501 | "Longhorn Style" 14 pin Dual In Line with Internal Cooler, Thermistor, and Single Mode Fiber Pigtail |
| IRE-1502 | High Profile 14 pin Dual In Line with Internal Cooler, Thermistor, and Single Mode Fiber Pigtail |

LASER DIODE, Inc., reserves the right to make changes at any time as deemed practical and/or necessary to improve the design and to supply the best possible product.

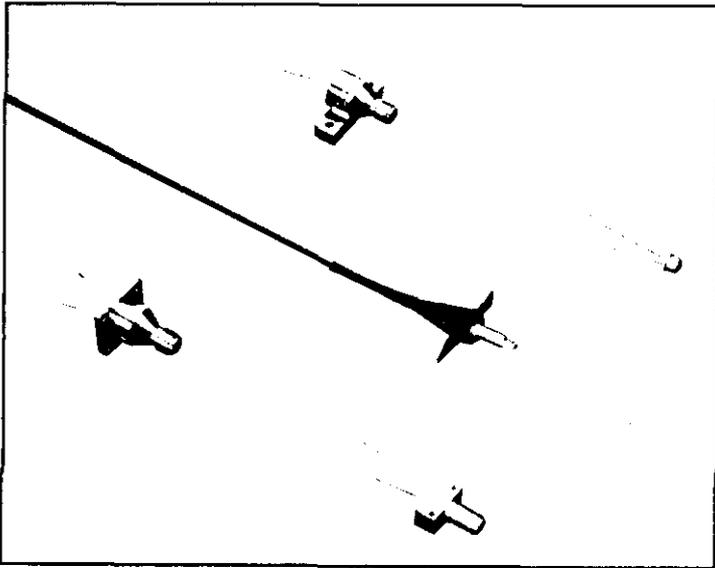
Information provided is believed at this time to be accurate and reliable. No responsibility is assumed for its use, nor for infringements on the rights of others.

*For further information on this product or others of LASER DIODE, Inc., please call:



LASER DIODE, INC.
MORGAN ELECTRONICS DIVISION
1130 SOMERSET ST., NEW BRUNSWICK, NJ 08901
(201) 249-7000 (FAX) 201-249-9165 (TWX) 710-998-0597

830nm SURFACE EMITTING LED



FEATURES

- ▶ Excellent Reliability
- ▶ Wide Operating Temperature Range
- ▶ Package options include hermetically sealed T0-46 cans, connectorized devices and fiber optic pigtailed packages

DESCRIPTION

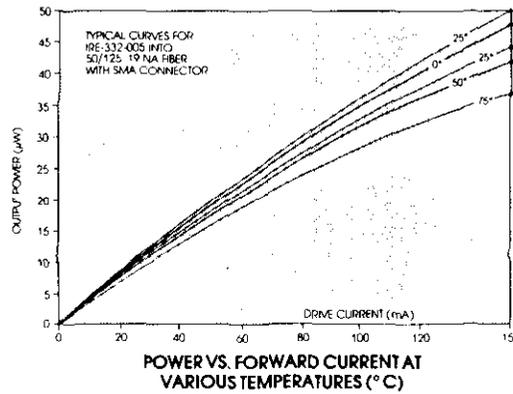
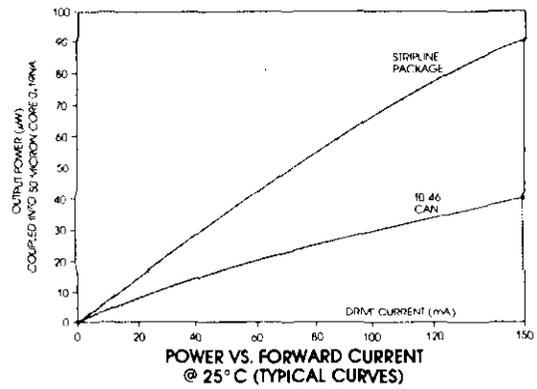
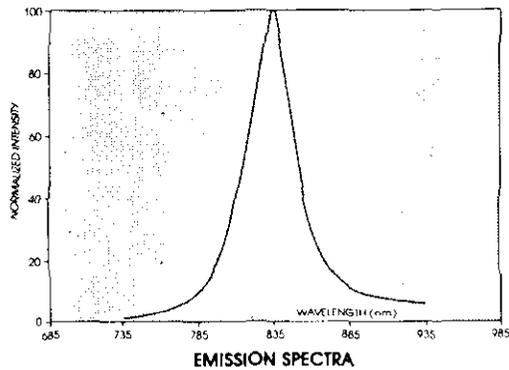
LASER DIODE, Inc., GaAlAs microlensed etched well, light emitting diode (LED) has a peak wavelength of 835 nanometers (nm). The standard diode is offered in T0-46, connectorized and pigtailed versions (CUSTOM PACKAGES ARE AVAILABLE).

ELECTRO-OPTICAL CHARACTERISTICS OF THE DIODE (at 25°C, 100mA DC)

| Parameters | Symbol | Min. | Typ. | Max. | Units |
|---|------------------|------|------|------|---------|
| Peak Wavelength of Emission ¹ | λ | 820 | 835 | 850 | nm |
| Spectral Width (FWHM) | $\Delta \lambda$ | | 45 | | nm |
| DC Drive Current | I_f | | 100 | 150 | mA |
| Rise , Fall Time ² (10-90%, 0-100mA) | t_r, t_f | | 12 | | nsec |
| Forward Voltage | V_f | | 1.6 | 2.0 | V |
| Reverse Voltage ($I_R=10\mu A$) | V_R | 3.0 | | | V |
| Operating & Storage Temperature | | -40 | | +85 | °C |
| Wavelength vs. Temperature | | | 0.25 | | nm/°C |
| Output Power vs. Temperature | | | -0.3 | | %/°C |
| Spot Size on Window | | | 225 | | μm |

1. Other wavelengths available upon request.
2. Faster rise and fall times available.

TYPICAL CHARACTERISTICS



IRE-161 SERIES

The IRE-161 series device is a surface emitting LED at 835nm typical. The package is a hermetic TO-46, 3 lead can with an internal microlens. The IRE-161 comes in the power versions specified below.

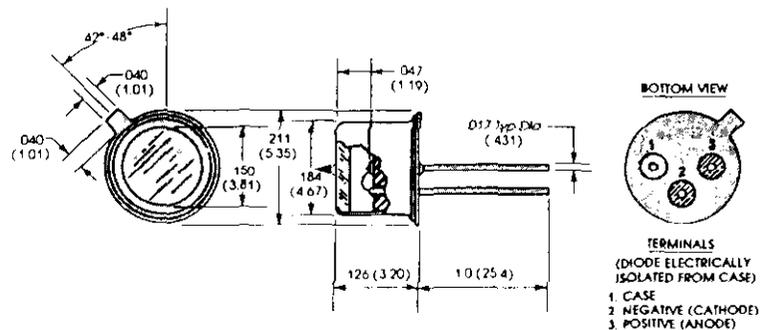
OPTICAL POWER CHARACTERISTICS AT 25°C AND 100mA*

| Part No. | Power into Large Area Detector 0.5NA | Power into 50µ Core fiber 0.19NA | | Power into 100µ Core fiber 0.29NA |
|----------|--------------------------------------|----------------------------------|------|-----------------------------------|
| | Typical | Min. | Typ. | Typ. |
| -002 | 1.4mW | 10µW | 14µW | 65µW |
| -004 | 2.0 | 18 | 20 | 100 |
| -005 | 2.5 | 25 | 30 | 165 |

*HIGHER POWER OPTIONS AVAILABLE

NOTE

TO-46 WITH TYPICAL BEAM DIVERGENCE, FWHM 10 DEGREES.



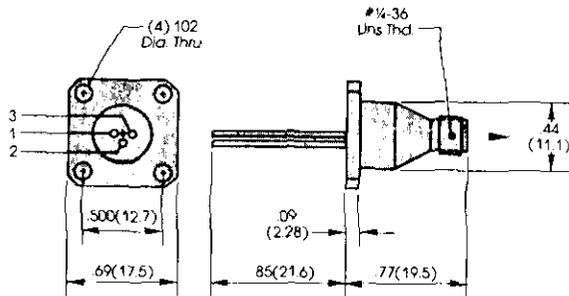
IRE-331
IRE-332
IRE-334

The IRE-331, 332 and 334 devices are IRE-161 type 835nm surface emitting devices potted in SMA connectors. The optical power characteristics are measurements taken from 50/125 0.19NA graded index fiber, 2 meters in length. Other connectorized LED options include the Biconic, FC and ST connectors.

| Part No. | IRE-331 min./typ. | IRE-332 min./typ. | IRE-334 min./typ. | Units |
|----------|-------------------|-------------------|-------------------|---------|
| -002 | 10/14 | 10/14 | 10/14 | μ W |
| -004 | 18/20 | 18/20 | 18/20 | μ W |
| -005 | 25/30 | 25/30 | 25/30 | μ W |

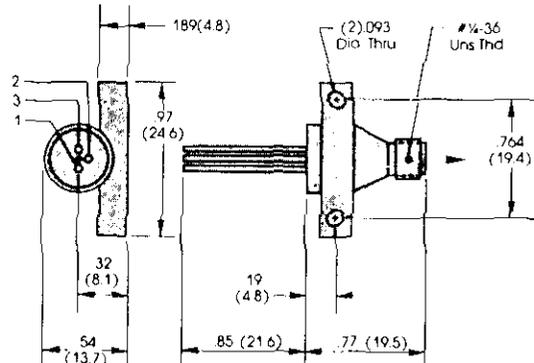
PACKAGE SPECIFICATIONS

IRE-331



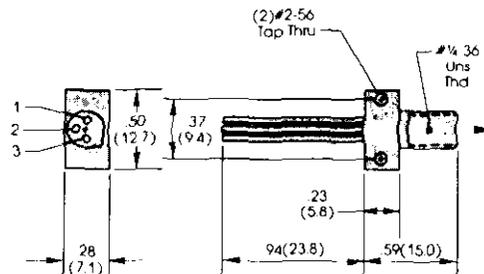
AMPHENOL 905-117-5000

IRE-332



AMPHENOL 905-118-5000

IRE-334



TERMINALS
(DIODE ELECTRICALLY ISOLATED FROM CASE)
1) CASE
2) NEGATIVE (CATHODE)
3) POSITIVE (ANODE)

NOTES
1) DIMENSIONS IN INCHES. MM IN PARENTHESIS
2) ▲ INDICATES OPTICAL OUTPUT
3) OTHER RECEPTILES AVAILABLE UPON REQUEST

OFTI PCR-001

IRE-160FA
IRE-160FB

The standard device is an 835nm etched well LED mounted on a strip line package and available with either 0.19NA, 50 micron core 125 micron cladding, graded index fiber pigtail (160FB) or a 0.29NA, 100 micron core 140 micron cladding graded index fiber pigtail (160FA).

Custom fiber pigtails are available upon request.

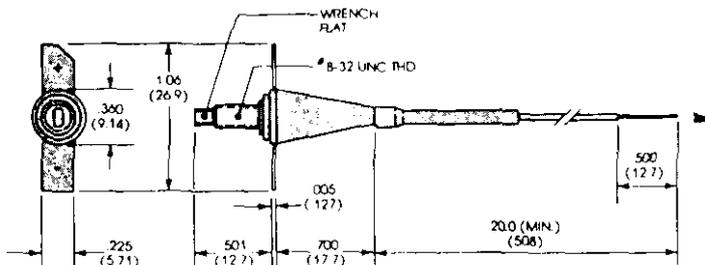
OPTICAL POWER CHARACTERISTICS AT 25° C AND 100mA*

| Part No. | Min. | Typ. | Units | Fiber Type (cladding mode stripped) |
|-----------|------|------|-------|-------------------------------------|
| IRE-160FA | 180 | 225 | μW | 0.29 NA, 100/140 G.I. fiber |
| IRE-160FB | 60 | | μW | 0.19NA, 50/125 G.I. fiber |

*HIGHER POWER OPTIONS AVAILABLE

PACKAGE SPECIFICATIONS

- NOTE
 1) DIMENSIONS IN INCHES,
 MM IN PARENTHESIS.
 2) ▲ INDICATES OPTICAL
 OUTPUT.



LASER DIODE, Inc., reserves the right to make changes at any time as deemed practical and/or necessary to improve the design and to supply the best possible product.

Information provided is believed at this time to be accurate and reliable. No responsibility is assumed for its use, nor for any infringements on the rights of others.

*For further information on this product or others of LASER DIODE, Inc., please call;



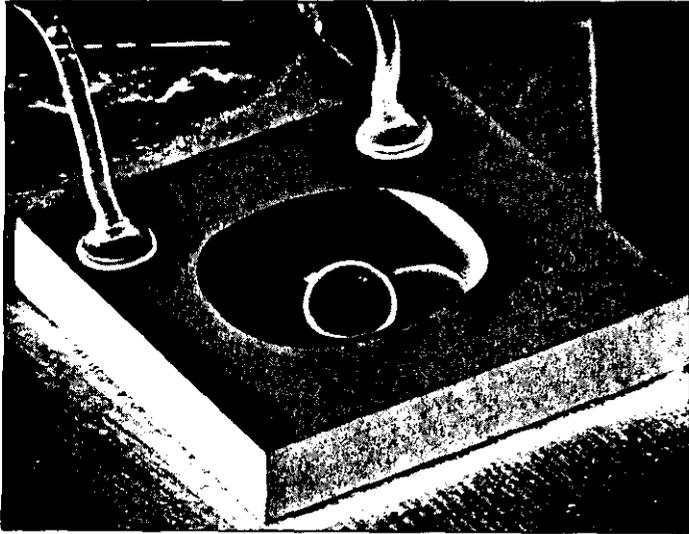
LASER DIODE, INC.

MORGAN ELECTRONICS DIVISION

1130 SOMERSET ST., NEW BRUNSWICK, NJ 08901

(201) 249-7000 (FAX) 201-249-9165 (TWX) 710-998-059

HIGH RADIANCE, HIGH SPEED 830nm SURFACE EMITTING LED



FEATURES

- ▶ High Output Power: 1mW into 100/140 Fiber
- ▶ High Speed: Suitable for > 100 Mbps NRZ Operation
- ▶ Wide Operating Temperature Range: -55°C to +100°C
- ▶ Stable Output Power over Temperature: -0.3%/°C
- ▶ Custom Lensing for Optimized Coupled Power into Various Fiber Types
- ▶ Military Qualifiable Package Available
- ▶ Devices Mounted on Customer Designed Ceramic Substrates are available

DESCRIPTION

Laser Diode, Inc.'s IRE-830 series is a family of GaAlAs etched well surface emitting LEDs operating at a nominal wavelength of 830nm. The devices are designed for high power and high speed. Typical performance parameters are 4 nsec rise and fall times with 1mW output power coupled into 100/140 micron step index fiber. By using selected microlenses performance can be optimized into various types of fibers. The surface emitting structure offers stable performance over a temperature from -55°C to +100°C. Over this temperature range the change in output power versus temperature is -0.3% per °C.

The LED is offered in several package configurations as a chip on a copper carrier (IRE-830); in a strip line wing package (IRE-831); in a high profile 14 pin dual in line package with flange (IRE-832) with or without a cover; or a low profile mil-qualified 14 pin DIP (IRE-833).

The IRE-830 series is currently being used in a variety of military programs requiring large loss budgets which have numerous connectors or passive star architectures. The stable operation over the wide temperature range makes the LED the ideal source for avionics and bus applications.

Etched Well N-Side Surface Emitting LED

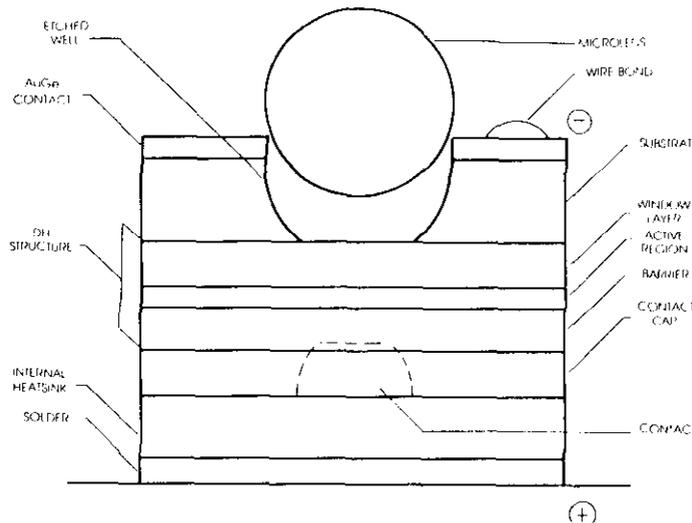


Fig. 1

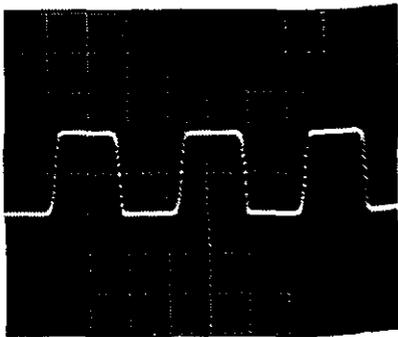
ELECTRO-OPTICAL CHARACTERISTICS OF THE DIODE AT 25°C

| Parameters | Symbols | Min. | Typ. | Max. | Units |
|---|---------------------|------------|----------------|------|--------------------|
| Wavelength | λ | 810 | 830 | 850 | nm |
| Wavelength vs. Temperature Coefficient | $d\lambda/dT$ | | 0.25 | | nm/°C |
| Spectral Width | $\Delta\lambda$ | | 60 | 75 | nm |
| Spectral Width vs. Temperature Coefficient | $d\Delta\lambda/dT$ | | 0.2 | | nm/°C |
| Rise Time (10%-90%)* | T_R | | 4 | 6 | nsec |
| Fall Time (90%-10%)* | T_F | | 4 | 6 | nsec |
| Forward Voltage at 100mA | V_F | | 2.2 | 2.4 | V |
| Maximum Drive Current | I_{max} | | | 150 | mA |
| Reverse Voltage at 10 μ A | V_R | 3 | | | V |
| Operating Temperature* | T_o | -55 | | +100 | °C |
| Storage Temperature | T_s | -62 | | +125 | °C |
| Output Power at 100mA Into 100/140 SI Fiber 0.2 \times NA Into 200/240 Fiber 0.2 NA | P_o | 750 750 | 1000 1000 | | μ W μ W |
| Output Power vs. Temperature +25°C to -55°C +25°C to +100°C | dP_o/dT | | +0.15 -0.35 | | %/°C %/°C |
| Thermal Resistance | RT | | 70 | | °C/W |

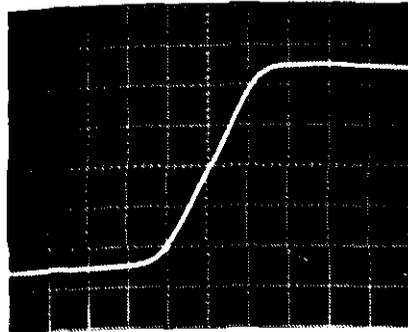
*** Notes:**

1. Rise and Fall Time is measured with no external fiber or cable delays.
2. The operating temperature range for the device is -55°C to +100°C.

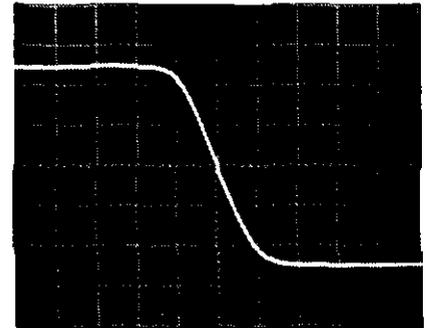
TYPICAL CHARACTERISTICS



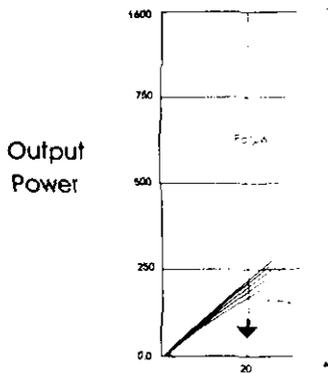
Electrical Pulse



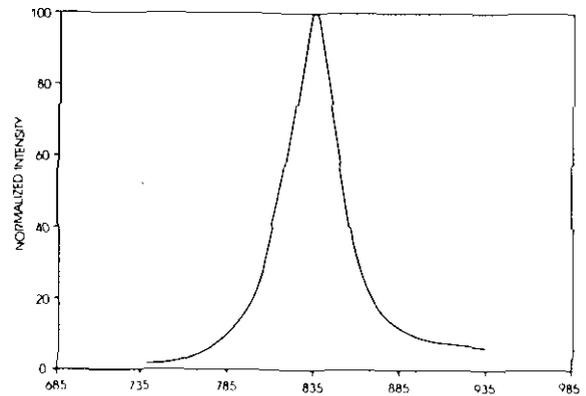
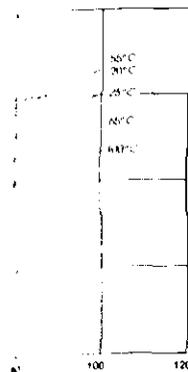
Optical Rise Time



Optical Fall Time



Output Power vs. temperature



EMISSION SPECTRA

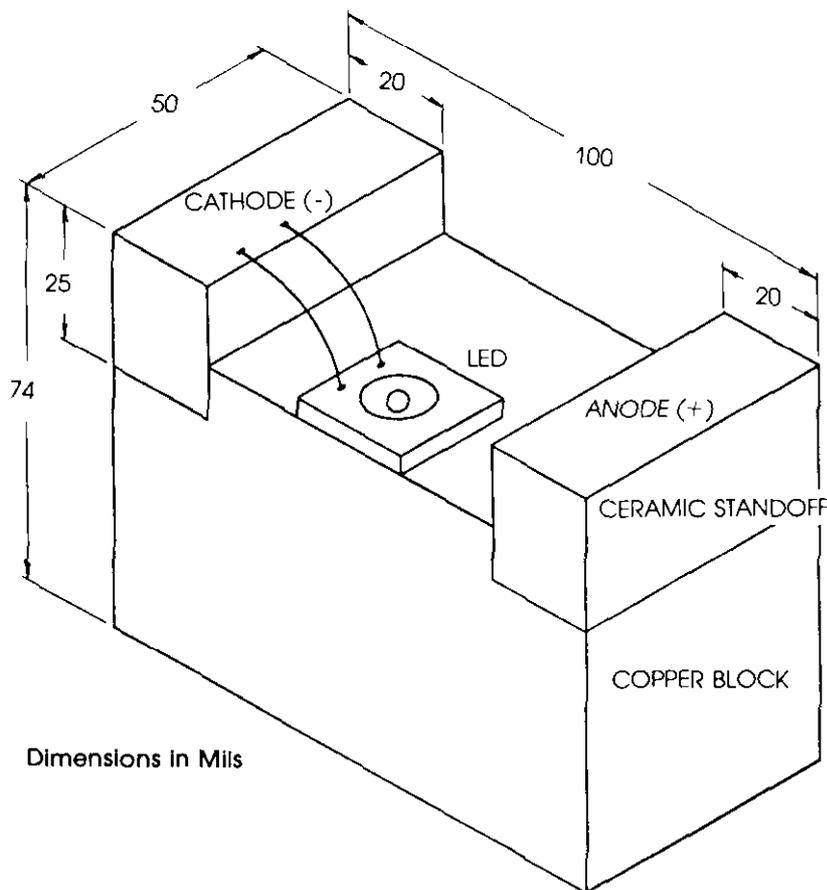
ORDERING INFORMATION

| Part No. | Package Type |
|--------------|--|
| IRE-830 | LED on Cu. Block |
| IRE-831-XXX | Wing Package |
| IRE-832-XXX | 14 pin DIP w/Flange |
| IRE-832E-XXX | 14 pin DIP w/Flange and Thermo-Electric Cooler |
| IRE-833-XXX | 14 pin DIP Low Profile |

* Note:
XXX represents fiber type.

| XXX (Fiber Type) | Description |
|------------------|---|
| -051 | 50 micron core 125/micron cladding — graded index: 0.20 NA |
| -101 | 100 micron core 140/micron cladding — graded index: 0.29 NA |
| -100 | 100 micron core 140/micron cladding — step index: 0.29 NA |
| -200 | 200 micron core 240/micron cladding — glass/glass: 0.2 NA |

PACKAGE SPECIFICATIONS



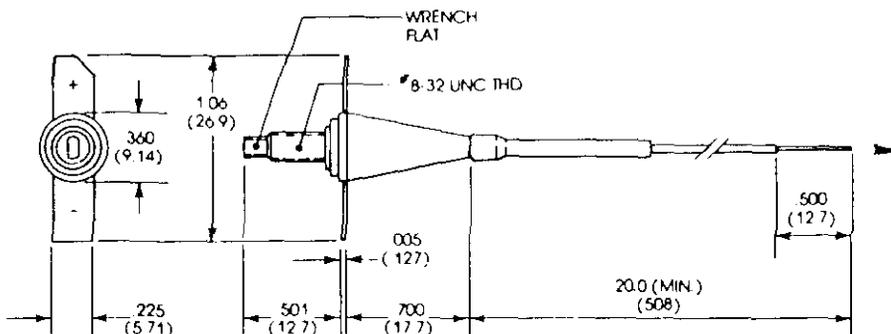
Dimensions in Milis

LED ON COPPER BLOCK
IRE-830

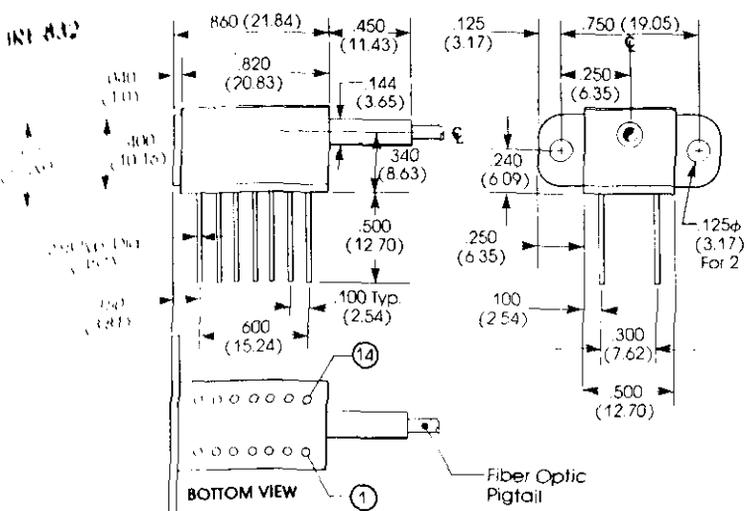
PACKAGE SPECIFICATIONS

IRE 831

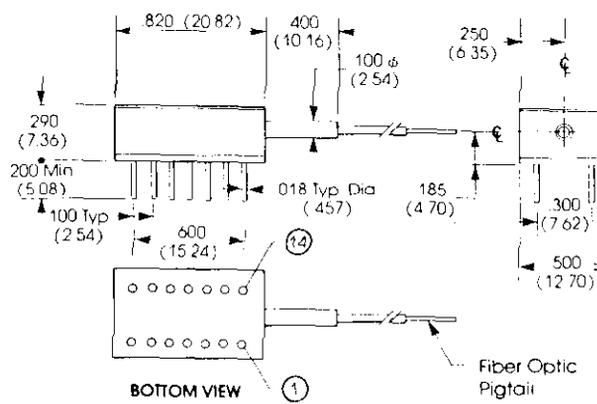
NOTE
 1) DIMENSIONS IN INCHES,
 MM IN PARENTHESIS.
 2) ▲ INDICATES OPTICAL
 OUTPUT.



IRE 832



IRE-833



PIN CONNECTIONS

| PIN | FUNCTION |
|-----|-----------------|
| 1 | No Connection |
| 2 | NC |
| 3 | NC |
| 4 | NC |
| 5 | LED anode (+) |
| 6 | Case ground (+) |
| 7 | NC |
| 8 | NC |
| 9 | LED cathode (-) |
| 10 | Case ground (+) |
| 11 | NC |
| 12 | NC |
| 13 | NC |
| 14 | NC |

NOTES
 1. Dimensions in inches,
 mm in parenthesis
 2. Pin functions are
 identical for "NF"
 and Standard
 Packages

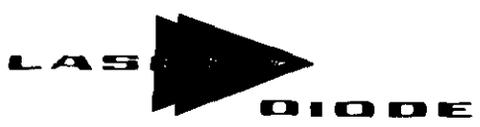
PIN CONNECTIONS

| PIN | FUNCTION |
|-----|-----------------|
| 1 | No Connection |
| 2 | NC |
| 3 | NC |
| 4 | NC |
| 5 | LED anode (+) |
| 6 | Case ground (+) |
| 7 | NC |
| 8 | NC |
| 9 | LED cathode (-) |
| 10 | Case ground (+) |
| 11 | NC |
| 12 | NC |
| 13 | NC |
| 14 | NC |

LASER DIODE, Inc., reserves the right to make changes at any time as deemed practical and/or necessary to improve the design and to supply the best possible product.

The information provided is believed at this time to be accurate and reliable. No responsibility is assumed for its use, nor for any infringements on the rights of others.

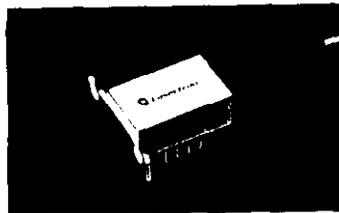
For further information on this product or others of LASER DIODE, Inc., please call:



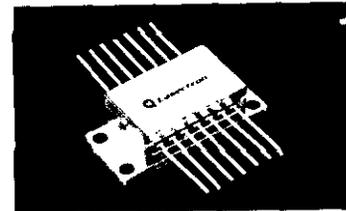
LASER DIODE, INC.
 MORGAN ELECTRONICS DIVISION
 1130 SOMERSET ST., NEW BRUNSWICK, NJ 08901
 (201) 249-7000 (FAX) 201-249-9165 (TWX) 710-998-0597

Light Emitting Diodes

Light Emitting Diode in Longhorn Package



Light Emitting Diode in Butterfly Package



| Base Model | Application | | Specification | | | Configuration | | | | Model Suffix | | | | Description | |
|------------|-----------------|----------------------------|-------------------|-----------------|-------------------------------------|-----------------------------|--------------------------|----------|-------------------|-----------------|--------------|-----------------|-------------------|-------------|----------------------------|
| | Telecom/Digital | Components for Instruments | Power (μW) | Wavelength (nm) | Slope Efficiency (P/I, $\mu W/mA$) | 14-pin DIL Longhorn Package | 14-pin Butterfly Package | Uncooled | Single-Mode Fiber | Multimode Fiber | No Connector | FC/PC Connector | Biconic Connector | | ST Connector |
| QLD3S501- | ■ | | 8 | 1300 | 0.053-0.13 | ■ | ■ | ■ | | | -003 | -050 | -051 | -052 | TeleCom access/junction |
| QLD3S502- | ■ | | 5 | 1300 | 0.033-0.13 | ■ | | | ■ | | -001 | -050 | -051 | -052 | Telecom access/junction |
| QLD3S502- | ■ | | 8 | 1300 | 0.053-0.1 | ■ | | | ■ | | -004 | -053 | -054 | -055 | Telecom access/junction |
| QLD3M503- | ■ | | 40 | 1300 | 0.27-0.54 | ■ | | ■ | | | -001 | -050 | -051 | -052 | Telecom access/junction |
| QLD3M504- | ■ | | 50 | 1300 | 0.27-0.54 | ■ | | | ■ | | -001 | -050 | -051 | -052 | Telecom access/junction |
| QLD5S510- | | ■ | 3 | 1550 | 0.02-0.05 | ■ | | | ■ | | -001 | -050 | -051 | -052 | Components for instruments |
| QLD5M511- | | ■ | 15 | 1550 | 0.1-0.25 | ■ | | | ■ | | -001 | -050 | -051 | -052 | Components for instruments |

All models except QLD3S501 & 503:

Operating Temperature Range: -20 to +65°C

Storage Temperature Range: -40 to +70°C

Models QLD3S501 & 503 only:

Operating Temperature Range: -20 to +60°C

Storage Temperature Range: -40 to +70°C