

## 445nm Temperature Stabilized Semiconductor Laser Module

### Key Features:

- ◆ Fiber Coupled or Free Space
- ◆ Low Power Consumption
- ◆ Constant Optical Power
- ◆ TTL Modulation Option
- ◆ Low Optical Noise
- ◆ ESD Protection
- ◆ Plug & Play

### Applications:

- ◆ Bio Technology
- ◆ Photo Finishing
- ◆ Semiconductor Instrument
- ◆ Medical Instrument
- ◆ Scientific Research



The FreeBeam™445 Blue Laser Module is a highly integrated diode laser module with thermal electrical cooler, laser power control and protection circuits. For free space application, you can choose either collimated circular beam at 1.3mm diameter or collimated elliptical beam at 1.3mmX2.6mm.

For fiber coupling, you can choose single mode fiber, polarization maintain fiber, 50um, 100um, 200um and 400um core diameter multi mode fiber with FC/PC or SMA connector.

FreeBeam™445 features very low optical noise and up to 100 KHz TTL modulation capability. Laser output power can be remotely controlled with 0 ~ 5V DC voltage through electrical cable connected or locally controlled with potential meter mounted on the back panel. The FreeBeam™445 Blue Laser Module comes with two different packages for you to choose from, box style and tube style.



The FreeBeam™445 Blue Laser Module is a Class III b laser product.



# 445nm Temperature Stabilized Semiconductor Laser Module

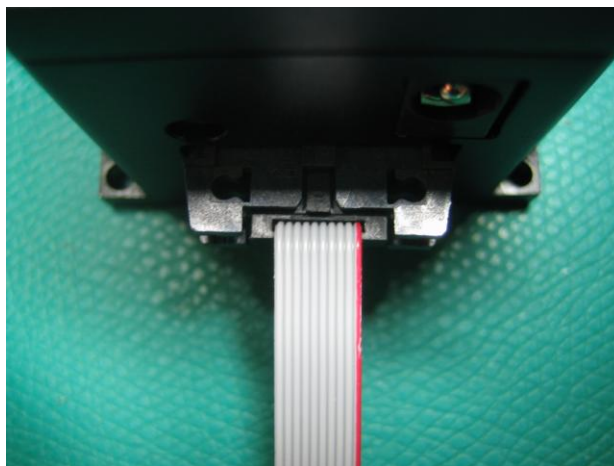
## Specifications:

|                               |   |
|-------------------------------|---|
| Wavelength                    | 445±5nm   |
| Output Power                  | 80mW, 100mW (Single Transverse Mode)                  |
| Output Power                  | 500mW (Multi Transverse Mode)                         |
| Noise(RMS)                    | <0.3%   |
| Longitudinal Mode             | Multi Mode  |
| Power stability               | <2%(2 hours)  |
| Beam pointing stability       | <10urad/°C  |
| Polarization                  | 100 : 1   |
| Beam diameter                 | 2.6 X 1.3mm(Elliptical Beam/TEM00)                    |
| Beam diameter                 | 1.2mm or 2.4mm(Circularized Beam/TEM00)               |
| Beam divergence               | 0.3 X 0.6mrad(Elliptical Beam/TEM00)                  |
| Beam divergence               | 0.6mrad(Circularized Beam/TEM00)                      |
| Operation Voltage             | 9V+/- 0.5V DC   |
| Operation Current             | TEC Max 2.5 A, LD Max 140mA                           |
| Operation Temperature         | 0°C to 40°C(case)                                     |
| Warm Up Time                  | 5 minutes   |
| Laser Diode Life Time         | 5000hrs(MTBF)   |
| Mechanical Size(Box)          | 100mm(L)X44mm(W)X38.5mm(H)                            |
| Mechanical Size(Tube)         | φ40mmX116.3mm   |
| 9V DC Power Supply Size       | 110mm(L)X50mm(W)X20mm(H)                              |
| RF Input(for tube)            | SMA Receptacle  |
| RF Input(for box)             | SAMTEC #: MMCX-J-P-X-RA-TH1*                          |
| Electrical Interface(for box) | SAMTEC #: EHF-105-01-L-D-RA*                          |
| Fiber type                    | Single mode and Multi mode(50um, 100um, 200um, 400um) |
| Connector Type                | FC/PC or SMA  |
| Warranty                      | Limited One Year                                      |

\*You can find mating connector information at [www.samtec.com](http://www.samtec.com)

## Electrical Pin Assignment:

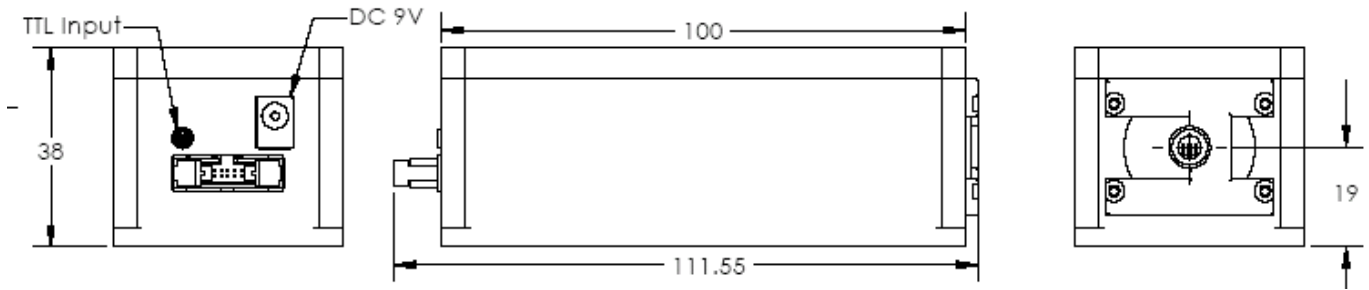
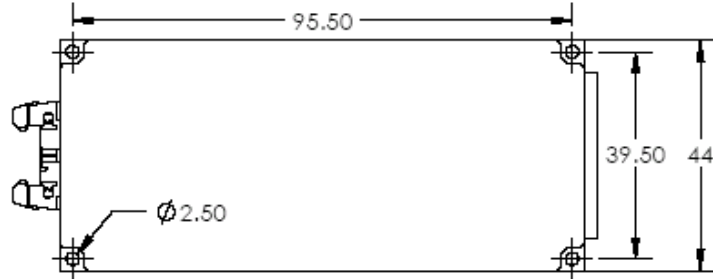
| Number | Function             |
|--------|----------------------|
| Pin 1  | +9V DC               |
| Pin 2  | +9V DC               |
| Pin 3  | +9V DC               |
| Pin 4  | +9V DC               |
| Pin 5  | Power GND            |
| Pin 6  | Power GND            |
| Pin 7  | Power GND            |
| Pin 8  | Power GND            |
| Pin 9  | Power Setting        |
| Pin 10 | Internal Testing Pin |



Pin 10      Pin 1

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### Free Space Mechanical Dimension ( BOX ):



### Free Space Mechanical Dimension (Tube):

