



DATA SHEET

Preliminary

O K I O P T I C A L C O M P O N E N T S

OL4128N-160
High-Power Pump Laser Diode
Butterfly Module (1480 nm)

August 2001

Oki Semiconductor

Oki Semiconductor

OL4128N-160

High-Power Laser Diode Butterfly Module

INTRODUCTION

Oki Semiconductor's OL4128N-160 is a 160 mW, 1480-nm, high-power laser diode and is available in a 14-pin "butterfly" package designed for high-performance fiber-optic applications. The OL4128N-160 diode has a built-in thermo-electric cooler, thermistor, and isolator, and has a single-mode fiber pigtail.

The OL4121N-160 diode can be used as a pumping source for Er- (erbium) doped fiber-optic amplifiers in Dense Wavelength Division Multiplex (DWDM-EDFA) systems and long-haul terrestrial networks.

FEATURES

- Fiber output power: $P_f=160$ mW
- 14-pin "butterfly" package
- Single-mode fiber
- Built-in isolator
- Includes photodiode for power monitoring
- Built-in thermo-electric cooler (TEC)

APPLICATION

- DWDM/WDM fiber optic systems
- Erbium-doped fiber amplifiers
- Regeneration of data
- Fiber-optic long-haul terrestrial networks

ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

($T_{case} = 25\text{ }^{\circ}\text{C}$) unless specified otherwise

Parameter	Symbol	Ratings	Unit
Fiber Output Power	Pf	192	mW
Laser Diode Forward Current	If(LD)	800	mA
Laser Diode Reverse Voltage	Vr(LD)	2	V
Photo Diode Reverse Voltage	Vr(PD)	12	V
Operating Temperature	Topr	0 to +70	$^{\circ}\text{C}$
Storage Temperature	Tstg	-40 to +85	$^{\circ}\text{C}$
TEC Current	Ic	2.3	A
TEC Voltage	Vc	5.0	V

Exceeding these maximum ratings could cause immediate damage or lead to permanent deterioration of the device.

Optical and Electrical Characteristics

($T_{LD} = 25^{\circ}\text{C}$, $T_{case} = 0$ to $70\text{ }^{\circ}\text{C}$) unless specified otherwise

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Threshold Current (BOL)	Ith	---	---	---	50	mA
Operating Current (BOL)	Iop(BOL)	Pf = 160 mW	---	---	600	mA
Operating Current (EOL)	Iop(EOL)	---	---	---	Iop(BOL) x 1.2	mA
Operating Voltage	Vop	If = Iop	---	---	3.0	V
Center Wavelength	λ_c	CW, If = Iop	1460	---	1490	nm
RMS Spectral Width	σ	If = Iop, RMS	---	---	10	nm
Tracking Error	TER	I _m = const., 0/25/70 $^{\circ}\text{C}$	---	---	+/-0.5	dB
PD Dark Current	I _{dark}	Vr(PD) = 5 V	---	---	100	nA
Monitor Current	I _m	Pf = 160 mW, Vr(PD) = 5 V	100	---	---	μA
TEC Capacity	ΔT	CW, If = Iop	45	---	---	$^{\circ}\text{C}$
TEC Current	Ic	$\Delta T = 45^{\circ}\text{C}$, $T_{case} = 70^{\circ}\text{C}$, If = I _{f(BOL)} x 1.2	---	---	2.0	A
TEC Voltage	Vc	$\Delta T = 45^{\circ}\text{C}$, $T_{case} = 70^{\circ}\text{C}$, If = I _{f(BOL)} x 1.2	---	---	4.6	V
Thermistor Resistance	Rth	$T_{LD} = 25^{\circ}\text{C}$	9.5	---	10.5	k Ω

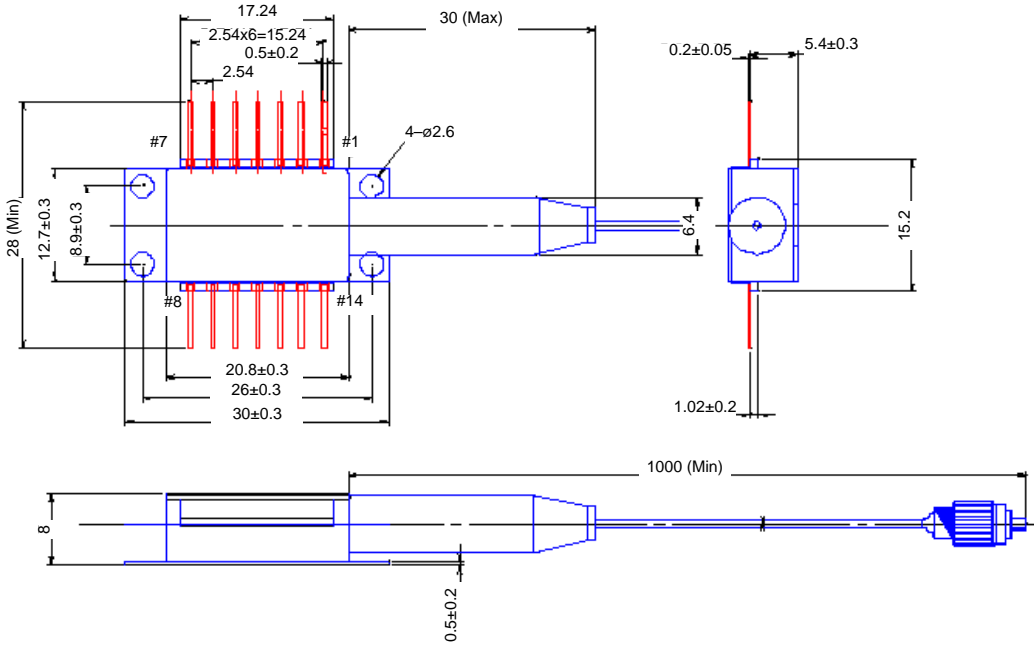
Fiber Pigtail Specifications

Parameter	Specifications	Unit
Type	SM	---
Mode Field Diameter	10+/-1	μm
Cladding Diameter	125+/-2	μm
Jacket Diameter	900	μm
Length	1.0 (Min.)	m
Connector	FC/SPC	---

PACKAGE DIMENSIONS

Pkg No. 128

Units in mm, tolerances unless noted ± 5 mm



Pin Configuration

Pin No.	Description
1	TEC (+)
2	Thermistor
3	Monitor Anode
4	Monitor Cathode
5	Thermistor
6	NC
7	NC

Pin No.	Description
8	NC
9	NC
10	LD Anode
11	LD Cathode
12	NC
13	GND
14	TEC (-)

The information contained herein can change without notice owing to product and/or technical improvements.

Please make sure before using the product that the information you are referring to is up-to-date.

The outline of action and examples of application circuits described herein have been chosen as an explanation of the standard action and performance of the product. When you actually plan to use the product, please ensure that the outside conditions are reflected in the actual circuit and assembly designs.

Oki assumes no responsibility or liability whatsoever for any failure or unusual or unexpected operation resulting from misuse, neglect, improper installation, repair, alteration or accident, improper handling, or unusual physical or electrical stress including, but not limited to, exposure to parameters outside the specified maximum ratings or operation outside the specified operating range.

Neither indemnity against nor license of a third party's industrial and intellectual property right, etc. is granted by us in connection with the use of product and/or the information and drawings contained herein. No responsibility is assumed by us for any infringement of a third party's right which may result from the use thereof.

When designing your product, please use our product below the specified maximum ratings and within the specified operating ranges, including but not limited to operating voltage, power dissipation, and operating temperature.

The products listed in this document are intended for use in general electronics equipment for commercial applications (e.g., office automation, communication equipment, measurement equipment, consumer electronics, etc.). These products are not authorized for use in any system or application that requires special or enhanced quality and reliability characteristics nor in any system or application where the failure of such system or application may result in the loss or damage of property or death or injury to humans. Such applications include, but are not limited to: traffic control, automotive, safety, aerospace, nuclear power control, and medical, including life support and maintenance.

Certain parts in this document may need governmental approval before they can be exported to certain countries. The purchaser assumes the responsibility of determining the legality of export of these parts and will take appropriate and necessary steps, at their own expense, for export to another country.

Copyright 2001 Oki Semiconductor

Oki Semiconductor reserves the right to make changes in specifications at anytime and without notice. This information furnished by Oki Semiconductor in this publication is believed to be accurate and reliable. However, no responsibility is assumed by Oki Semiconductor for its use; nor for any infringements of patents or other rights of third parties resulting from its use. No license is granted under any patents or patent rights of Oki.



Oki REGIONAL SALES OFFICES

Optical Components

Northwest Area

785 N. Mary Avenue
Sunnyvale, CA 94085
Tel: 408/720-1900
Fax: 408/737-6579

Southeast Area

1590 Adamson Parkway, Suite 220
Morrow, GA 30260
Tel: 770/960-9660
Fax: 770/960-9682

Eastern Area

411 Hackensack Avenue
Hackensack, NJ 07601
Tel: 201/406-4061, 201/646-0011 (ext 102)
Fax: 201/646-9061

Oki Web Site:

<http://www.okisemi.com>

Oki Stock No: 320287-000

Oki Semiconductor

Corporate Headquarters

785 N. Mary Avenue
Sunnyvale, CA 94085-2909
Tel: 408/720-1900
Fax: 408/720-1918