DATA SHEET

OKI OPTICAL COMPONENTS

OL4121N-160
High-Power Laser Diode Butterfly Modules (1480 nm, 160 mW)

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Oki Semiconductor

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OL4121N-160

High-Power Laser-Diode Butterfly Module

INTRODUCTION

Oki Semiconductor's OL4121N-160 is a 160 mW, 1480-nm, high-power laser diode is available in a 14-pin "butterfly" package designed for high-performance fiber-optic applications. The OL4121N-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

- High power output: Pf = 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 systems
- Erbium-doped fiber amplifier
- Regeneration of data
- Fiber-optic long-haul terrestrial networks

ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (ambient temperature Ta=30°C unless otherwise noted)

Parameter	Symbol	Ratings	Units
Fiber Output Power	Pf	192	mW
Laser Diode Forward Current	$I_{F(LD)}$	750	mA
Laser Diode Reverse Voltage	$V_{R(LD)}$	2	V
Photo Diode Reverse Voltage	$V_{R(PD)}$	15	V
Operating Temperature Range	T_{OPR}	-20 to +70	°C
Storage Temperature Range	T_{STG}	-40 to +75	°C

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

Optical and Electrical Characteristics (T_{LD}= 30°C)

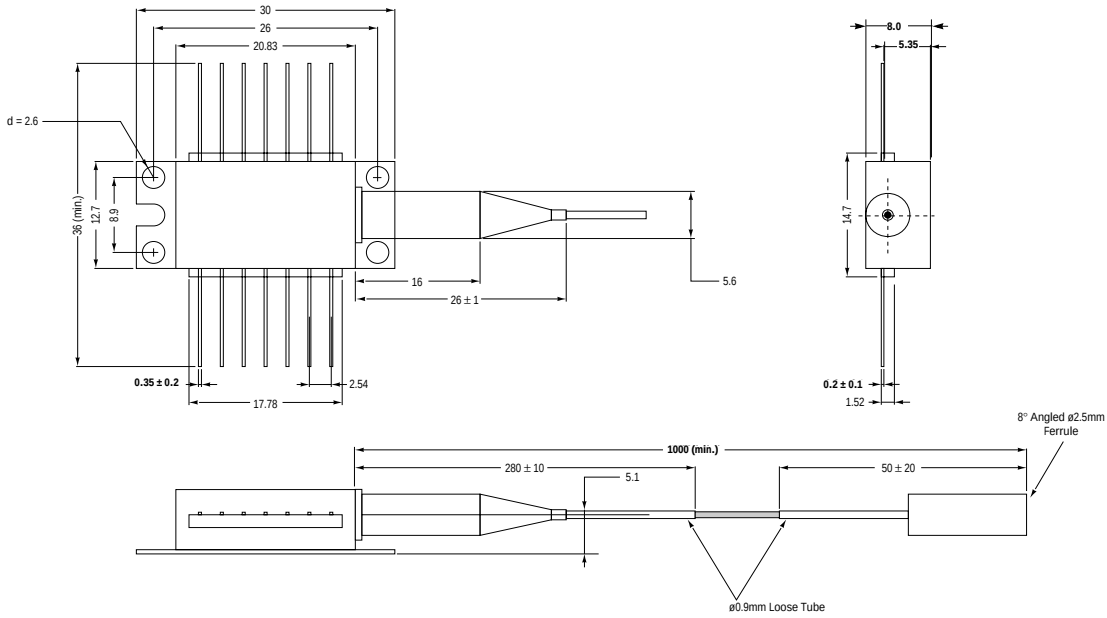
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Threshold Current	I_{TH}	---	---	---	65	mA
Laser diode operating current	$I_{OP(LD)}$	Pf = 160 mW	---	---	600	mA
Laser diode operating voltage	$V_{OP(LD)}$	Pf = 160 mW	---	---	2.5	V
Center Wavelength	λc	Pf = 160 mW	1460	---	1490	nm
RMS Spectral Width	σ	Pf = 160 mW (RMS)	---	---	10	nm
Tracking Error	TER	Im = const., 0/ 30/ 70°C	---	---	+/- 0.5	dB
PD Dark Current	I_{DARK}	$V_{R(PD)}$ = 5 V	---	---	100	nA
Monitor Current	I_M	Pf = 160 mW, $V_{R(PD)}$ = 5 V	100	---	---	µA
Thermoelectric cooler (TEC) capacity	ΔT	Pf = 160 mW	40	---	---	°C
TEC current	I_{TEC}	ΔT = 40°C, T_{TEC} = 70°C, P = 160 mW	---	---	1.7	A
TEC voltage	V_{TEC}	ΔT = 40°C, T_{TEC} = 70°C, Pf = 160 mW	---	---	3.5	V
TEC power dissipation	P_{TEC}	$I_{F(LD)}$ = Iop x 1.2, ΔT = 40°C, T_{TEC} = 70°C	---	3.5	5.7	W
Thermistor Resistance	R_{TH}	---	9.0	---	11	kΩ

Fiber Pigtail Specifications

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

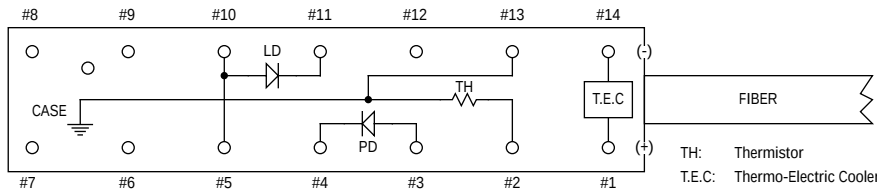
PACKAGE DIMENSIONS

(Units: mm)



Tolerance = ±0.5 mm (unless noted otherwise)

TERMINAL CONNECTION (BOTTOM VIEW - NOT TO SCALE)



Pin Configuration

Pin Mo.	Description	Pin No.	Description
01	Thermo Electric Cooler (TEC) (+)	08	NC
02	Thermistor	09	NC
03	PD (Monitor) Anode	10	LD Anode
04	PD (Monitor) Cathode	11	LD Cathode
05	LD Anode	12	NC
06	NC	13	Thermistor and Case Ground
07	NC	14	Thermo Electric Cooler (TEC) (-)

Notes:

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