

DENSELIGHT SEMICONDUCTORS PTE. LTD.
6 Changi North St. 2, S498831 SINGAPORE
Tel: (65) 6415 4488
Fax: (65) 6415 7988
www.denselight.com

SPECIFICATIONS

1310/1550nm DFB Laser Diode Coaxial Pigtail Package

DL-UDL021D-SXXXX-Y

DenseLight Semiconductors reserves the right to make product design or specifications changes without notice.

A. PRODUCT DESCRIPTION

Denselight DL-UDL021D-SXXXX-Y is an uncooled DFB laser diode in SM fiber pigtailed package and engineered for transmissions up to 2.5Gbps. $\lambda/4$ shifted grating structure is employed to obtain excellent SMSR performance under 2.5Gbps modulation. Furthermore, it can operate over a wide temperature range from 0°C to +70°C without any need for a Peltier cooler and temperature controller.

B. FEATURES

- Peak wavelength range: 1310 and 1550nm
- InGaAsP/InP MQW with $\lambda/4$ shifted grating structure
- Wide temperature operation range from 0 to +70°C without any active cooling
- High output power to 2mW at 25°C
- High SMSR (typical 45dB)
- Built-in optical isolator
- Built-in InGaAs monitor photodiode
- Fiber pigtailed TOSA package with optional FC connector
- Designed for 2.5Gbps high speed transmission
- RoHS Compliance

C. PACKAGING

- SMF-28 pigtail TOSA package

D. APPLICATIONS

- CWDM applications
- 2.5 Gbps SONET/SDH transmission
- Laser source at specific wavelength

E. ABSOLUTE MAXIMUM RATINGS

Operating beyond the absolute maximum ratings may cause permanent damages to the device. Exposure to absolute maximum rating condition for extended periods may affect device reliability.

Parameter	Symbol	Condition	Ratings	Unit
Output power	P_O	CW	2	V
Laser Forward current	I_F		120	mA
Laser Forward voltage	V_F		2	V
PD forward current	I_{fPD}		2	mA
PD reverse voltage	V_{rPD}		10	V
Case temperature	T_c		0 ~ +70	°C
Storage temperature	T_{stg}		-40 ~ +85	°C

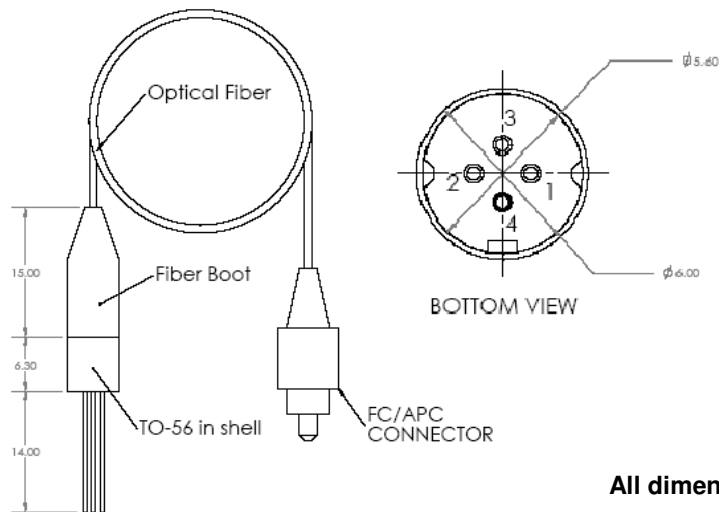
F. OPTICAL/ELECTRICAL SPECIFICATION

($T_c = 25\text{ °C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Threshold current	I_{th}	CW	-	10	20	mA
		CW, $T_c=70\text{°C}$	-	-	50	
Operating current	I_{op}	CW, $P_o=2\text{mW}$		30	50	mA
Optical output power	P_o	CW, $I_{th}+20\text{mA}$	1	1.8	-	mW
		CW, $I_{th}+20\text{mA}$, $T_c=0$ to 70°C	0.8	1.5	-	
Operation voltage	V_{op}	CW, $P_o=2\text{mW}$	-	-	1.7	V
Slope efficiency	η	CW, $P_o=2\text{mW}$	0.05	-	-	mW/mA
Peak wavelength	λ_p	CW, $P_o=2\text{mW}$, S1310	1290	1310	1330	nm
		CW, $P_o=2\text{mW}$, S1550	1530	1550	1570	
Side mode suppression ratio	SMSR	CW, $P_o=2\text{mW}$, $T_c=0$ to 70°C	30	-	-	dB
Rise and fall time (20-80)%	t_r, t_f	2.48832Gbps, $I_{bias}=I_{th}$, $I_{modulation}=40\text{mA}$	-	-	250	psec
Optical isolation	ISO	$T_c = 0$ to 70°C	20	-	-	dB
PD monitor current	I_m	CW, $P_o = 2\text{mW}$, $V_{rPD} = 1\text{V}$	0.05	-	1.5	mA
PD dark current	I_d	$V_{rPD} = 5\text{V}$	-	-	0.1	μA
PD capacitance	C_{pd}	$V_{rPD} = 5\text{V}$	-	-	10	pF

G. PACKAGE

Part	Description
Package type	TO-56
Fiber:	SMF-28
MFD	9 μ m
Cladding diameter	125 μ m
Coating diameter	245 μ m
Jacket	900 μ m loose tube
Fiber pigtail length	>0.8m
Fiber bending radius	>40mm
Connector	FC/APC



Pin Assignment 1	Description
1	LD Cathode
2	LD Anode/PD Cathode
3	Case
4	PD Anode

Pin Assignment 2	Description
1	LD Cathode
2	PD Anode
3	LD Anode (Case)
4	PD Cathode

F. ORDERING INFORMATION

Please use the following part code system to order products.

DL-UDL021D-SXXXX-Y

Part code:

- 1) SXXXX denotes peak wavelength, eg S1550 refer to 1550nm
- 2) Y denotes pin type: 1 refer to pin assignment 1 and 2 refer to pin assignment 2