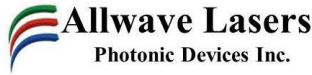


CWDM PM DFB Laser



Allwave SWLD Series 20mW CWDM CW DFB Laser With PM Fiber For WDM Application

1. Product Information

Product Description: The SWLD series laser diodes cover customer selection of large wavelengths range from 1260nm to 1650nm which are fabricated in a hermetically sealed 14-pin butterfly package. The laser diodes contains thermoelectric cooler (TEC), thermistor, monitor photodiode, optical isolator to secure high quality laser performance. The Laser Diodes wavelength of $XXX\pm 2\text{nm}$, Output power of $\geq 20\text{mW}$, Pigtail Type: PMF-1310/PMF-1550 fiber with 900um loose tube, 1.0m, FC/APC connector. Our laser products are Telcordia GR-468 qualified, and in compliance with RoHS Directives.

Applications:

- LAN, WAN and metro networks
- CWDM systems
- Fiberoptic sensors
- Laser sources

Features:

- High output power ($\geq 20\text{mW}$)
- High-performance, multi-quantum well (MQW) distributed-feedback (DFB) laser
- Industry-standard, 14-pin butterfly package
- Built-in TEC and optical isolator
- λ_c of $XXXX\pm 2\text{nm}$

Reliability: Telcordia GR-468. RoHS



2. Performance Specifications

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Storage Temperature	T _s	-	-40	-	+85	°C
Operating Case Temperature	T _{op}	-	-20	-	+65	°C
Forward Current	I _F	CW	-	-	300	mA
Laser Reverse Voltage	V _{LR}	-	-	-	2	V
PD Forward Current	I _{FPD}	-	-	1.1	5	mA
PD Reverse Voltage	V _{RPD}	-	-	5	10	V
TEC Current	I _{TEC}	-	-	0.8	1.5	A
TEC Voltage	V _{TEC}	-	-	1.5	3.5	V

Optical Characteristics (at 25 °C laser temperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λ_c	TL=15~35°C CW	Shown in Section 6			nm
Peak Optical Output Power	P_o	-	20	-	-	mW
Spectral Linewidth	LW	Full width, half maximum (FWHM)	-	3	5	MHz
Bandwidth(@-3dB)	BW	-	-	2.5	-	GHz
Side-mode Suppression Ratio	SMSR	CW	35	50	-	dB
Polarization Extinction Ratio	PER	-	20	-	-	dB
Optical Isolation	-	-	30	-	-	dB
Relative Intensity Noise	RIN	20-1000MHz	-	-	-145	dB/Hz
Wavelength Drift (EOL)	$\Delta\lambda$	Tested over 25-year lifetime	-	-	±0.1	nm
Wavelength Temperature Coefficient	$\Delta\lambda/\Delta T$	TEC temperature at 15°C to 35°C	-	0.09	-	nm/°C
Wavelength Current Coefficient	$\Delta\lambda/\Delta I$	-	-	0.01	-	nm/mA

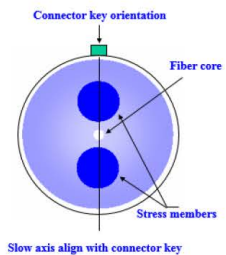
Electrical Characteristics (at 25 °C laser temperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	I_{TH}	-	-	10	35	mA
Slope Efficiency	η	$P_o=20\text{ mW (CW)}$	0.05	0.13	0.2	mW/mA
Operating Current	I_{op}	$P_o=20\text{ mW (CW)}$	-	150	200	mA
TEC Set Temperature	T_s	-	15	-	35	°C
Laser Forward Voltage	V_F	$P_o=20\text{ mW (CW)}$	-	1.2	3.0	V
Monitor PD Current	I_{MPD}	$P_o=20\text{ mW (CW)}$	-	-	3000	μA
Monitor Dark Current	I_D	$I_F=0\text{mA}, V_{RPD}=5\text{V}$	-	-	0.1	μA
Thermistor Current	I_{TC}	-	10	-	100	μA
Thermistor Resistance	R_{TH}	$T_L=25\text{ °C}$	9.5	10	10.5	KΩ
TEC Current	I_{TEC}	$T_L=25\text{ °C}, T_C=65\text{ °C}$	-	-	1.5	A
TEC Voltage	V_{TEC}	$T_L=25\text{ °C}, T_C=65\text{ °C}$	-	-	3.5	V
TEC Capacity	ΔT	$T_c=65\text{ °C}$	-	-	50	°C
Thermistor Temperature	-	-	-	-	100	°C

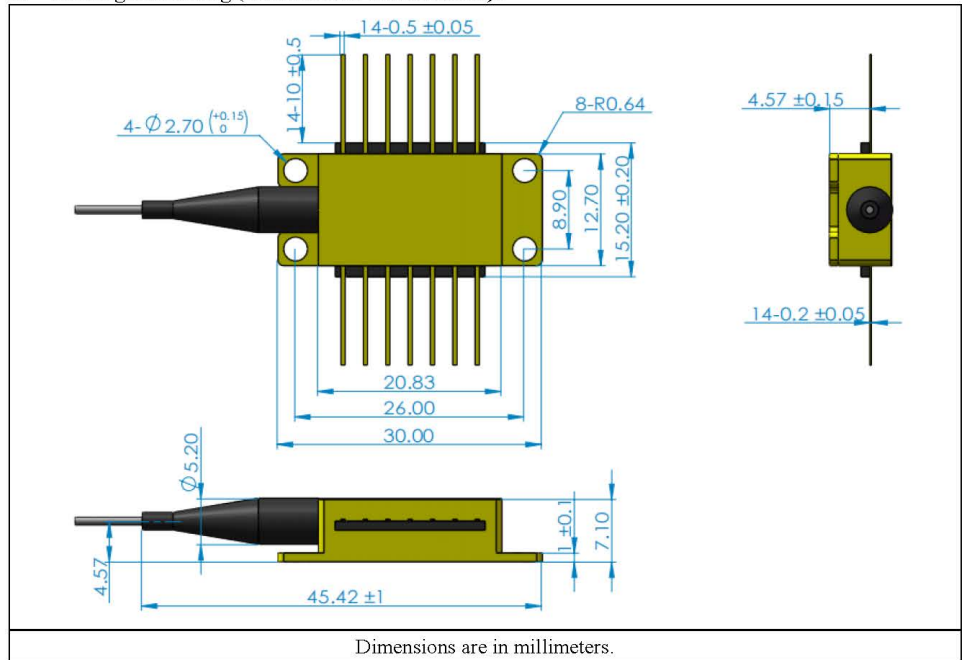
Fiber Pigtail Specifications

Parameters	Description
Fiber Type	PMF-1310/PMF-1550
Jacket Type	900μm loose tube
Pigtail Length	1.0±0.1m
Connector Type	FC/APC

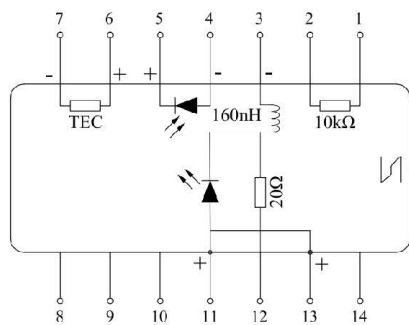
Note: PM fiber and fiber connector key are aligned to the slow axis.



3. Package Drawing (Mechanical Dimensions):



4. Pinout Assignments:



1	Thermistor
2	Thermistor
3	Laser de Bias (Cathode) (-)
4	Monitor PD Anode (-)
5	Monitor PD Cathode (+)
6	Thermoelectric Cooler (+)
7	Thermoelectric Cooler (-)
8	NC
9	NC
10	NC
11	Laser Anode (+), Case Ground
12	Laser RF Cathode (-)
13	Laser Anode (+), Case Ground
14	NC

5. Part Number and Laser Center Wavelength list as below:

No.	Wavelength Code	Center Wavelength			Unit
		Min.	Typical	Max.	
1	1270	1268	1270	1272	nm
2	1290	1288	1290	1292	nm

3	1310	1308	1310	1312	nm
4	1330	1328	1330	1332	nm
5	1350	1348	1350	1352	nm
6	1370	1368	1370	1372	nm
7	1390	1388	1390	1392	nm
8	1410	1408	1410	1412	nm
9	1430	1428	1430	1432	nm
10	1450	1448	1450	1452	nm
11	1470	1468	1470	1472	nm
12	1490	1488	1490	1492	nm
13	1510	1508	1510	1512	nm
14	1530	1528	1530	1532	nm
15	1550	1548	1550	1552	nm
16	1570	1568	1570	1572	nm
17	1590	1588	1590	1592	nm
18	1610	1608	1610	1612	nm

6. Test Report: The test report should be provided when the products are delivered. Following characteristic test data should be included: Optical Output Power, Center Wavelength, Spectrum chart, P-I curve, Pin Assignments.

7. Packaging: Vacuumize anti-static plastic package. Following items should be indicated on the outer packaging surface: Product Name, Product Number, Serial Number.

8. Ordering Information:

Ordering Information						
SWLD-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wavelength	Power	Fiber type	Pigtail Type	Pigtail length	Connector
	1270: 1270nm	01:1mW	0: SMF-28e	0: 250µm bare fiber	1: 50cm	0: None
	....	05:5mW	1:PMF-1310	1:900µm loose tube	2: 100cm	1: FC/UPC
	1610: 1610nm	10:10mW	2:PMF-1550	2:900µm tight tube	3: 150cm	2: FC/APC
	1273:1273.55nm	20:20mW	C: Customized	C: Customized	4: 200cm	3: SC/UPC
	....	40:40mW			C: Customized	4: SC/APC
	1309: 1309.14nm	60:60mW				5: LC/UPC
	8610: 1610.92nm	80:80mW				6: LC/APC
	....	1H:100mW				7: SC/SPC
	9630: 1527.22nm	CC: Customized				8: FC/SPC
						C: Customized
Example of Ordering Form: SWLD-12730100122-01						
SWLD-	1270	10	0	1	2	2
	1270nm	10mW	SMF-28e	900µm loose tube	100cm	FC/APC

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