

Select Wavelength laser Diodes Datasheet

1. Product Information

Part Number: **SWLD-1550102122-08**

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 to secure high quality laser performance. The Laser Diodes wavelength of $1550\pm 2\text{nm}$, Output power: $\geq 10\text{mW}$, Pigtail Type: 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.

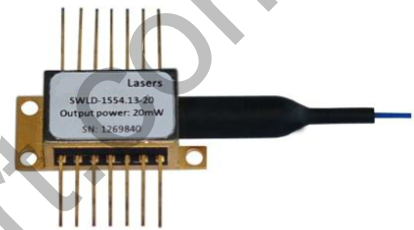
Applications:

- LAN, WAN and metro networks
- C/DWDM systems
- Fiberoptic sensors
- Laser sources
- CATV systems

Features:

- High output power ($\geq 10\text{mW}$)
- High-performance, multiquantum well (MQW) distributed-feedback (DFB) laser
- Industry-standard, 14-pin butterfly package
- Built-in TEC, **no optical isolator**
- λ_c of $1550\pm 2\text{nm}$

Reliability: Telcordia GR-468. RoHS



2. Revision History

Rev.	Notes	Prepared by	Audited by	Approved by	Date
V0	Initial release	Larry Song	Xing Gao	YuanShi	2023-02-09

3. 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	$^{\circ}\text{C}$
Operating Case Temperature	T_{op}	-	-20	-	+65	$^{\circ}\text{C}$
Forward Current	I_F	CW	-	-	200	mA
Laser Reverse Voltage	V_{LR}	-	-	-	2	V
PD Forward Current	I_{FPD}	-	-	-	5	mA
PD Reverse Voltage	V_{RPD}	-	-	-	10	V
TEC Current	I_{TEC}	-	-	-	1.5	A
TEC Voltage	V_{TEC}	-	-	-	3.5	V

Optical Characteristics (at 25 °C laser temperature)

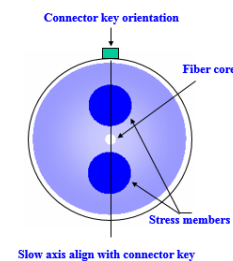
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Center Wavelength	λ_c	$T_L=15\sim 35^\circ\text{C}$, CW	1548	1550	1552	nm
Peak Optical Output Power	P_O	-	10	-	-	mW
Spectral Linewidth	LW	FWHM	-	3	5	MHz
Side-mode Suppression Ratio	SMSR	CW	50	-	-	dB
Polarization Extinction Ratio	PER	-	20	-	-	dB
Relative Intensity Noise	RIN	20-1000MHz	-	-	-140	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	$\Delta\lambda/\Delta I$	-	-	0.008	-	nm/mA

Electrical Characteristics (at 25 °C laser temperature)

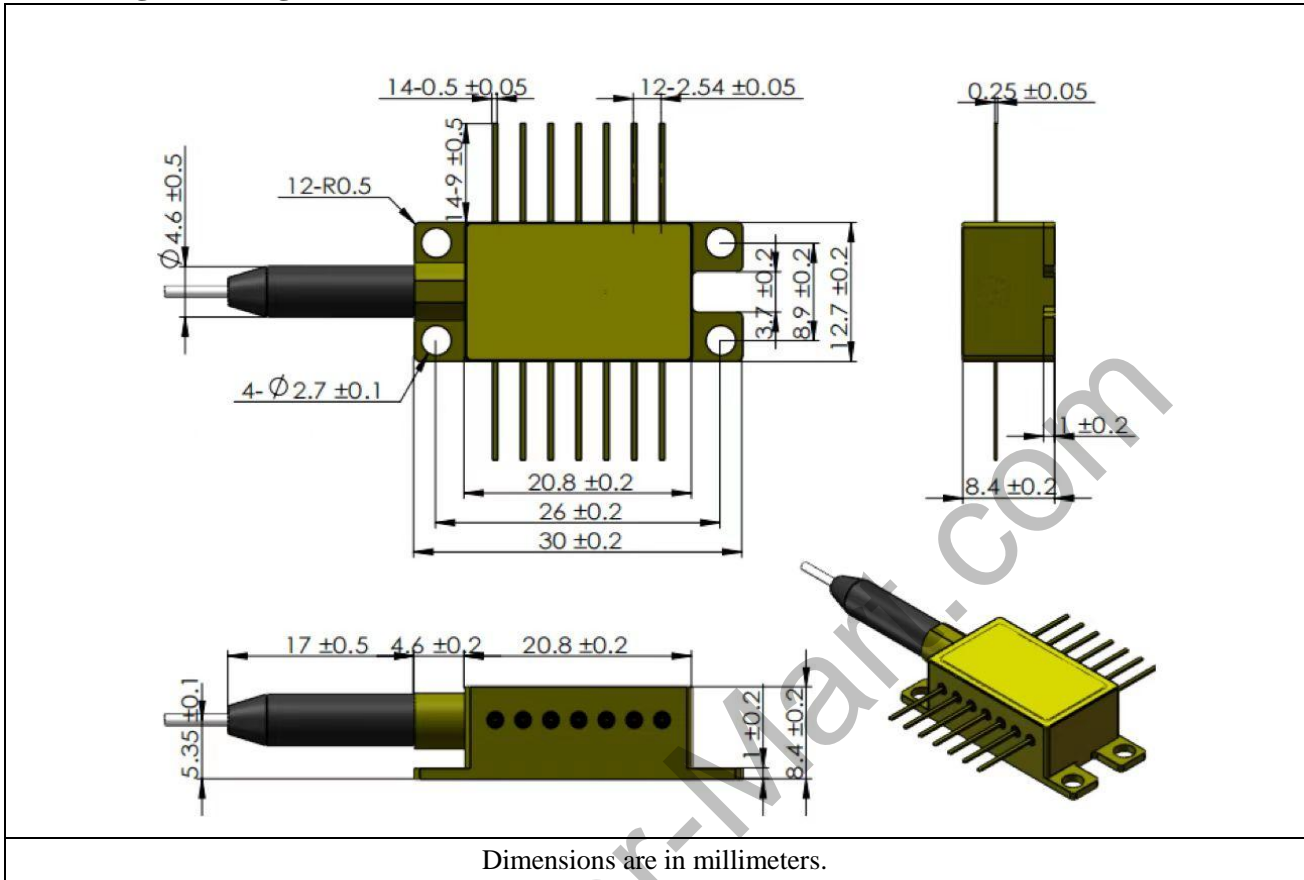
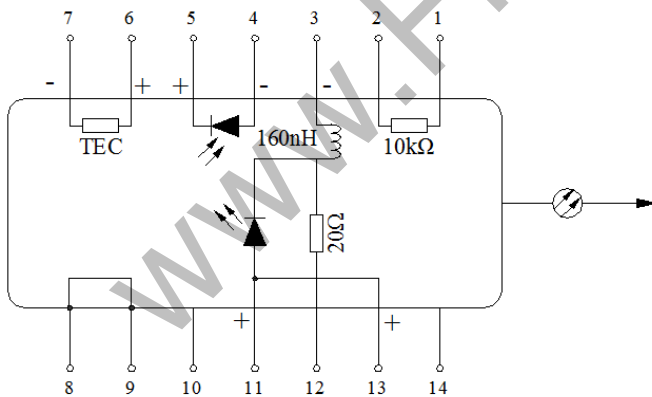
Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	I_{TH}	-	-	10	35	mA
Slope Efficiency	η	$P_O=10\text{mW(CW)}$	0.05	0.13	0.2	mW/mA
Operating Current	I_{op}	$P_O=10\text{mW(CW)}$	-	100	150	mA
TEC Set Temperature	T_S	-	15	-	35	°C
Laser Forward Voltage	V_F	$P_O=10\text{mW(CW)}$	-	1.2	3.0	V
Monitor PD Current	I_{MPD}	$P_O=10\text{mW(CW)}$	10	-	2500	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}	$T_L=25^\circ\text{C}$	9.5	10	10.5	K Ω
TEC Current	I_{TEC}	$T_L=25^\circ\text{C}$, $T_C=65^\circ\text{C}$	-	0.8	1.5	A
TEC Voltage	V_{TEC}	$T_L=25^\circ\text{C}$, $T_C=65^\circ\text{C}$	-	1.5	3.5	V
TEC Capacity	ΔT	$T_C=65^\circ\text{C}$	-	-	50	°C
Thermistor Temperature	-	-	-	-	100	°C

Fiber Pigtail Specifications

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



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

4. Package Drawing (Mechanical Dimensions):

5. Pin Assignments:


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

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, PER, 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
SWLD-	1270: 1270nm	01:1mW	0: SMF-28e	0: 250um bare fiber	1: 50cm	0: None
	05:5mW	1:PMF-1310	1:900um loose tube	2: 100cm	1: FC/UPC
	1610: 1610nm	10:10mW	2:PMF-1550	2:900um 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				C: Customized
9630: 1527.22nm	CC: Customized					
Example of Ordering Form: SWLD-1273100222-L1						
SWLD-	1273	10	0	2	2	2
	1273.55nm	10mW	SMF-28e	900um tight tube	100cm	FC/APC

End