

CWDM(1270~1610nm) TOSA Laser Diodes Datasheet

1. Product Information

Part Number: TOSA-DXX14A2022-01

Product Description: TOSA lasers are 1.27 μm ~1.61 μm Multiple Quantum Well (MQW) structured distributed-feedback (DFB) laser modules. These laser diodes are built in a TO56 package with monitor PD, Isolator for fiberoptic communication systems. These modules are ideally suitable for 2.5Gbps transmission applications.

Applications:

- Telecommunication transceivers
- Datacom transceivers
- Fiberoptic sensors

Features:

- λ_c of CWDM wavelength \pm 2nm
- Single-stage Isolator
- High output power(\geq 2mW)
- TOSA package types.

Reliability: Telcordia GR-468 qualified. The laser complies to Directive (EU) 2015/863 Amends EU RoHS. The laser class to be applicable is complying with 1, IEC 60825.1-2014 edition 3



2. Revision History

Rev.	Notes	Prepared by	Audited by	Approved by	Date
V0	Initial release	Larry Song	Xing Gao	Yuan Shi	2024-04-24

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. The optical and electrical parameters are all measured @ 25 $^{\circ}\text{C}$ except otherwise noted

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Storage Temperature	T _S	-	-40	-	+85	$^{\circ}\text{C}$
Operating Case Temperature	T _{op}	-	-10	-	+85	$^{\circ}\text{C}$
Laser Reverse Voltage	V _{LR}	-	-	-	2	V
PD Forward Current	I _{FPD}	-	-	-	2	mA
PD Reverse Voltage	V _{RPD}	-	-	-	20	V
Laser Soldering (Temp./Time)	--	--	-	-	260/10	$^{\circ}\text{C}/\text{sec}$

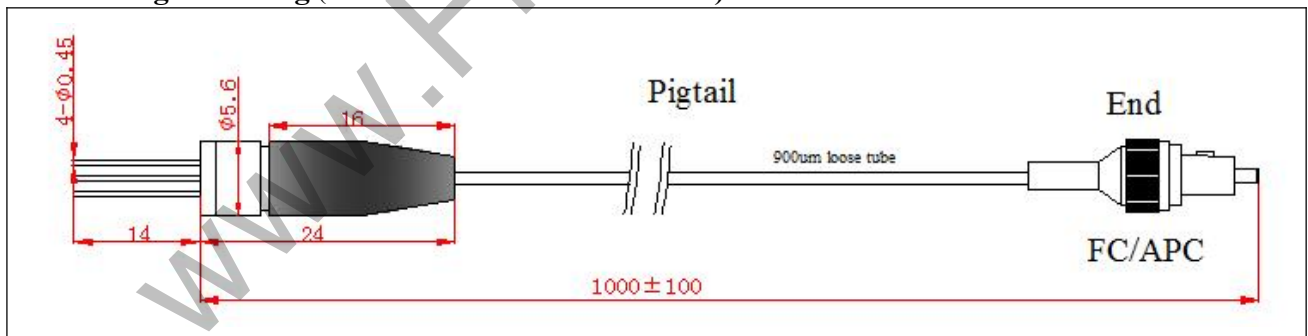
Optical and Electric Specifications (at 25 $^{\circ}\text{C}$ laser temperature)

Parameters	Symbol	Test Conditions	Min.	Typ.	Max.	Unit	Testing
Center Wavelength	λ_c	CW, $I_f=I_{th}+20mA$	Shown in Section 5			nm	100%
Peak Optical Output Power	P_o	CW, $I_f=I_{th}+20mA$	2	3	-	mW	100%
Threshold Current	I_{th}	$T_L=25^\circ C$	-	8	15	mA	100%
Operating Current	I_{op}	CW, $I_f=I_{th}+20mA$	-	28	35	mA	100%
Operating Voltage	V_f	CW, $I_f=I_{th}+20mA$	-	1.1	1.5	V	100%
Monitor PDCurrent	I_{rmo}	CW, $I_f=I_{th}+20mA$, $V_{RPD}=5V$	0.1	-	1.0	mA	100%
Monitor PD Dark Current	I_D	$I_f=0mA$, $V_{RPD}=5V$	-	-	0.1	μA	--
Modulation Bandwidth	f_c	CW, $P_o=2mW$	-	2.5	-	GHz	--
Side-mode Suppression Ratio	SMSR	CW, $P_o=2mW$	35	50	-	dB	100%
Optical Isolation	-	$T_{op. case}=25^\circ C$	30	-	-	dB	--
Tracking Error	TE	CW, $P_o=2mW$	-1	-	1	dB	--
Wavelength/Temperature Coefficient	$\Delta\lambda/\Delta T$	--	-	0.09	-	nm/ $^\circ C$	--
Spectral Linewidth(-20dB)	$\Delta\lambda$	CW, $P_o=2mW$	-	-	1	nm	--

Fiber Pigtail Specifications

Parameters	Description	Parameters	Description
Fiber Type	SMF-28e	Pigtail Length	1.0 \pm 0.1m
Pigtail Type	900um loose tube	Connector Type	FC/APC

4. Package Drawing (Mechanical Dimensions:mm):

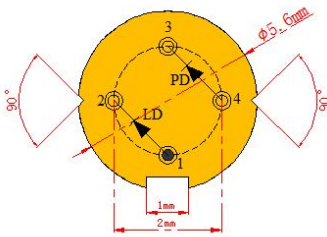


5. Part Number and Laser Center Wavelength List, as below:

No.	Part Number	Center Wavelength			Unit
		Min.	Typical	Max.	
1	TOSA-D2714A2022-01	1267	1270	1273	nm
2	TOSA-D2914A2022-01	1287	1290	1293	nm
3	TOSA-D3114A2022-01	1307	1310	1313	nm

4	TOSA-D3314A2022-01	1327	1330	1333	nm
5	TOSA-D3514A2022-01	1347	1350	1353	nm
6	TOSA-D3714A2022-01	1367	1370	1373	nm
7	TOSA-D3914A2022-01	1387	1390	1393	nm
8	TOSA-D4114A2022-01	1407	1410	1413	nm
9	TOSA-D4314A2022-01	1427	1430	1433	nm
10	TOSA-D4514A2022-01	1447	1450	1453	nm
11	TOSA-D4714A2022-01	1467	1470	1473	nm
12	TOSA-D4914A2022-01	1487	1490	1493	nm
13	TOSA-D5114A2022-01	1507	1510	1513	nm
14	TOSA-D5314A2022-01	1527	1530	1533	nm
15	TOSA-D5514A2022-01	1547	1550	1553	nm
16	TOSA-D5714A2022-01	1567	1570	1573	nm
17	TOSA-D5914A2022-01	1587	1590	1593	nm
18	TOSA-D6114A2022-01	1607	1610	1613	nm

6. Pin Assignments:



Pin No.	Pin Assignments
1	LD Anode/Case Ground
2	LD Cathode
3	PD Cathode
4	PD Anode

7. Test Report:

The test report needs to imply the PN, the SN, the center wavelength, the optical power, the threshold current, the operating current, the operating voltage, the monitor current, the SMSR and pin assignments shall be provided electronically when the devices are shipped, printed version via shipment is optional.

8. Packaging:

Following items should be indicated on the outer packaging surface: Product Name, Product Number, Serial Number.

9. Ordering Information:

Ordering Information									
TOSA-	LD Type	Wavelength	Data	Package type	Pin Out	Output Power	Fiber type	Pigtail length	Connector
	F-FP	27:1270	1:2.5Gb/s	1:Receptacle/without Isolator	A:Type A	1: 1mW	0: SMF-28e	0:None	0:None
	D-DFB	29:1290	2:10Gb/s	2:Receptacle/with Isolator	B:Type B	2: 2mW	1:PMF-1310	1:50cm	1:FC/UPC
	S-SLED	61:1610		3:Pigtail /without Isolator	C:Type C		2:PMF-1550	2:100cm	2:FC/APC
				4:Pigtail/with Isolator	D:Type D		C: Customized	3:150cm	3:SC/UPC
								4:200cm	4:SC/APC
								C:Customized	5:LC/UPC
									6:LC/APC
									C:Customized
Example of Ordering Form: TOSA-D2714B2022-01									
TOSA-	D	27	1	4	B	2	0	2	2
	DFB	1270nm	2.5Gb/s	Pigtail/with Isolator	Type B	2mW	SMF-28e	100cm	FC/APC

-----End-----