EXS210028-04

SLED TOSA λ=1300nm

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1. SCOPE

1.1 PURPOSE

The purpose of this document is to specify the electro-optical performance and dimensions of superluminescent light emitting diode (SLED) TOSA.

1.2 RESPONSIBILITY

EXALOS is responsible for establishing, implementing and maintaining this procedure. The Quality representative shall ensure that a timely Engineering Change Notice (ECN) is issued in accordance with EXALOS procedure for any changes.

2. REFERENCE DOCUMENT

- EXS-WI-0001 Visual Inspection Criteria SLED Chip on Submount Procedure
- MIL STD 883 C method.
- Bellcore GR-468-CORE

3. ELECTRO-OPTICAL PERFORMANCE (T_{SLED} = 25°C)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Current	I_{op}			200	mA
Power in SMF	P_o	2	4		mW
Centre Wavelength	λ_c	1290	1310	1330	nm
3dB Bandwidth		35	40		nm
Spectral ripple [RB=0.1nm]			0.1	0.3	dB
Monitor Diode Current*	I_{MPD}	20			µA
Monitor diode bias voltage	V_{Bias}	0		-12	V

4. ABSOLUTE MAXIMUM RATINGS

Stresses beyond the absolute maximum ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Parameter	Symbol	Cond.	Min	Max	Unit
Forward current	I_F			250	mA
Reverse voltage	V_R			-2	V
Forward voltage	V_F	$I_{F,max}$		2	V
Storage temperature	T_{stg}		-40	85	°C
Operating temperature	T_{op}	$I_{F,max}$	-20	65	°C
Lead soldering temperature				260	°C
ESD		human b.m		500	V

* Measurement conditions:
- $I_{op} = I_{op}$ Max
- Monitor PD bias voltage: 0 Volts
  Input resistance of the Monitor PD current measurement circuit 10 Ohm

5. SCREENING (EXS210028-04)

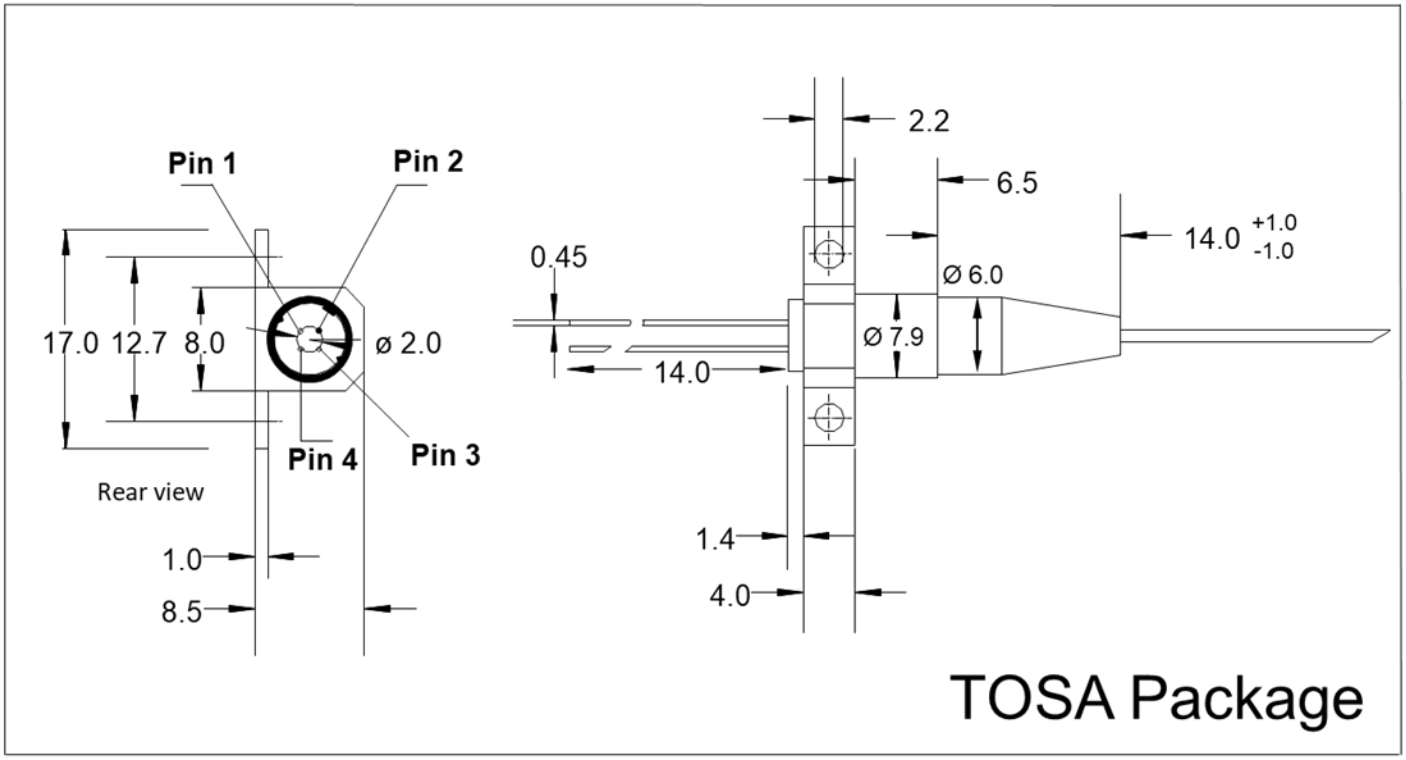
The manufactured 1300nm SLED Module is required to meet all operating conditions specified in Table 4.1, Electro-Optical Performance Specifications after being subjected to the following screening tests.

Test Item	Test Conditions	Reference	Sample
Hermetic Seal (At TO-CAN Level)	Fine leak : Max. leak rate 5x10^{-8} atm.cc/sec Gross leak :	MIL-STD-883, Method 1014 Condition A MIL-STD-883, Method 1014 Condition C	100 % 100 %
Temperature Cycling	-40°C to +85°C, ramp rate >= 5°C/min 20 cycles	MIL-STD-883, Method 1010	100%

6. PACKAGE DIMENSIONS [mm]

Tolerances: **.X ± 0.25 mm**
.XX ± 0.05 mm

3rd Angle projection



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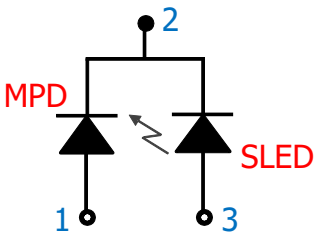
Pin	**Function**
1	MONITOR DIODE ANODE
2	SLED CATHODE (-), MONITOR DIODE CATHODE, CASE
3	SLED ANODE (+)
4	NC



7. FIBRE AND CONNECTOR

Part	Description
SM Fibre	SMF-28, 9/125 μm
Loose tube	900 μm
Fibre pigtail length [min]	1 m
Optical connector	FC/APC (Narrow Key 2.0mm)

8. IMPORTANT NOTES

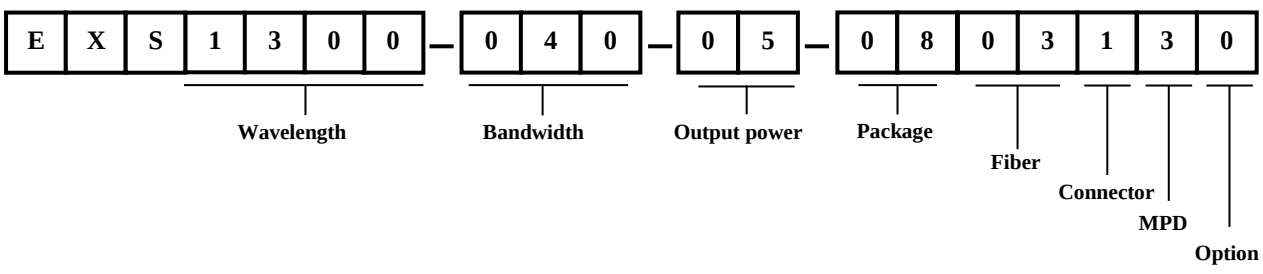
1. Avoid electrostatic discharges, which may destroy the SLED.
2. Never use the SLED module without heat sinking.
3. Adequate eye protection against laser radiation should be used while handling and operating the module.
4. EXALOS declines any responsibility if the device is used in applications where human life may be endangered.
5. Back reflections may influence the output power and spectral characteristics of the SLED. The use of optical isolators and/or angled connectors is recommended. Back reflections of less than -30dB are recommended.
6. The measured optical spectrum of the 1300nm shows strong absorption lines in the wavelength range from 1340nm to 1460nm which are believed to origin from absorptions in the atmosphere.

9. ORDERING INFORMATION

Please use the following **part number** to order product from EXALOS:

E	X	S	2	1	0	0	2	8	–	0	4

9.1 TECHNICAL DESCRIPTION



10. REVISION HISTORY

Revision History				
Rev.	**Description**	**ECN**	**Date**	**Released**
2.0	Original version		03.01.2012	Rezzonico
2.1	Change protection fiber to Loose tube 900um instead of tight buffer	EC-00633	27.05.2013	Rezzonico
2.2	Updated specification by removing technical description on the front page	EC-01326	04.05.2021	Rezzonico
3.0	Updated specification by adding the monitor photodiode, Power ≥ 2mW	EC-01465	02.08.2022	Rezzonico
4.0	Updated TOSA drawing	EC-01544	02.08.2023	Rezzonico