EXS210099-04

SLED Butterfly 450nm

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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).

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	Cond.	Min	Typ	Max	Unit
Power in SMF	P_{op}				5	mW
Operating Current	I_{op}	$P_{op,\ max}$	100		150	mA
Center Wavelength	λ_c	$P_{op,\ max}$	440	450	460	nm
Bandwidth FWHM		$P_{op,\ max}$	4	5		nm
Spectral ripple [RB=0.1nm]		$P_{op,\ max}$		0.1	0.3	dB

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
Power in SMF	P			7	mW
Forward current	I_F			170	mA
Reverse voltage	V_R			-5	V
Forward voltage	V_F	$I_{F,max}$		7.0	V
Storage temperature	T_{stg}		-40	85	°C
Operating temperature	T_{op}	$I_{F,max}$	-20	50	°C
Storage humidity	<30°C >30°C		5	95 85	% r.h. % r.h.
Thermoelectric cooler voltage	V_{tec}	**		4.0	V
Thermoelectric cooler current	I_{tec}	**		1.8	A
Thermistor Resistance	R_{th}	25°C	10		KΩ
Thermistor constant	B		3892		K
Lead soldering temperature				260	°C
Lead soldering duration				10	s
ESD		human b.m		500	V

** Performance values with hot side temperatures 50°C

5. SCREENING

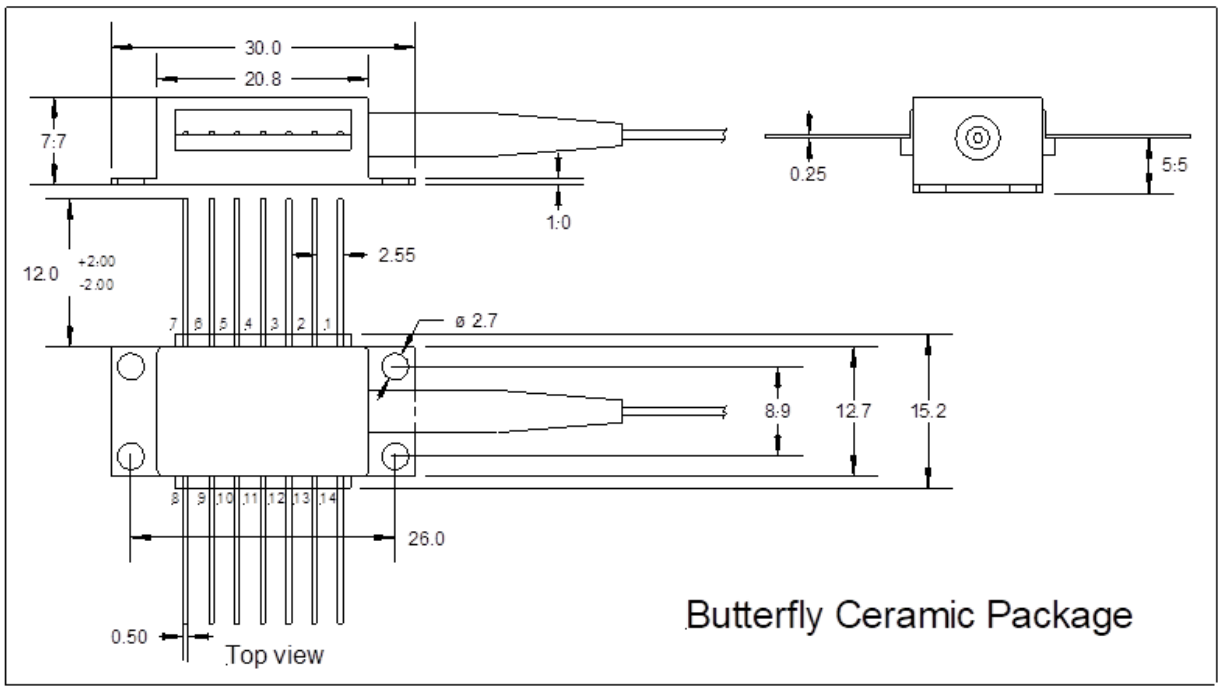
The produced 450nm SLED Module is required to meet all operating conditions specified in Table 3, Electro-Optical Performance Specifications after being subjected to the following screening tests.

Test Item	Test Conditions	Reference
Seal	Fine: Condition A1 Gross: Condition C	MIL-STD-883, Method 1014 Temperature max 85°C
Temperature Cycling	-40°C to +85°C, ramp rate >= 5°C/min 10 cycles	MIL-STD-883, Method 1010

3rd Angle projection

6. PACKAGE DIMENSIONS [mm]

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



Butterfly Package			
Pin	**Function**	**Pin**	**Function**
1	**TEC (+)**	**8**	**NC**
2	**THERMISTOR**	**9**	**NC**
3	**NC**	**10**	**SLED ANODE (+)**
4	**NC**	**11**	**SLED CATHODE (-)**
5	**THERMISTOR**	**12**	**NC**
6	**NC**	**13**	**CASE GROUND**
7	**NC**	**14**	**TEC (-)**

7. FIBRE AND CONNECTOR

Part	**Description**
SM Fibre	SM 3.3 / 125 µm Nufern **S405-XP**
Loose tube secondary coating	900 µm
Fiber pigtail length [min]	1 m
Optical connector	FC/APC Narrow Key (2.0mm)

8. IMPORTANT NOTES

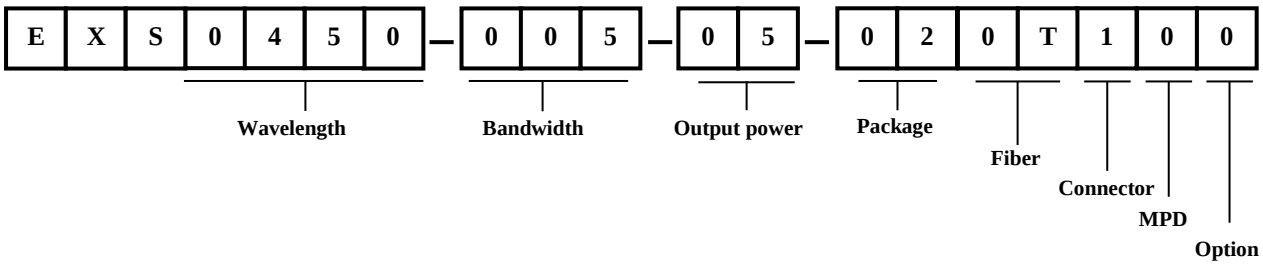
1. Avoid electrostatic discharges, which may destroy the SLED.
2. Never use the SLED module without heat sinking.
3. Adequate eye protection against laser radiation should be used while handling and operating the module.
4. EXALOS declines any responsibility if the device is used in applications where 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.

9. ORDERING INFORMATION

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

E	X	S	2	1	0	0	9	9	–	0	4

9.1 TECHNICAL DESCRIPTION



10. REVISION HISTORY

Revision History				
Rev.	**Description**	**ECN**	**Date**	**Released**
1.0	Original version	-	04.04.2016	Rezzonico
2.0	Update specification with new output power 10mW and removed the MPD	EC-01105	13.02.2018	Rezzonico
2.1	Update specification with output power ≥ 3mW @ Iop 180mA	EC-01128	17.04.2018	Rezzonico
3.0	Updated Max current to 160mA and Absolute Max. to 170mA	EC-01231	06.11.2019	Rossetti
4.0	Update Max power to 5mW and introduced current range 100-150mA	EC-01635	08.07.2024	Rossetti