EXS210158-02

SLED Butterfly λ=638nm PMF

Polarized light aligned to the slow axis of fibre

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Confidentiality: None

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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
Operating Current	I_{op}				180	mA
Power in PMF*	P_o	$I_{op,\,max}$	10	15		mW
Center Wavelength	λ_c	$I_{op,\,max}$	633	638	643	nm
Bandwidth FWHM		$I_{op,\,max}$	5	7		nm
Spectral ripple [RB=0.1nm] †		$I_{op,\,max}$		0.2	0.5	dB
Polarization Extinction Ratio	PER	$I_{op,\,max}$	10	15		dB

* Polarized light aligned to **Slow axis** of fibre.

† Spectral ripple is intrinsic to the chip and not applying to any slow period ripple induced by polarization misalignment in the fibre

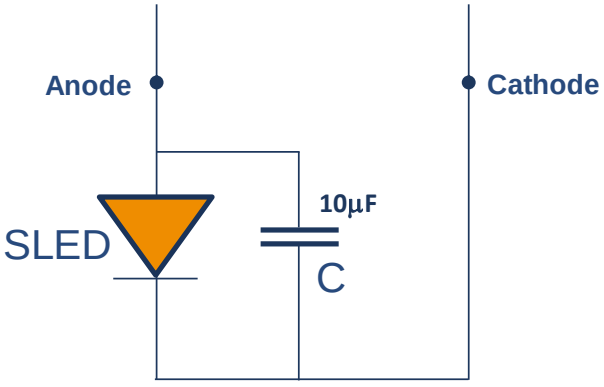
4. ABSOLUTE MAXIMUM RATINGS

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			200	mA
Reverse voltage	V_R			-2	V
Forward voltage	V_F	$I_{F,max}$		3.0	V
Storage temperature	T_{stg}		-40	85	°C
Operating temperature	T_{op}	$I_{F,max}$	-20	65	°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

4.1 ELECTRICAL TURN-ON CHARACTERISTICS

These devices are sensitive to current spikes or turn-on ramps with a fast rise-time. In order to operate the devices safely it is recommended that the electrical drive circuit has a rise time longer than 10uS and that a minimum 10uF capacitor is placed in parallel with the SLED as shown below.



5. SCREENING

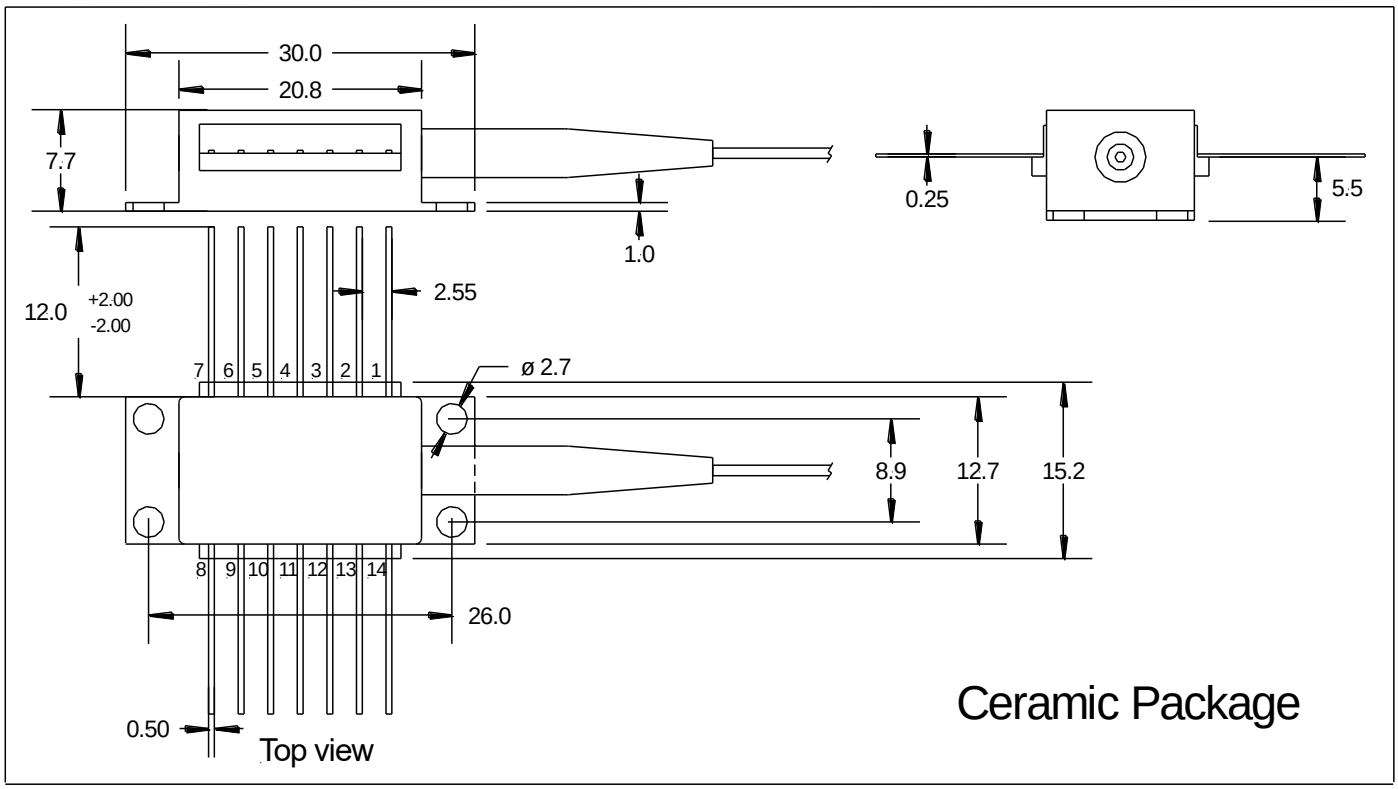
The 638nm SLED Module meets all operating conditions specified in the table of section 3, after being subject to the following screening tests.

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**
PM Fibre	4/125 PM630-HP Nufern
Loose tube secondary coating	900 µm
Fiber pigtail length [min]	1 m
Optical connector	FC/APC*, PMF Keyed aligned to slow axis +/- 5° tolerance

*Narrow Key (2.0mm)

8. IMPORTANT NOTES

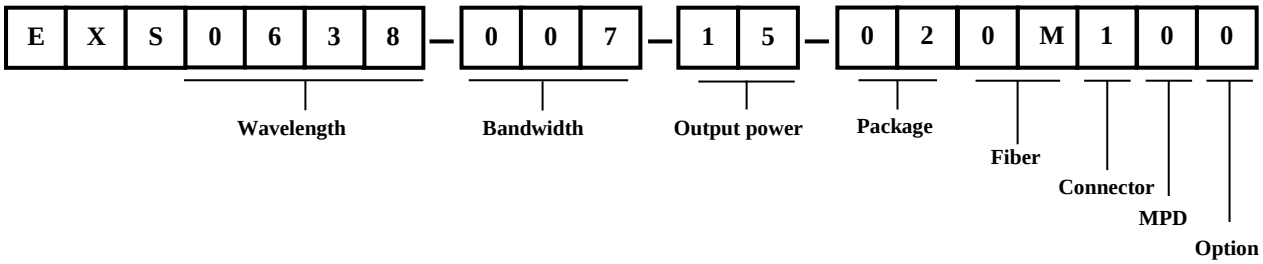
1. Avoid electrostatic discharges, which may destroy the SLED.
2. Never use the SLED module die without heat sinking.
3. Adequate eye protection against laser radiation should be used while handling and operating the module.
4. EXALOS declines any responsibility if the device is used in applications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

The following **part number** should be used to order this product from EXALOS:

E	X	S	2	1	0	1	5	8	–	0	2

9.1 TECHNICAL DESCRIPTION



10. REVISION HISTORY

Revision History				
Rev.	**Description**	**ECN**	**Date**	**Released**
1.0	Original version	EC-01340	09.06.2021	Rezzonico
2.0	Upreved to higher output power	EC-01680	21.11.20214	Rossetti