EXS210022-03

SLED Butterfly λ=840nm, 5mW

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Prepared by: Raffaele Rezzonico
(Product Support Technician)

Checked by: Jean Dahdah
(Product Engineer Manager)

Approved by: Philipp Vorreau
(Quality Manager)

CONTENTS

1. SCOPE 3
1.1 PURPOSE 3
1.2 RESPONSIBILITY 3

2. REFERENCE DOCUMENT 3

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

4. ABSOLUTE MAXIMUM RATINGS 4

5. SCREENING 4

6. PACKAGE DIMENSIONS [MM] 5

7. FIBRE AND CONNECTOR 5

8. IMPORTANT NOTES 6

9. ORDERING INFORMATION 6
9.1 TECHNICAL DESCRIPTION 6

10. REVISION HISTORY 7

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}				120	mA
Power in SMF	P_o	$I_{op,\ max}$	4	6		mW
Center Wavelength	λ_c	$I_{op,\ max}$	820	840	860	nm
Bandwidth FWHM		$I_{op,\ max}$	45	50		nm
Secondary coherence peak suppression*	SPSR	$I_{op,\ max}$	26			dB
Monitor PD Current†	I_{MPD}	$I_{op,\ max}$	100			µA
Monitor PD bias voltage			0		-12	V

* SPSR is the difference in dB (on a 10-log scale) of the DC peak and the amplitude of the secondary peak of the coherence function. The coherence function is calculated through a Fourier transform of the optical spectrum, measured from 770 nm to 920 nm (150 nm span) with a sampling bandwidth of max. 20 pm (optical resolution) and an oversampling factor of at least 2.0 (max. numerical resolution 10 pm), and resampled with equidistant steps in the frequency domain (k-space).

† Measurement conditions:
- $I_{op} = I_{op}$ Max
- Monitor PD bias voltage: 0 Volts

Input resistance of the Monitor PD current measurement circuit 10 Ohm

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			150	mA
Reverse voltage	V_R			-2	V
Forward voltage	V_F	$I_{F,max}$		2.5	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

** Performance values with hot side temperatures 50°C

5. SCREENING

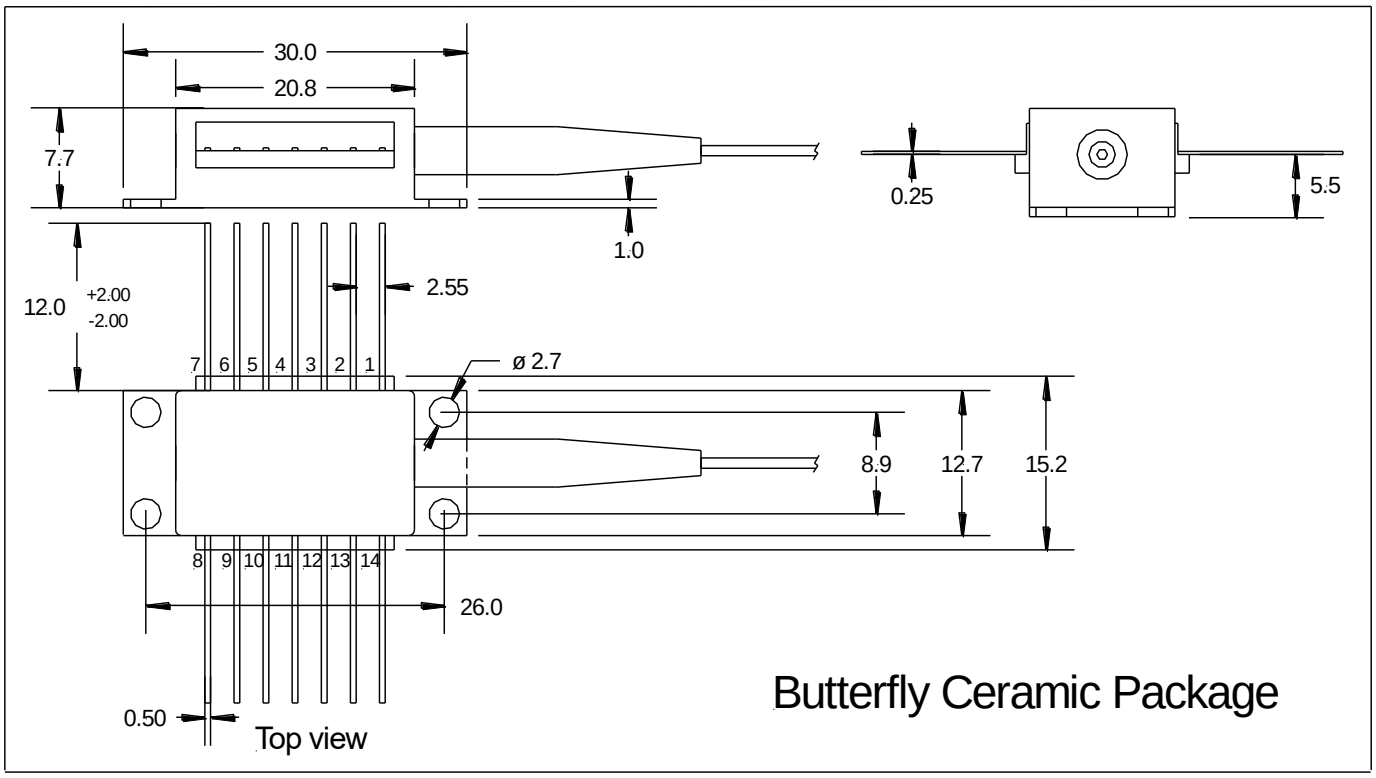
The produced 840nm SLED Module is required to meet all operating conditions specified in Table 3, Electro-Optical Performance Specifications after being subjected to the following screening tests.

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	**MONITOR DIODE ANODE**	**10**	**SLED ANODE (+)**
4	**MONITOR DIODE CATHODE**	**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 5/125 Corning HI780
Loose tube secondary coating	900 µm
Fiber pigtail length [min]	1 m
Optical connector	FC/APC Narrow Key (2.0mm)

8. IMPORTANT NOTES

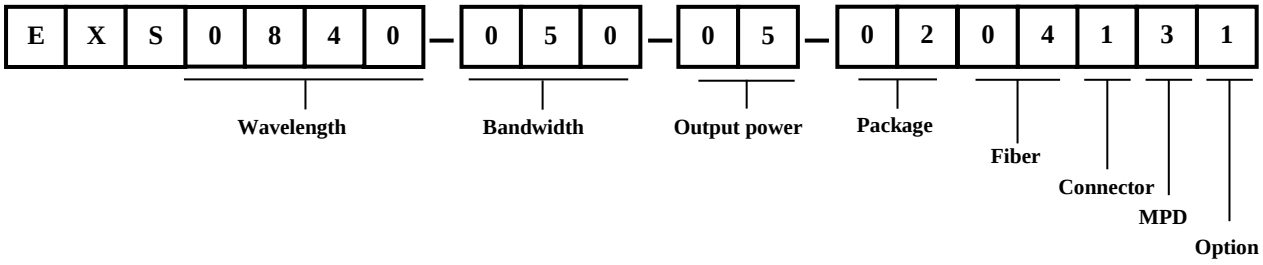
1. Avoid electrostatic discharges, which may destroy the SLED.
2. Never use the SLED module without heat sinking.
3. Adequate eye protection against laser radiation should be used while handling and operating the module.
4. EXALOS declines any responsibility if the device is used in applications where 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	2	2	–	0	3

9.1 TECHNICAL DESCRIPTION



10. REVISION HISTORY

Revision History				
Rev.	**Description**	**ECN**	**Date**	**Released**
1.0	Original version		07.09.2011	Rezzonico
1.1	Change operating current to 160mA and ripple RB = 0.05nm	EC-00625	25.04.2013	Rezzonico
2.1	Change operating current I_{OP} = 200mA and I_{Fmax} = 220mA	EC-00754	25.03.2014	Rezzonico
3.0	Change operating current I_{OP} = 120mA, I_{Fmax} = 150mA and power ≥ 4mW	EC-01027	28.04.2017	Rezzonico
3.1	Changed the ripple screening with Secondary peak suppression min 26dB	EC-01244	04.02.2020	Rezzonico