EXC250025-00

EXC-1550-1600-20-0202130

1510-1650nm Combi-2 SLED 14-pin BTF Module

PMF slow axis

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1. SCOPE

PURPOSE

The purpose of this document is to specify the electro-optical performance and dimensions of a module with combined superluminescent light emitting diodes (SLEDs).

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 DOCUMENTS

- MIL STD 883 C method
- Bellcore GR-468-CORE

3. ELECTRO-OPTICAL PERFORMANCE (T_{SLED} = 20°C)

Parameter	Symbol	Cond.	Min	Typ	Max	Unit
Combined Wavelengths: SLED A SLED B	 λ_A λ_B			 1550 1600		nm
Operating current: SLED A SLED B	 $I_{op,\,A}$ $I_{op,\,B}$			 550 600	 600 650	mA
Total power ex-fiber	P_{tot}	$I_{op,max}$	20	24		mW
3dB center wavelength	λ_c	$I_{op,max}$		1575		nm
3dB bandwidth	BW_{3dB}	$I_{op,max}$		140		nm
10dB bandwidth	BW_{10dB}	$I_{op,max}$		175		nm
Spectral ripple (resBW = 0.1nm)		$I_{op,max}$		0.2	0.4	dB
Polarization extinction ratio[1]	PER	$I_{op,max}$	15	20		dB
Minimum wavelength cutoff for -21 dBm/0.1nm	$PSD_{min\lambda}$	$I_{op,max}$		1510	1520	nm
Maximum wavelength cutoff for -21 dBm/0.1nm	$PSD_{max\lambda}$	$I_{op,max}$	1640	1650		nm
Monitor PD current[2]	I_{MPD}	$I_{op,max}$	100			µA
Monitor PD bias voltage	V_{MPD}		0		-10	V

Table 1: Electrical-optical characteristics

[1] Polarized light is aligned to slow axis of PM fiber.
[2] Measured with 0V bias voltage on monitor photodiode (PD) and termination resistance of 10-50 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: SLED A SLED B	 $I_{F,A}$ $I_{F,B}$			 650 700	mA
Reverse voltage: SLED A SLED B	 $V_{R,A}$ $V_{R,B}$			 -2 -2	V
Forward voltage: SLED A SLED B	 $V_{F,A}$ $V_{F,B}$			 2.0 2.0	V
Operating temperature	T_{op}	$I_{F,max}$	-20	55	°C
Storage temperature	T_{stg}		-40	85	°C
Storage humidity	<30°C >30°C		5	85 95	% r.h. % r.h.
Thermoelectric cooler voltage	V_{tec}	50°C[3]		4.0	V
Thermoelectric cooler current	I_{tec}	50°C		1.8	A
Thermistor Resistance	R_{th}	25°C	9.5	10.5	kΩ
Thermistor constant	B		3892		K
Lead soldering temperature				260	°C
Lead soldering duration				10	s
ESD		human b.m.		500	V

Table 2: Absolute maximum ratings

5. SCREENING

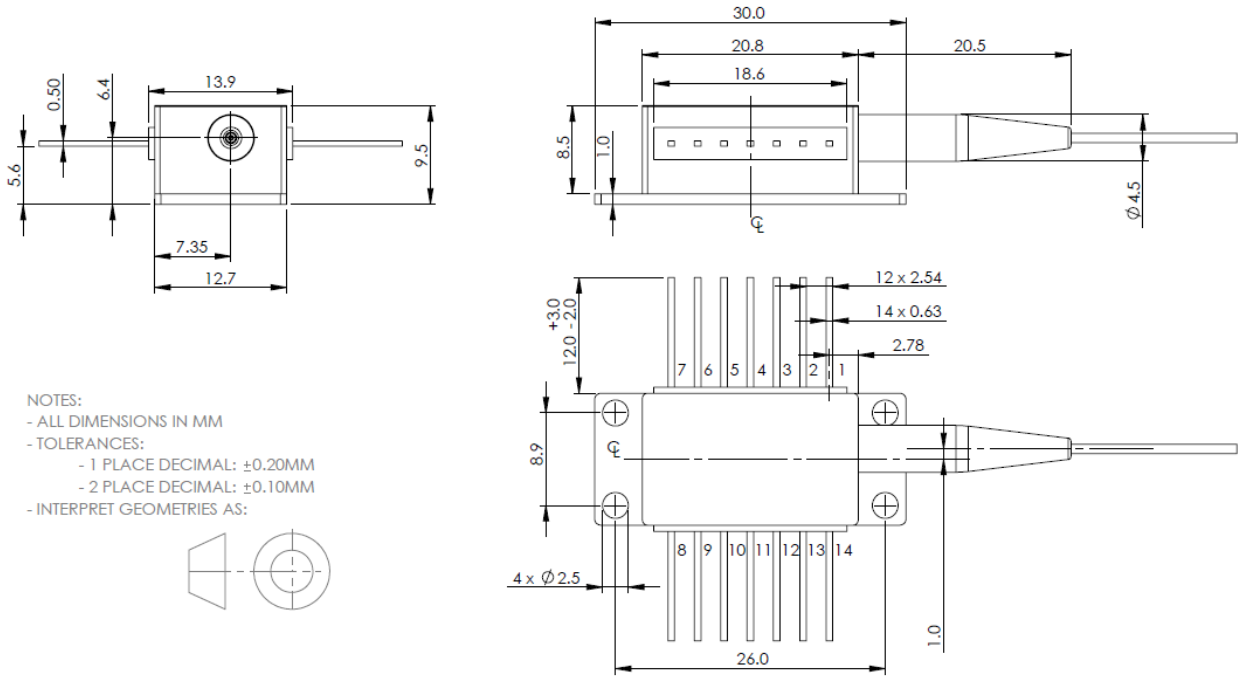
The produced Module is required to meet all operating conditions specified in Table 3, Electro-Optical Performance Specifications after being subjected to the following screening tests:

Test Item	Test Conditions	Reference
Seal	Fine: Condition A1 Gross: Condition C	MIL-STD-883, Method 1014 Temperature max 85°C

Table 3: Screening tests

6. PACKAGE DIMENSIONS AND PINOUT

[3] Performance values with hot side temperatures of 50°C (housing base)



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

Table 4: 14pin Butterfly Pinout

7. FIBER AND CONNECTOR

Part	Description
PM Fiber	Nufern PM1300-XP (9/125/250), optical input light aligned to **slow axis**
Loose tube protection	900 µm
Fiber pigtail length (min.)	1 m
Optical connector	FC/APC narrow key (2.0mm), key aligned +/-5° to **slow axis**

8. IMPORTANT NOTES

1. Avoid electrostatic discharges, which may destroy the SLEDs.
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. Backreflections may influence the output power and spectral characteristics of the SLEDs. An optical return loss of less than -30 dB is recommended.

9. ORDERING INFORMATION

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

E	X	C	2	5	0	0	2	5	–	0	0

Description of technical code:

E	X	C	-	0	0	0	0	-	0	0	0	0	-	1	5	5	0	-	1	6	0	0	-	2	0	-	0	2	0	2	1	3	0
														Wavelength A					Wavelength B					Total output power			Package		Fiber		Connector	MPD	Option

10. REVISION HISTORY

Revision History				
Rev.	**Description**	**ECN**	**Date**	**Released**
0.1	Preliminary version EXC250025	-	23.02.2021	SGL
0.2	Added fiber orientation in section 7	-	15.03.2021	SGL
0.3	Updated drive conditions and spectral performance with new SLEDs (IM-1192, IM-1200): Updated PMF definitions based on EXC250059-00 rev.0.1; Updated package dimensions	-	06.03.2024	SGL