EXS210131-02

UNCOOLED TO-56 λ=638nm

Narrow Far Field

Revision:	2.0
Date:	22-01-2024
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 a red-light superluminescent light emitting diode packaged in a TO-56 can.

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_{RSOA} = 25°C)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Current	I_{op}		85	90	mA
Power ex-window	P_o		30	40	mW
Centre Wavelength*	λc	633	638	643	nm
Bandwidth FWHM*		4	6	-	nm
Spectral ripple [RB=0.1 nm]		-	0.2	-	dB
Vertical Far Field Angle FWHM		-	21	-	degrees
Horizontal Far Field Angle FWHM		-	9	-	degrees

*Spectral verification is performed by sampling at the manufacturing batch level. Manufacturing batches are defined by epitaxial wafer growth run

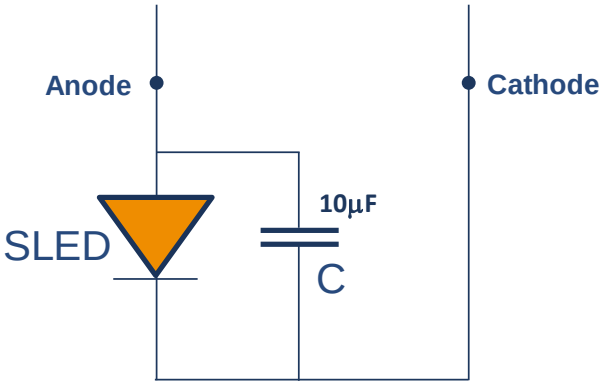
4. ABSOLUTE MAXIMUM RATINGS

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	$P_o \leq P_{max}$		90	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}	$P_o \leq P_{max}$	-20	65	°C
Max Power ex-window†	P_{max}			40	mW
Lead soldering temperature				260	°C
ESD		human b.m		300	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

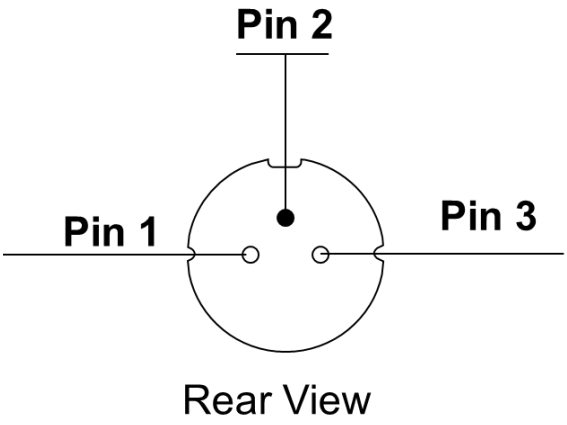
The 638nm SLED Module is required to meet all operating conditions and performance specifications reported in the tables of section 3 and 4, after being subjected to the following screening tests.

Test Item	Test Conditions	Reference	Sample
Hermetic Seal	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%

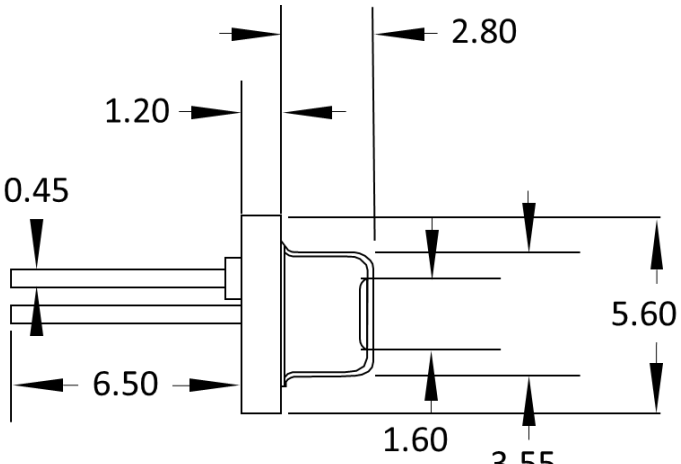
† The drive current may need to be adjusted in order not to exceed the maximum power rating for low ambient temperature.

6. PACKAGE DIMENSIONS [mm]

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



Rear View



Side View

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

SCHEMATIC PIN LAYOUT

7. IMPORTANT NOTES

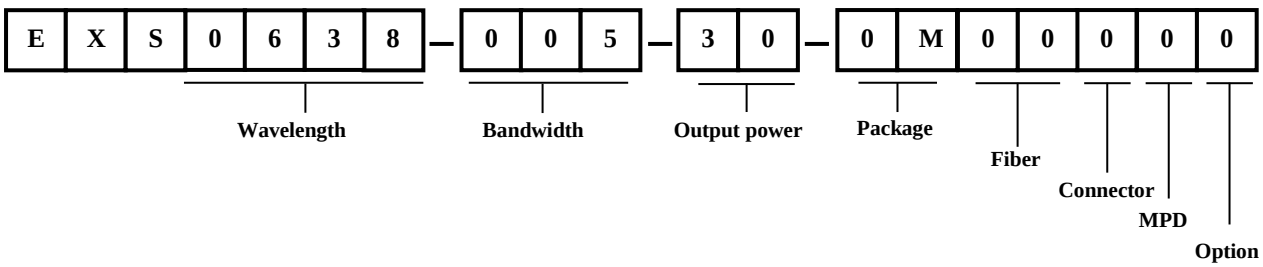
1. Avoid electrostatic discharges, which may destroy the SLED.
2. Never use the TO-CAN die without heat sinking.
3. Adequate eye protection against laser radiation should be used while handling and operating the module.
4. EXALOS declines any responsibility if the device is used in applications where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

8. ORDERING INFORMATION

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

E	X	S	2	1	0	1	3	1	–	0	2

8.1 TECHNICAL DESCRIPTION



9. REVISION HISTORY

Revision History				
Rev.	**Description**	**ECN**	**Date**	**Released**
1.0	Original version		26.05.2020	Rezzonico
2.0	Major revision: higher output power, lower far-field divergence, and peak wavelength = 638nm.	EXS-EC-01598	22.01.2024	Rossetti