# EXS210209-01

## Uncooled Butterfly 5pin λ=675nm PMF

### Polarized light aligned to the slow axis of the fibre

**Revision:** 1.0
**Date:** 25-September-2025
**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 | $I_{op}$ | | | | 160 | mA |
| Power in PMF* | $P_o$ | $I_{op,\ max}$ | 8 | 12 | | mW |
| Center Wavelength | $\lambda_c$ | $I_{op,\ max}$ | 670 | 675 | 680 | nm |
| Bandwidth FWHM | | $I_{op,\ max}$ | 8 | 10 | | nm |
| Spectral ripple [RB=0.05nm]† | | $I_{op,\ max}$ | | 0.1 | 0.2 | dB |
| Polarization Extinction Ratio | PER | $I_{op,\ max}$ | 10 | 15 | | dB |
| Monitor PD Current‡ | $I_{MPD}$ | $I_{op,\ max}$ | 100 | | | µA |
| Monitor PD bias voltage | | | 0 | | -12 | V |

* 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.

‡ 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 | $I_F$ | $P_o \leq P_{max}$ | | 180 | mA |
| Reverse voltage | $V_R$ | | | -2 | V |
| Forward voltage | $V_F$ | $I_{F,max}$ | | 3 | V |
| Storage temperature | $T_{stg}$ | | -40 | 85 | °C |
| Operating temperature | $T_{op}$ | $P_o \leq P_{max}$ | -20 | 65 | °C |
| Storage humidity | | <30°C<br>>30°C | 5 | 95<br>85 | % r.h.<br>% r.h. |
| Lead soldering temperature | | | | 260 | °C |
| Lead soldering duration | | | | 10 | s |
| ESD | | human b.m | | 500 | V |

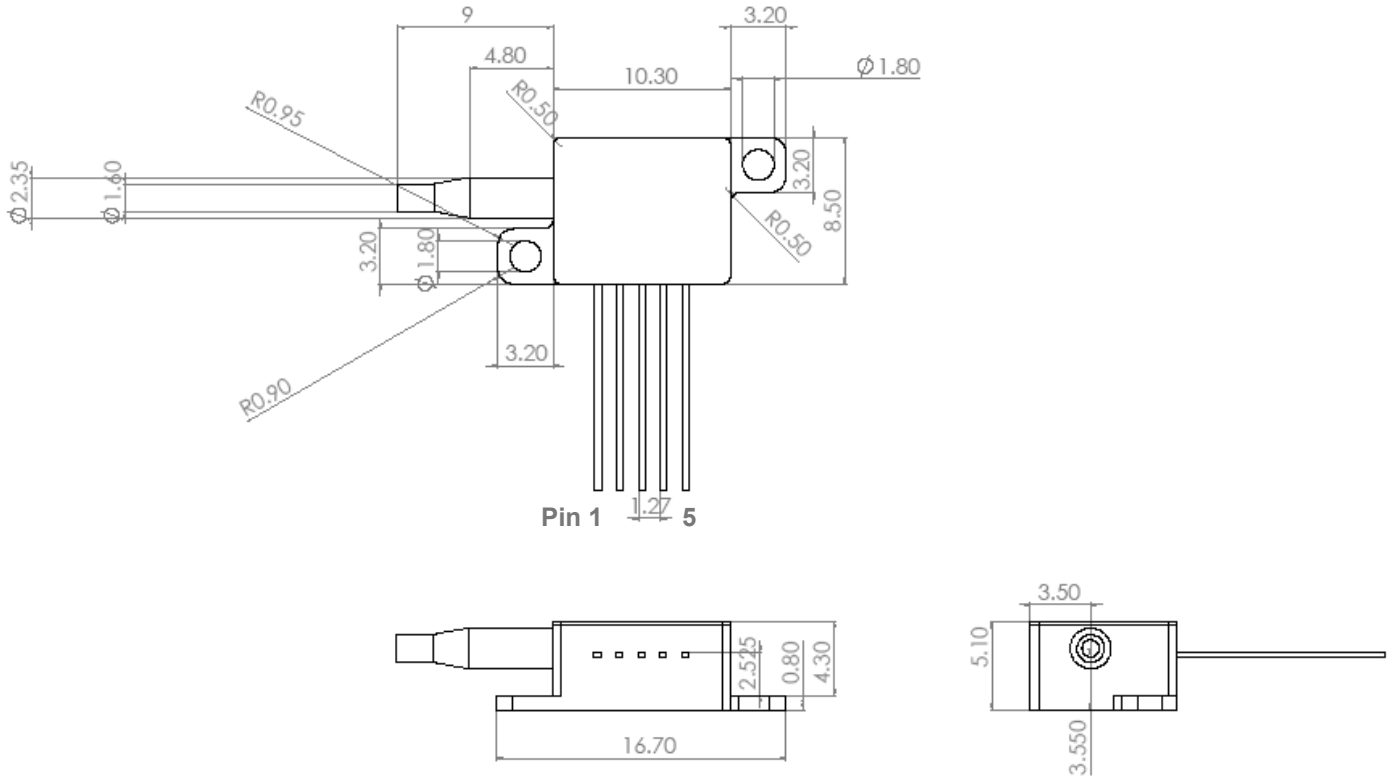
## 5. SCREENING

The produced 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<br>Gross: Condition C | MIL-STD-883, Method 1014<br>Temperature max 85°C |
| Temperature Cycling | -40°C to +85°C,<br>ramp rate >= 5°C/min 10 cycles | MIL-STD-883, Method 1010 |

## 6. PACKAGE DIMENSIONS [mm]

**Tolerances:** .X ± 0.15 mm
.XX ± 0.05 mm




| Butterfly package | |
|---|---|
| **Pin** | **Function** |
| **1** | **MONITOR DIODE ANODE** |
| **2** | **MONITOR DIODE CATHODE** |
| **3** | **SLED Anode (+)** |
| **4** | **SLED Cathode (-)** |
| **5** | **NC** |

## 7. FIBRE AND CONNECTOR

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

*Narrow Key (2.0mm)

## 8. IMPORTANT NOTES

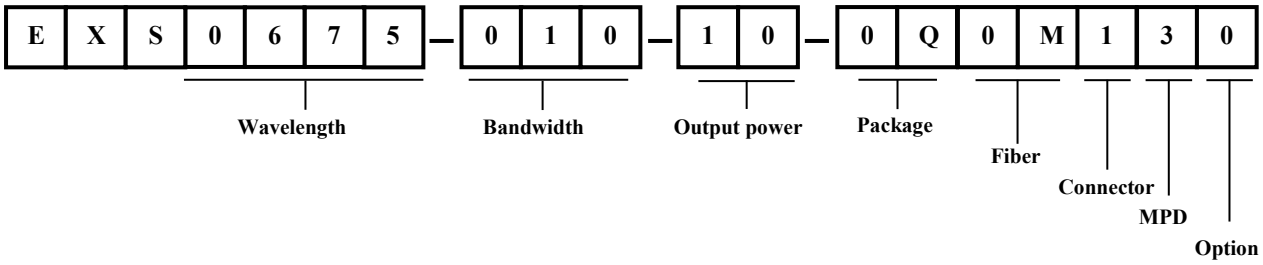
1. Avoid electrostatic discharges, which may destroy the SLED.
2. Never use the SLED module without heat sinking.
3. Adequate eye protection against laser radiation should be used while handling and operating the module.
4. EXALOS declines any responsibility if the device is used in applications where 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 | 2 | 0 | 9 | – | 0 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|

### 9.1 TECHNICAL DESCRIPTION



## 10. REVISION HISTORY

| Revision History | | | | |
|---|---|---|---|---|
| **Rev.** | **Description** | **ECN** | **Date** | **Released** |
| 1.0 | Original version | EC-01763 | 25.09.2025 | Poretti |
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