

EXS210035-01

EXS0650-010-05-0M00030

650nm UNCOOLED TO-56 MPD

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Confidentiality: **None**

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CONTENTS

1.	SCOPE.....	3
	1.1 PURPOSE.....	3
	1.2 RESPONSIBILITY	3
2.	REFERENCE DOCUMENT.....	3
3.	ELECTRO-OPTICAL PERFORMANCE ($T_{SLED} = 25^{\circ}C$)	3
4.	ABSOLUTE MAXIMUM RATINGS	4
5.	SCREENING (EXS210035-01)	4
6.	PACKAGE DIMENSIONS [mm].....	5
	6.1 DETAILED DIMENSIONS [mm]	6
7.	IMPORTANT NOTES.....	7
8.	ORDERING INFORMATION.....	7
	9.1 TECHNICAL DESCRIPTION.....	7
9.	REVISION HISTORY	8

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) TO-56.

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 ($T_{SLED} = 25^{\circ}C$)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Current	I_{op}	0		100	mA
Power ex-window	P_o	1	3	-	mW
Centre Wavelength*	λ_c	630	650	670	nm
Bandwidth FWHM*		8	10	-	nm
Spectral ripple [RB=0.1 nm]		-	0.1	-	dB
Vertical Far Field Angle FWHM		-	40	-	degrees
Horizontal Far Field Angle FWHM		-	15	-	degrees
PD Monitor Current [†]	I_m	0.1		5	mA
PD Monitor Bias Voltage	V_b	0		-12	V

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

[†] Measurement conditions:

$I_{op} = I_{op \text{ Max}}$

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			120	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
Lead soldering temperature				260	°C
ESD		human b.m		500	V

5. SCREENING (EXS210035-01)

The produced 650nm SLED Module is required to meet all operating conditions specified in Table 4.1, Electro-Optical Performance Specifications after being subjected to the following screening tests.

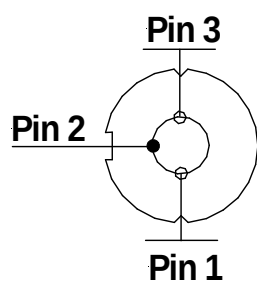
Test Item	Test Conditions	Reference	Sample
Hermetic Seal	Fine leak :	MIL-STD-883, Method 1014	100 %
	Max. leak rate 5×10^{-8} atm.cc/sec	Condition A	
	Gross leak :	MIL-STD-883, Method 1014	100 %
		Condition C	
Temperature Cycling	-40°C to +85°C, ramp rate $\geq 5^\circ$ C/min 20 cycles	MIL-STD-883, Method 1010	100%

6. PACKAGE DIMENSIONS [mm]

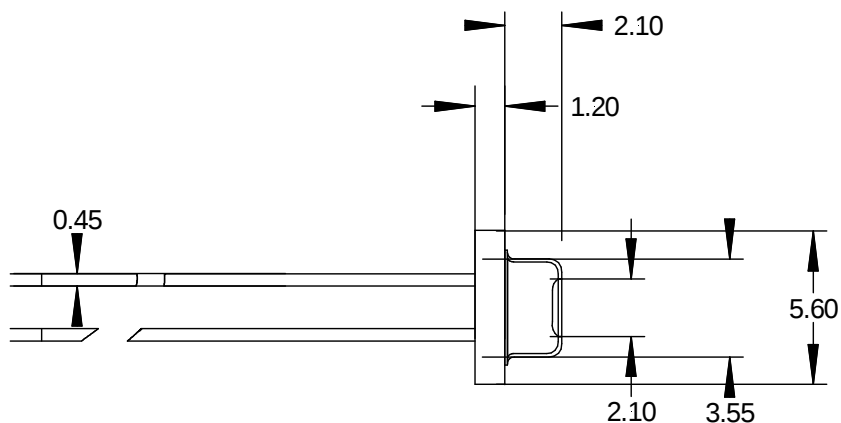
Tolerances: See section 6.1

TO-56 3 pin Package

Flat Window

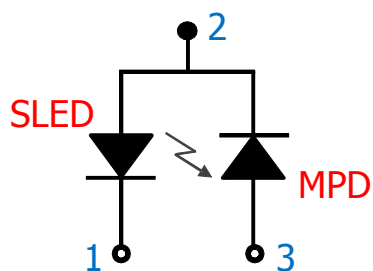


Rear View



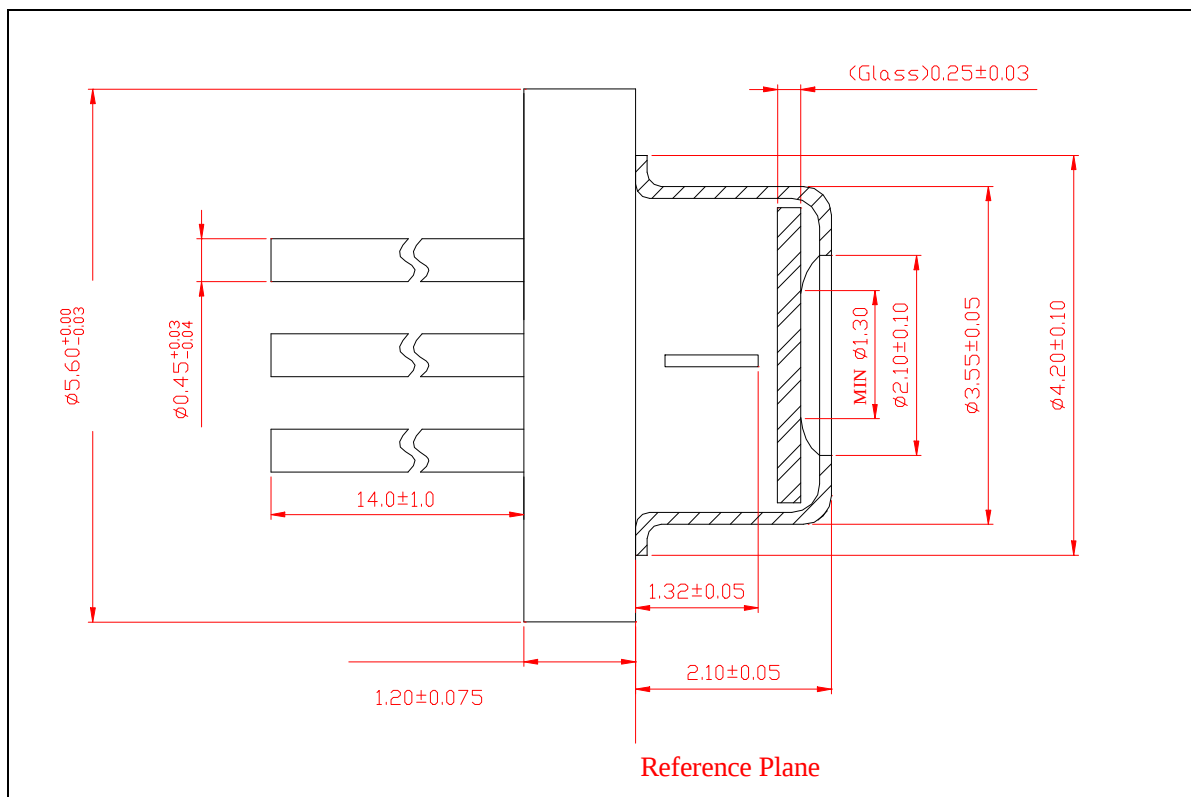
EXS210035-01	
Pin	Function
1	SLED CATHODE (-)
2	SLED ANODE (+), MONITOR DIODE CATHODE, CASE
3	MONITOR DIODE ANODE

SCHEMATIC PIN LAYOUT

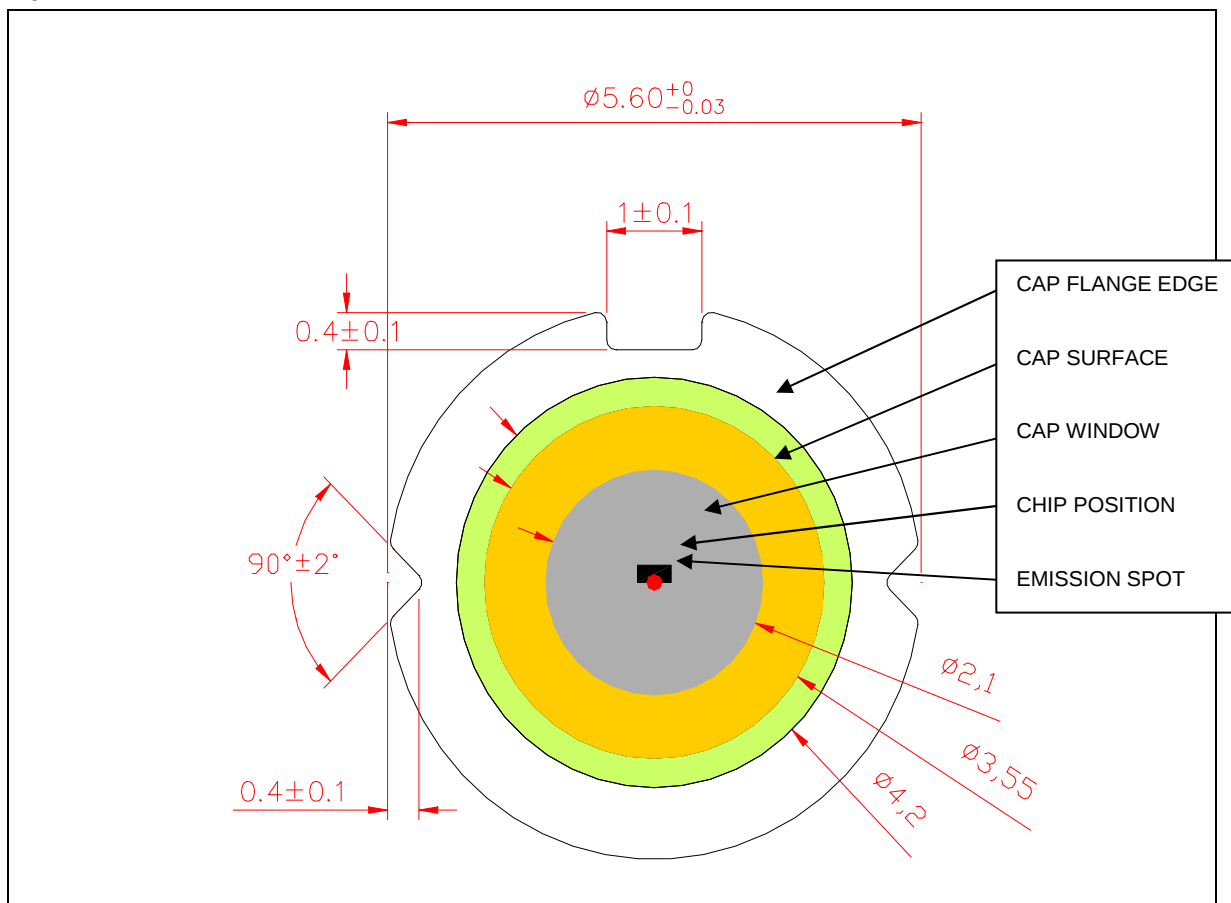


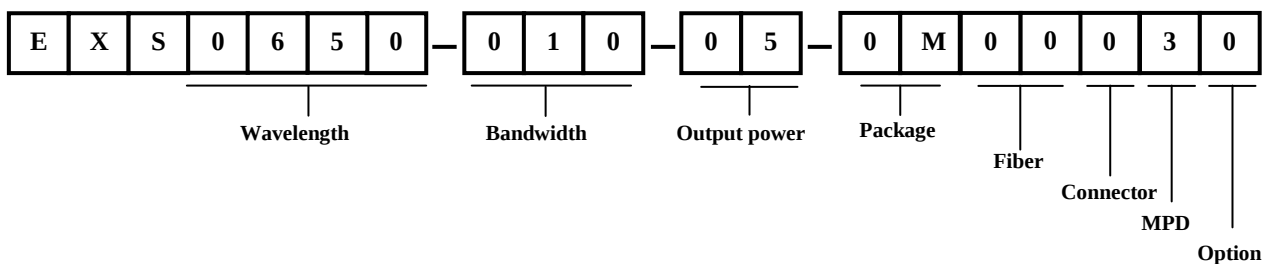
6.1 DETAILED DIMENSIONS [mm]

Side View Cross-section



Top View





[illegible]