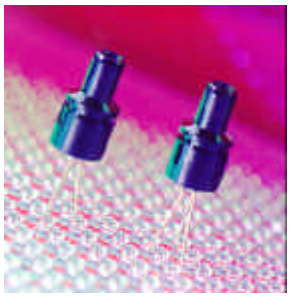
SC-TOSA

Product Description

The SC-TOSA is a high-performance optical subassembly with an integrated Emcore TO-46 850nm VCSEL (Vertical Cavity Surface-Emitting Laser). This device is tailored to meet the needs of high-speed data communications and telecommunications applications. The product is designed for easy integration into a wide variety of Gigabit Ethernet, Fibre Channel, and ATM transceiver modules and systems. The SC-TOSA converts electrical current into optical power and then couples that power via an SC receptacle into a multimode optical fiber. The optical subassembly includes a TO-46 can with Common Anode, Common Cathode and Common Anode, Isolated pin configurations.



Product Specifications

Absolute Maximum Ratings

Parameter	Rating	Important Notice
Operating Case Temperature	0°C to 85°C	Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated for extended periods of time may effect device reliability.
Storage Temperature	-40°C to 85°C	
Lead Solder Temperature	260°C for 10 seconds	
Laser Reverse Voltage	5V	
Laser Forward Current (continuous)	10mA	
Laser Forward Current (instantaneous)	15 mA	
Photodiode Forward Current	2mA	

Electro-Optical Characteristics
(T= 25°C unless otherwise stated)

Characteristic	Symbol	Min.	Typ.	Max.	Units
Peak Emission Wavelength	λ_p	830	850	860	nm
RMS Spectral Width	$\Delta\lambda$			0.85	nm
$_p$ Temp Coefficient	$\Delta\lambda_p$		0.06		nm/°C
Optical Rise and Fall Time (20%-80%, @1.25Gb/s)	t_R, t_F		110	150	ps
Threshold Current , (P_o = 20 uW)	I_{TH}		1.5	2.5	mA
I_{TH} Change Over Temperature (0°C to 85°C)	ΔI_{TH}	-1.0		1.0	mA
Laser Forward Voltage (I_F = 5mA)	V_F	1.6	1.8	2.2	V
Laser Reverse Voltage (I_R=1µA)	V_{RBLD}	5			V
Differential Series Resistance (4 - 8mA)	δR_s	25	35	50	Ω

Photodiode Characteristics
(T= 25°C unless otherwise stated)

Characteristic	Symbol	Min.	Typ.	Max.	Units
Monitor Current (P_{oc}=0.40 mW)	I_{PD}	0.10		0.580	mA
Dark Current (Po =0 mW, V_R =3V\)	I_D			20	nA
Reverse Voltage (Po = 0 mW, I_R=10µA)	V_{RBLD}	10			V
Capacitance (V_R =0V, @ 1MHz) (V_R =3V, @ 1MHz)	C			100 55	pF pF

Optical Functional Characteristics
(T= 25°C unless otherwise stated)

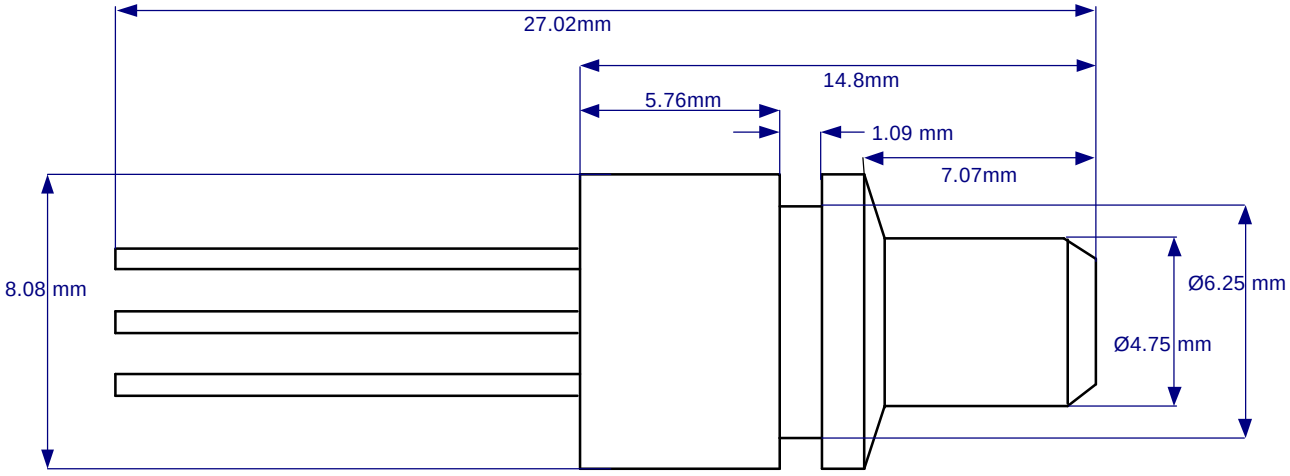
Characteristic	Symbol	Min.	Type	Max.	Units
Coupling Efficiency (50/125µm fiber, @ P_{FC} = .4mW) [1]	ε_{fiber}	60			%
Rattle Sensitivity [2]	R_{at}			1	dB
Fiber Coupled Slope Efficiency (I_F = 4 - 8mA, 50µm fiber)	η	0.030	0.11	0.15	mW/mA
Fiber Coupled Slope Efficiency over 0-85°C (I_F = 4 – 8mA)	ηt	0.021		0.175	mW/mA
Coupled Power Ratio (P_{oc} =400 µW) [3]	CPR	9			dB

Notes:
1. Coupling Efficiency is the ratio of the power coupled into a 50/125µm multi-mode fiber to the total power emitted from the open-bore OSA barrel.
2. Rattle Sensitivity is the change in the coupled optical power when the connector is subjected to a radial force of 25 cN in 4 quadrants, $R_{at=}$ 10log (Pmax/Pmin).
3. Coupled Power Ratio, CPR, provides an indication of the mode volume excited in the multi-mode fiber. It is the difference in the optical power coupled into a multi-mode fiber (50/125µm or 62.5/125µm) and the power coupled into a single mode fiber. CPR will be measured according to TIA/EIA 526-14A. CPR(dB) = $P_{fC,MMF}$(dB) – $P_{fC,SMF}$(dB).

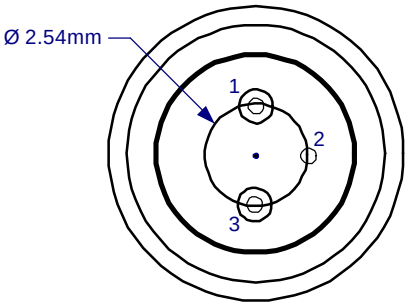
SC-TOSA

Diagram

All dimensions are nominal

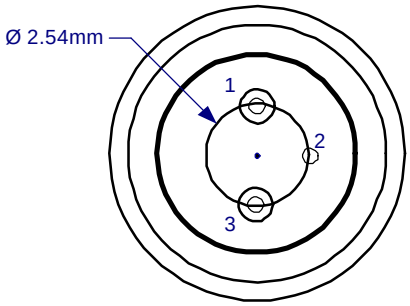


8585-3400: COMMON ANODE,ISOLATED



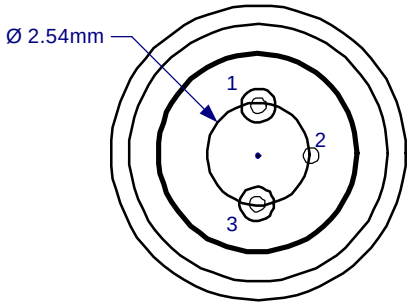
1-VCSEL CATHODE
2-PHOTODIODE ANODE
3-VCSEL ANODE/PHOTODIODE CATHODE

8585-3440: COMMON ANODE



1-VCSEL CATHODE
2-VCSEL ANODE/PHOTODIODE CATHODE
3-PHOTODIODE ANODE

8585-3420: COMMON CATHODE



1-VCSEL ANODE
2-VCSEL CATHODE/PHOTODIODE ANODE/CASE
3-PHOTODIODE CATHODE

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