850 nm 8.5 G TOSA

PL-xLD-00-SH0-C5

Features

- Data rates up to 8.5 Gbps
- -10 °C to 85 °C operation
- Optical power monitor with excellent tracking
- Multiple pinout options available
- VCSEL TO-can aligned to LC optical housing
- Optional flex attach to PCBA

Benefits

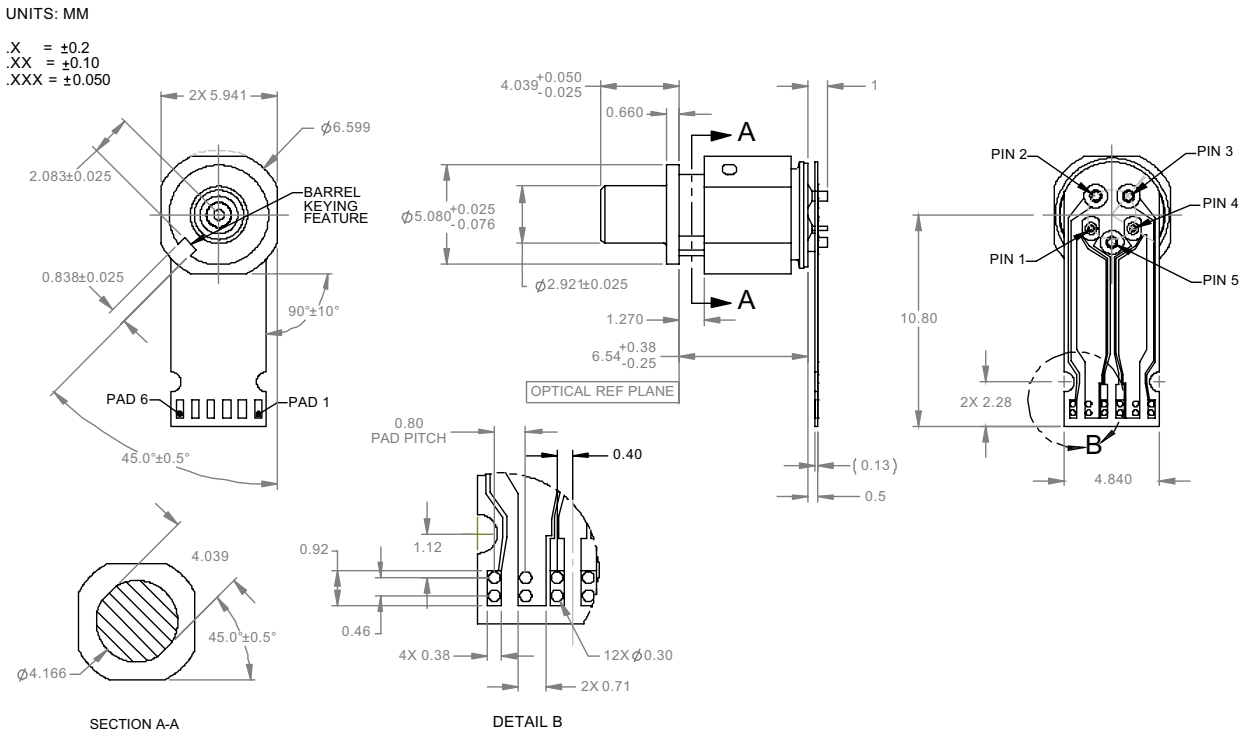
- Industry standard housing dimensions
- Very high reliability
  - Low FIT
  - High MTBF
- Excellent performance over extended operational temperatures
- Modulation performance verification

The JDSU 850 nm 8.5 Gbps connectorized TOSA product (Transmit Optical Sub-Assembly) is designed for high-speed data communication applications in 8.5 Gbps transceiver modules. The product utilizes a high performance, high reliability VCSEL integrated in a custom hermetically sealed TO package aligned to a precision LC housing. The device is configured for differential drive and a controlled impedance flex circuit is available for optimum performance. Each unit receives JDSU's proprietary burn-in and stabilization process to insure a low failure rate and long life expectancy while providing continuously consistent performance.

The PL-xLD-00-SH0-C5 converts an electrical signal into optical power at data rates up to 8.5 Gbps and it is designed for performance over extended operating temperature and power conditions with high reliability. It is perfectly suited for 50/125 µm multimode fiber. Each part is electro-optically tested to exacting standards.

2

TOSA with Flex Dimensions (LC)

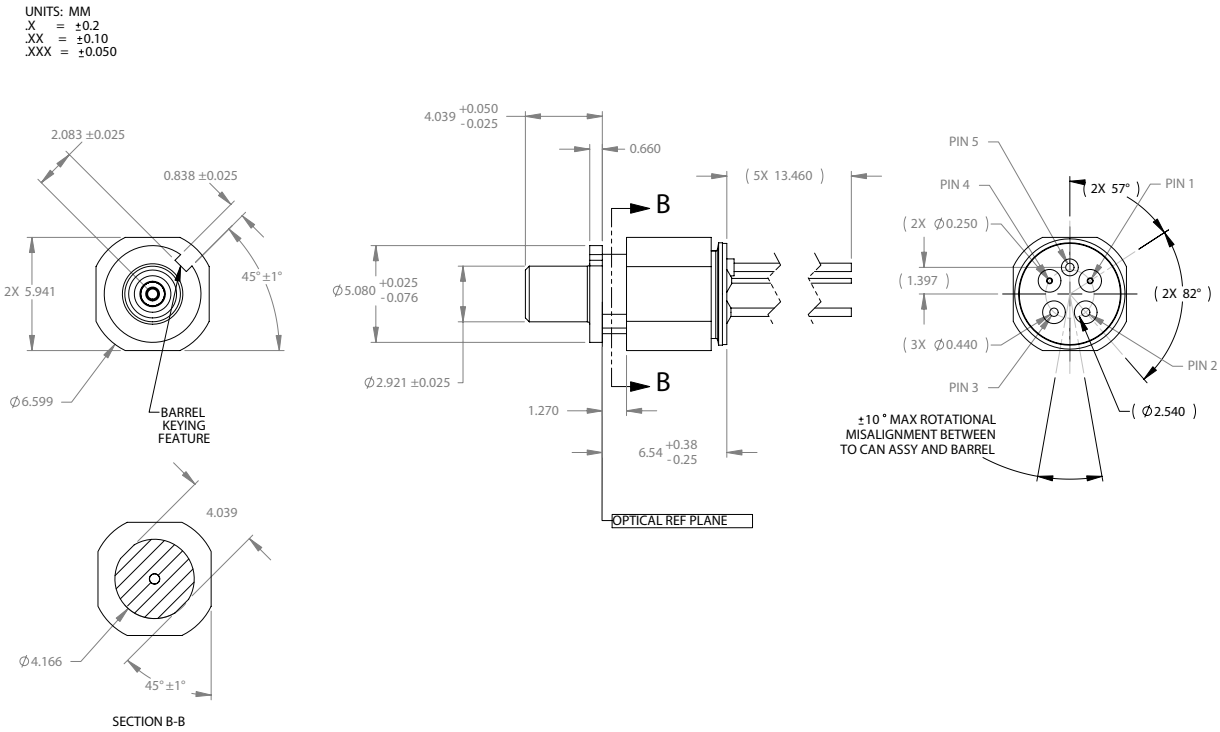


PL-FLD-00-SH0-C5 (5-lead TOSA, Differential drive, with flex)

Pad	Symbol	Function
1	K_{PD}	Monitor Cathode
2	GND	Case/ GND
3	A_{LD}	VCSEL Anode
4	K_{LD}	VCSEL Cathode
5	GND	Case/GND
6	A_{PD}	Monitor Anode

3

5-Lead TOSA without Flex Dimensions (LC)



PL-FLD-00-SH0-C5 (5-lead TOSA, no flex)

Pin	Symbol	Function
1	A_{LD}	VCSEL Anode
2	K_{LD}	Monitor Cathode
3	A_{PD}	Monitor Anode
4	K_{PD}	VCSEL Cathode
5	GND	Ground

4

Shipping Information

Shipped in anti-static stackable trays.

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Storage temperature	T_{st}	-40 to +100	°C
Lead solder temperature	T_s	260 °C for 10 sec. 2 mm from case	
Flex attach temperature	T_F	370 °C for 10 sec.	
Laser forward current[1]	I_f	7	mA
Laser reverse voltage	BVR_{LD}	-2	V
Photodiode forward current	I_{fm}	2	mA
ESD[2]		Class 0	

Note:
Conditions exceeding those listed may cause permanent damage to the device. Devices subjected to conditions beyond the limits specified for extended periods of time may adversely affect reliability.
1. Average
2. HBM

Electro-optical Characteristics

(T_{case} = 25 °C , CW operation unless otherwise stated)

Parameter	Symbol	Test Condition	Minimum	Typical	Maximum	Unit
VCSEL						
Peak emission wavelength	λ_p	P_{out}=0.5 mW	840	850	860	nm
Case operating temperature	T_{op}		-10		85	°C
RMS spectral width	$\Delta\lambda$	P_{out}=0.5 mW; 10.3125 Gb/s mod.			0.65	nm
λ_p temp coefficient	$\Delta\lambda_p$			0.06		nm/°C
Relative intensity noise[1]	RIN_{12}	10.3125 Gb/s mod.			130	dB/Hz
Rise/Fall time	t_r t_f	P_{out}=0.5 mW, 10.3125 Gb/s, 20-80%, filtered		50		psec
Threshold current	I_{th}			1	1.3	mA
I_{th} temperature variation	ΔI_{th}	T= -10 °C to 85 °C		+1.0	+2.0	mA
Laser forward voltage	V_f	P_{out}=0.5 mW		1.9	2.2	V
Series resistance	R_s	P_{out}=0.5 mW	90	100	110	Ω
Coupling efficiency	efiber			75		%
Slope efficiency[2]	η	P_{out}=0.5 mW	0.075		0.16	mW/mA
Slope efficiency temperature variation	$\Delta\eta/\Delta T$			-4000		PPM/°C
Total capacitance @ VCSEL	C_{LD}	6 mA bias			0.6	pF
Small signal bandwidth		P_{out}=0.5 mW	6.375			GHz
Optical return loss					-12	dB
Monitor Photodiode						
Photocurrent	I_{PD}	P_{out}=0.5 mW V_r = 1.5V	0.12		0.6	mA
Monitor current tracking[3]	ΔI_m	P_{out}=0.5 mW T = -10 °C to 85 °C V_{rm} = 1.5V	-0.25		0.25	dB
Monitor dark current	I_D	V_r = 1.5 V			500	nA
Monitor capacitance	CM	V_{rm} = 1.5V			50	pF

1. Measured according to IEEE802.3 for RIN under Modulation.
2. Includes connector repeatability, ferrule concentricity, and diameter (50 µm fiber).
3. For constant monitor current. Does not include the effect of fiber coupling efficiency.

Order Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.

Sample: PL-SLD-00-SH0-C5

Part Number	Description
PL-SLD-00-SH0-C5	Differential drive 8.5 G TOSA with LC housing
PL-FLD-00-SH0-C5	Differential drive 8.5 G TOSA with LC housing, with flex