

Analog Coaxial Pigtailed Laser Module

Technical Data

LSA2825 - Analog Coaxial Laser LSA3821 - Dual-in-Line Package

Features

- Compact Coaxial Package
- Strained Multi Quantum Well (SMQW) Laser Chip
- Low Thresholds Current and Operating Currents
- Wide Operating Temperature -40°C to +85°C
- Optical Power May Be Customized up to 2 mW
- Convenient Variety of Pinout and Mounting Flange Options

Applications

- CATV/CCTV
- Return Path Links
- LANS/WANS

Description

The LSAX82X is a compact analog coaxial pigtailed laser transmitter, operating in the 1300 nm wavelength region and coupling light to single mode fiber.

The device features a high reliability SMQW laser diode and rear facet monitor photodiode. These are electrically connected to four pins in an industrystandard configuration.

Environmental performance is designed to be compatible with the requirements of Bellcore's TA-NWT-000983 document.



If the specific arrangement or performance you require is not listed, please contact your local representative, as our highly flexible design and manufacturing processes allow both physical and electro-optical customization to meet your needs.

Laser Safety Warning

This device is a Class IIIb (3b) Laser Product. It may emit invisible laser radiation if operated with the fiber pigtail disconnected. To avoid possible eye damage do not look into an unconnected fiber pigtail during laser operation. Do not exceed specified operating limits.

Absolute Maximum Ratings

Absolute limiting (maximum) ratings mean that no catastrophic damage will occur if the product is subjected to these ratings for short periods, provided that each limiting parameter is in isolation and all other parameters have values within the performance specification. It should not be assumed that limiting values of more than one parameter can be applied to the product at the same time.

			Limits		
Parameter	Symbol	Test Condition	Min.	Max.	Units
Laser Forward Current If		DC		120	mA
Laser Reverse Voltage	Vlr	DC		2	V
Photodiode Reverse Voltage	Vr	DC		20	V
Photodiode Forward Current	Ipf	DC	1		mA
Operating Temperature	Тс	Temperature measured at case	-40 +85		°C
Storage Temperature	Ts		-40	+85	°C
Relative Humidity	RH		noncondensing		%RH
Fiber Pull Strength		Three times; 10 sec.		10	N
Mechanical Shock		MIL-STD-883D, Method 2002,		500	G
		Condition A			
Vibration		MIL-STD-883D, Method 2007,	20		G
		Condition A			

Performance Specifications

			LSA2825 LSA3821			
Parameter	Symbol	Test Condition	Min.	Max.	Units	
LASER		CW, $Tc = -40^{\circ}C$ to $+85^{\circ}C$, Po as noted below unless otherwise stated				
Rated Optical Power	Ро	CW	1.0		mW	
Threshold Current	Ith	$Tc = +25^{\circ}C$	3.5	10	mA	
Threshold Current	Ith		1	30	mA	
Slope Efficiency	η	$Tc = +25^{\circ}C$	30	80	µW/mA	
Drive Current above Ith,	Id	$Tc = +25^{\circ}C$	12.5	33.3	mA	
for $Im = Im (Po, +25^{\circ}C)$		Tc = -40°C to $+85$ °C	10	55	mA	
Forward Voltage Vf				1.6	V	
Center Wavelength	λ	$Tc = +25^{\circ}C$	1286	1336	nm	
		$Tc = -40^{\circ}C to +85^{\circ}C$	1260	1360	nm	
Wavelength/Temperature Coefficient	$\Delta\lambda/\Delta T$			0.4	nm/°C	
Spectral Width	σ	One sigma, RMS		2.5	nm	
MONITOR PHOTODIODE		$Tc = +25^{\circ}C, Vr = 5 V$				
Photocurrent	Im		200	1000	μΑ	
Dark Current	Id	$Po = 0 \mu W$		20	nA	
Capacitance	С	1 MHz		10	pF	
Tracking Error	DP	$Im = Im (Po, +25^{\circ}C)$ $Tc + -40^{\circ}C to + 85^{\circ}C$	-1	+1	dB	

Other Documentation

1. SMQW Laser Reliability Report – Publication Number 5965-1293E

2. LST282X/292X Characterization Report – Publication Number 5965-5374E

Analog Specifications

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Relative Intensity	RIN	$Po = 1 \text{ mW}, Tc = -40^{\circ}C \text{ to } +85^{\circ}C$		-135	dB/Hz
Noise (RIN)					
2nd Order Distortion	-	$Tc = +25^{\circ}C$, Po = 1 mW, OMD = 35%		-43	dBc
		Two tone test: $F_1 = 13$ MHz, $F_2 = 19$ MHz,			
		20 km fiber, Total loss = 9 dB, $F_1 \pm F_2$			
3rd Order Distortion	-	Tc = +25°C, Po = 1 mW, OMD = 35%		-50	dBc
		Two tone test: $F_1 = 13$ MHz, $F_2 = 19$ MHz,			
		20 km fiber, Total loss = 9 dB,			
		$2F_1 \pm F_2, 2F_2 \pm F_1$			

Fiber Pigtail

Parameter	Minimum	Maximum	Units
Fiber Pigtail Length	1000		mm
Spot Size (Mode Radius)	4.5	5.5	μm
Cladding Diameter	122	128	μm
Core/Cladding Concentricity		1	μm
Secondary Jacket Diameter	0.8	1	mm
Effective Cutoff Wavelength	1150	1240	nm

Reliability Target

Parameter	Condition	Min.	Max.	Units
Median Life	50% inc. in total drive current, $Tc = +25$ °C	$2x10^{5}$		hours





DIM.	MIN.	TYP.	MAX.	DIM.	MIN.	TYP.	DIM.	MIN.	TYP.	MAX.
Α		7.4		G	12.0		м		0.9	
В		17.0		н			N		5.3	
С	11.8		12.2	I		5.3	0		2.0	
D		3.7		J		2.0	Р	0.4		0.5
E	2.4		2.6	к	2.1		Q		0.5	
F	12.5		12.9	L		1000	R		1.25	

OTHER FLANGE OPTIONS ARE AVAILABLE.



LST2825					
PIN	FUNCTION				
1	MONITOR ANODE (-VE)				
2	MONITOR CATHODE (+VE)				
3	LASER CATHODE (-VE)				
4	LASER ANODE (+VE)				



LSA3821 Specification – All dimensions in mm.

ALL DIMENSIONS IN MILLIMETERS

Ordering Information



Laser Warning



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