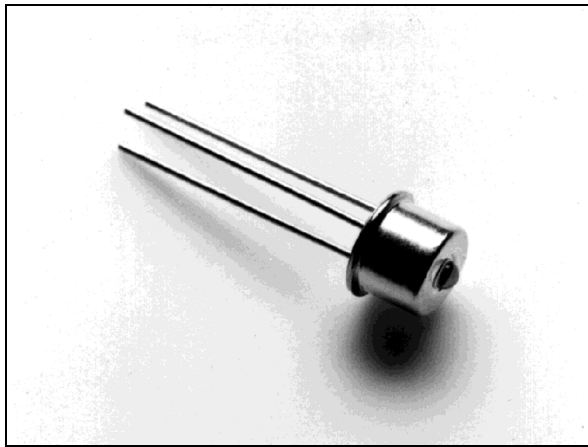


March 2003



Ordering Information

 ZL60001/TBD TO-46 Lens cap
 0°C to +70°C

Warning: Laser Radiation, avoid exposure to beam. Class 3B laser product, potential eye hazard. Warning labels in each box.

Description

The ZL60001 is a high speed TO-46 assembled 850nm VCSEL (Vertical Cavity Surface-Emitting Laser).

The product converts electrical current into optical power to be used for fibre optic communications.

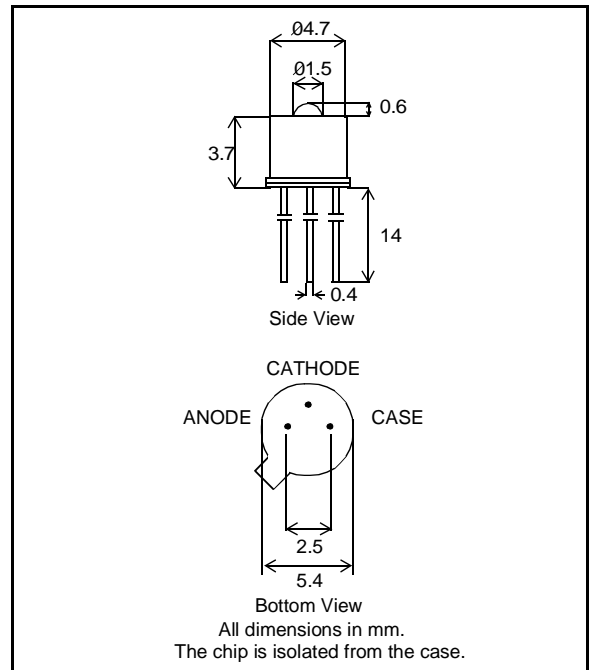
The ZL60001 has a narrow beam divergence which is stable over temperature and current. This gives rise to high and stable fibre coupling efficiency without any additional lenses.

Features

- 850nm oxide confined VCSEL
- Data rate up to 3.1 Gbps
- High fibre coupling efficiency
- Optical field stable over temperature and current

Applications

- High speed Data Communication and Telecommunication
- Gigabit Ethernet / InfiniBand / FibreChannel / ATM


Figure 1 - Pin Description

Optical and Electrical Characteristics – Case Temperature 25°C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Fiber-Coupled Power (50/125 μm fibre)	P_{fibre}	1			mW	$I_F=7$ mA
Optical Power	P_O	1.5	2.5	3.5	mW	$I_F=7$ mA
Threshold Current (0 – 70°C)	I_{th}	1		4.5	mA	
Forward Voltage	V_F	1.6		2.2	V	$I_F=7$ mA
Centre wavelength	λ_C	830	850	860	nm	$I_F=7$ mA
RMS Spectral Width	$\Delta\lambda$			0.85	nm	$I_F=7$ mA
Differential resistance	R_{diff}			50	Ω	$I_F=7$ mA
Relative Intensity Noise	RIN			-120	dB/Hz	$I_F=7$ mA, Note 1
Optical Rise Time (20%-80%)	t_r		80	130	ps	Note 2
Optical Fall Time (20%-80%)	t_f		100	140	ps	Note 2
Beam divergence ($1/e^2$)	θ	5		15	$^\circ$	Note 3

Note 1: ANSI X3.230-1994

Note 2: InfiniBand sec. 8.5.3.2

Note 3: Over operating current and bias over threshold

Absolute Maximum Ratings

Parameter	Symbol	Limit
Storage Temperature	T_S	-40 to +100 $^\circ\text{C}$
Operating Temperature (case)	T_O	0 to +70 $^\circ\text{C}$
Electrical Power Dissipation	P_{diss}	35 mW
Continuous Forward Current ($f<10\text{kHz}$)	I_F	15 mA
Reverse Voltage	V_R	5 V
Soldering Temperature (2mm from case for 10sec)	T_{slid}	260 $^\circ\text{C}$.

Thermal Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Thermal Resistance – Infinite Heat Sink	R_{thjc}		1000		$^\circ\text{C}/\text{W}$
Thermal Resistance – No Heat Sink	R_{thja}		1300		$^\circ\text{C}/\text{W}$
Temp. Coefficient - Wavelength	$d\lambda/dT_j$		0.06		nm/ $^\circ\text{C}$
Optical Power – Variation (0 – 70°C)	ΔP_O		± 0.3		%/ $^\circ\text{C}$
Threshold Current – Variation (0 – 70°C)	ΔI_{th}		± 0.6		mA

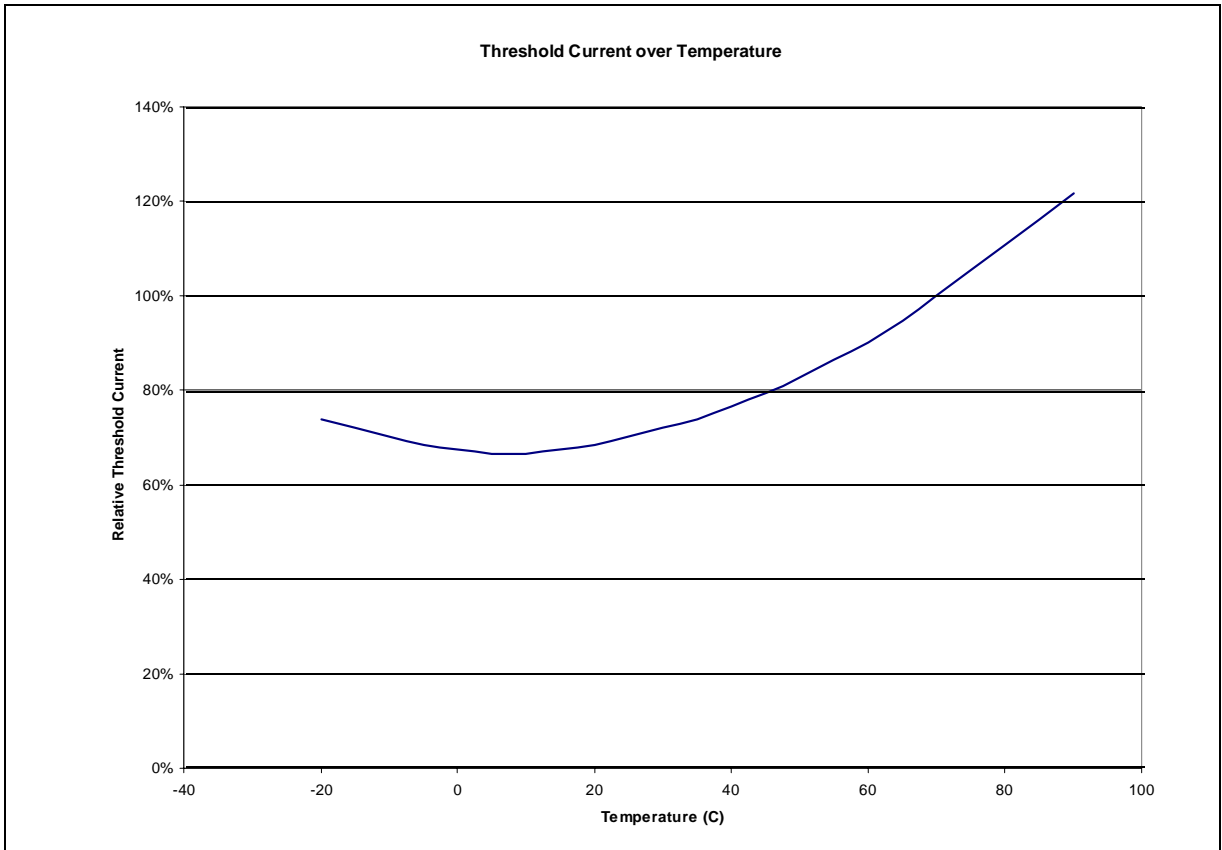


Figure 2 - Threshold Current over Temperature

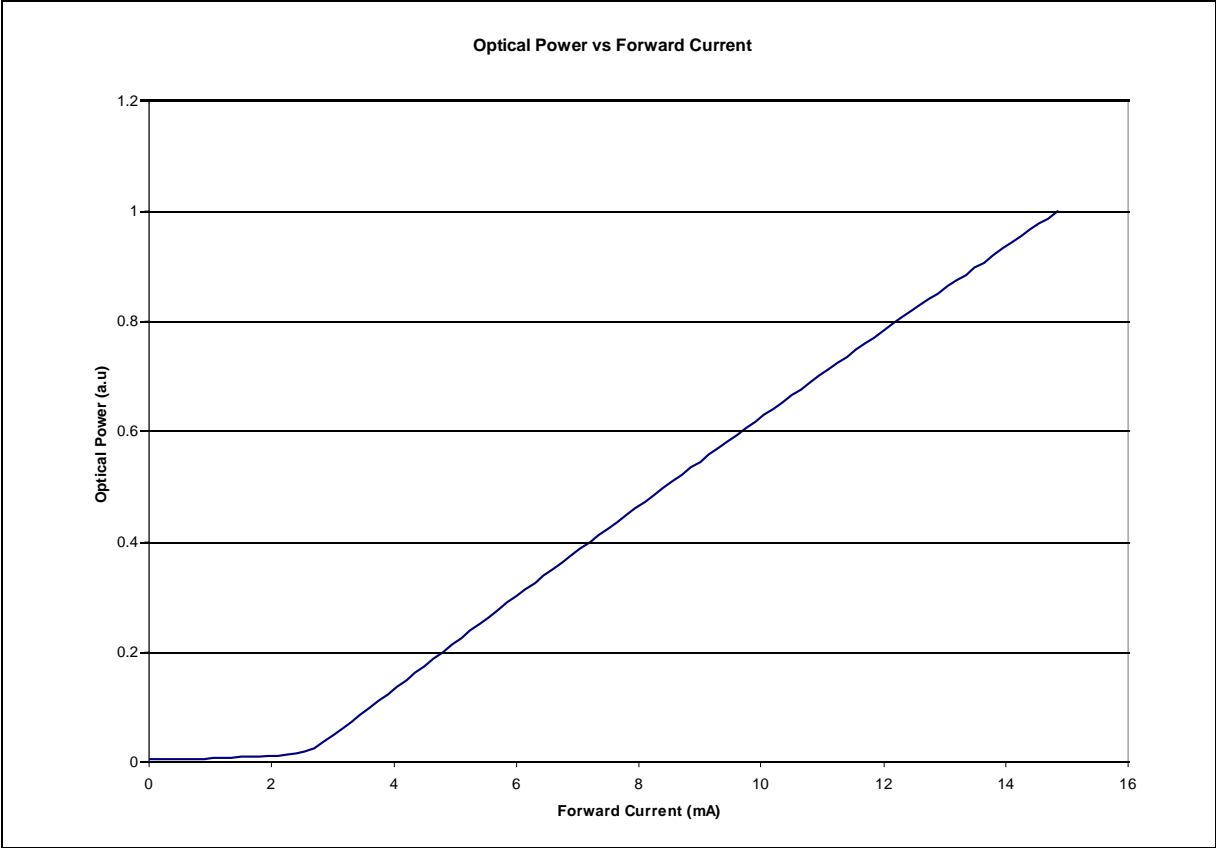
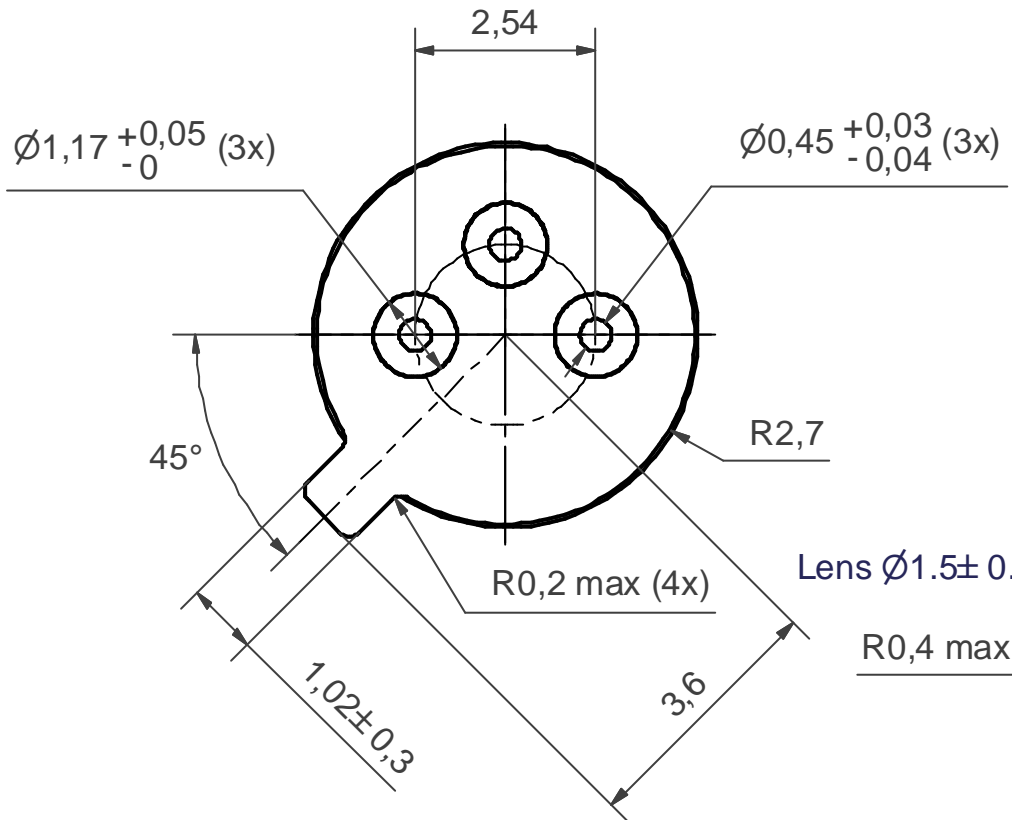
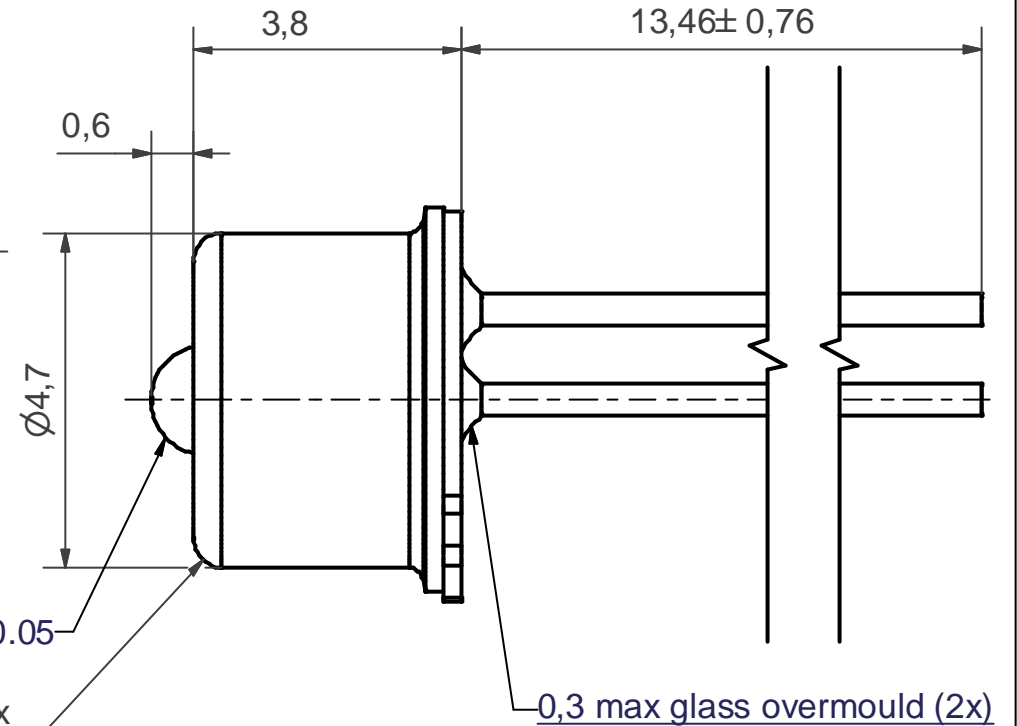


Figure 3 - Optical Power vs Forward Current

BOTTOM VIEW (10 : 1)



SIDE VIEW



NOTES:-

1. All dimensions in mm.
2. General tol. ISO-2768-mK.
3. Coating: Case: Ni 1,5-2,5 μm .
Header: Ni 2-3 μm / Au min 1,32 μm .

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Package code **TB**

Previous package codes

Drawing type
Package drawing, TO-46 with lens

Title **JS004076**



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