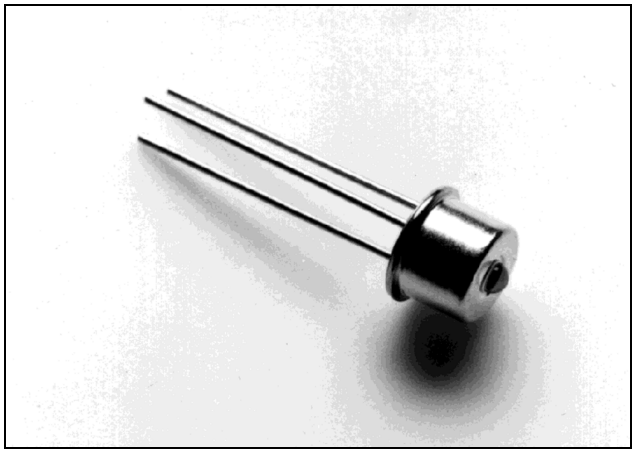
ZL60003

RCLED 650 nm, Plastic Optical Fiber Communications - 125 to 250 Mbps

Data Sheet

June 2004



Ordering Information

ZL60003/TBD TO-46 Package

-20°C to +70°C

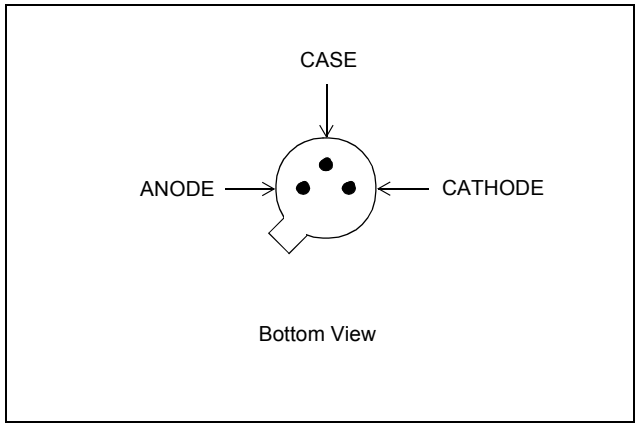


Figure 1 - Pin Description

Features

- Optimized wavelength for Plastic optical fiber
- High Bandwidth
- No threshold
- Surface emitting
- High coupling efficiency
- Hermetically sealed

Applications

- Fast Ethernet
- IEEE1394b
- 155 Mbps ATM
- Home networking
- Industrial applications

Description

This unique Resonant Cavity Surface-Emitting LED (RCLED) is designed for optical communications over Plastic Optical Fiber (POF) in applications such as Fast Ethernet, IEEE1394b (S100, S200) and 155 Mbps ATM. Optimised high-speed performance can be achieved by use of a suitable electrical pre-emphasis within the drive circuitry.

ZL60003 is also well suited for applications where visible light is required, such as in sensing and positioning.

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Optical and Electronic characteristics (25°C Case temperature)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Fiber-Coupled Power	P_{fiber}	1.2			mW	I_F = 30 mA (Note1)
Optical Power	P_o		2.0		mW	I_F = 30 mA
Beam Divergence (FWHM)	$2\Theta_{1/2}$		25		deg	I_F = 30 mA
Rise and Fall Time	t_R ,t_F			3.5	ns	I_F = 30 mA (Note1,2)
Peak Wavelength	λp	640	650	660	nm	I_F = 30 mA (Note1)
Spectral Width (FWHM)	Δλ			20	nm	I_F = 30 mA (Note1)
Forward Voltage	V_F			2.3	V	I_F = 30 mA

Note 1: Fiber: POF 980/1000 µm Step Index, NA=0.48. For high speed communication, a low NA POF or a graded index POF are recommended.

Note 2: Unfiltered 20%-80% measurement. Note significant improvements can be achieved by use of pre-emphasis in the drive circuitry.

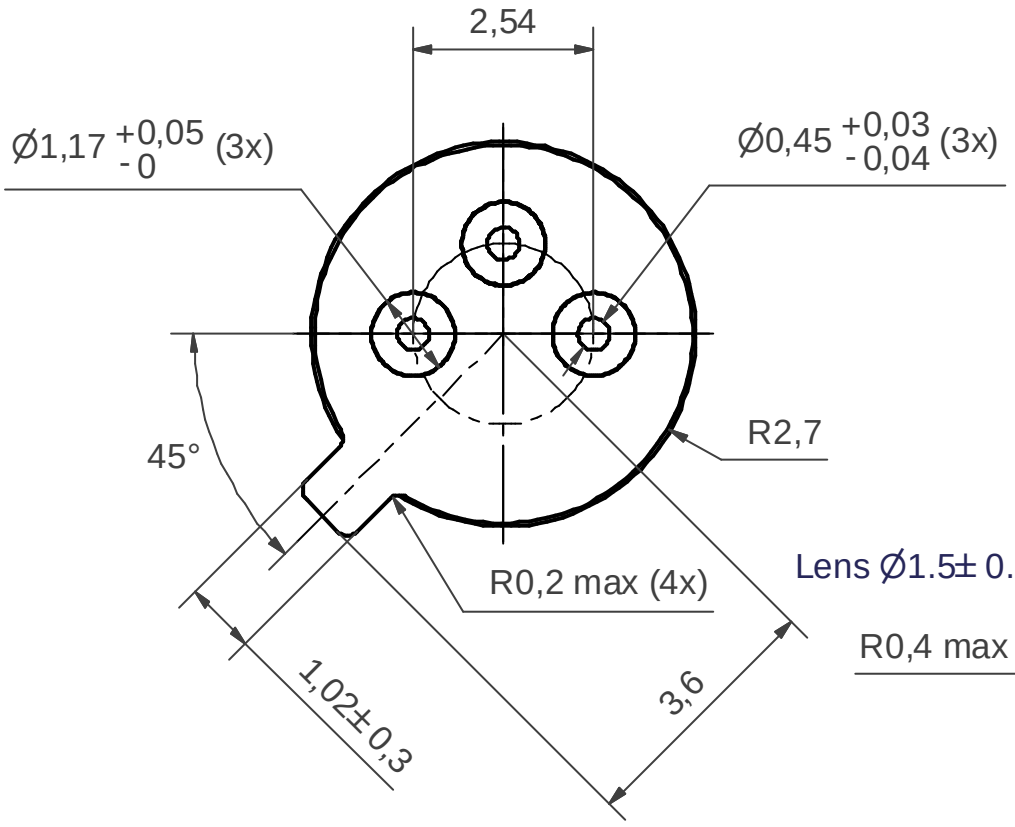
Absolute Maximum Ratings

Parameter	Symbol	Limit
Storage Temperature	T_{stg}	-55 to +125°C
Operating Temperature	T_{op}	-20 to +70°C
Electrical Power Dissipation	P_{tot}	130 mW
Continuous Forward Current (f<10 kHz)	I_F	40 mA
Peak Forward Current (duty cycle<50%,f>1 MHz	I_{FRM}	85 mA
Reverse Voltage	V_R	5 V
Soldering Temperature (2 mm from the case for 10 sec.)	T_{sld}	260°C

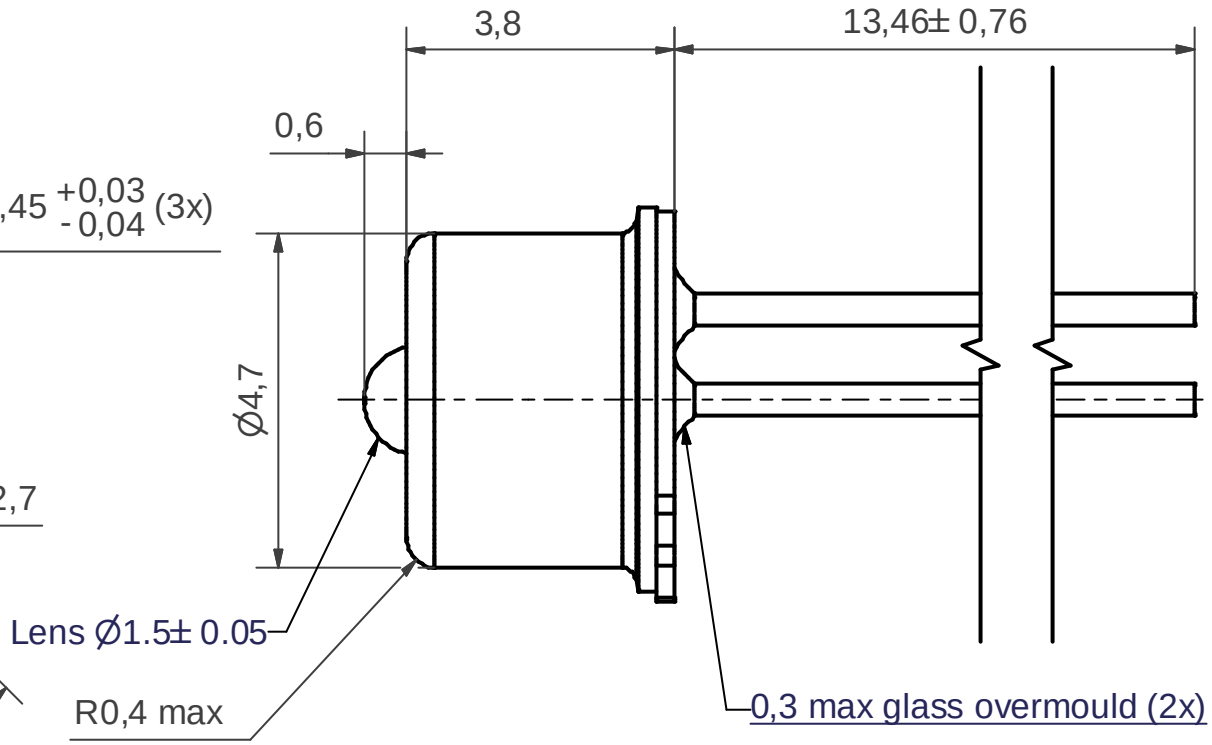
Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance - Infinite Heat Sink	R_{thjc}		200		°C/W
Thermal Resistance - No Heat Sink	R_{thja}		500		°C/W
Temp. Coefficient - Wavelength	$d\lambda/dT_j$		0.08		nm/°C
Optical Power - Fiber Coupled	dP_f/dT_j		-0.7		%/°C

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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ZARLINK SEMICONDUCTOR

Previous package codes

Package code TB

Drawing type
Package drawing, TO-46 with lens

Title JS004076



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