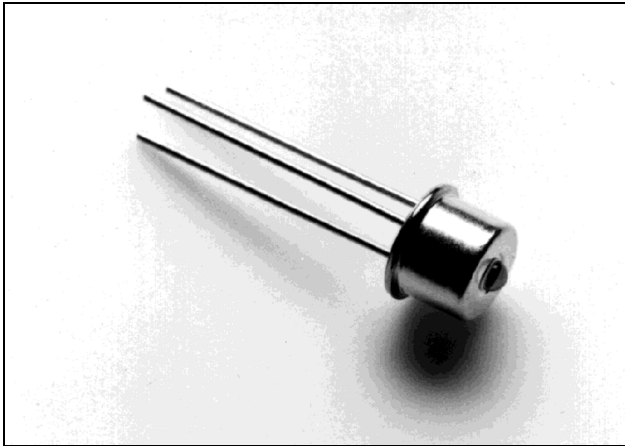


June 2004



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

Ordering Information

ZL60003/TBD TO-46 Package

-20°C to +70°C

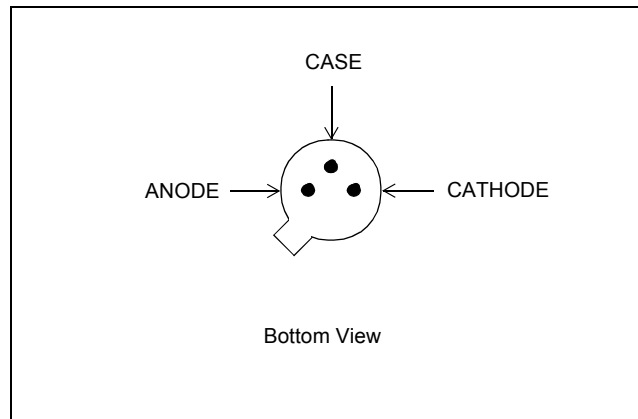


Figure 1 - Pin Description

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.

Optical and Electronic characteristics (25°C Case temperature)

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

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.

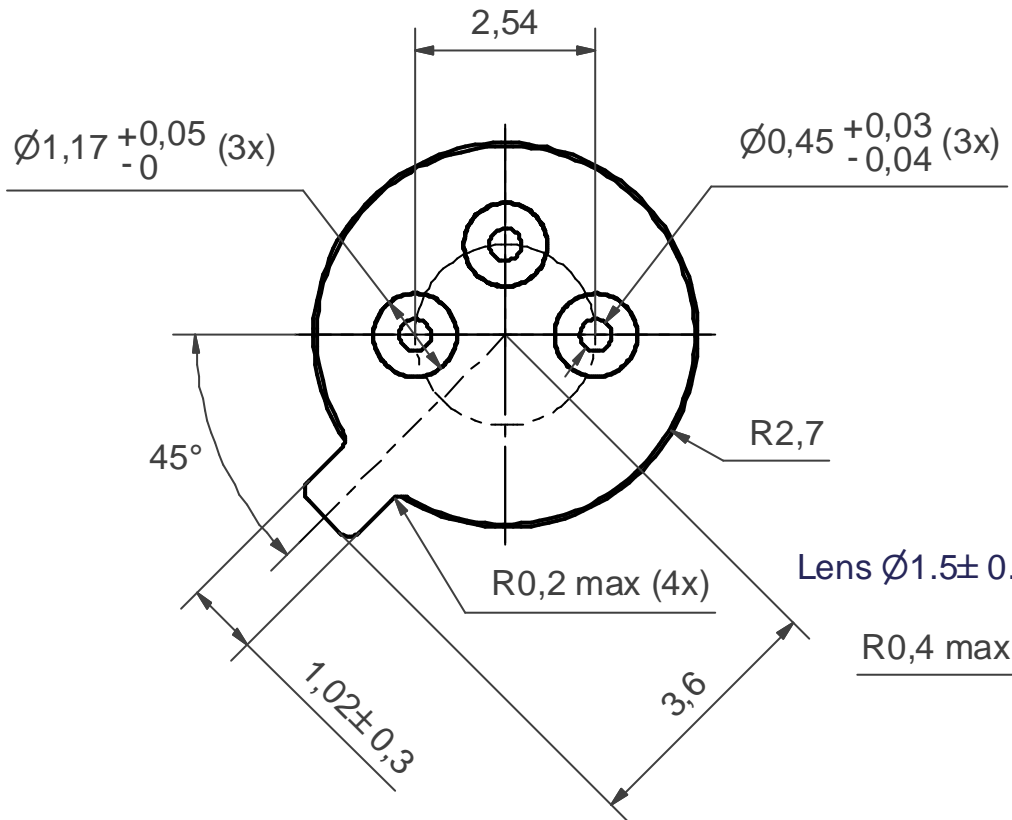
Absolute Maximum Ratings

| 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 |

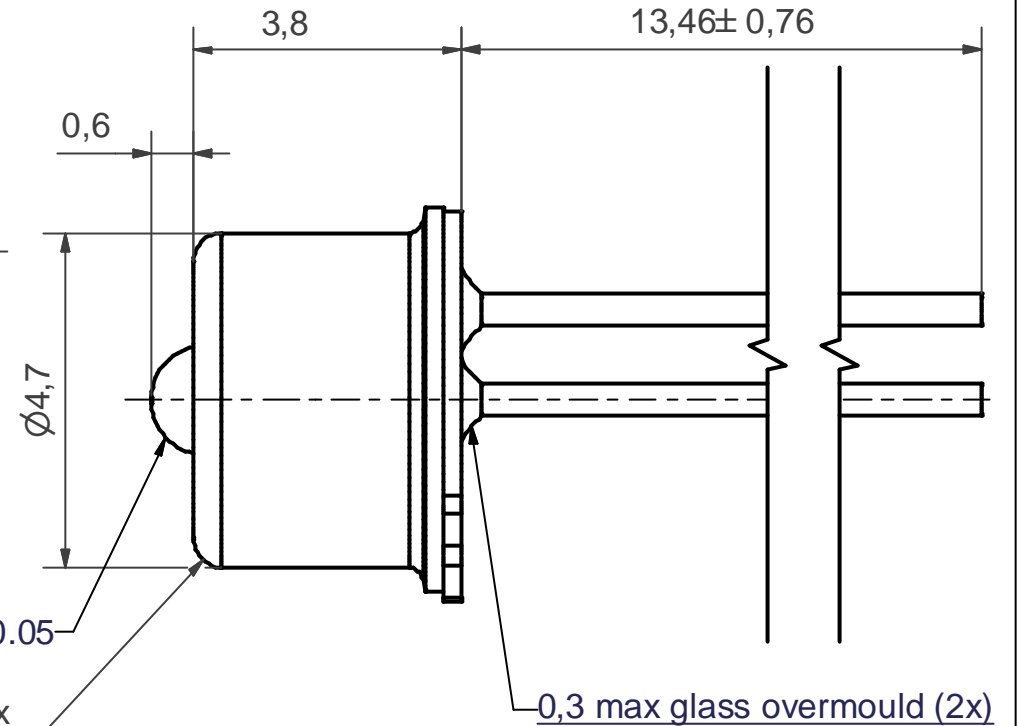
Thermal Characteristics

| 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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Package code **TB**

Previous package codes

Drawing type
Package drawing, TO-46 with lens

Title **JS004076**



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