



# ZL60003

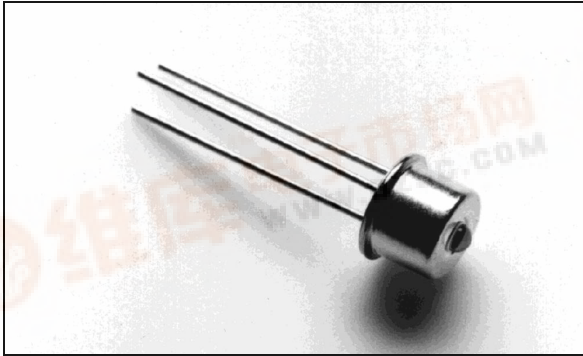
## Plastic Optical Fiber Communications - 125 to 250Mbps

### Data Sheet

DS5612

Issue 1

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#### Ordering Information

ZL60003/TBD TO-46 Package

-20 to +70°C

#### Description

This unique Resonant Cavity Surface-Emitting LED (RCLED) is designed for optical communications over Plastic Optical Fiber (POF) in applications such as IEEE1394b (S100, S200) and 155 Mbps ATM. For very high speed operation, i.e. above 200 Mbps, an electrical pre-emphasis circuit is recommended to increase the bandwidth of the device. ZL60003 is also well suited for applications where visible light is required, such as in sensing and positioning.

#### Features

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

#### Applications

- IEEE1394b
- 155Mbps ATM
- Homenetworking
- Industrial applications

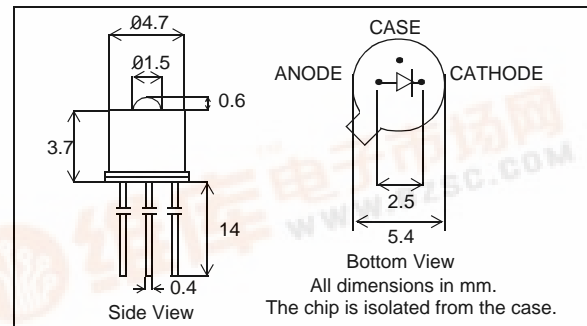


Figure 1 - Pin Description

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Fiber-Coupled Power	$P_{\text{fiber}}$	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	$I_F=30\text{mA}$
Bandwidth (3dBel)	$f_c$	125			MHz	$I_F=30\text{mA}$ (Note1)
Peak Wavelength	$\lambda_p$	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: Fiber: POF 980/1000 $\mu\text{m}$  Step Index, NA=0.48. For high speed communication, a low NA POF or a graded index POF are recommended.

Table 1 - Optical and Electronic characteristics (25°C Case temperature)

Parameter	Symbol	Limit
Storage Temperature	$T_{stg}$	-55 to +125 <sup>0</sup> C
Operating Temperature	$T_{op}$	-20 to +70 <sup>0</sup> 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 (2mm from the case for 10 sec.)	$T_{sld}$	260 <sup>0</sup> C

Table 2 - Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit
Thermal Resistance - Infinite Heat Sink	$R_{thjc}$		200		<sup>0</sup> C/W
Thermal Resistance - No Heat Sink	$R_{thja}$		500		<sup>0</sup> C/W
Temp. Coefficient - Wavelength	$d\lambda/dT_j$		0.08		nm/ <sup>0</sup> C
Optical Power - Fiber Coupled	$dP_f/dT_j$		-0.7		%/ <sup>0</sup> C

Table 3 - Thermal Characteristics



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