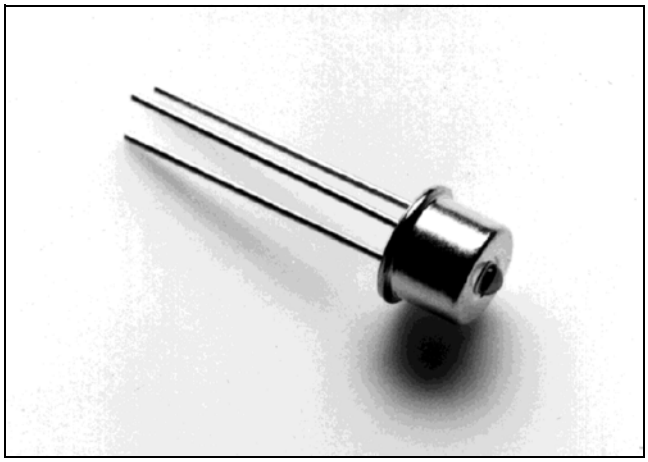
ZL60010

High-Performance Linear PIN 1300nm, 1550nm

Data Sheet

December 2003



Ordering Information

ZL60010TBD TO-46

-40°C to +85°C

Features

- 1310-1550 nm PIN
- TO-46 Assembly
- High Linearity
- Low Intermodulation
- High Responsivity

Applications

- Analog Video
- CATV

Description

This Photodetector offers high linearity, low capacitance and high responsivity. It is ideal for low distortion applications such as CATV and Analog Video. The device is packaged in a hermetically sealed TO-46 package with antireflective coating for optimum performance. A variety of assemblies including pig-tail are available upon request.

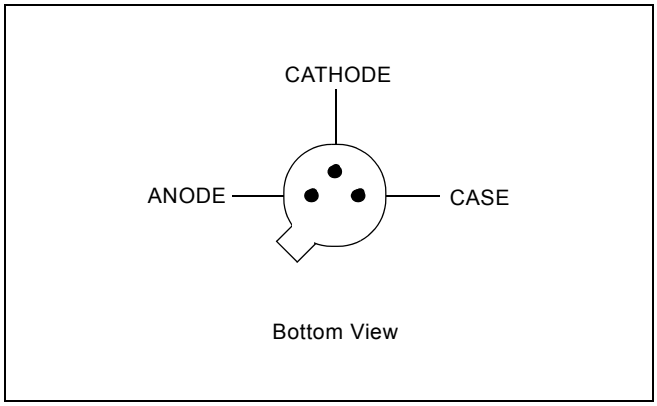


Figure 1 - Pin Diagram

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Optical and Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Responsivity	R	0.82 0.87	0.9 1.0		A/W	λ=1310nm, λ=1550nm Note 1
Intermodulation	IMD_2	72	80		dBc	Note 1, 2
Intermodulation	IMD_3	85			dBc	Note 1, 2
Capacitance	C		0.9	1	pF	f=1MHz
Dark current	Id		0.5	80	nA	
Electrical Band width	fc	2	3		GHz	RL=50Ω

Operating Conditions: -40°C - + 85°C Case Temperature. VR = -10V

Note 1: Fiber - Single Mode, 10μm/125μm, NA=0.11
Note 2: According to CENELEC EN 50083-6 / 3.16 Intermodulation of a receiver. P_O = 0 dBm. Modulation index m = 20% / 40%. Zo = 50Ω. f: 47-862MHz

Absolute Maximum Ratings

Parameter	Symbol	Limit
Breakdown Voltage	V_R	>25V
Optical Power	P_O	< 3dBm permanent (not in focus) < 7dBm, t<60 s (not in focus)

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	V_R	3.3	10	20	V
Operating Temperature	T_{op}	-40		85	°C
Storage Temperature	T_{stg}	-40		85	°C

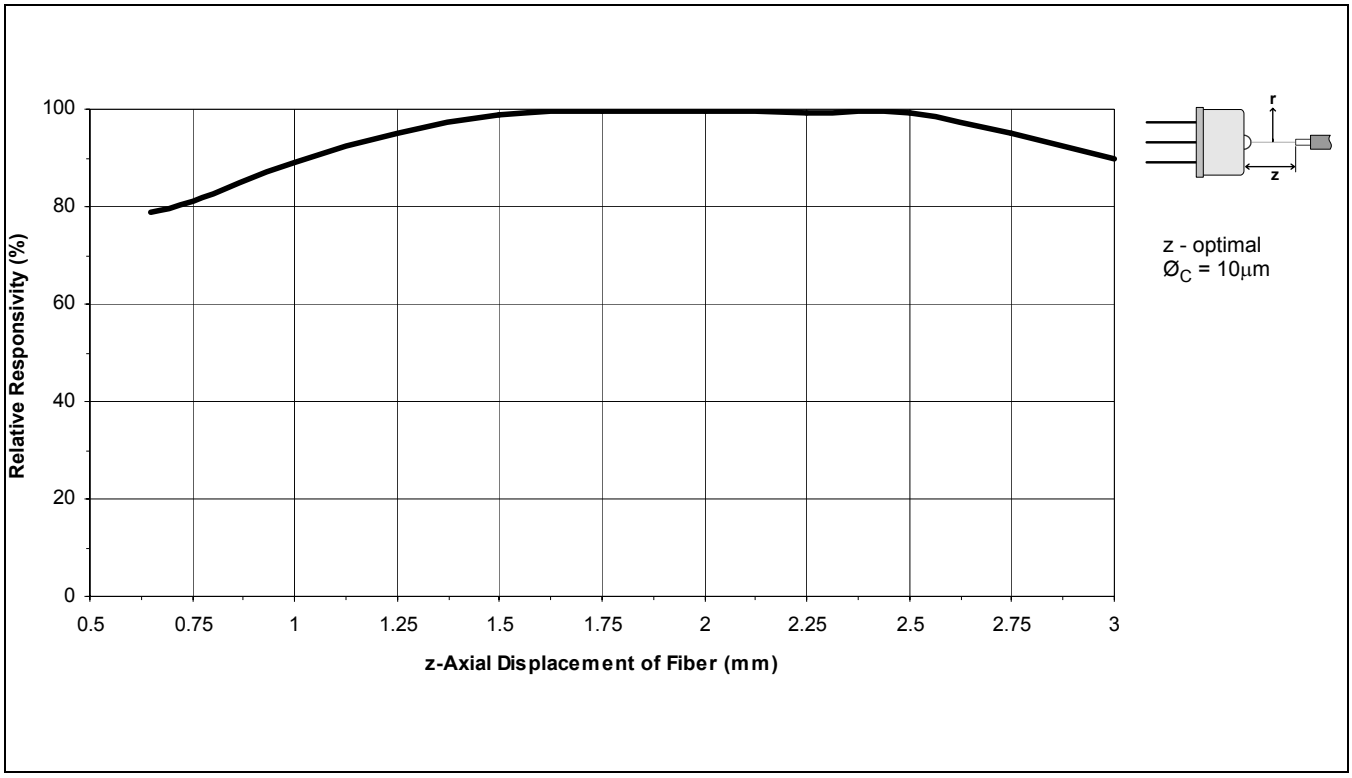


Figure 2 - Typical Responsivity vs Axial Displacement for a Singlemode Fiber

Figure 3 - Typical Responsivity vs Radial Displacement for a Singlemode Fiber

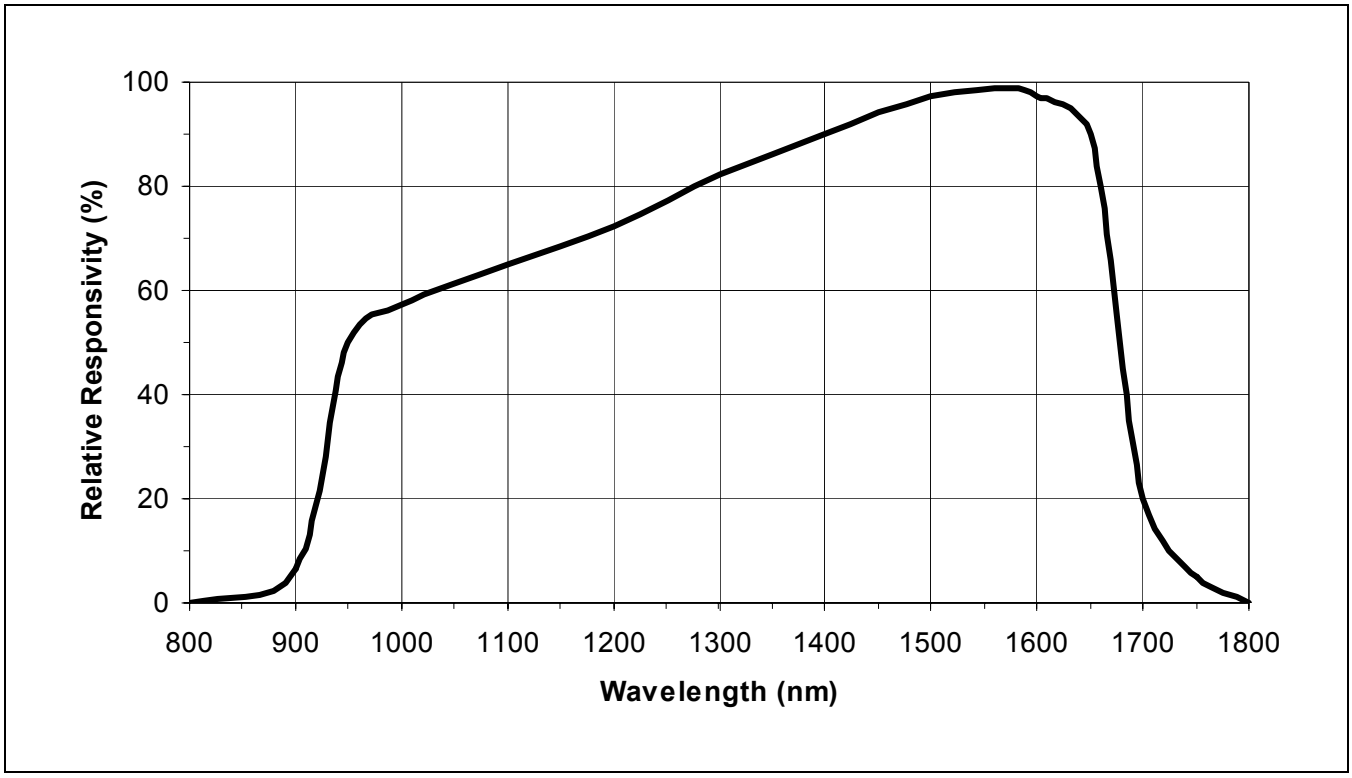


Figure 4 - Responsivity vs Wavelength of Coupled Input Power

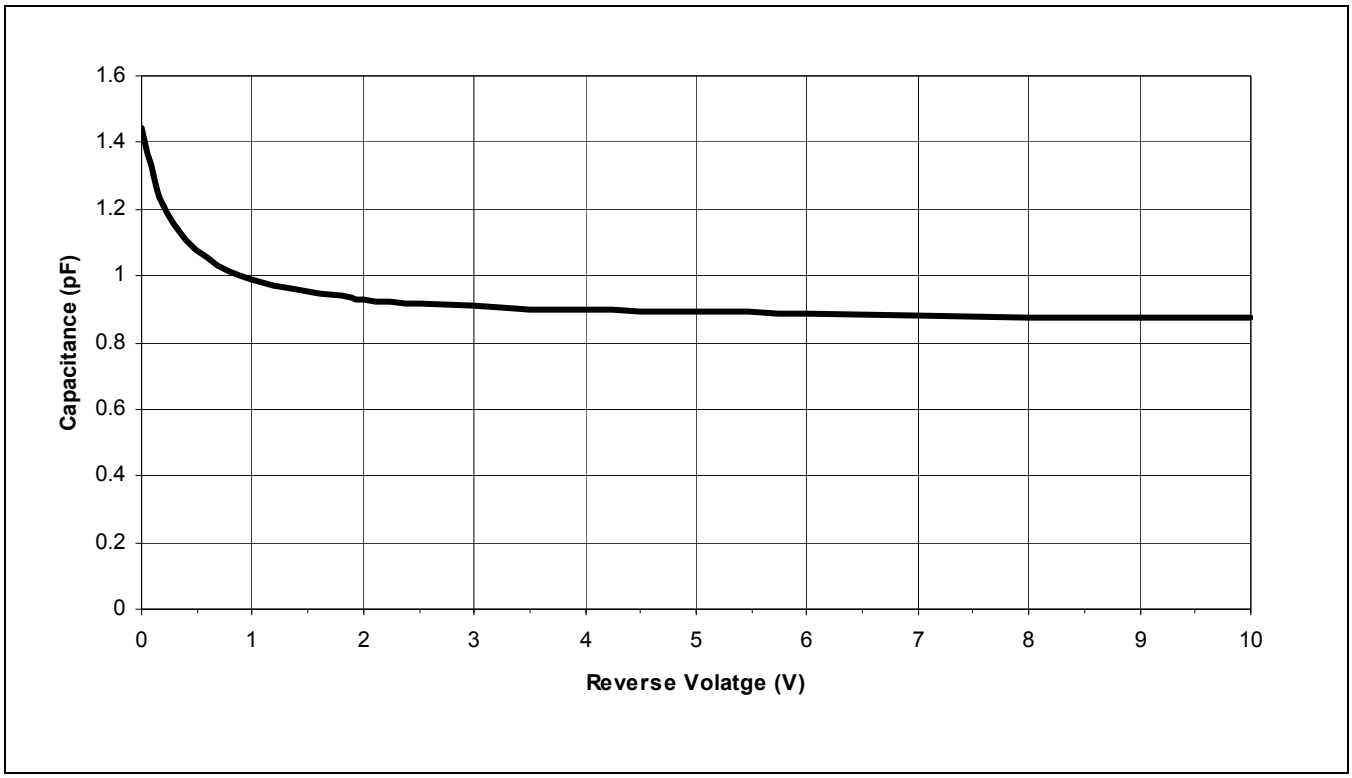


Figure 5 - Capacitance vs. Reverse Voltage

Application Guidelines

ESD Handling

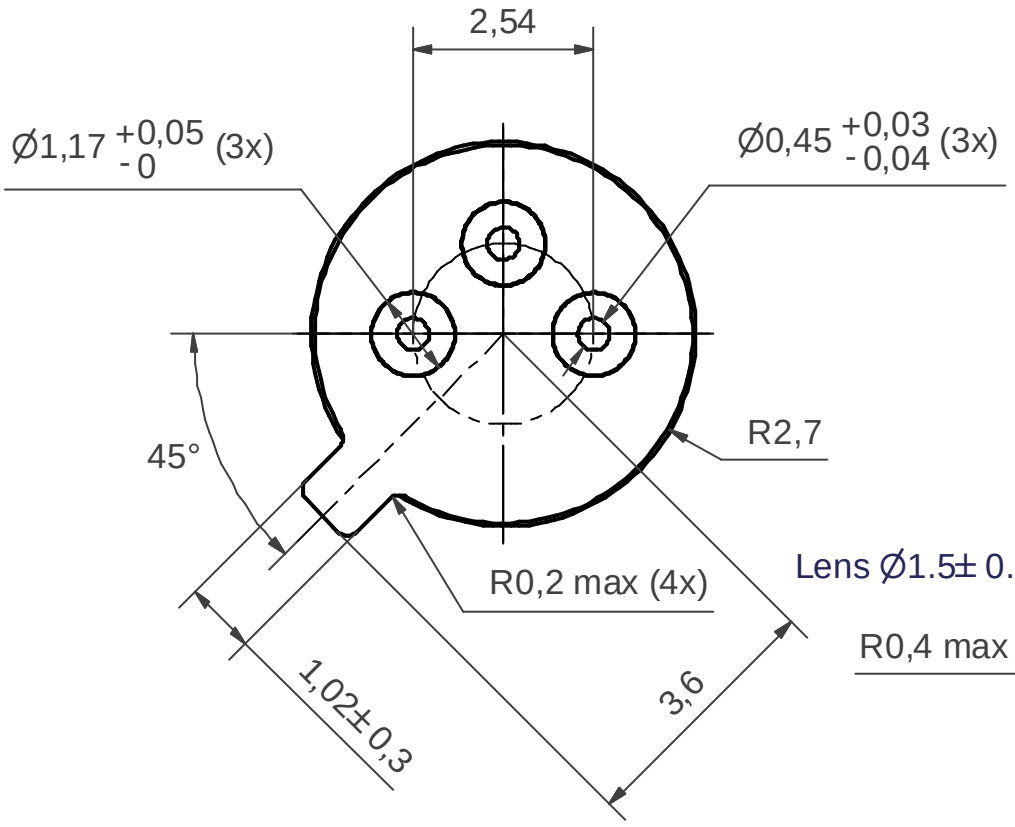
The PIN is sensitive to electrostatic discharges. When handling the device, precautions for ESD sensitive devices should be taken. These precautions include use of ESD protected work area with wrist straps, controlled work benches, floors etc.

Alignment Guidelines

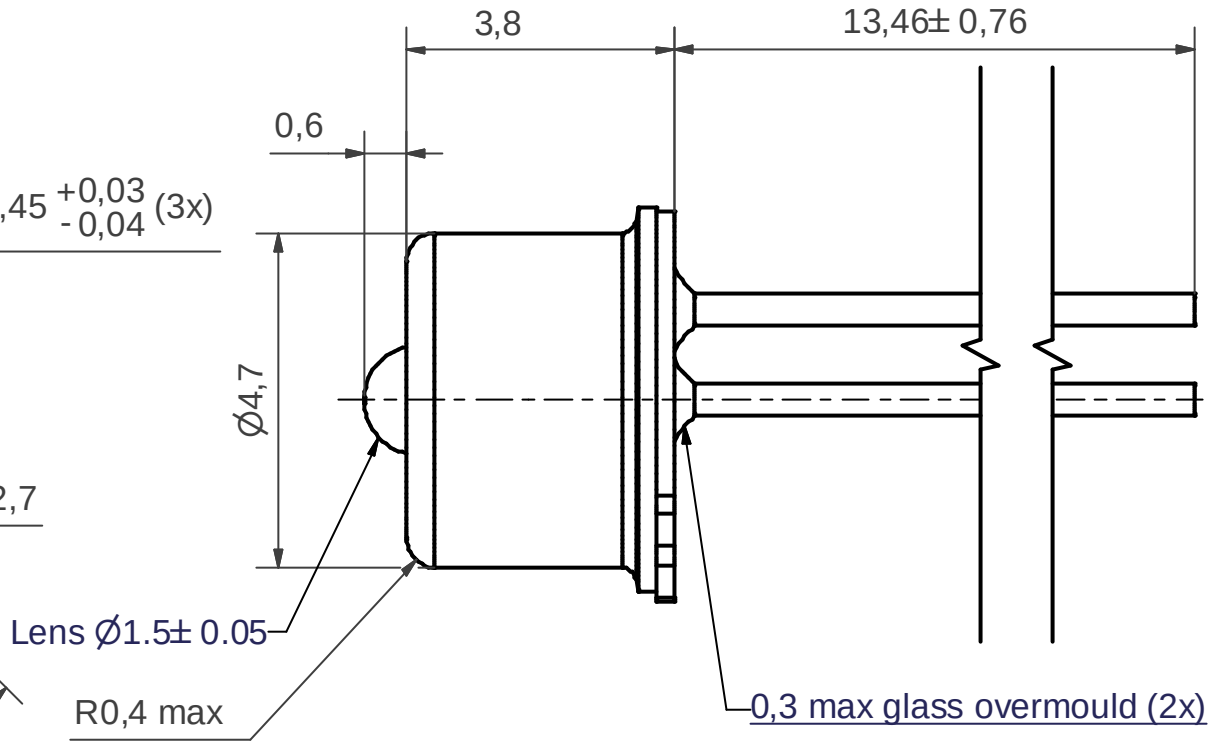
In order to reach the specified intermodulation performance it is very important that the PIN diode is properly aligned to the fibre. Thus active alignment is necessary. We recommend following procedure:

1. Position the top of the TO-46 lens 1.0 mm from the fibre end in axial direction. This correspond to a z-axial displacement of 1.67 mm as shown in figure 2.
2. Align the TO-46 lens to the fibre in radial direction for maximum photo current.
3. Lock the position of the lens to the fibre.

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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