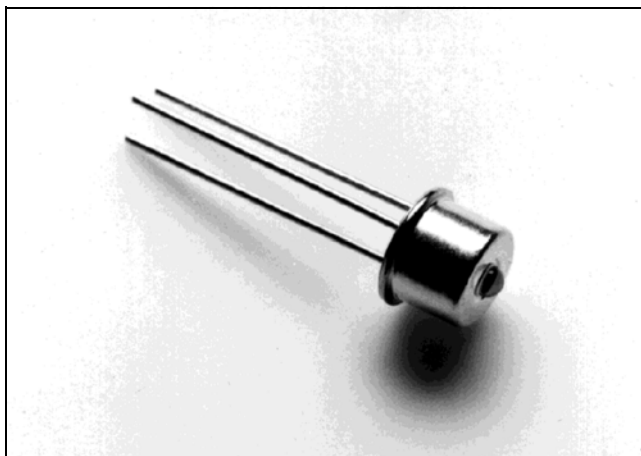


December 2003

**Ordering Information**

ZL60010TBD TO-46

-40°C to +85°C**Features**

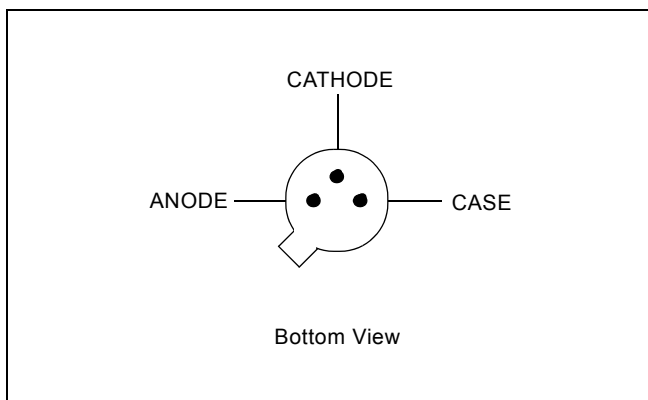
- 1310-1550 nm PIN
- TO-46 Assembly
- High Linearity
- Low Intermodulation
- High Responsivity

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**

Optical and Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Responsivity	R	0.82 0.87	0.9 1.0		A/W	$\lambda=1310\text{nm}$, $\lambda=1550\text{nm}$ 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	I _d		0.5	80	nA	
Electrical Band width	f _c	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%.
Z_o = 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

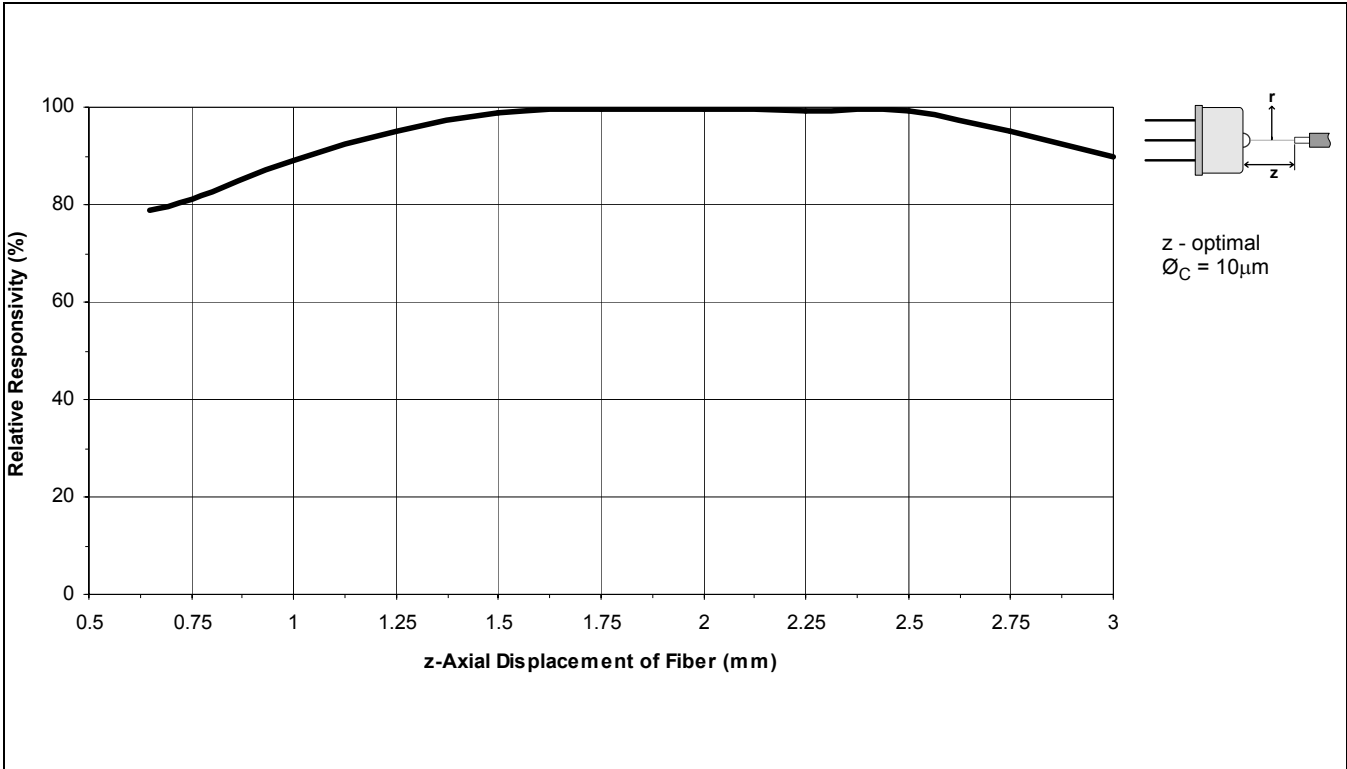


Figure 2 - Typical Responsivity vs Axial Displacement for a Singlemode Fiber

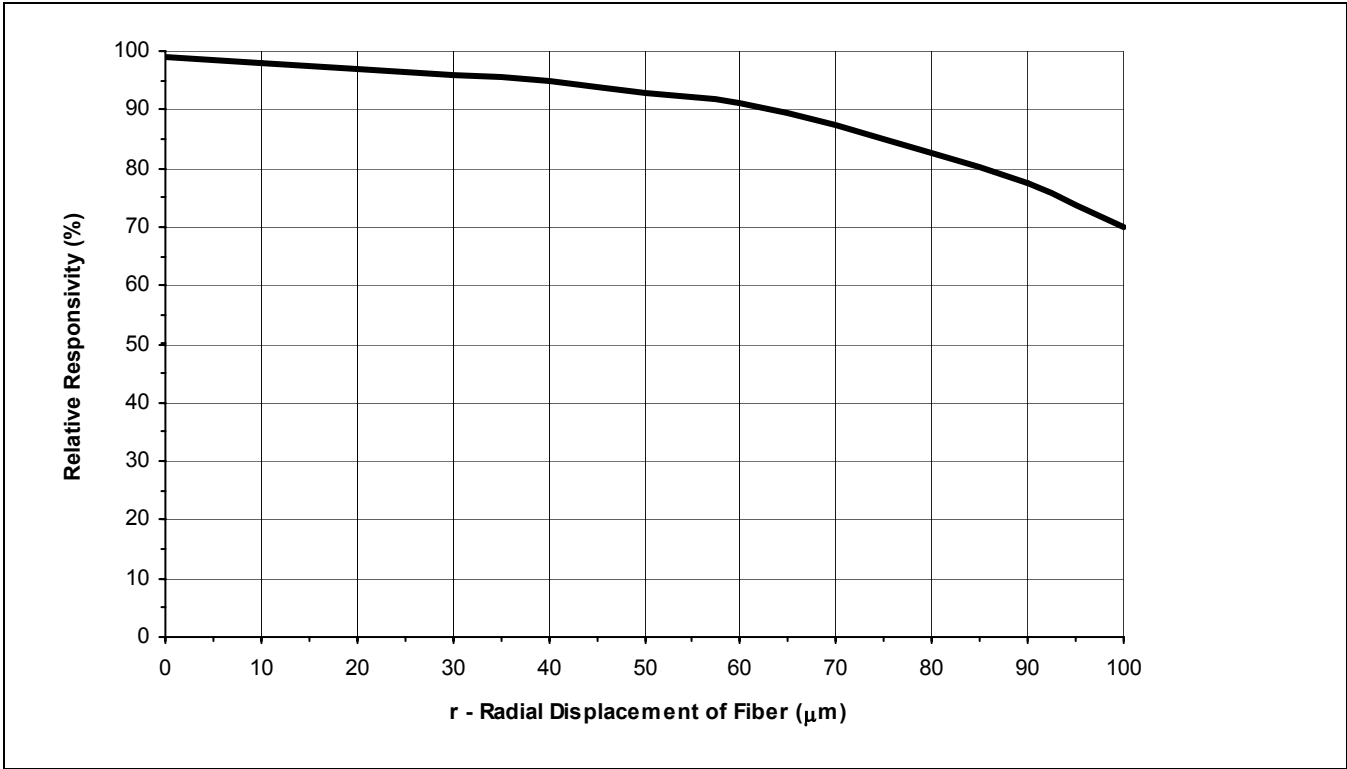


Figure 3 - Typical Responsivity vs Radial Displacement for a Singlemode Fiber

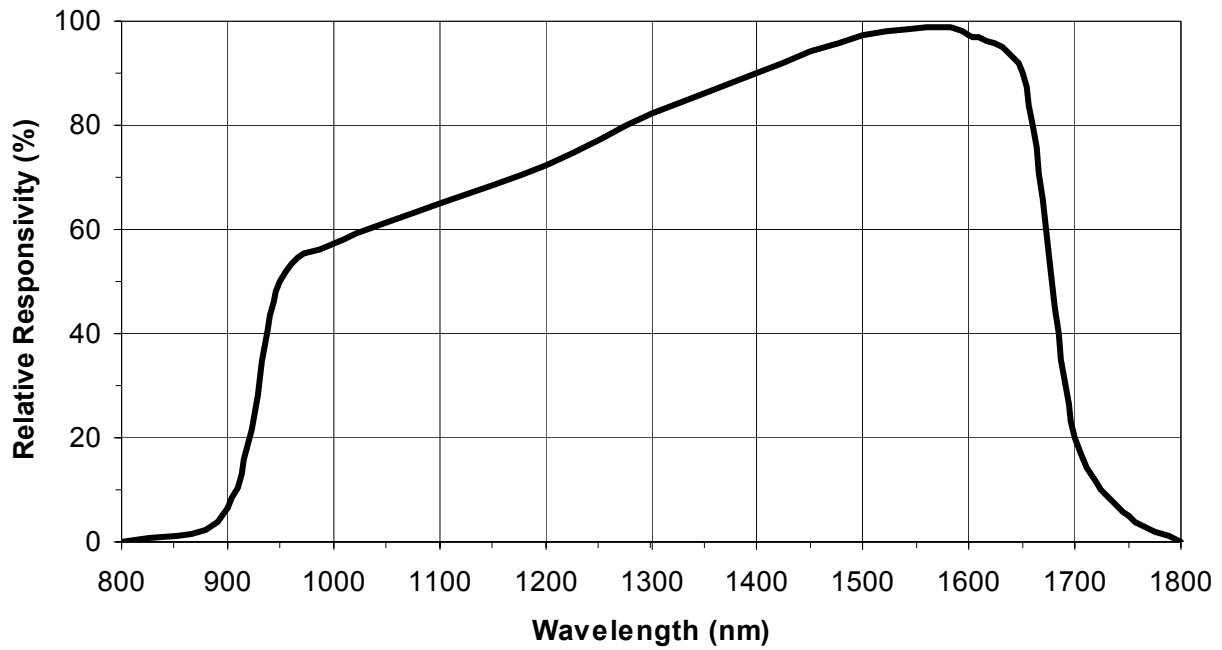


Figure 4 - Responsivity vs Wavelength of Coupled Input Power

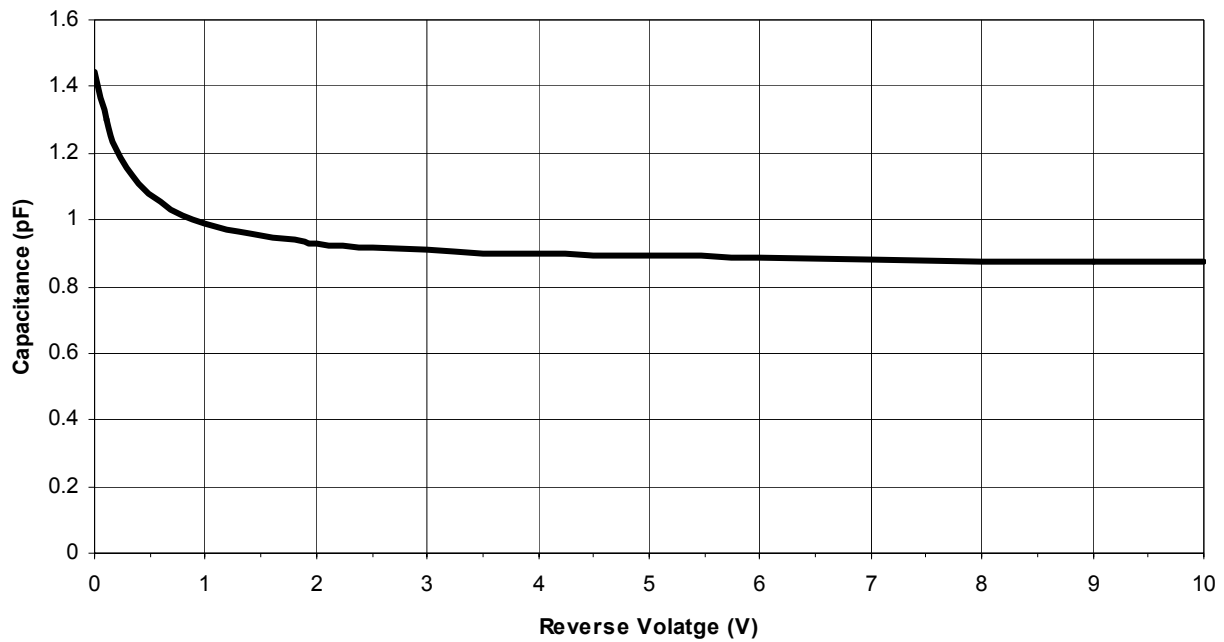


Figure 5 - Capacitance vs. Reverse Voltage

Application Guidelines



ESD Handling

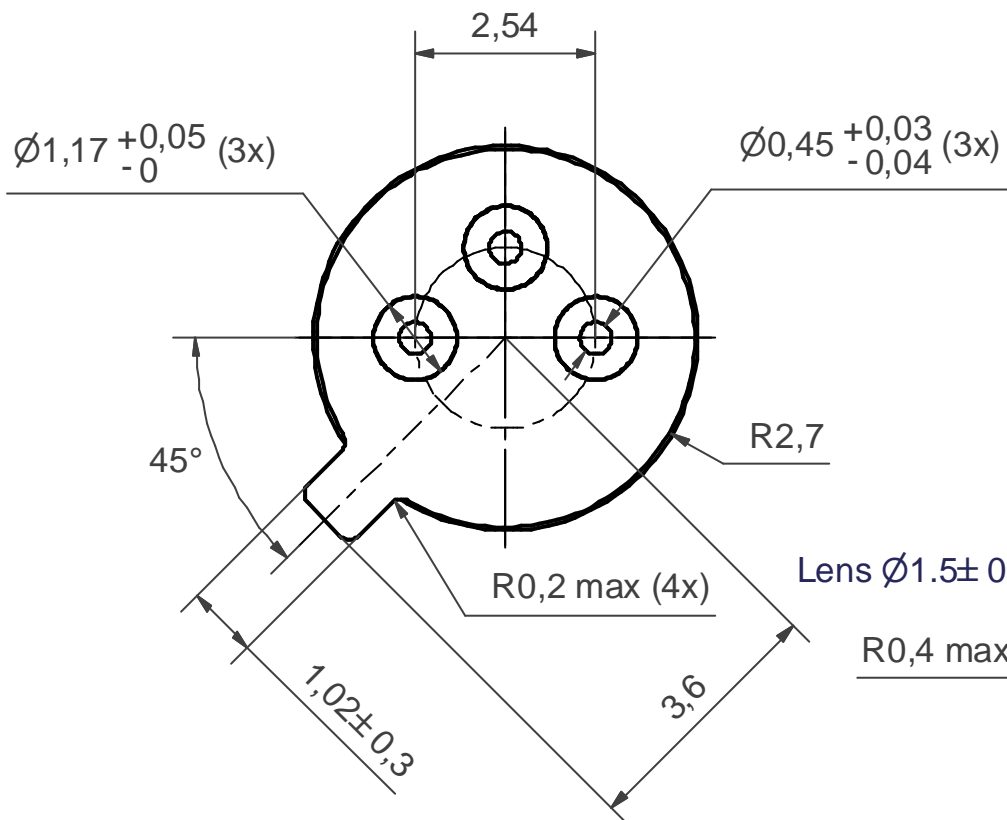
The PIN is sensitive to electrostatic discharges. When handling the device, precautions for ESD sensitive devices should be taken. These precautions include use of ESD protected work area with wrist straps, controlled work benches, floors etc.

Alignment Guidelines

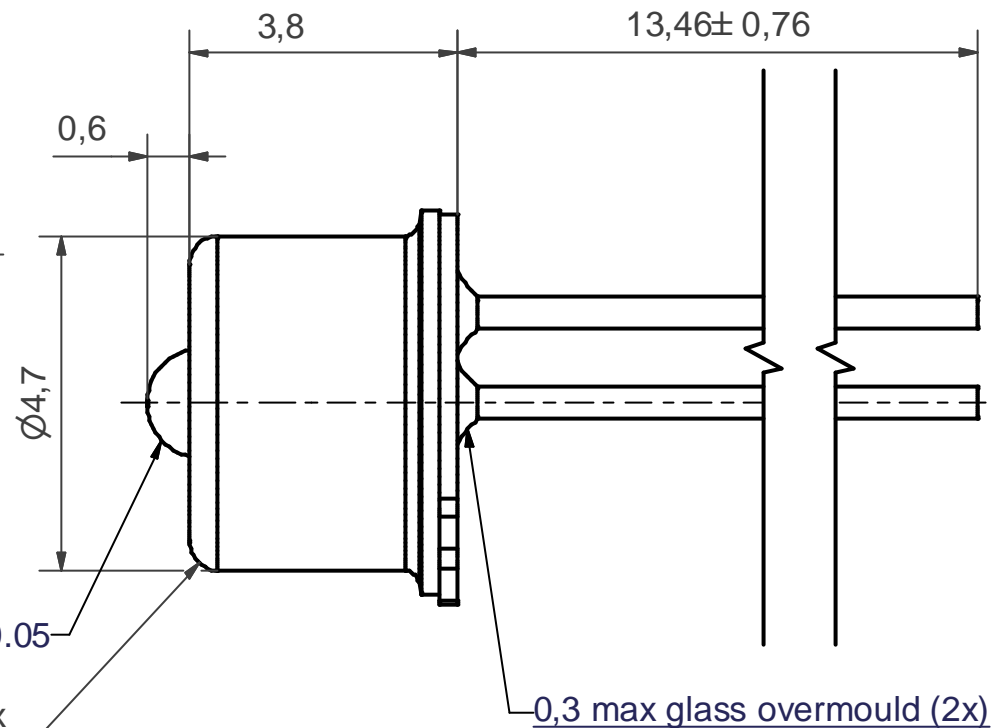
In order to reach the specified intermodulation performance it is very important that the PIN diode is properly aligned to the fibre. Thus active alignment is necessary. We recommend following procedure:

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 .

© Zarlink Semiconductor 2002. All rights reserved.

ISSUE	1			
ACN	JS004076R1A			
DATE	22-MAR-03			
APPRD.	TD/BE			



Previous package codes

Package code **TB**

Drawing type
Package drawing, TO-46 with lens

Title **JS004076**



**For more information about all Zarlink products
visit our Web Site at
www.zarlink.com**

Information relating to products and services furnished herein by Zarlink Semiconductor Inc. or its subsidiaries (collectively "Zarlink") is believed to be reliable. However, Zarlink assumes no liability for errors that may appear in this publication, or for liability otherwise arising from the application or use of any such information, product or service or for any infringement of patents or other intellectual property rights owned by third parties which may result from such application or use. Neither the supply of such information or purchase of product or service conveys any license, either express or implied, under patents or other intellectual property rights owned by Zarlink or licensed from third parties by Zarlink, whatsoever. Purchasers of products are also hereby notified that the use of product in certain ways or in combination with Zarlink, or non-Zarlink furnished goods or services may infringe patents or other intellectual property rights owned by Zarlink.

This publication is issued to provide information only and (unless agreed by Zarlink in writing) may not be used, applied or reproduced for any purpose nor form part of any order or contract nor to be regarded as a representation relating to the products or services concerned. The products, their specifications, services and other information appearing in this publication are subject to change by Zarlink without notice. No warranty or guarantee express or implied is made regarding the capability, performance or suitability of any product or service. Information concerning possible methods of use is provided as a guide only and does not constitute any guarantee that such methods of use will be satisfactory in a specific piece of equipment. It is the user's responsibility to fully determine the performance and suitability of any equipment using such information and to ensure that any publication or data used is up to date and has not been superseded. Manufacturing does not necessarily include testing of all functions or parameters. These products are not suitable for use in any medical products whose failure to perform may result in significant injury or death to the user. All products and materials are sold and services provided subject to Zarlink's conditions of sale which are available on request.

Purchase of Zarlink's I²C components conveys a licence under the Philips I²C Patent rights to use these components in and I²C System, provided that the system conforms to the I²C Standard Specification as defined by Philips.

Zarlink, ZL and the Zarlink Semiconductor logo are trademarks of Zarlink Semiconductor Inc.

Copyright Zarlink Semiconductor Inc. All Rights Reserved.

TECHNICAL DOCUMENTATION - NOT FOR RESALE
