

# PT-10E

Product Bulletin (Preliminary) • January 2003

- Differential-output PIN/TIA receiver
- High data rate, up to 10.7 Gb/s
- High sensitivity, -20 dBm
- 1200–1650 nm wavelength range
- Compact butterfly package
- Dual coplanar output



The **PT-10E** is a -20 dBm sensitivity receiver module for OC-192 / STM-64 transmission system receive applications up to 10.7 Gb/s. It couples a high responsivity (1 A/W), back-illuminated PIN photodiode, usable from 1200 nm to 1650 nm, with an internal transimpedance gain stage of 1600 V/A. This combination produces a receiver with a 8.5 GHz bandwidth and conversion gain of 1500 V/W.

The differential-output module is available with a coplanar waveguide package with single-mode fiber input. The receiver meets Telcordia GR-468 qualification standards.

## Specifications

|                                   | Minimum | Typical | Maximum | Units |
|-----------------------------------|---------|---------|---------|-------|
| Wavelength range                  | 1200    |         | 1650    | nm    |
| Bandwidth (-3dB electrical)       | 8       | 8.5     |         | GHz   |
| Low frequency cutoff <sup>1</sup> |         | 25      |         | kHz   |
| Sensitivity <sup>2</sup>          |         | -20     | -18     | dBm   |
| Overload                          | 0       | >1      |         | dBm   |
| Responsivity @ 1550 nm            | 0.9     | 1.0     |         | A/W   |
| Conversion gain (differential)    | 1300    | 1500    |         | Ù     |
| Electrical Return Loss (< 8 GHz)  |         | -10     |         | dB    |
| Optical Return Loss               |         |         | -30     | dB    |
| Power dissipation                 |         |         | .36     | W     |

## DC Electrical

|                    |      |      |      |   |
|--------------------|------|------|------|---|
| Photodiode voltage | +4   | +5   | +8   | V |
| Amplifier voltage  | -5.5 | -5.2 | -4.9 | V |

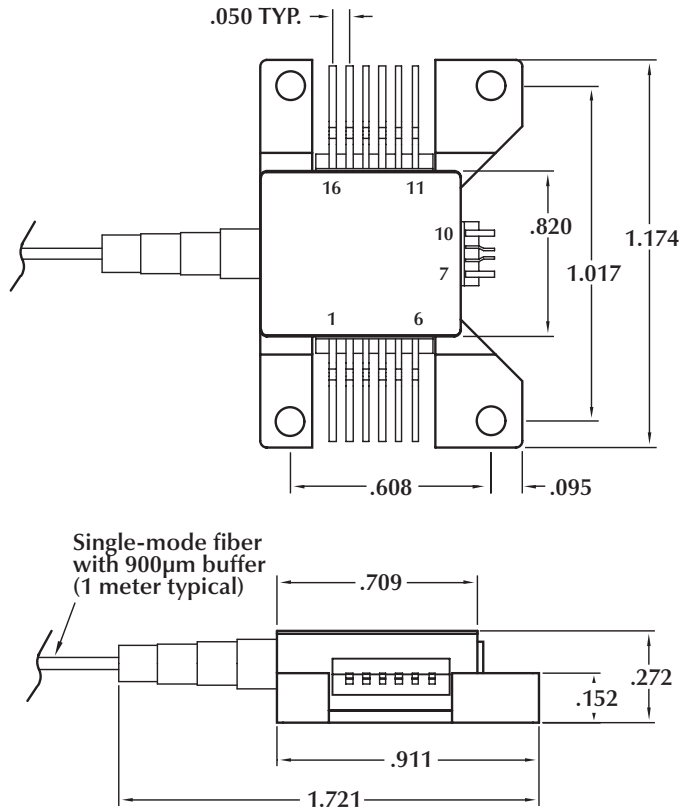
## Mechanical

|                       |                        |  |     |    |
|-----------------------|------------------------|--|-----|----|
| Package type          | Surface mount coplanar |  |     |    |
| Operating temperature | 0                      |  | +70 | °C |
| Storage temperature   | -40                    |  | +85 | °C |

<sup>1</sup> Output is DC coupled

<sup>2</sup> 10<sup>-10</sup> BER, PRBS 2<sup>23</sup>-1

# Product Specifications



| Pin | Description      | Pin | Description        |
|-----|------------------|-----|--------------------|
| 1   | V <sub>PD</sub>  | 9   | Data Out P         |
| 2   | GND              | 10  | GND                |
| 3   | V <sub>AMP</sub> | 11  | NC                 |
| 4   | NC               | 12  | DC Out N           |
| 5   | NC               | 13  | DC Out P           |
| 6   | NC               | 14  | Decision Threshold |
| 7   | GND              | 15  | GND                |
| 8   | Data Out N       | 16  | NC                 |

## PT-10E Ordering Information

| Base model              | PT-10E                   |
|-------------------------|--------------------------|
| Option format           | /Package/Fiber connector |
| Package options         | 16CPW                    |
| Fiber connector options | FC or SC                 |

## Application Notes

Electrostatic discharge (ESD) will cause permanent damage to the product. Please avoid any ESD to the input pins or output connector. Use standard ESD protective equipment when handling this product.

Temperature and fiber restrictions are as follows:

Lead soldering: 250°C for no more than 10 seconds

Fiber feed-through tube: 120°C

Fiber pull force: 10 N

Fiber bending radius: 1 inch or less

Exceeding these conditions can cause permanent damage to the device.

## Quality Vision

As a leader in ultrafast optical receivers, Picometrix is committed to providing the highest quality ultrafast products on the market. This quality vision commits us to continually improving our product designs and manufacturing processes, in order to ensure the highest level of customer satisfaction. The company maintains a stringent quality control program to ensure that all products meet or surpass customer requirements.



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