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Find the *VIAVI Solutions / JDSU / EPITAXX ETX 500T* at our website: *Click HERE*

Large Area InGaAs Photodiodes

ETX 500, ETX 1000, ETX 2000, ETX 3000 Series



Key Features

- **High responsivity in near infrared spectrum**
- **Low dark current for high accuracy**
- **High shunt resistance**
- **Linear over wide range of input optical power**
- **Active diameters of 0.5, 1, 2, and 3 mm**

Applications

- Optical power meters
- Optical fiber identifiers
- Optical attenuation test sets
- Near infrared spectroscopy
- Infrared range finders

The JDSU ETX 500T, ETX 1000T, ETX 2000T5, and ETX 3000T5 series large area InGaAs PIN photodetectors have photosensitive areas with diameters of 500, 1000, 2000, and 3000 µm, respectively. These photodiodes offer high responsivity in the 800 to 1700 nm spectrum and are designed for use in instrumentation, sensing, and range-finding applications.

The detectors feature high sensitivity and linear spectral responsivity over a broad range of input powers. When operating in photovoltaic mode, a noise current density of 10 $fA/Hz^{1/2}$ is typical at room temperature. When reverse-biased for greater bandwidth, a noise floor of 60$fA/Hz^{1/2}$ at -5 V is typical. Linear spectral response results from the low series resistance of the photodiodes.

The ETX 500T and ETX 1000T series are optimal for the high speed, differential mode measurements common in precision optical power meters, optical fiber identifiers, and optical loss test sets.

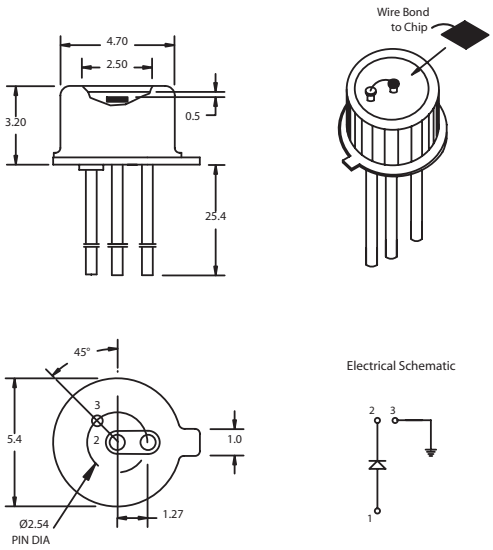
The ETX 2000T5 and ETX 3000T5 series are optimal for instruments designed for use in the field. Their large diameters simplify coupling incident radiation in the photosensitive areas. These photodiodes are appropriate for measuring signals that vary over a wide dynamic range, and are common in local area networks and in high fan-out systems. They are available in standard and high shunt resistance versions.

The ETX 500T, ETX1000T, ETX 2000T5, and ETX 3000T5 photodiodes are all packaged in hermetically sealed TO cans.

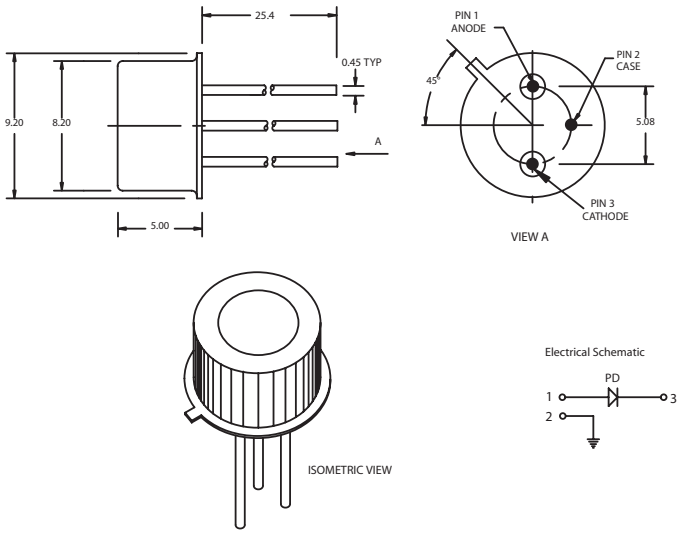
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Dimensions Diagram: ETX 500T, ETX 1000T | (Specifications in mm unless otherwise noted.)



Dimensions Diagram: ETX 2000T5, ETX 3000T5 | (Specifications in mm unless otherwise noted.)



Specifications

Parameter		ETX 500T	ETX 1000T	ETX 2000T5	ETX 3000T5
Electrical and Optical Specifications					
Conditions		25 °C, V_R = 5 V	25 °C, V_R = 5 V	25 °C, V_R = 0 V	25 °C, V_R = 0 V
Active diameter	Typical	0.5 mm	1.0 mm	2.0 mm	3.0 mm
Responsivity at 850 nm	Minimum	0.10 A/W	0.10 A/W	0.10 A/W	0.10 A/W
	Typical	0.20 A/W	0.20 A/W	0.20 A/W	0.20 A/W
Responsivity at 1300 nm	Minimum	0.80 A/W	0.80 A/W	0.80 A/W	0.80 A/W
	Typical	0.90 A/W	0.90 A/W	0.90 A/W	0.90 A/W
Responsivity at 1500 nm	Typical	0.95 A/W	0.95 A/W	0.95 A/W	0.95 A/W
Dark current[1]	Typical	12 nA	50 nA	900 nA	2000 nA
	Maximum	100 nA	400 nA	-	-
Shunt resistance[2]					
J	Minimum	5.0 MΩ	2.0 MΩ	0.8 MΩ	0.1 MΩ
	Typical	250 MΩ	50 MΩ	3.0 MΩ	0.4 MΩ
K	Minimum	-	-	10 MΩ	1.0 MΩ
	Typical	-	-	25 MΩ	10.0 MΩ
Linearity[3]	Typical	±0.15 dB	±0.15 dB	±0.15 dB	±0.15 dB
Total capacitance[4]	Typical	35 pF	100 pF	400 pF	800 pF
	Maximum	50 pF	150 pF	600 pF	1300 pF
Bandwidth[5]	Typical	140 MHz	35 MHz	5.3 MHz	2.6 MHz
Maximum Ratings					
Reverse voltage	Typical	20 V	20 V	2 V	2 V
Reverse current[6]	Typical	10 mA	10 mA	10 mA	10 mA
Forward current[7]	Typical	10 mA	10 mA	10 mA	10 mA
Power dissipation	Typical	100 mW	100 mW	50 mW	50 mW
Operating temperature		-40 to 85 °C	-40 to 85 °C	-40 to 85 °C	-40 to 85 °C
Storage temperature		-40 to 85 °C	-40 to 85 °C	-40 to 85 °C	-40 to 85 °C

1. V_R = 1 V for ETX 2000T5 and ETX 3000T5
2. V_R = 10 mV
3. For ETX 500T and ETX 1000T, to 9 dBm; for ETX 2000T5 and ETX 3000T5, to 7 dBm
4. For ETX 500T and ETX 1000T, V_R = 0 V
5. -3 cB point into a 50 Ω load
6. Under reverse bias, current at which device may be damaged
7. Under forward bias, current at which device may be damaged

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Ordering Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.

Sample: ETX 500T

Product Code	Description
ETX 500T	0.5 mm diode in TO46 package
ETX 1000T	1.0 mm diode in TO46 package
ETX 2000 J T5	2 mm diode in TO5 package
ETX 2000 K T5	2 mm diode, high shunt resistance, in TO5 package
ETX 3000 J T5	3 mm diode in TO5 package
ETX 3000 K T5	3 mm diode, high shunt resistance, in TO5 package

Precaution for Use

Glass windows must be cleaned with 99% pure, reagent grade Isopropanol.

ESD PROTECTION IS IMPERATIVE. Use of grounding straps, anti-static mats, and other standard ESD protective equipment is recommended when handling or testing any InGaAs PIN or any other junction photodiode.

Quality and Reliability

JDSU maintains a strict quality control program throughout the design and manufacturing process of its photodetectors. All products are evaluated against MIL-STD 883C, GR468, or custom specifications. JDSU purges each photodiode for 18 hours at 125 °C, with bias applied. Long-term life-testing has indicated an expected lifetime of at least 10^7 hours for the large area InGaAs photodiodes - ETX 500, ETX 1000T, ETX 2000T5, and ETX 3000T5. Contact JDSU to learn details of specific qualification tests performed on the large area InGaAs photodiode series.

All statements, technical information and recommendations related to the products herein are based upon information believed to be reliable or accurate. However, the accuracy or completeness thereof is not guaranteed, and no responsibility is assumed for any inaccuracies. The user assumes all risks and liability whatsoever in connection with the use of a product or its application. JDSU reserves the right to change at any time without notice the design, specifications, function, fit or form of its products described herein, including withdrawal at any time of a product offered for sale herein. JDSU makes no representations that the products herein are free from any intellectual property claims of others. Please contact JDSU for more information. JDSU and the JDSU logo are trademarks of JDS Uniphase Corporation. Other trademarks are the property of their respective holders. ©2005 JDS Uniphase Corporation. All rights reserved. 30137359 Rev. 001 10/05 ETX500.DS.CC.AE

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