



# IR Emitter and Detector Product Data Sheet

## LTR-546AD

Spec No.: DS-50-92-0091

Effective Date: 05/18/2010

Revision: B

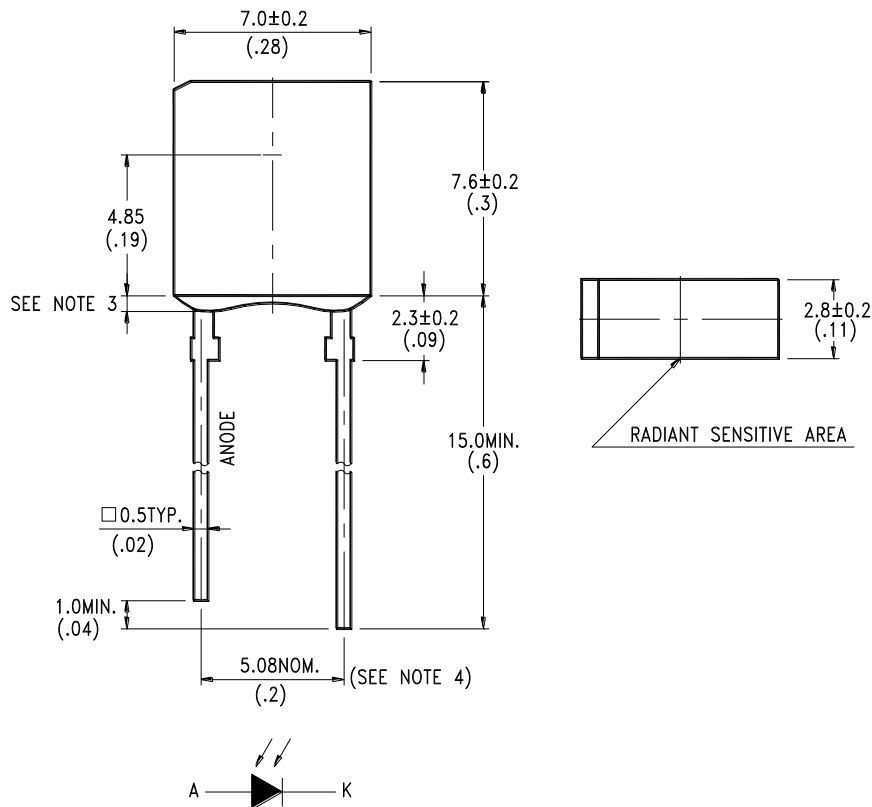
**LITE-ON DCC**

**RELEASE**

BNS-OD-FC001/A4

**FEATURES**

- \* HIGH PHOTO SENSITIVITY
- \* SUITABLE FOR INFRARED RADIATION
- \* LOW JUNCTION CAPACITANCE
- \* HIGH CUT-OFF FREQUENCY
- \* FAST SWITCHING TIME
- \* THE LTR-546AD IS A SPECIAL DARK GREEN PLASTIC PACKAGE THAT CUT THE VISIBLE LIGHT AND SUITABLE FOR THE DETECTORS OF INFRARED APPLICATIONS

**PACKAGE DIMENSIONS****NOTES:**

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25$  mm (.010") unless otherwise noted.
3. Protruded resin under flange is 1.5 mm (.059") max.
4. Lead spacing is measured where the leads emerge from the package.
5. Specifications are subject to change without notice.



# LITE-ON TECHNOLOGY CORPORATION.

Property of Lite-On Only

## ABSOLUTE MAXIMUM RATINGS AT TA=25°C

| PARAMETER  | MAXIMUM RATING      | UNIT |
|--|---------------------|------|
| Power Dissipation                                      | 150                 | mW   |
| Reverse Voltage  | 30                  | V    |
| Operating Temperature Range                            | -40°C to + 85°C     |      |
| Storage Temperature Range                              | -55°C to + 100°C    |      |
| Lead Soldering Temperature<br>[1.6mm(.063") From Body] | 260°C for 5 Seconds |      |

## ELECTRICAL OPTICAL CHARACTERISTICS AT TA=25°C

| PARAMETER                         | SYMBOL             | MIN. | TYP. | MAX. | UNIT | TEST CONDITION   |
|-----------------------------------|--------------------|------|------|------|------|--|
| Reverse Break Down Voltage        | V <sub>(BR)R</sub> | 30   |      |      | V    | I <sub>R</sub> = 100 μA<br>E <sub>e</sub> = 0mW/cm <sup>2</sup>            |
| Reverse Dark Current Voltage      | I <sub>D(R)</sub>  |      |      | 30   | nA   | V <sub>R</sub> = 10V<br>E <sub>e</sub> = 0mW/cm <sup>2</sup>               |
| Open Circuit Voltage              | V <sub>OC</sub>    |      | 350  |      | mV   | λ = 940nm<br>E <sub>e</sub> = 0.5mW/cm <sup>2</sup>                        |
| Rise Time                         | T <sub>r</sub>     |      | 50   |      | nsec | V <sub>R</sub> = 10V<br>λ = 940nm<br>R <sub>L</sub> = 1KΩ                  |
| Fall Time                         | T <sub>f</sub>     |      | 50   |      | nsec |  |
| Short Circuit Current             | I <sub>S</sub>     | 1.7  | 2    |      | μA   | V <sub>R</sub> = 5V<br>λ = 940nm<br>E <sub>e</sub> = 0.1mW/cm <sup>2</sup> |
| Total Capacitance                 | C <sub>T</sub>     |      | 25   |      | pF   | V <sub>R</sub> = 3V<br>f = 1MHz<br>E <sub>e</sub> = 0mW/cm <sup>2</sup>    |
| Wavelength of the Max Sensitivity | λ <sub>S MAX</sub> |      | 900  |      | nm   |  |

## TYPICAL ELECTRICAL / OPTICAL CHARACTERISTICS CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

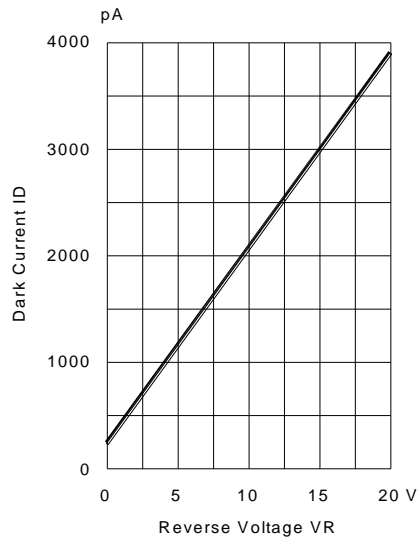


Fig.1 DARK CURRENT VS. REVERSE VOLTAGE  
TA=25° C, Ee=0 mW/cm<sup>2</sup>

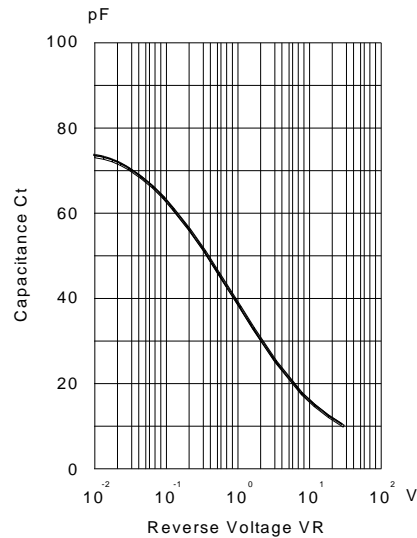


Fig.2 CAPACITANCE VS. REVERSE VOLTAGE  
F=1MHZ; Ee=0mW/cm<sup>2</sup>

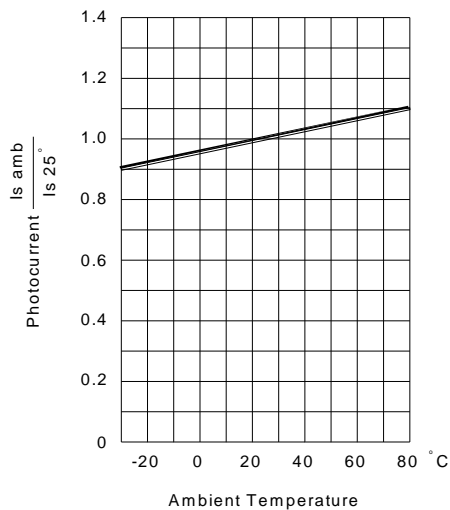


Fig.3 PHOTOCURRENT VS. AMBIENT TEMPERATURE

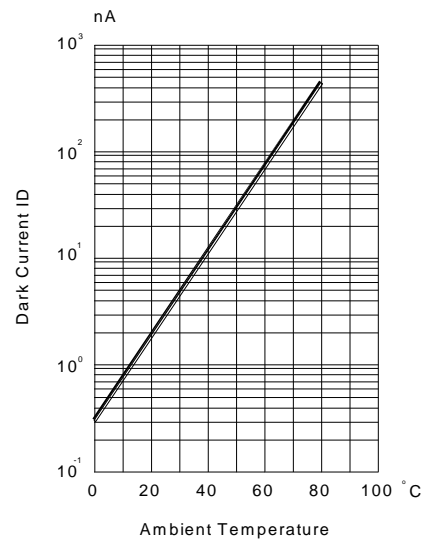


Fig.4 DARK CURRENT AMBIENT TEMPERATURE  
VR=10, Ee=0mW/cm<sup>2</sup>

## TYPICAL ELECTRICAL / OPTICAL CHARACTERISTICS CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

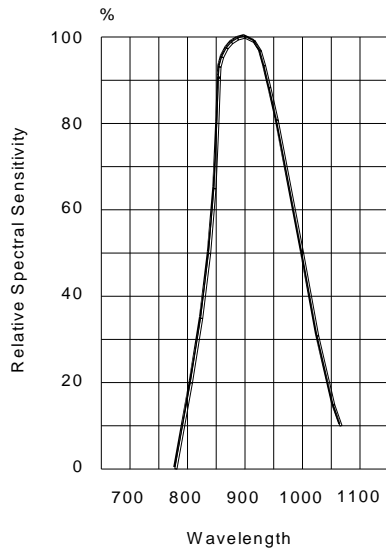


Fig.5 RELATIVE SPECTRAL SENSITIVITY VS WAVELENGTH

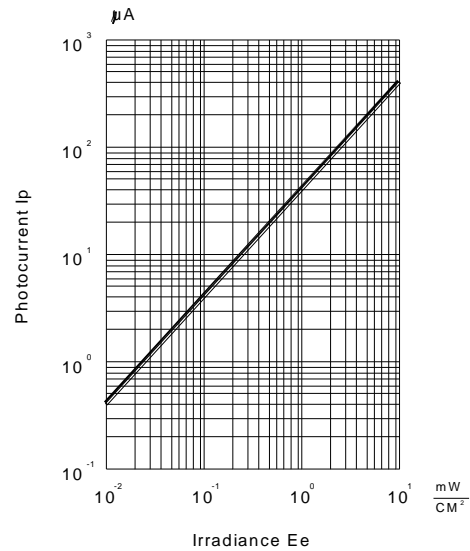


Fig.6 PHOTOCURRENT VS IRRADIANCE  $\lambda= 940$  nm

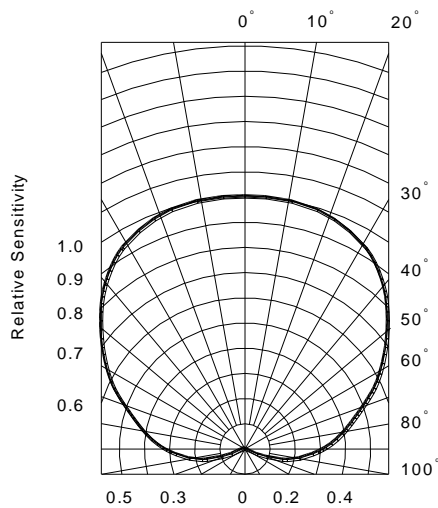


Fig.7 SENSITIVITY DIAGRAM

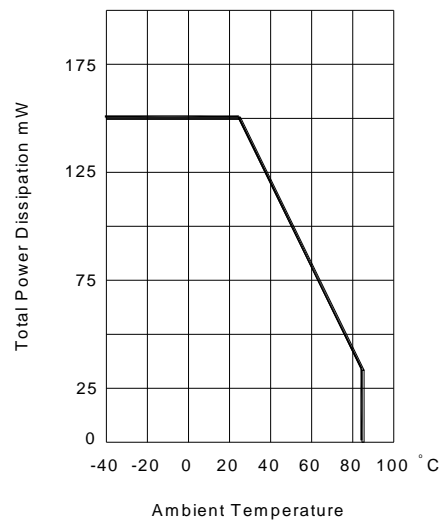


Fig.8 TOTAL POWER DISSIPATION VS AMBIENT TEMPERATURE