



PHOTO DIODE NR6300EZ

ϕ 30 μ m InGaAs AVALANCHE PHOTO DIODE FOR OTDR APPLICATIONS

DESCRIPTION

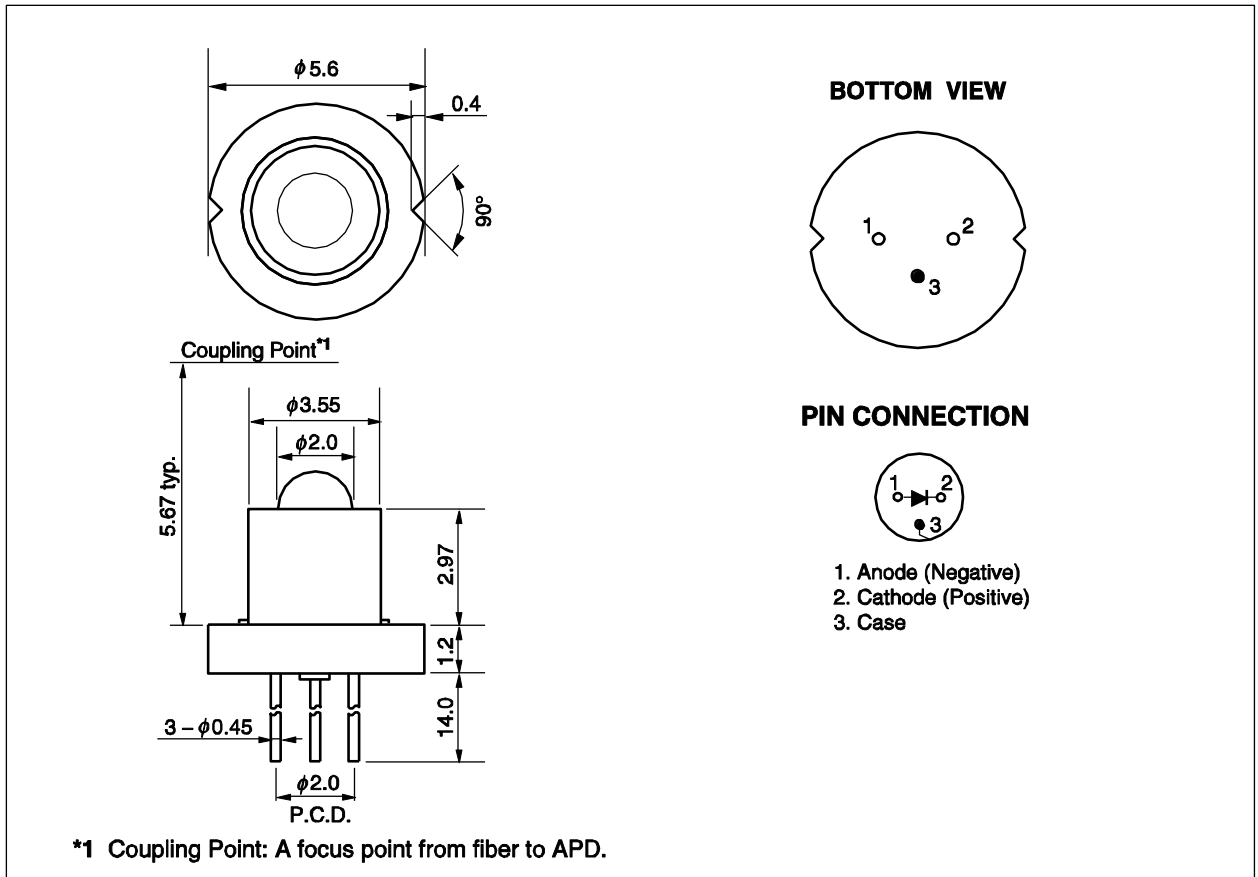
The NR6300EZ is an InGaAs avalanche photo diode, and can be used in OTDR systems.

FEATURES

- Small dark current $I_D = 5$ nA
- Small terminal capacitance $C_t = 0.35$ pF @ 0.9 V_{(BR)R}
- High sensitivity $S = 0.94$ A/W @ $\lambda = 1310$ nm, $M = 1$
- High speed response $f_c = 2.5$ GHz MIN. @ $\lambda = 1310$ nm, $M = 10$
- Detecting area size $\phi 30$ μ m

The information in this document is subject to change without notice. Before using this document, please confirm that this is the latest version.

PACKAGE DIMENSION (UNIT: mm)



ORDERING INFORMATION

| Part Number | Package |
|-------------|------------------------------|
| NR6300EZ-AZ | 3-pin CAN with ball lens cap |

- Remarks**
1. The color of ball lens cap might be observed differently.
 2. The hermetic test will be performed as AQL 1.0%.

ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Ratings | Unit |
|-----------------------------------|-------------------|--------------|------|
| Forward Current | I _F | 10 | mA |
| Reverse Current | I _R | 0.5 | mA |
| Operating Case Temperature | T _C | -40 to +85 | °C |
| Storage Temperature | T _{stg} | -40 to +85 | °C |
| Lead Soldering Temperature | T _{slid} | 350 (3 sec.) | °C |
| Relative Humidity (noncondensing) | RH | 85 | % |

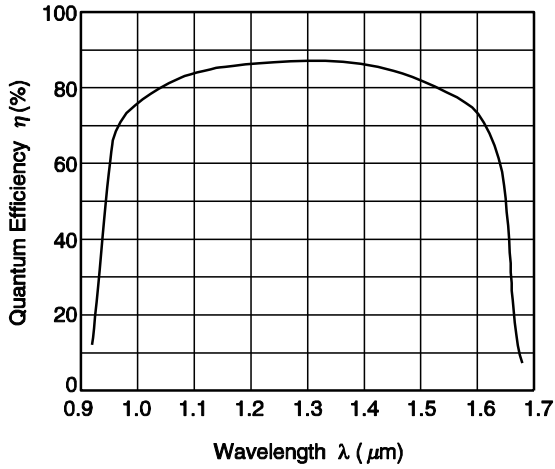
ELECTRO-OPTICAL CHARACTERISTICS (T_c = 25°C, unless otherwise specified)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|--|-----------------|---|------|------|------|------|
| Reverse Breakdown Voltage | V _{BR} | I _D = 100 μA | 50 | 70 | 100 | V |
| Temperature Coefficient of Reverse Breakdown Voltage | δ ⁻¹ | | | 0.2 | | %/°C |
| Dark Current | I _D | V _R = V _{BR} × 0.9 | | 5 | 25 | nA |
| Terminal Capacitance | C _t | V _R = V _{BR} × 0.9, f = 1 MHz | | 0.35 | 0.60 | pF |
| Cut-off Frequency | f _c | λ = 1 310 nm, M = 10 | 2.5 | | | GHz |
| Sensitivity | S | λ = 1 310 nm, M = 1 | 0.8 | 0.94 | | A/W |
| Multiplication Factor | M | λ = 1 310 nm, I _{po} = 1.0 μA, V _R = V (@ I _D = 1 μA) | 30 | 40 | | |

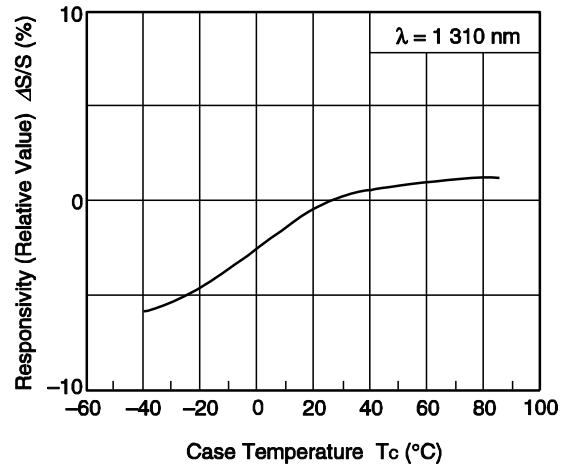
$$*1 \delta = \frac{V_{BR}(25^{\circ}C + \Delta T^{\circ}C) - V_{BR}(25^{\circ}C)}{\Delta T^{\circ}C \cdot V_{BR}(25^{\circ}C)}$$

★ TYPICAL CHARACTERISTICS (T_c = 25°C, unless otherwise specified)

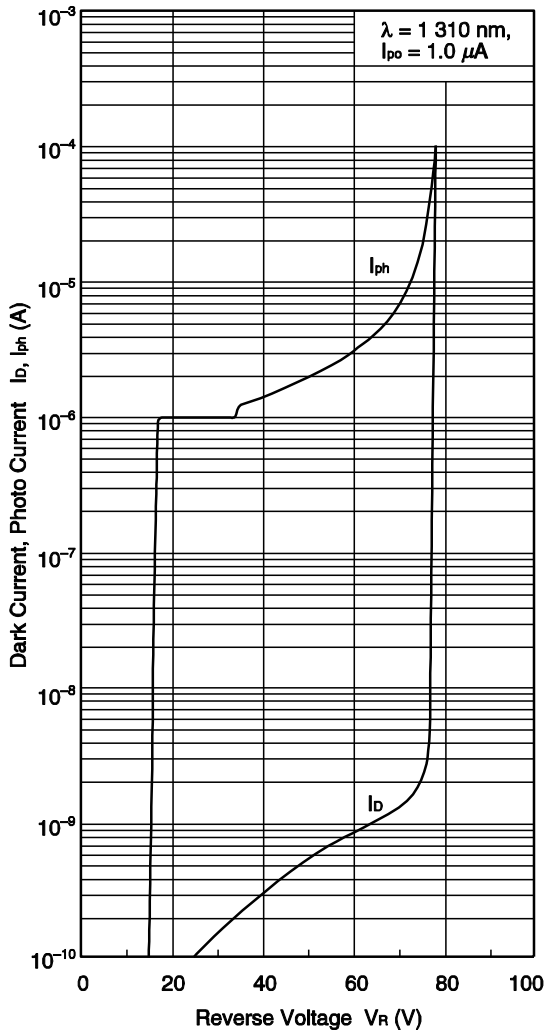
WAVELENGTH DEPENDENCE OF QUANTUM EFFICIENCY



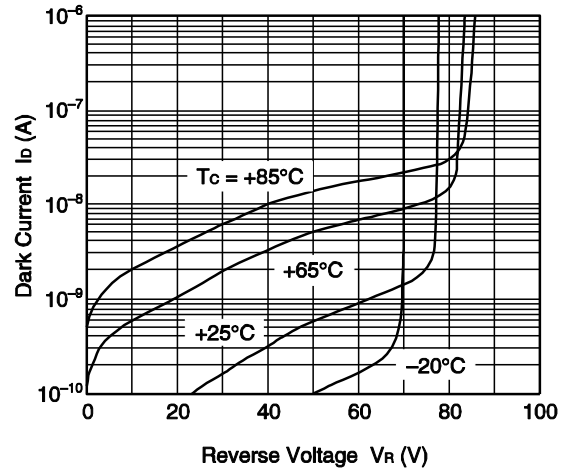
TEMPERATURE DEPENDENCE OF RESPONSIVITY



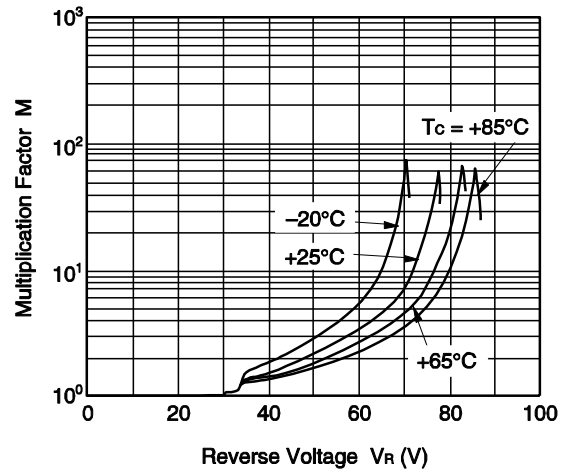
DARK CURRENT AND PHOTO CURRENT vs. REVERSE VOLTAGE



DARK CURRENT vs. REVERSE VOLTAGE



MULTIPLICATION FACTOR vs. REVERSE VOLTAGE



Remark The graphs indicate nominal characteristics.

REFERENCE

| Document Name | Document No. |
|-----------------------------------|--------------|
| Opto-Electronics Devices Pamphlet | PX10160E |

SAFETY INFORMATION ON THIS PRODUCT

| | |
|-------------------------------------|---|
| <p>Caution GaAs Products</p> | <p>This product uses gallium arsenide (GaAs). GaAs vapor and powder are hazardous to human health if inhaled or ingested, so please observe the following points.</p> <ul style="list-style-type: none"> • Follow related laws and ordinances when disposing of the product. If there are no applicable laws and/or ordinances, dispose of the product as recommended below. <ol style="list-style-type: none"> 1. Commission a disposal company able to (with a license to) collect, transport and dispose of materials that contain arsenic and other such industrial waste materials. 2. Exclude the product from general industrial waste and household garbage, and ensure that the product is controlled (as industrial waste subject to special control) up until final disposal. <ul style="list-style-type: none"> • Do not burn, destroy, cut, crush, or chemically dissolve the product. • Do not lick the product or in any way allow it to enter the mouth. |
| <p>Caution Optical Fiber</p> | <p>A glass-fiber is attached on the product. Handle with care.</p> <ul style="list-style-type: none"> • When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments. |