

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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NR6800 Series

ϕ 80 μ m InGaAs AVALANCHE PHOTO DIODE FOR OTDR APPLICATIONS

DESCRIPTION

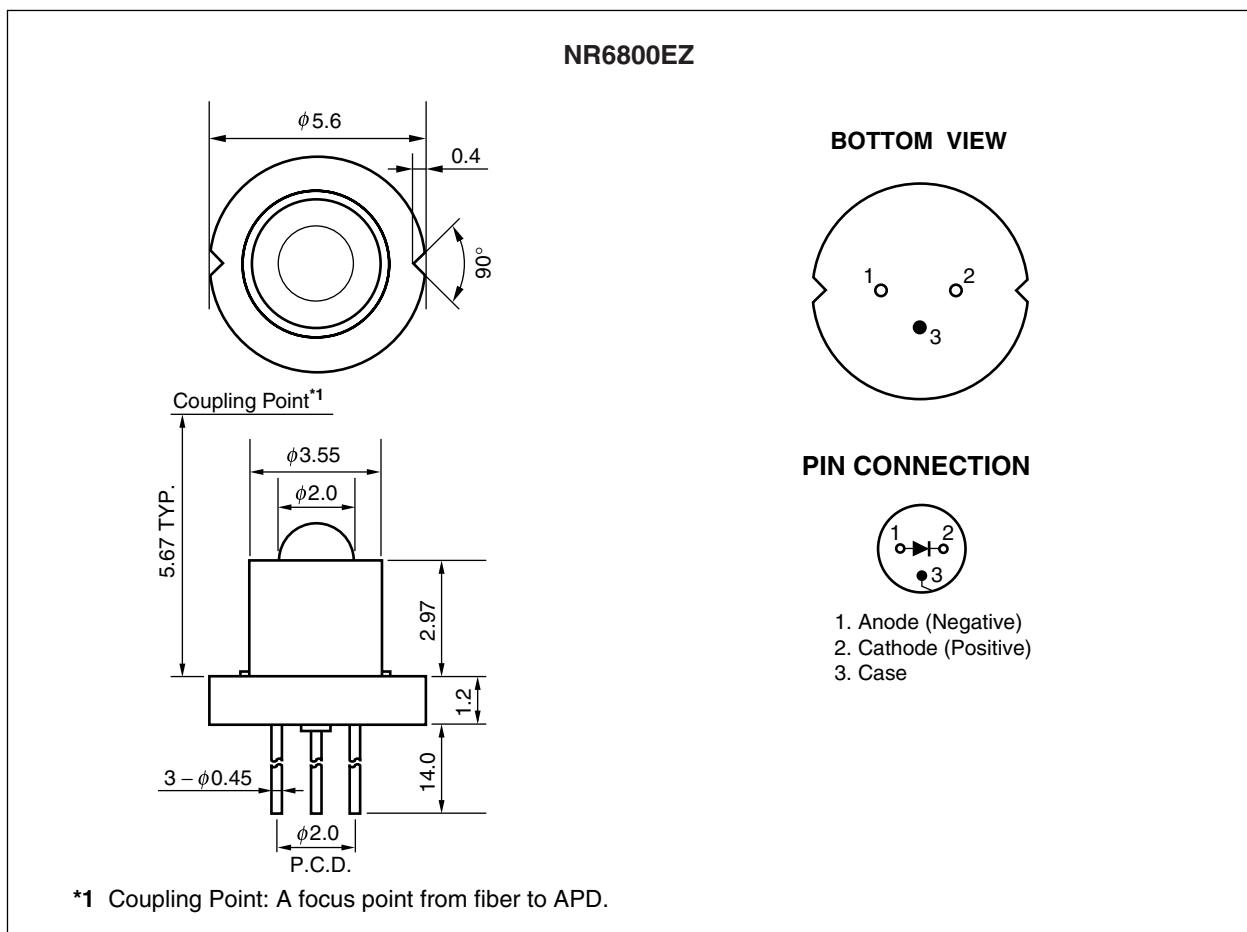
The NR6800 Series is an InGaAs avalanche photo diode, and can be used in OTDR systems.

FEATURES

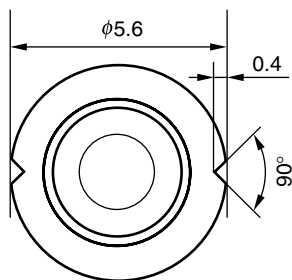
- | | |
|------------------------------|--|
| • Small dark current | $I_D = 5 \text{ nA}$ |
| • Small terminal capacitance | $C_t = 0.50 \text{ pF @ } 0.9 \text{ V}_{(BR)R}$ |
| • High sensitivity | $S = 0.94 \text{ A/W @ } \lambda = 1310 \text{ nm, } M = 1$ |
| • High speed response | $f_c = 1.0 \text{ GHz MIN. @ } \lambda = 1310 \text{ nm, } M = 10$ |
| • Detecting area size | $\phi 80 \mu\text{m}$ |

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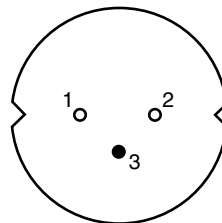
PACKAGE DIMENSION (UNIT: mm)



NR6800SZ



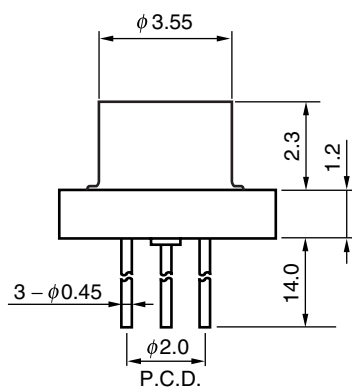
BOTTOM VIEW



PIN CONNECTION



- 1. Anode (Negative)
- 2. Cathode (Positive)
- 3. Case



ORDERING INFORMATION

Part Number	Package
NR6800EZ	3-pin CAN with ball lens cap
NR6800SZ	3-pin CAN with flat glass 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

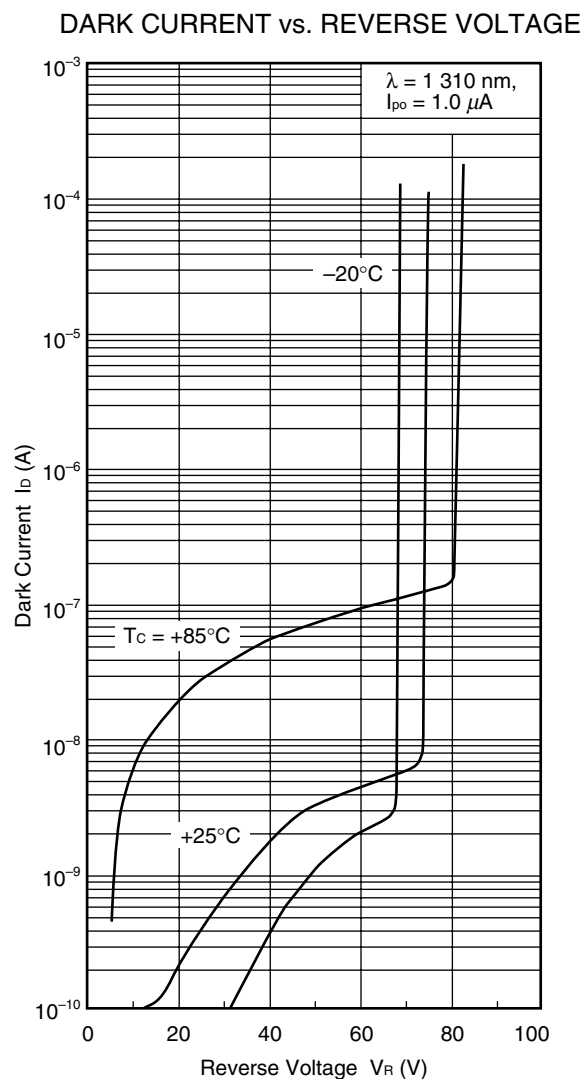
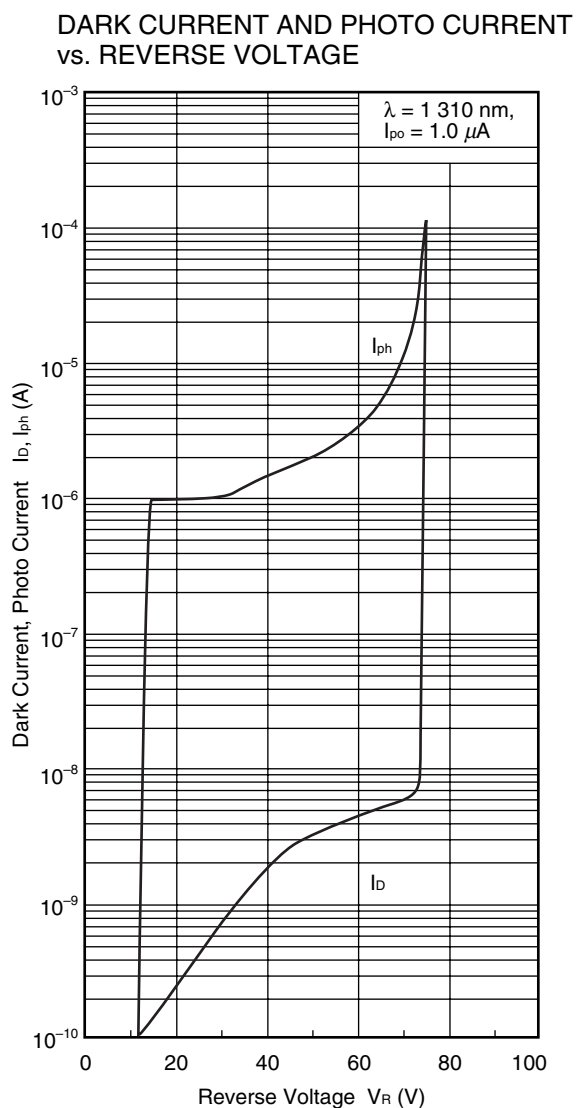
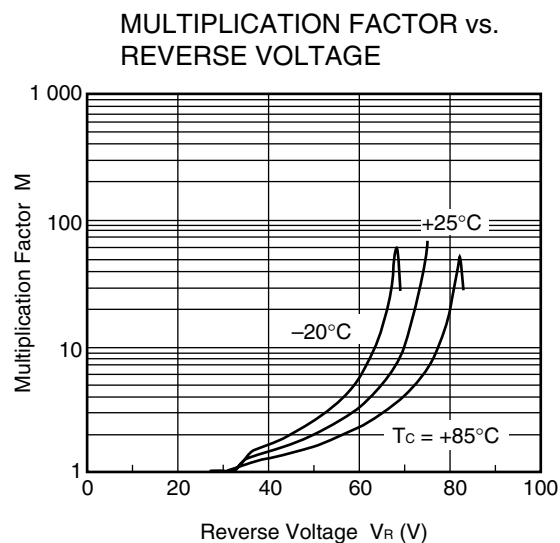
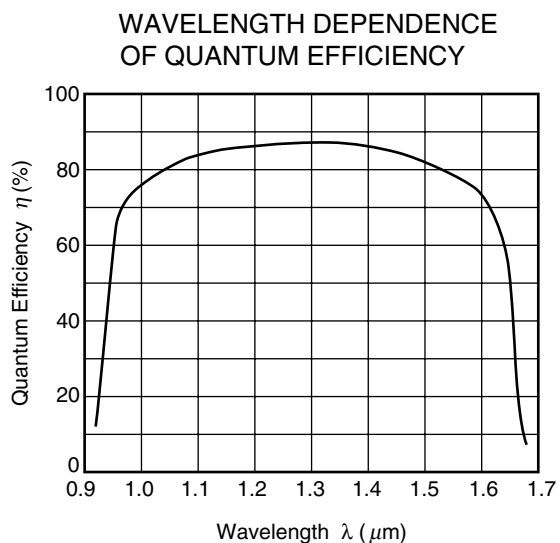
Parameter	Symbol	Ratings	Unit
Forward Current	I_F	10	mA
Reverse Current	I_R	0.5	mA
Operating Case Temperature	T_C	−40 to +85	°C
Storage Temperature	T_{stg}	−40 to +85	°C
Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

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	30	nA
Terminal Capacitance	C _t	V _R = V _{BR} × 0.9, f = 1 MHz		0.50	0.75	pF
Cut-off Frequency	f _c	λ = 1 310 nm, M = 10	1.0			GHz
Sensitivity	S	λ = 1 310 nm, M = 1	0.80	0.94		A/W
Multiplication Factor	M	λ = 1 310 nm, I _{po} = 1.0 μA, V _R = V (@ I _D = 1 μA)	30	50		

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

TYPICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$, unless otherwise specified)



Remark The graphs indicate nominal characteristics.

REFERENCE

Document Name	Document No.
Opto-Electronics Devices Pamphlet	PX10160E

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M8E0904E

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Caution	Optical Fiber	A glass-fiber is attached on the product. Handle with care. • When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.