

# NR8800AS-CB

PHOTO DIODE

 $\Phi$  80  $\mu$  m InGaAs AVALANCHE PHOTO DIODE MODULE FOR OTDR APPLICATION

R08DS0194EJ0100

Rev.1.00

May 22, 2020

## DESCRIPTION

The NR8800AS-CB is an InGaAs avalanche photo diode module with multi mode fiber, and can be used in OTDR systems.

## FEATURES

- Small dark current  $I_D = 7$  nA
- Small terminal capacitance  $C_t = 0.5$  pF @ 0.9 V<sub>BR</sub>
- High sensitivity  $S = 0.94$  A/W @  $\lambda = 1310$  nm, M = 1
- Detecting area size  $\Phi$  80  $\mu$  m
- Coaxial module with multi mode fiber (GI-62.5)

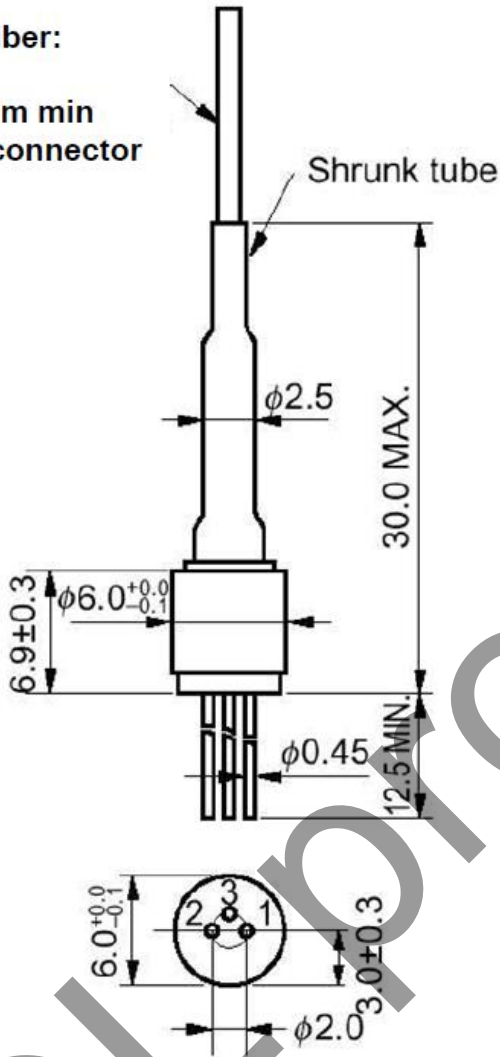
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The mark <R> shows major revised points.

The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

PACKAGE DIMENSIONS (UNIT: mm)

Optical Fiber:  
GI-62.5  
Length: 1m min  
With SC connector



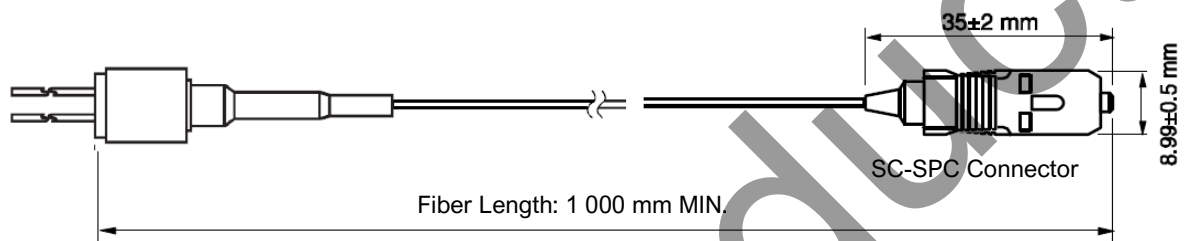
**PIN CONNECTIONS**

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



## OPTICAL FIBER CHARACTERISTICS

Parameter	Specification	Unit
Core Diameter	62.5±3	μm
Cladding Diameter	125±2	μm
Maximum Cladding Noncircularity	2	%
Maximum Core/Cladding Concentricity	4.0	%
Outer Diameter	0.9±0.1	mm
Minimum Fiber Bending Radius	30	mm
Fiber Length	1 000 MIN.	mm
Flammability	UL94HB equivalent	



## ORDERING INFORMATION

Part Number	Flange Type	Fiber Type	Available Connector
NR8800AS-CB-AZ/SH	Unflanged type	MMF	With SC-SPC Connector

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Forward Current	I <sub>F</sub>	10	mA
Reverse Current	I <sub>R</sub>	1.0	mA
Operating Case Temperature	T <sub>C</sub>	-20 to +60	°C
Storage Temperature	T <sub>stg</sub>	-20 to +60	°C
Lead Soldering Temp	T <sub>slid</sub>	350(3sec)	°C
Relative Humidity (Non-condensing)	RH	85	%

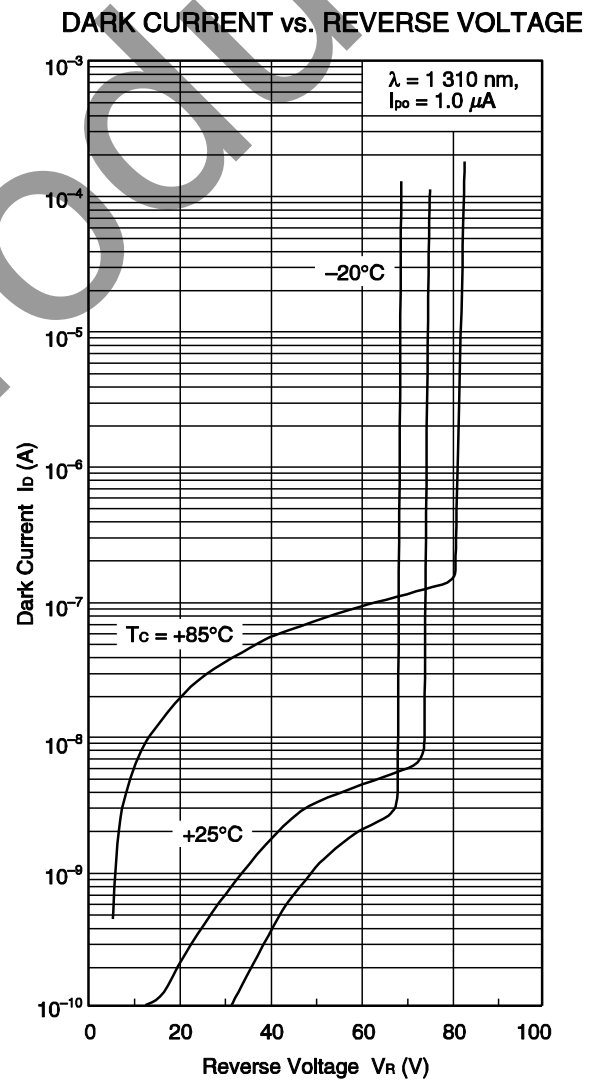
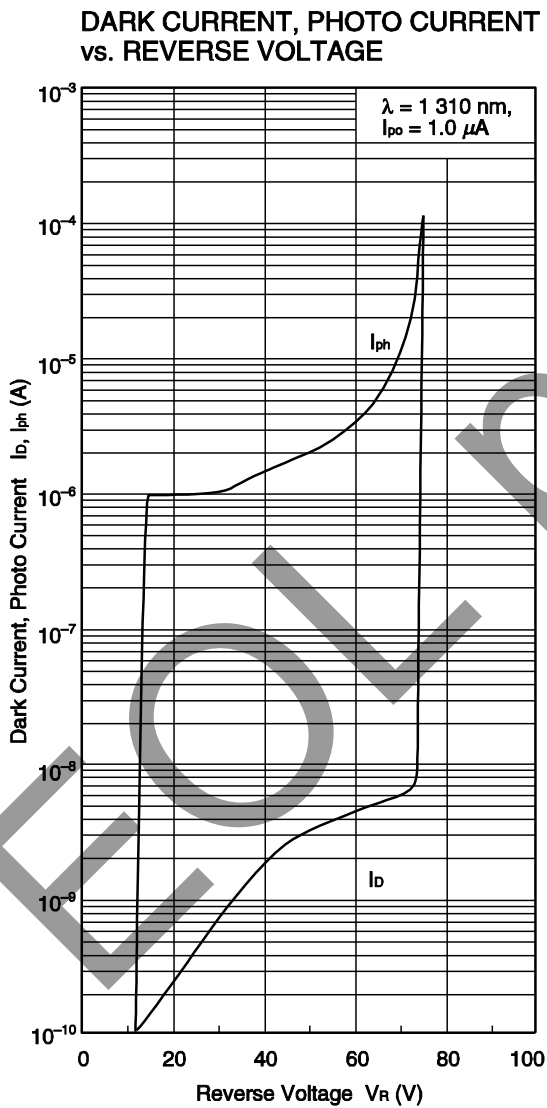
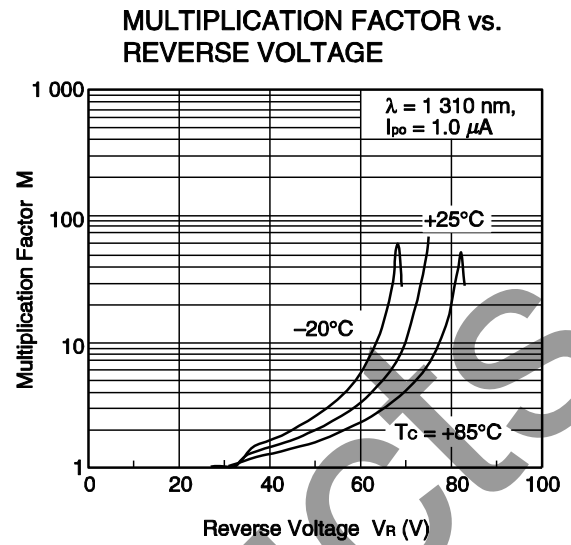
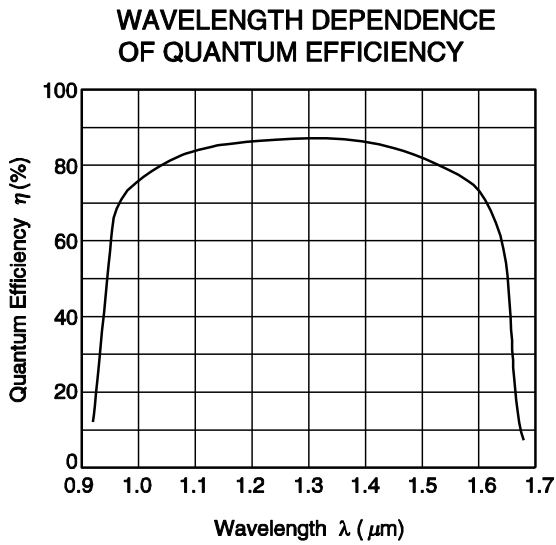
ELECTRO-OPTICAL CHARACTERISTICS (T<sub>C</sub> = 25°C, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Reverse Breakdown Voltage	V <sub>BR</sub>	I <sub>D</sub> = 100 μA	50	70	100	V
Temperature Coefficient of Reverse Breakdown Voltage	δ <sup>*1</sup>			0.2		%/°C
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 10mA			1.3	V
Dark Current	I <sub>D</sub>	V <sub>R</sub> = V <sub>BR</sub> × 0.9		7	30	nA
Multiplied Dark Current	I <sub>DM</sub>	M = 2 to 10		1	5	nA
Terminal Capacitance	C <sub>t</sub>	V <sub>R</sub> = V <sub>BR</sub> × 0.9, f = 1 MHz		0.5	0.75	pF
Sensitivity	S	λ = 1 310 nm, M = 1	0.80	0.94		A/W
Multiplication Factor	M	λ = 1 310 nm, I <sub>po</sub> = 1.0 μA V <sub>R</sub> = V (@ I <sub>D</sub> = 1 μA)	40	70		
Excess Noise Factor <sup>*2</sup>	x	λ = 1 310 nm, I <sub>po</sub> = 1.0 μA		0.7		
	F	M = 10, f = 35 MHz, B = 1 MHz		5		
Optical Return Loss	ORL	GI-62.5, λ = 1 310 nm,	28			dB

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

$$*2 \quad F = M^x$$

TYPICAL CHARACTERISTICS (T<sub>c</sub> = 25°C, unless otherwise specified)



**Remark** The graphs indicate nominal characteristics.

REFERENCE

Document Name	Document No.
Opto-Electronics Devices Pamphlet*1	PX10160E

\*1 Published by the former NEC Electronics Corporation.

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## SAFETY INFORMATION ON THIS PRODUCT

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<p><b>Caution</b> 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"> <li>• 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"> <li>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.</li> <li>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.</li> </ol> </li> <li>• Do not burn, destroy, cut, crush, or chemically dissolve the product.</li> <li>• Do not lick the product or in any way allow it to enter the mouth.</li> </ul>
<p><b>Caution</b> Optical Fiber</p>	<p>A glass-fiber is attached on the product. Handle with care.</p> <ul style="list-style-type: none"> <li>• When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.</li> </ul>

<b>Revision History</b>	<b>NR8800AS-CB Data Sheet</b>
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Rev.	Date	Description	
		Page	Summary
1.00	May 22, 2020	-	New document

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