NR8800FS-CB

PHOTO DIODE

Φ80 μm InGaAs AVALANCHE PHOTO DIODE MODULE FOR OTDR APPLICATION

R08DS0192EJ0100
Rev.1.00
May 22, 2020

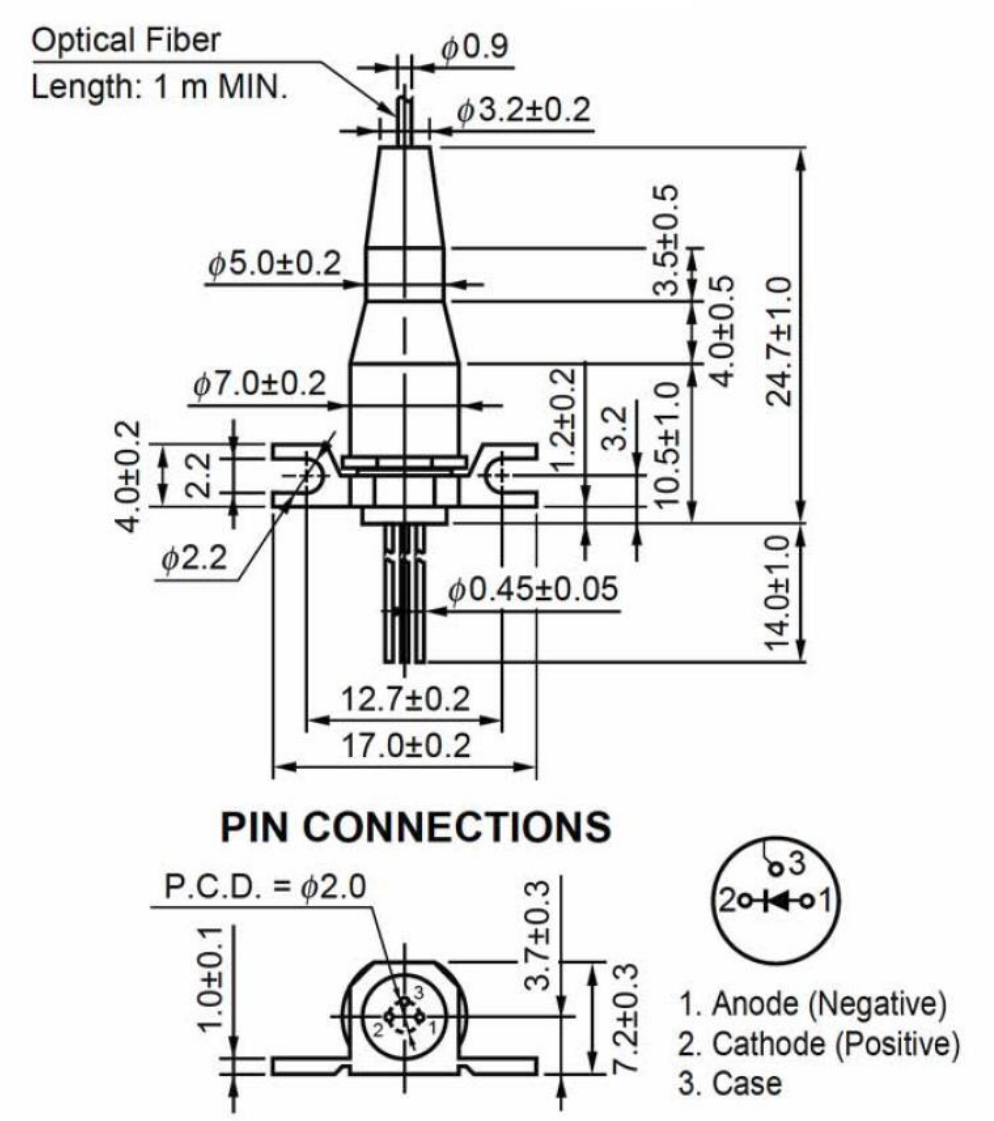
DESCRIPTION

The NR8800FS-CB is an InGaAs avalanche photo diode module with multi mode fiber, and can be used in OTDR systems.

FEATURES

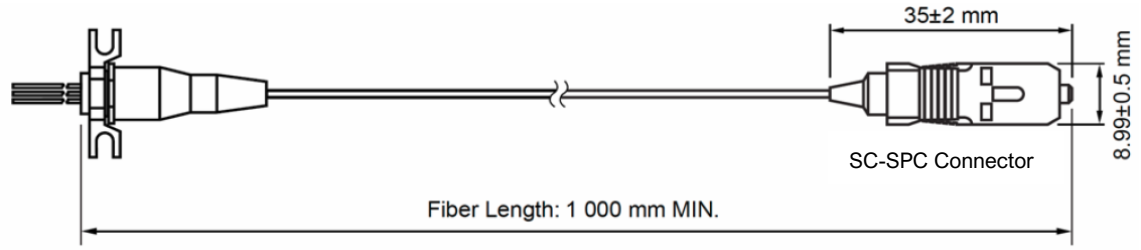
- Small dark current I_D = 7 nA
- Small terminal capacitance C_t = 0.5 pF @ 0.9 V_{BR}
- High sensitivity S = 0.94 A/W @ λ = 1 310 nm, M = 1
- Detecting area size Φ 80 μm
- Coaxial module with multi mode fiber (GI-62.5)

PACKAGE DIMENSIONS (UNIT: mm)



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	FIange Type	Fiber Type	Available Connector
NR8800FS-CB-AZ/SH	Flat Mount Flange	MMF	With SC-SPC Connector

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Forward Current	I_F	10	mA
Reverse Current	I_R	1.0	mA
Operating Case Temperature	T_C	–20 to +60	°C
Storage Temperature	T_{stg}	–20 to +60	°C
Lead Soldering Temp	T_{sld}	350(3sec)	°C
Relative Humidity (Non-condensing)	RH	85	%

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

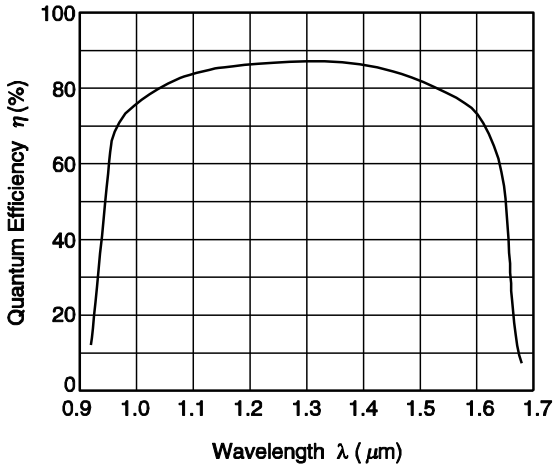
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Reverse Breakdown Voltage	V_{BR}	I_D = 100 μA	50	70	100	V
Temperature Coefficient of Reverse Breakdown Voltage	δ *1			0.2		%/°C
Dark Current	I_D	$V_R = V_{BR} \times 0.9$		7	30	nA
Multiplied Dark Current	I_{DM}	M = 2 to 10		1	5	nA
Terminal Capacitance	C_t	$V_R = V_{BR} \times 0.9$, 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_{po} = 1.0 μA V_R = V (@ I_D = 1 μA)	30	70		
Excess Noise Factor*2	x	λ = 1 310 nm, I_{po} = 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 $$\delta = \frac{V_{BR} < 25\ °C + \Delta T\ °C > - V_{BR} < 25\ °C >}{\Delta T\ °C \cdot V_{BR} < 25\ °C >}$$

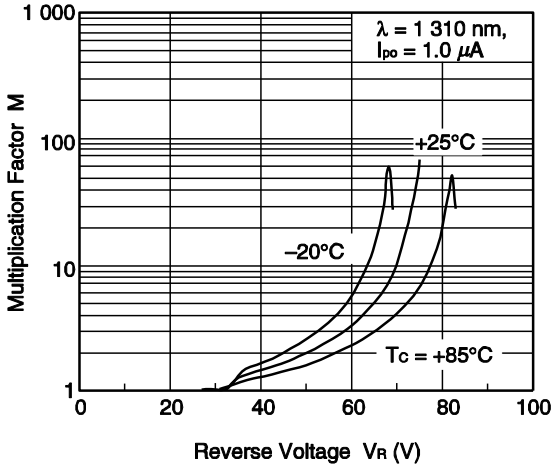
*2 $F = M^X$

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

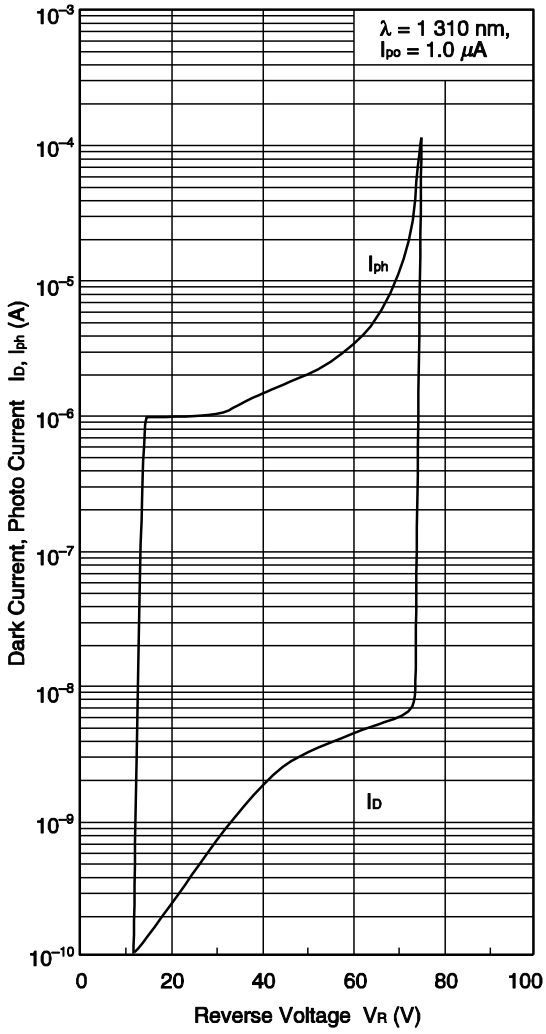
WAVELENGTH DEPENDENCE OF QUANTUM EFFICIENCY



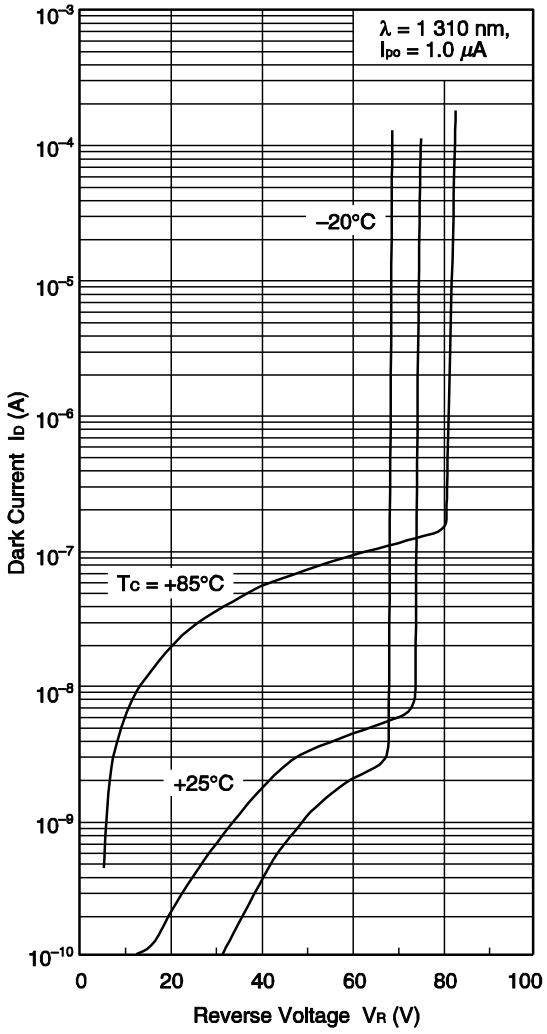
MULTIPLICATION FACTOR vs. REVERSE VOLTAGE



DARK CURRENT, PHOTO CURRENT vs. REVERSE VOLTAGE



DARK CURRENT vs. REVERSE VOLTAGE



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.

SAFETY INFORMATION ON THIS PRODUCT

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Caution GaAs Products	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. • 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. 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. • 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.
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.

Revision History	NR8800FS-CB Data Sheet

Rev.	Date	Description	
		Page	Summary
1.00	May 22, 2020	–	New document