PD8XX2 SERIES

InGaAs AVALANCHE PHOTO DIODES

TYPE NAME

PD8042,PD8932

DISCRIPTION

PD8XX2 is an InGaAs avalanche photodiode suitable for receiving the light having low noise, a wavelength band of 1000 to 1600nm. This photodiode features low noise, a high quantum efficiency and a very small dark current and is suitable for the light receiving elements for long-distance optical communications.

FEATURES

- Active diameter 50μm
- Low noise
- High speed response
- Very small dark current
- High quantum efficiency

APPLICATION

Receiver for long-distance fiber - optic communication systems

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings	Unit
I_R	Reverse current	-	500	μA
I_F	Forward current	-	2	mA
T_C	Case temperature	-	-40~+85	˚C
T_{stg}	Storage temperature	-	-40~+100	˚C

ELECTRICAL/OPTICAL CHARACTERISTICS (T_C = 25˚C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
$V_{(BR)R}$	Breakdown voltage	I_R = 100 μ A	40	60	90	V
C_t	Capacitance	V_R = 0.9V $_{(BR)R}$,f = 1MHz	-	0.7*	0.9	pF
I_D	Dark current	V_R = 0.9V $_{(BR)R}$	-	60	100	nA
η	Quantum efficiency	M = 1, λ = 1300nm	-	80	-	%
fc	Cutoff frequency (-3dB)	M = 10,R_L = 50 Ω ,-3dB	1	2.5	-	GHz

*: C_t=0.6F (typ.) for PD8932

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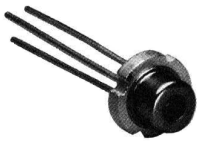
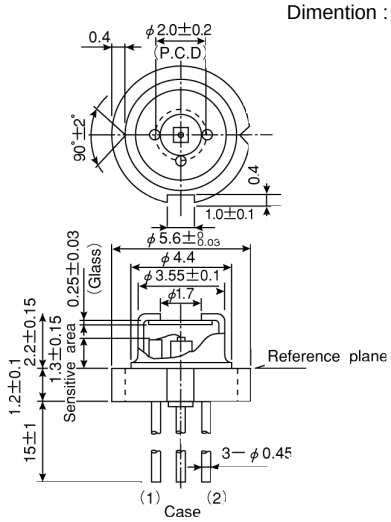
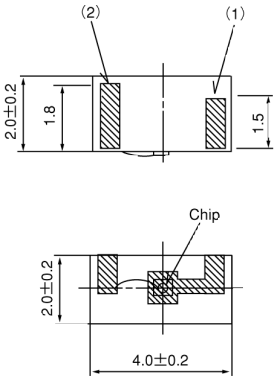
OUTLINE DRAWING

PD8042 	Dimention : mm 	
PD8932 	Dimention : mm 	

TYPICAL CHARACTERISTICS

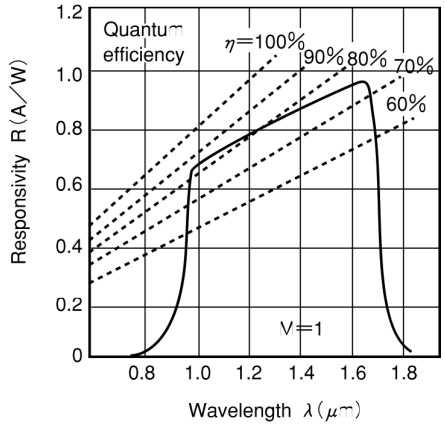


Fig.1 Spectral response

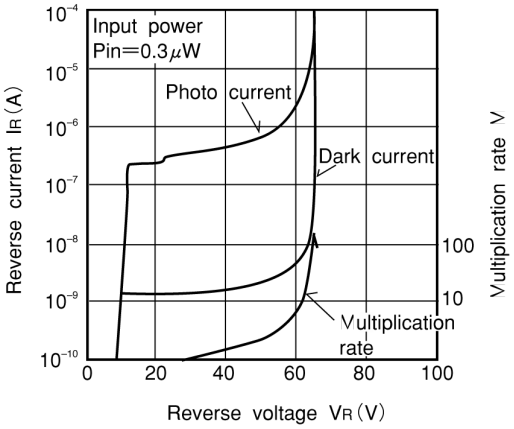


Fig.2 Dark current, photo current and multiplication rate vs. reverse voltage

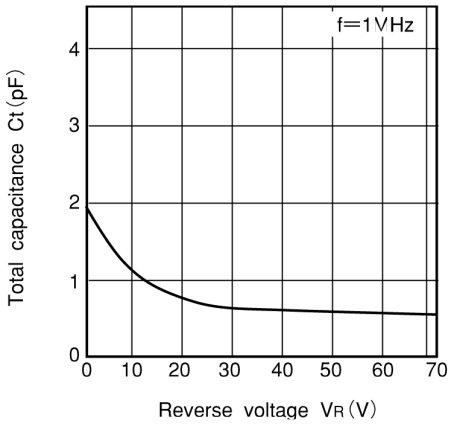


Fig.3 Total capacitance vs. reverse voltage

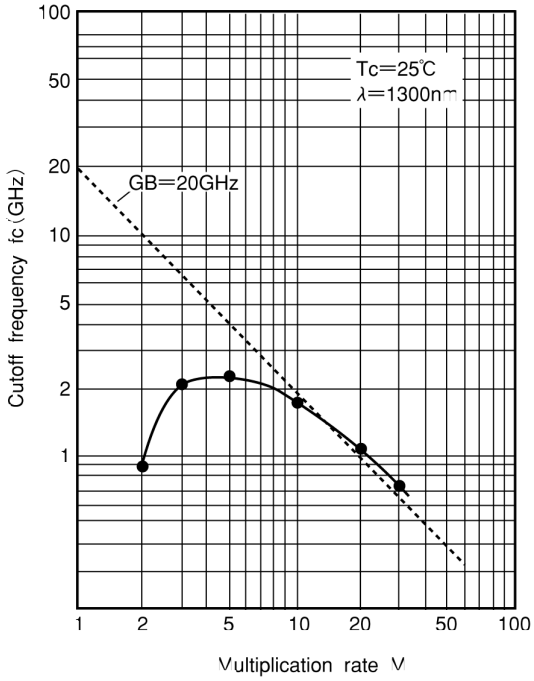


Fig.5 Multiplication rate dependence of cutoff frequency

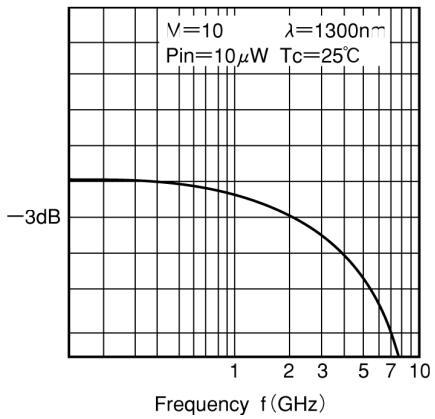


fig.4 Frequency response