

MITSUBISHI InGaAs PHOTODIODES
PD8XX2 SERIES

FOR OPTICAL COMMUNICATION

TYPE
 NAME

PD805A2

DESCRIPTION

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

FEATURES

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

APPLICATION

Fiber-optic communication systems

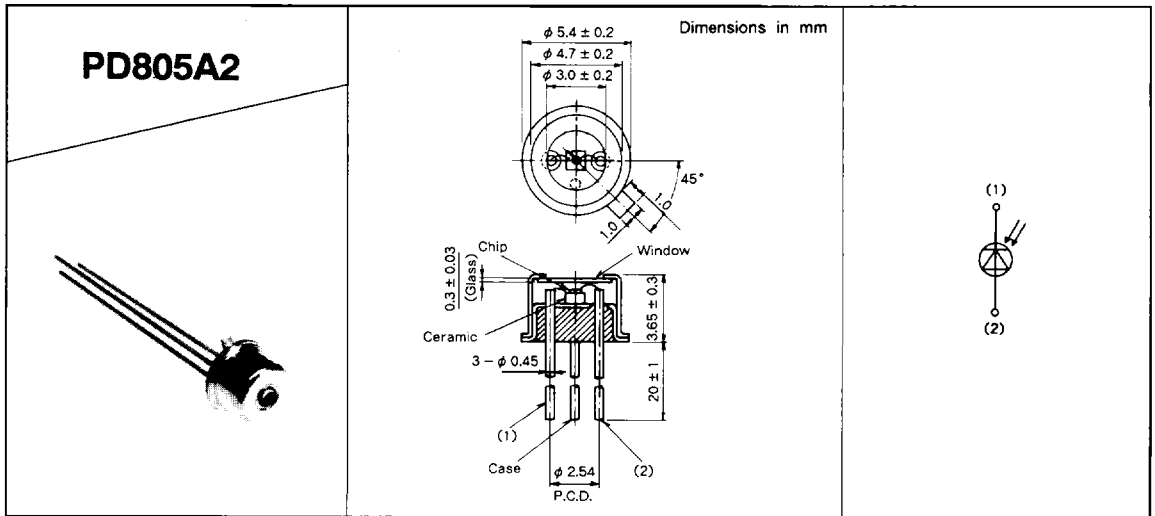
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings	Unit
I_R	Reverse current	—	500	μ A
I_F	Forward current	—	2	mA
T_C	Case temperature	—	-30~+80	$^{\circ}$ C
T_{stg}	Storage temperature	—	-40~+100	$^{\circ}$ C

ELECTRICAL/OPTICAL CHARACTERISTICS ($T_C = 25^{\circ}$ C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
$V_{(BR)R}$	Breakdown voltage	$I_R = 100 \mu$ A	40	70	90	V
C_t	Total capacitance	$V_R = 0.9V_{(BR)R}$, $f = 1MHz$	—	0.7	0.9	pF
I_D	Dark current	$V_R = 0.9V_{(BR)R}$	—	10	30	nA
η	Quantum efficiency	$M = 1$, $\lambda = 1300nm$	—	80	—	%
f_c	Cutoff frequency	$M = 10$, $R_L = 50 \Omega$, -3dB	1	3	—	GHz
F	Excess noise factor	$M = 10$	—	$M^{0.7}$	—	—

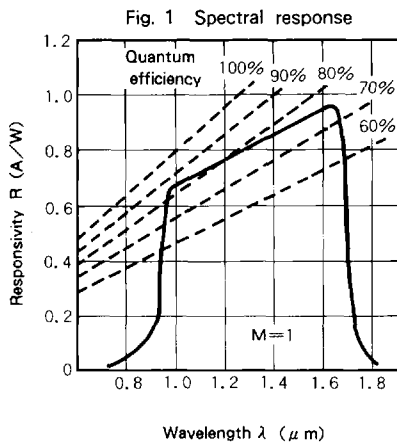
OUTLINE DRAWINGS



SAMPLE CHARACTERISTICS

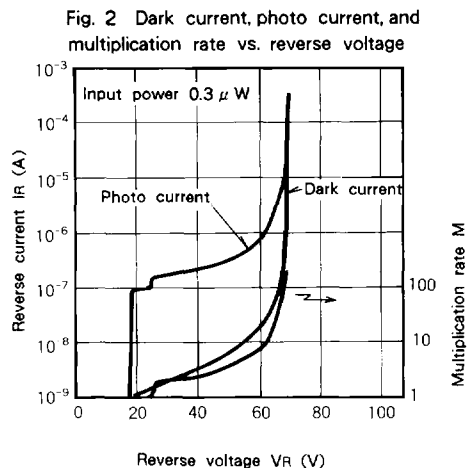
1 Spectral response

Figure 1 shows PD8XX2's typical spectral response. Dashed curves indicate quantum efficiency levels. PD8XX2 is suitable for receiving the light having a wavelength of 1000 to 1600nm. The typical quantum efficiency in this area is 80%.



2 Multiplication

Figure 2 shows PD8XX2's typical dark current, photo current, and multiplication rate vs. reverse voltage characteristic. The dark current at 0.9V_(BR)R is about 10nA and the multiplication rate is about 10.



3 Total capacitance vs. reverse voltage characteristic

Typical capacitance vs. reverse bias characteristics are shown in Fig. 3. The capacitance at 0.9V_(BR)R is about 0.7pF.

