

MITSUBISHI LASER DIODES
PD7XX8 SERIES

InGaAs PIN PHOTO DIODES

TYPE
NAME

PD7088,PD708B8

DESCRIPTION

PD7XX8 series are InGaAs pin photodiode which has a sensitive area of $\phi 80 \mu\text{m}$.

PD7XX8 is suitable for receiving the light having a wavelength band of 1000 to 1600nm. This photodiode features high-speed response and a high quantum efficiency, and is suitable for the light receiving elements for optical fiber communication systems.

FEATURES

- $\phi 80 \mu\text{m}$ active diameter
- 1000~1600nm wavelength band
- Small dark current
- High speed response
- High quantum efficiency
- High reliability, long operation life
- Ball lens cap (PD708B8)

APPLICATION

Receiver for long-distance optical fiber communication systems

ABSOLUTE MAXIMUM RATING

| Symbol | Parameter | Conditions | Ratings | Unit |
|--------|---------------------|------------|----------|---------------|
| VR | Reverse voltage | — | 20 | V |
| IR | Revers current | — | 500 | μA |
| IF | Forward current | — | 2 | mA |
| Tc | Case temperature | — | -40~+85 | °C |
| Tstg | Storage temperature | — | -40~+100 | °C |

ELECTRICAL/OPTICAL CHARACTERISTICS (Tc = 25°C)

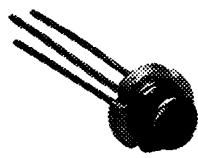
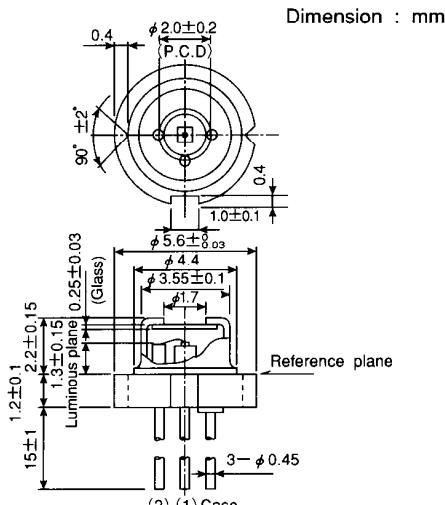
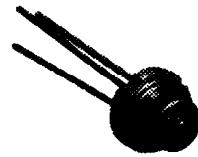
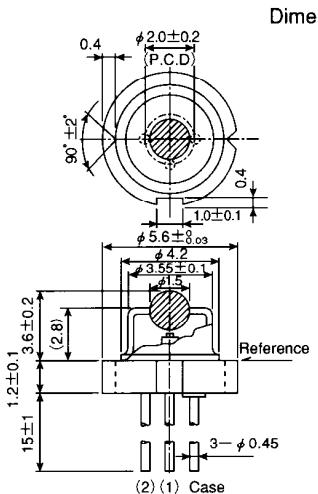
| Symbol | Parameter | Test conditions | Limits | | | Unit |
|--------|---------------------|--|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| Ct | Capacitance | VR = 5V,f = 1MHz | — | 1 | 2 | pF |
| Id | Dark current | VR = 5V | — | 0.05 | 1 | nA |
| R | Responsivity | VR = 5V, $\lambda = 1300\text{nm}$ | 0.6 | 0.9* | — | A/W |
| fc | Cutoff frequency | VR = 5V, $\lambda = 1300\text{nm}, RL = 50\Omega, -3\text{dB}$ | 1 | 3 | — | GHz |
| tr,tr | Rise and fall times | VR = 5V, $\lambda = 1300\text{nm}, RL = 50\Omega$ | — | 0.3 | — | ns |

* 0.85A/W typical fiber coupling sensitivity with GI 50/125 for PD708B8

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OUTLINE DRAWINGS

| | | |
|--|--|---|
| PD7088  |  Dimension : mm <p>Top View Dimensions:</p> <ul style="list-style-type: none"> Diameter: $\phi 2.0 \pm 0.2$ (P.C.D.) Height: 0.4 Bottom Bevel Angle: $90^\circ \pm 2^\circ$ Bottom Edge Distance: 1.0 ± 0.1 <p>Cross-Section Dimensions:</p> <ul style="list-style-type: none"> Luminous plane thickness: 0.25 ± 0.03 (Glass) Total height: 15 ± 1 Base thickness: 1.2 ± 0.1 Base side thickness: 2.2 ± 0.15 Base bottom thickness: 1.3 ± 0.15 Base side height: 0.4 Base side width: 5.6 ± 0.03 Base side inner width: 4.4 Base side inner height: 3.55 ± 0.1 Base side inner width: 6.17 Base side inner height: 3 - $\phi 0.45$ Base side inner height: (2) (1) Case |  |
| PD70B8  |  Dimension : mm <p>Top View Dimensions:</p> <ul style="list-style-type: none"> Diameter: $\phi 2.0 \pm 0.2$ (P.C.D.) Height: 0.4 Bottom Bevel Angle: $90^\circ \pm 2^\circ$ Bottom Edge Distance: 1.0 ± 0.1 <p>Cross-Section Dimensions:</p> <ul style="list-style-type: none"> Total height: 15 ± 1 Base thickness: 1.2 ± 0.1 Base side thickness: 3.6 ± 0.2 (2.8) Base bottom thickness: 1.2 ± 0.1 Base side height: 0.4 Base side width: 5.6 ± 0.03 Base side inner width: 4.2 Base side inner height: 3.55 ± 0.1 Base side inner width: 6.15 Base side inner height: 3 - $\phi 0.45$ Base side inner height: (2) (1) Case |  |

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TYPICAL CHARACTERISTICS

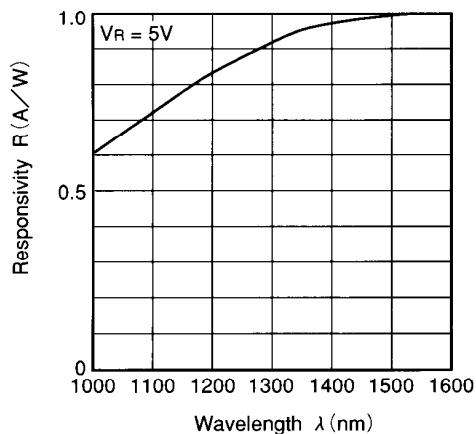


Fig.1 Spectral response

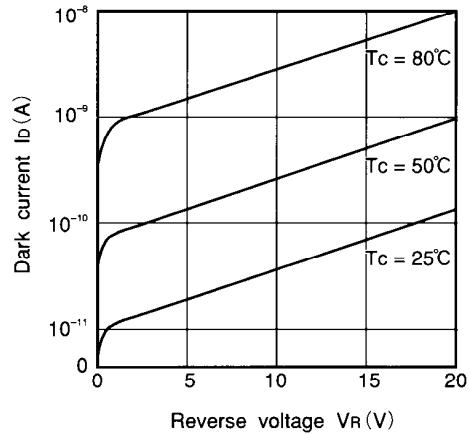


Fig.2 Dark current vs. reverse voltage

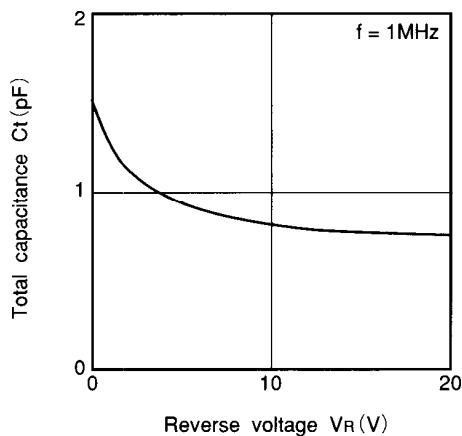


Fig.3 Total capacitance vs. reverse voltage