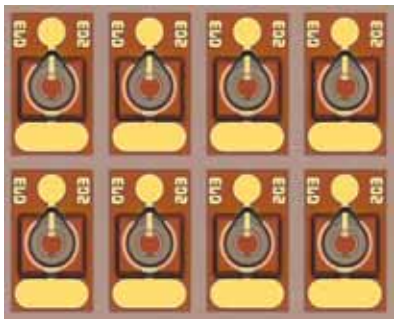
# TPD-1C12-054

## 10Gbps InGaAs PIN photodiode chip

### FEATURES:

- Optimized for fiber optic application
- High responsivity at 1310 nm/1550 nm
- Low capacitance and dark current



### ELECTRO-OPTICAL CHARACTERISTICS:

| PARAMETERS | SYMBOL | MIN | TYP | MAX | UNIT | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| Active Diameter | Φ | | 50 | | μm | |
| Responsivity | R | 0.9 | 1.1 | | A/W | $V_R$=1.5V, λ=1550nm @ 25C |
| | | 0.8 | 0.9 | | | $V_R$=1.5V, λ=1310nm @ 25C |
| Dark Current | $I_D$ | | 0.2 | 1 | nA | $V_R$=5V |
| Breakdown Voltage | $V_{BD}$ | 25 | 40 | | V | $I_R$=10μA |
| Capacitance | C | | 0.27 | 0.3 | pF | $V_R$=1.5V, f=1 MHz |
| | | | 0.22 | | | $V_R$=5V, f=1 MHz |
| Bandwidth | BW | | 10 | | GHz | $V_R$=5V |

### ABSOLUTE MAXIMUM RATINGS:

| PARAMETERS | MIN | MAX | UNIT | CONDITIONS |
|---|---|---|---|---|
| Storage Temperature | -40 | 100 | ℃ | |
| Operating Temperature | -40 | 85 | ℃ | |
| Reverse Current | | 2 | mA | |
| Forward Current | | 10 | mA | |
| Reverse Voltage | | 20 | V | |
| Optical Power | | 2 | mW | |

Fig. 1 Typical Dark Current and Forward Current

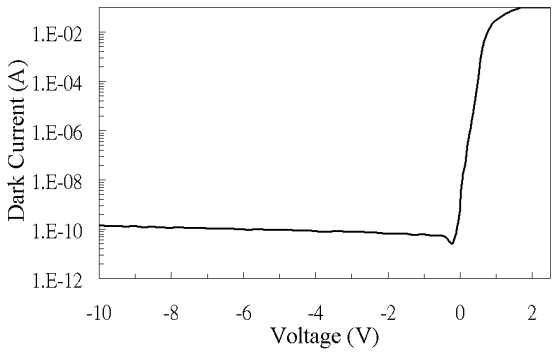



Fig. 2 Typical Photo Current

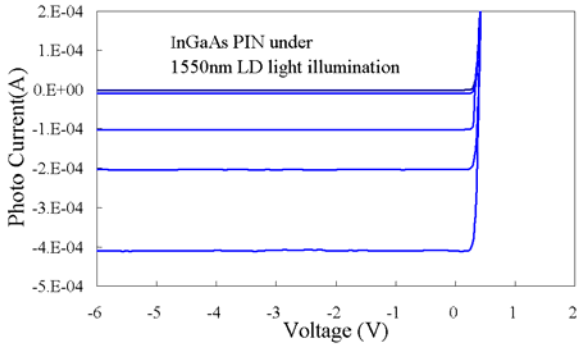


Fig 3 Typical Breakdown Curve

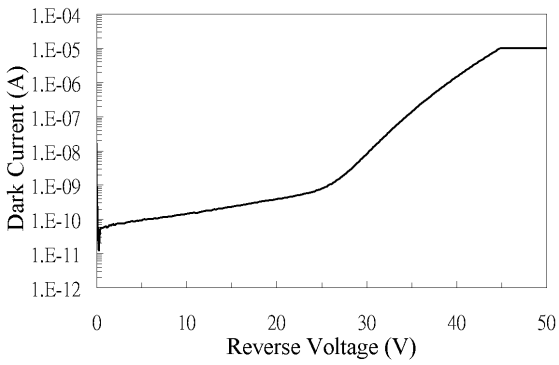
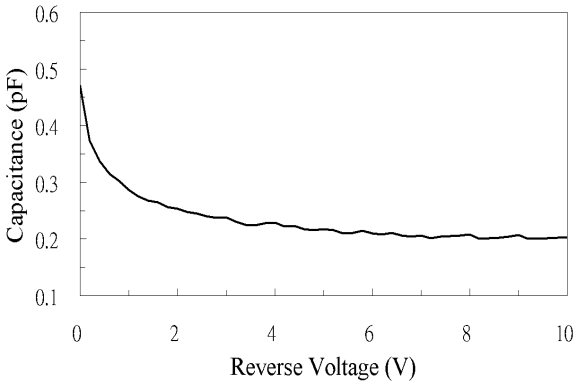
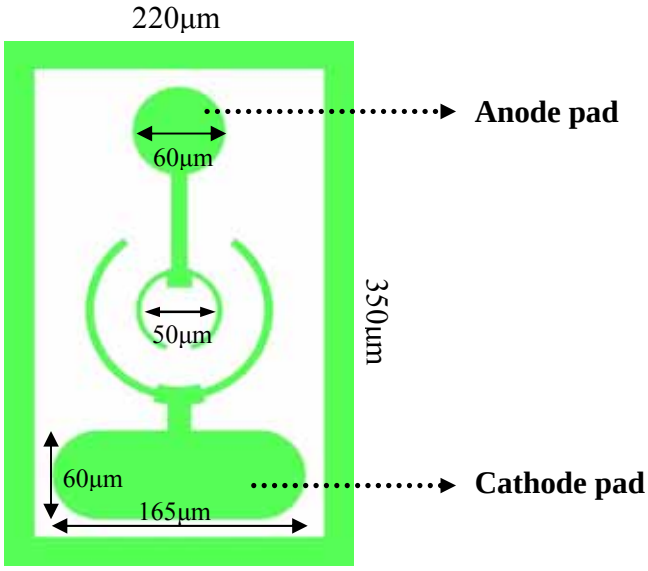



Fig 4 Typical C-V Curve




## OUTLINE DIAGRAM:




- Chip size is typical 220x350 µm.
- Chip thickness is 150±12.5µm.
- Sensitive area is typical 50 µm in diameter.