

**FEATURES:**

- 100 MICRON DIAMETER ACTIVE AREA
- LOW DARK CURRENT
- LOW CAPACITANCE
- OFFERS IMPROVED SENSITIVITY OVER PIN DIODES
- WIDE BANDWIDTH
- RUGGED COAXIAL
- FIBER PIGTAILED PACKAGE
- OPERATING TEMPERATURE: -40 TO +85 °C

Parameter	Symbol	Ratings	Unit
Storage Temperature	Tstg	-40 to +85	°C
Operating Case Temperature	Top	-40 to +85	°C
Forward Current	I <sub>f</sub>	50	mA
Reverse Current	I <sub>R</sub>	500	μA

**Applications:**

- High data rate optical transmission systems
- Long haul unrepeated undersea and terrestrial fiberoptic systems
- Fiber optic instrumentation

**Description:**

The J16A Series of Germanium Avalanche Photodiodes (APD) is designed for use in optical transmission systems operating at high-bit-rates and over long distances. The 100μm photosensitive diameter is optimized to achieve both higher coupling efficiency with single mode fiber and superior electrical performance. The APD chip uses planar, fully implanted structure yielding low dark current, low capacitance and offers the system designer wide bandwidth capability with high reliability. A laser welding assembly process assures long term stability of fiber coupling and a -40

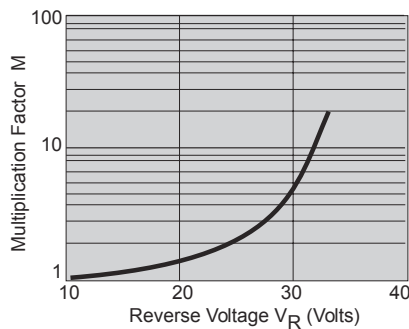
to +85 C operating temperature range. The J16A Series APD's have undergone extensive reliability testing and has been demonstrated to be better than 10 FIT's corresponding to less than 1% failure rate over 20 years of service.

# J16A SERIES GE AVALANCHE PHOTODIODES

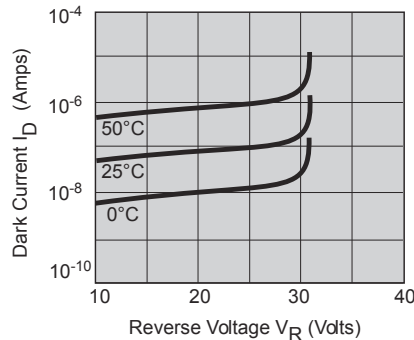
## Operating Instructions

PARAMETER	TEST CONDITIONS	J16A-D1-R100U			J16A-D12-R100U			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Active Diameter			100			100		$\mu\text{M}$
Responsivity	$\lambda = 1300\text{nm}$	0.73	0.83		0.65	0.75		A/W
Breakdown Voltage	$I_d = 100\mu\text{A}$	25	30	40	25	30	40	V
Temperature Coefficient of $V_B$			0.1			0.1		$\%/^{\circ}\text{C}$
Dark Current	$V_R = 0.9V_B$		300	450		300	450	nA
Multiplied Dark Current	$M = 1$		30	65		30	65	nA
Capacitance	$f = 1\text{MHz}$ $M = 10$		1.4			1.2		pF
Bandwidth	$M = 10$ $1300\text{nm}$	2			2			GHz

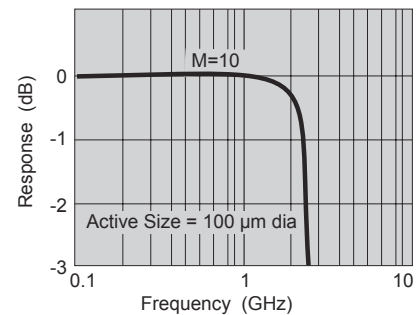
Multiplication Characteristics



Dark Current and Reverse Voltage

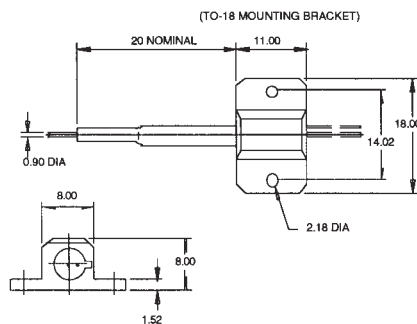


Frequency Response



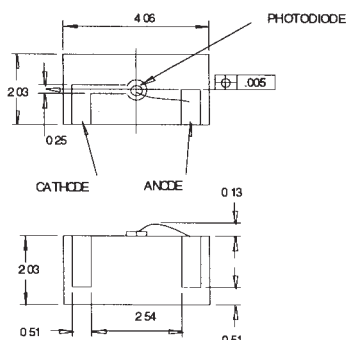
### Packages

D12 Package: JT Package Option

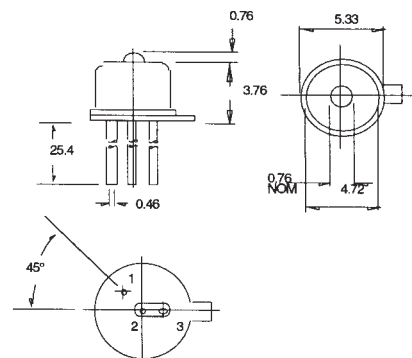


Alternative package options available on request.

D1 Package: Ceramic Submount



D21 Package: Ball Lens



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