



## SERIES NUMBER

# FD50

High Speed InGaAs PIN Photodiodes  
diameter of active area=50  $\mu\text{m}$

### DESCRIPTION

Very high speed, low capacitance, low dark current photodiode for very high bit rate receiver applications. The photosensitive area is 50 microns in diameter. Planar-passivated device structure.

### ABSOLUTE MAXIMUM RATINGS (T=25°C)

PARAMETER	RATING	UNITS
Storage Temperature	-40 to +100	°C
Operating Temperature	-40 to +85	°C
Forward Current	5	mA
Reverse Current	0.5	mA
Reverse Voltage	30	V

### OPTICAL AND ELECTRICAL CHARACTERISTICS (T=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Responsivity	R	$\lambda = 1300 \text{ nm}$	0.80	0.85	-	A/W
		$\lambda = 1550 \text{ nm}$	0.85	0.90	-	
Dark Current	$I_d$	$V_R=5V$	-	0.1	1	nA
Rise/Fall Time *	$t_R/t_F$	$V_R=5V$	-	100	200	ps
Capacitance	C	$V_R=5V$	-	0.25	0.4	pF

\*Typical analog bandwidth is 8 GHz

### PACKAGE OPTIONS

PART NUMBER	PACKAGE DESCRIPTION
FD50S3	type S3 alumina ceramic submount
FD50S7-F	High Speed Mini-Pigtail Package

see also: FD50DA Digital Arrays, p. 45



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#### TYPICAL CHARACTERISTICS

Fig. 1 Spectral Response (R vs  $\lambda$ )

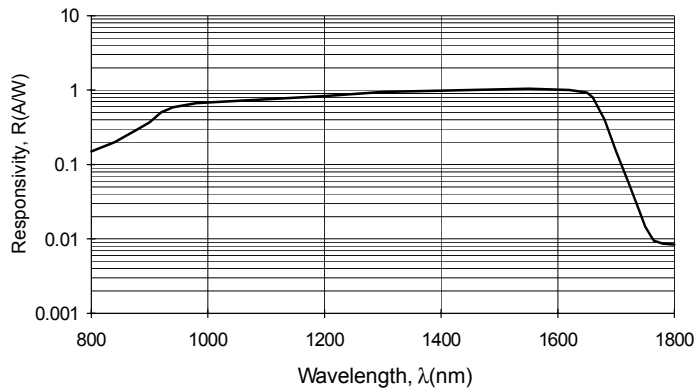


Fig. 2 Dark Current vs Reverse Voltage

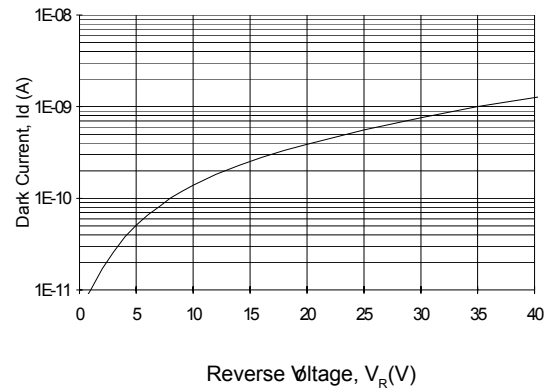


Fig. 3 Capacitance vs Reverse Voltage

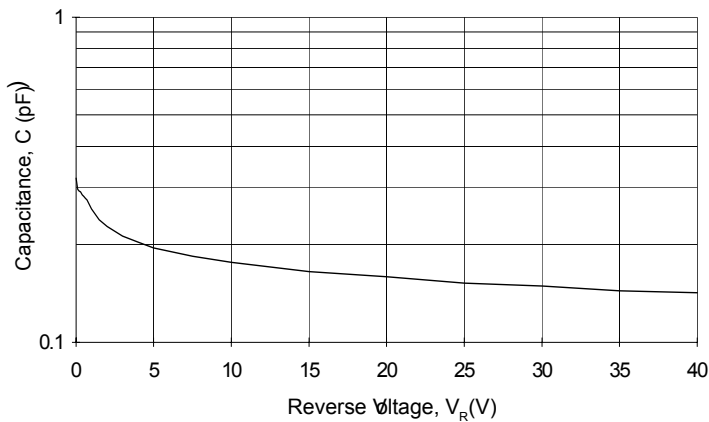


Fig. 4 Response to Optical Impulse

