

## FEATURES

- Hermetically Sealed Package with a single mode fiber pigtail
- High Responsivity: 0.85 A/W
- Low Dark Current: 0.1 nA
- Low Distortion: < -75dBc
- High Optical Return Loss: > 40dB
- High Frequency Response: 2.0GHz

## APPLICATIONS

- Analog Transmission Systems
- AM and FM CATV systems

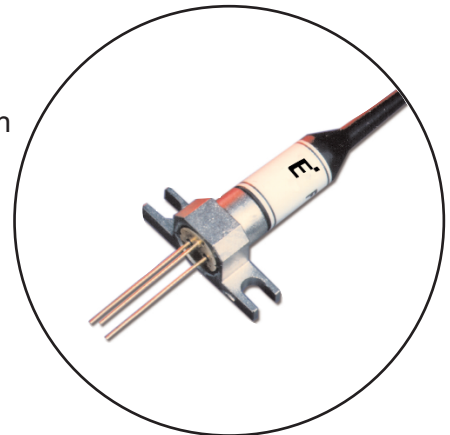
## DESCRIPTION

The FID3S1HX/KX are PIN photodiode modules with a single mode fiber pigtail specifically designed for multichannel analog transmission systems. The photodiode uses a planar structure to achieve low dark current, high responsivity and high reliability. The coupling optics in the package is designed for very low optical reflection. The package is hermetically sealed.

HX



KX



## ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub>=25°C)

Parameter	Symbol	Ratings	Unit
Storage Temperature	T <sub>stg</sub>	-40 to +85	°C
Operating Case Temperature	T <sub>op</sub>	-40 to +80	°C
Forward Current	I <sub>F</sub>	5	mA
Reverse Current	I <sub>R</sub>	3	mA
Reverse Voltage	V <sub>R</sub>	20	V

## OPTICAL & ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C, λ=1300 and 1500nm)

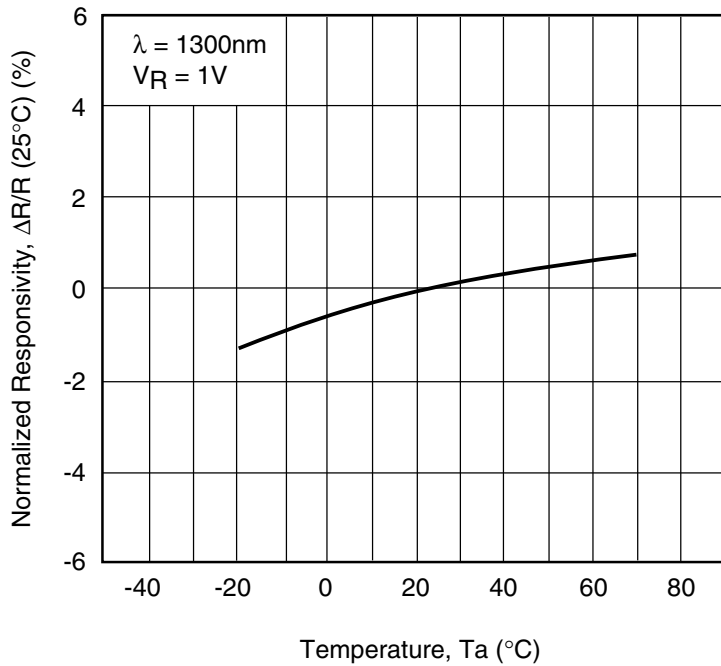
Parameter	Symbol	Limits		Unit	Conditions
		Min.	Max.		
Responsivity	R	0.8	-	A/W	V <sub>R</sub> =1V
Dark Current	I <sub>D</sub>	-	5	nA	V <sub>R</sub> =5V
Cut-off Frequency	f <sub>c</sub>	1.5	-	GHz	R <sub>L</sub> =50Ω, V <sub>R</sub> =5V, -3dB from 500KHz
Capacitance	C <sub>t</sub>	-	1.3	pF	f=1MHz, V <sub>R</sub> =5V
2nd order intermodulation distortion	IMD2	-	-75	dBc	2 laser, 2 tone, OMD=70% each, P <sub>in</sub> =-0dBm, V <sub>R</sub> =5V (Note 1)
3rd order intermodulation distortion	IMD3	-	-90	dBc	
Optical return loss	ORL	40	-	dB	

(1) Modulation input light signals are from two independent laser sources with a modulation frequency f<sub>1</sub>=244 MHz and f<sub>2</sub>=250 MHz respectively.

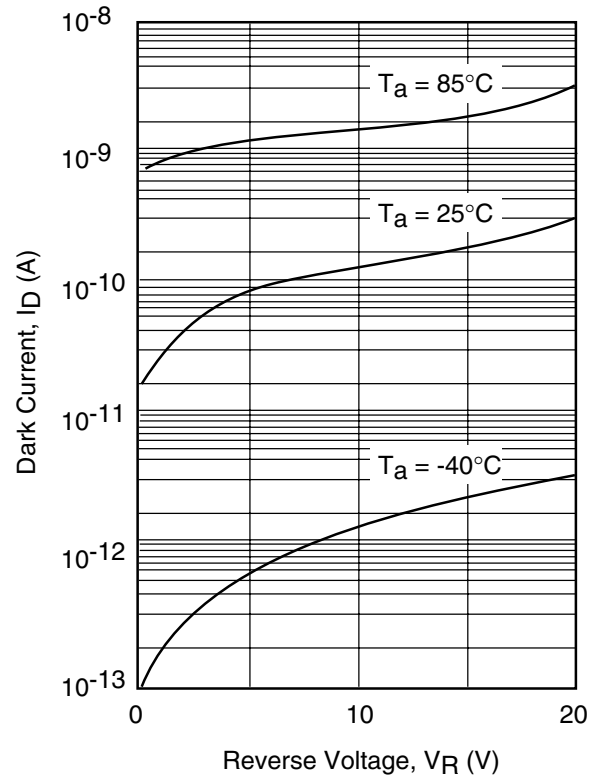
(2) Pigtail fiber: Singlemode fiber, core diameter 10±1μm, cladding diameter 125±2μm, difference of refractive index 0.3%.

(3) V<sub>R</sub> = 10V is recommended at P<sub>in</sub> > 0dBm or f > 1GHz application.

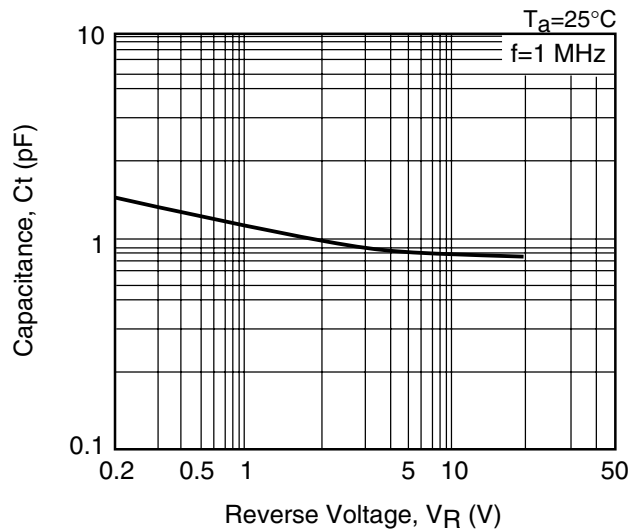
**Fig. 1 Temperature Dependence of Responsivity**



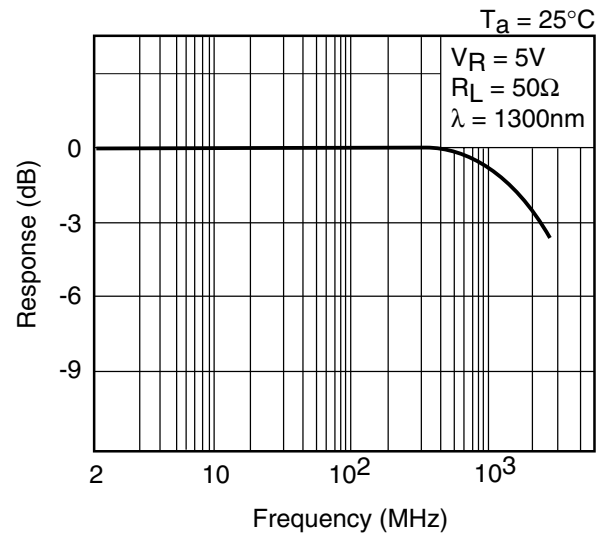
**Fig. 2 Dark Current vs. Reverse Voltage**



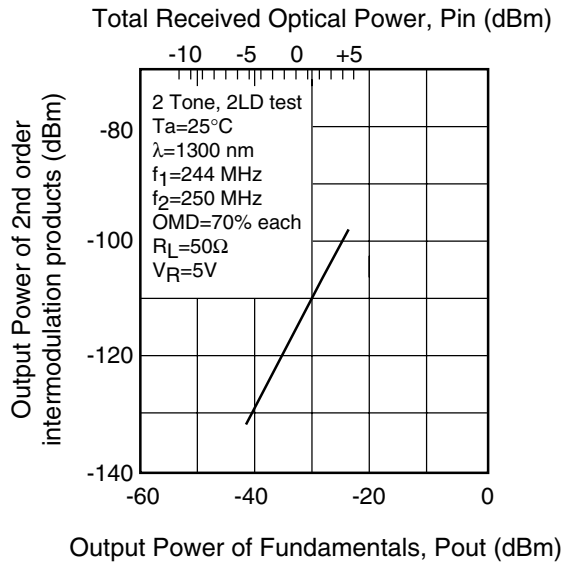
**Fig. 3 Capacitance vs. Reverse Voltage**



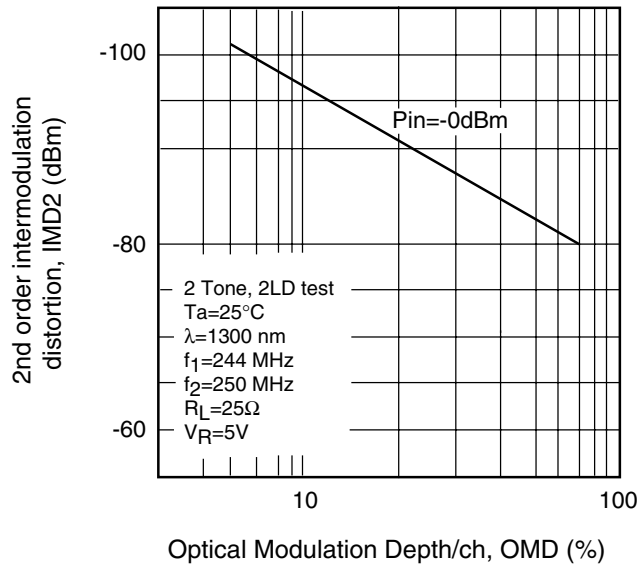
**Fig. 4 Frequency Response**



**Fig. 5 2nd Order Intermodulation Distortion Characteristics**

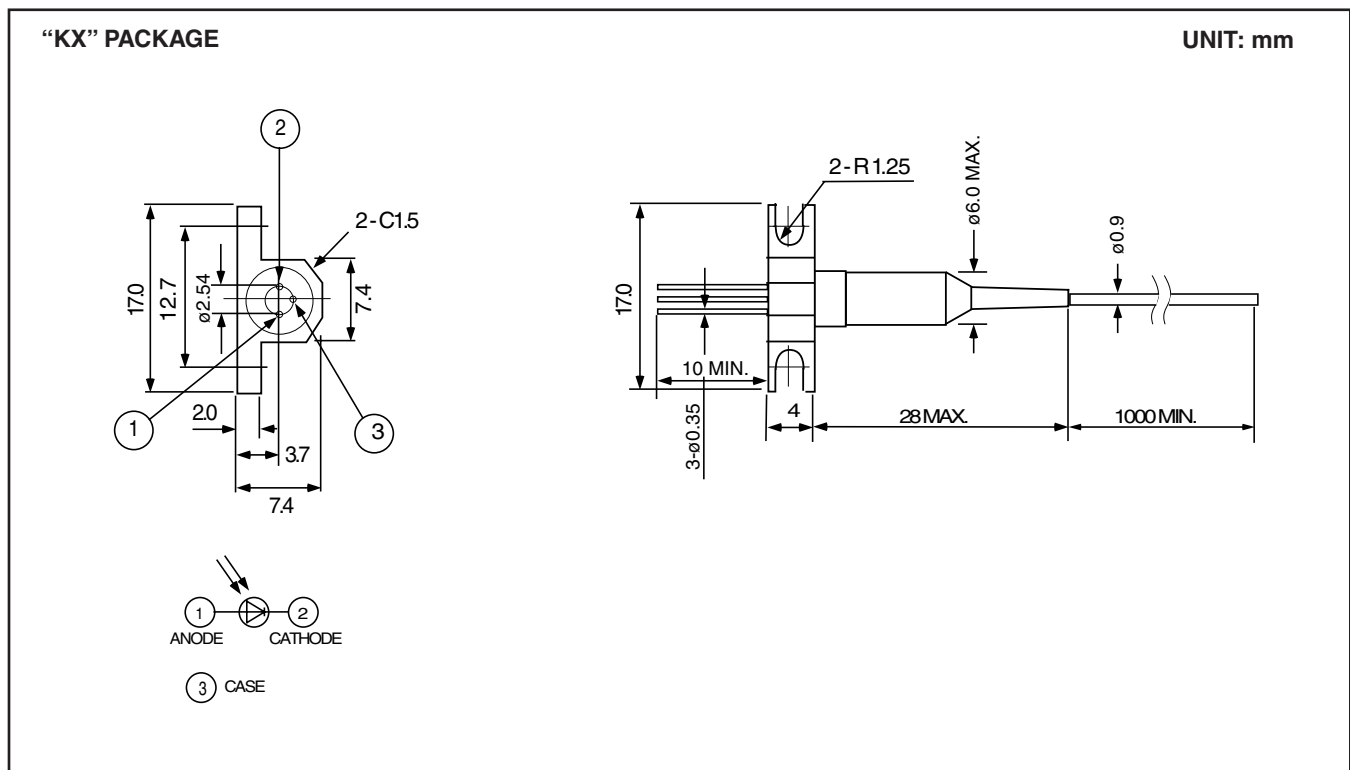
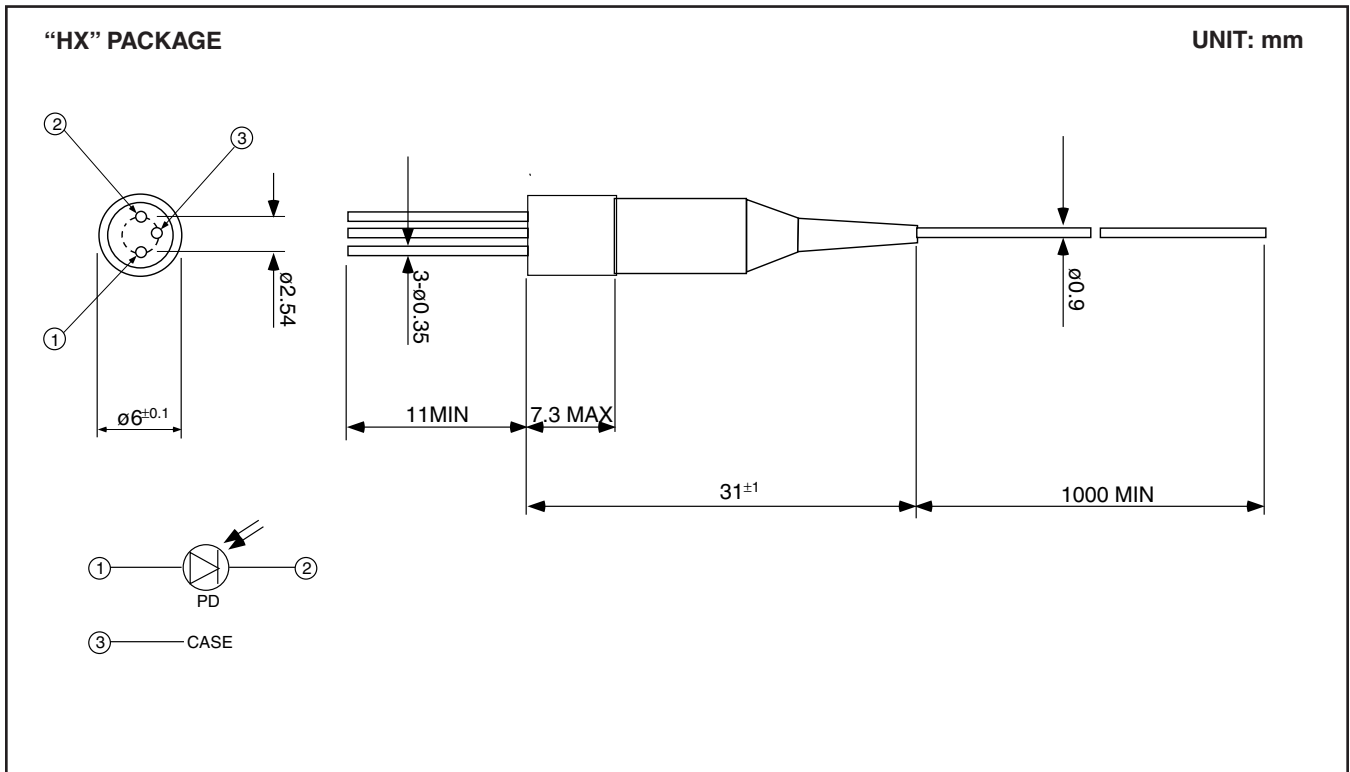


**Fig. 6 Frequency Response**



# Analog PIN Photodiode

# FID3S1HX/KX



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