InGaAs-PIN/Preamp Receiver — *FRM3Z121KT/LT*

FEATURES

- Data rate up to 156Mb/s
- High Responsivity: 0.85A/W at 1,310nm
- High temperature operation up to 85°C

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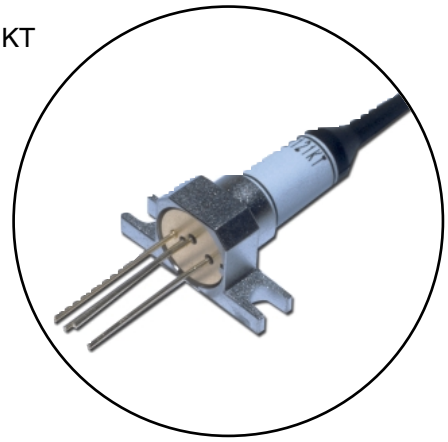

APPLICATIONS

- Medium bit rate standard medium haul optical transmission system at STM-1 (OC-3)

DESCRIPTION

These PIN preamplifiers use an InGaAs PIN with a GaAs IC preamplifier. Package style is a hermetically sealed, epoxyless coaxial package with a multimode fiber pigtail.

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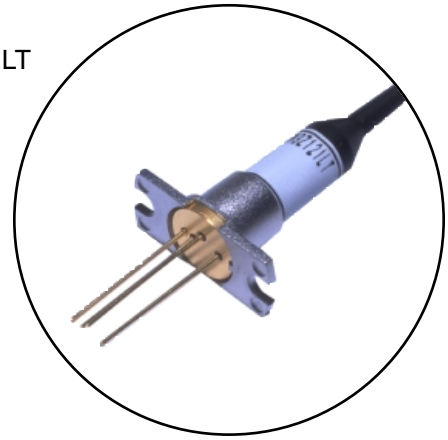

Eudyna

Edition 1.0
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ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Parameter	Symbol	Ratings	Unit
Storage Temperature	T_{stg}	-40 to +85	°C
Operating Case Temperature	T_{op}	-40 to +85	°C
IC Supply Voltage	V_{ss}	-7 to +0	V
PD Supply Voltage	V_r	0 to +20	V
PD Reverse Current	I_r	500	μA
Maximum Input Power	$P_{o\ max}$	0	dBm

OPTICAL & ELECTRICAL CHARACTERISTICS (T_a=-40° to +85°C, V_{ss}=-5.2V, V_r=GND level and λ=1,310/1,550nm unless otherwise specified)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Responsivity	R	λ=1,310nm	0.8	0.85	-	A/W
Transimpedance	Z_t	AC, RL=50Ω, Pin <-20dBm	8.0	10.5	-	KΩ
Bandwidth	BW	AC-Coupled, RL=50Ω, -3dBm from 1MHz	110	-	-	MHz
Sensitivity	P_r	156Mb/s NRZ, 2^{23}-1 P.R.B.S., B.E.R.=10^{-10} Ta=25°C	-	-39	-38	dBm
		Ta=-40 to +85°C	-	-38.5	-37.5	dBm
Maximum Input Optical Power	P_{max}	Note (1)	-7	-	-	dBm
Power Supply Current	I_{ss}	-	-	-	40	mA
Recommended Supply	V_{ss}	-	-5.46	-5.2	-4.94	V
PD Voltage	V_r	-	0	-	20	V
Optical Return Loss	ORL	-	30	-	-	dB
Equivalent Input Current Density	in	avg. within 110MHz	-	1.12	1.4	pA/√Hz

Note: (1) Maximum Input Optical Power, Pmax is defined as the optical power when the variation of F.W.H.M. of the output waveform is less than 10% compared with that of the low input; optical power level.
(2) No data is accompanied with each device.
(3) Optical characteristics are specified on the condition that single mode fiber is used as the optical source for testing.

Fig. 1 Normarized Output Voltage as a function of Peak Photo Current

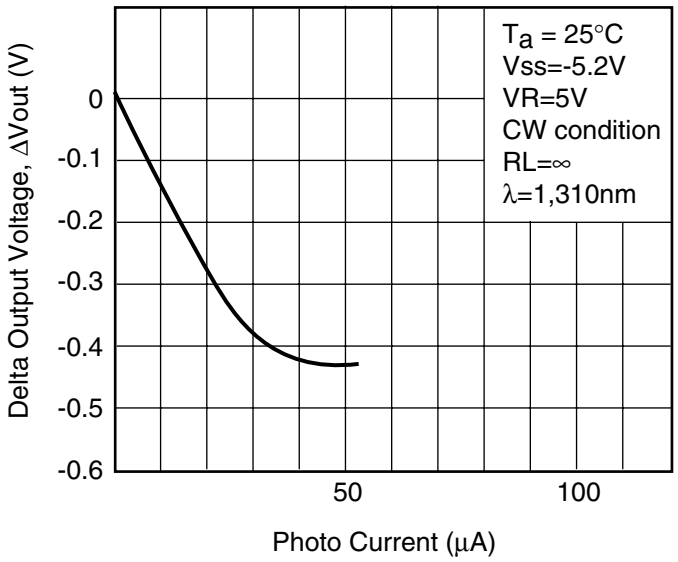


Fig. 2 Relative Frequency Response

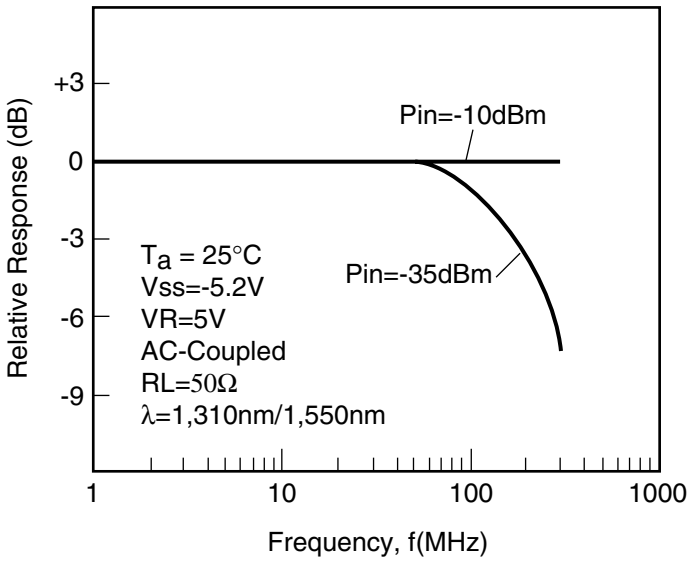


Fig. 3 Equivalent Input Noise Current Density

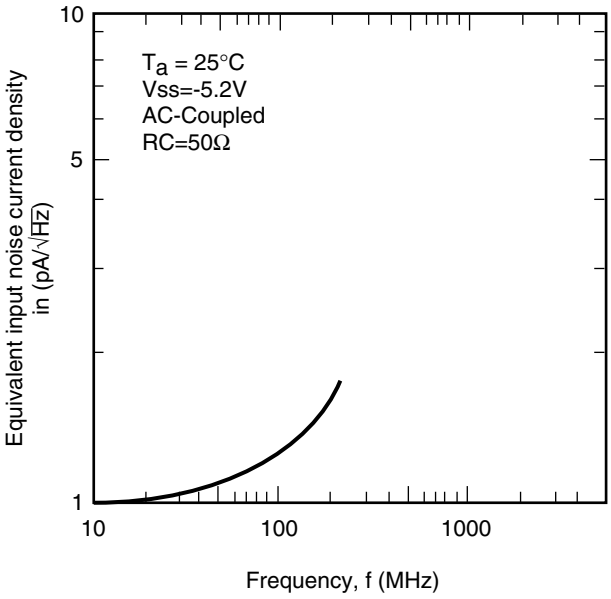


Fig. 4 Eye diagram with a 1,310nm,156Mbps NRZ, 2^{23}-1 PRBS incident signal at T_C = 25°C

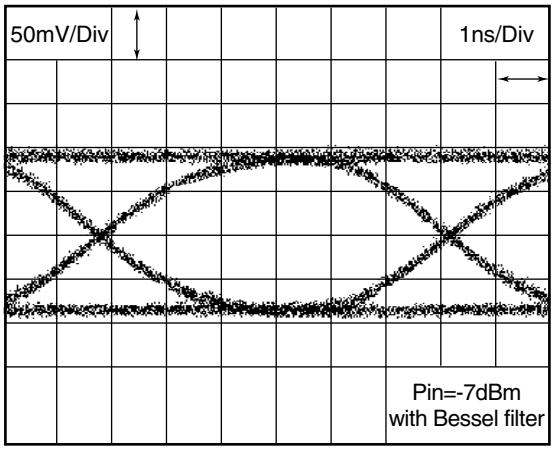
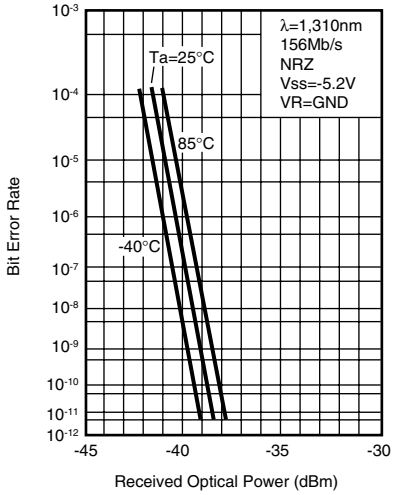


Fig. 5 Bit Error Rate at 1,310nm and a 156Mbps NRZ 2^{23}-1 PRBS for various case temperture



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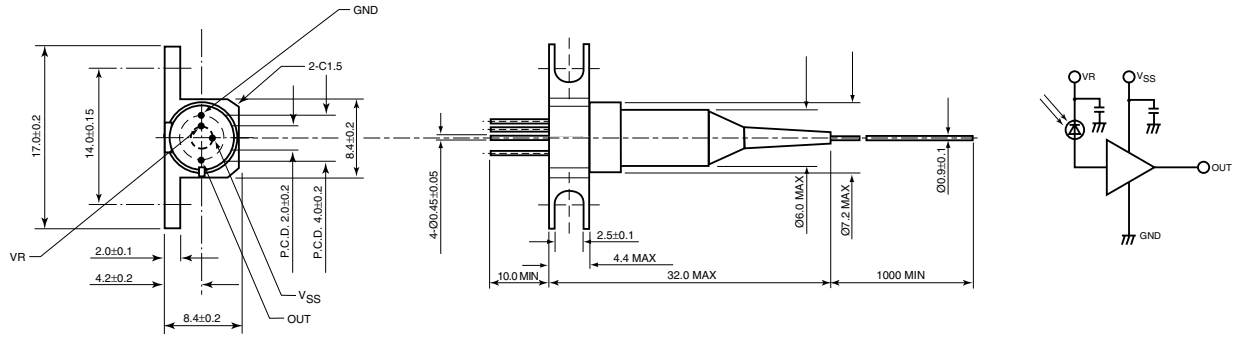
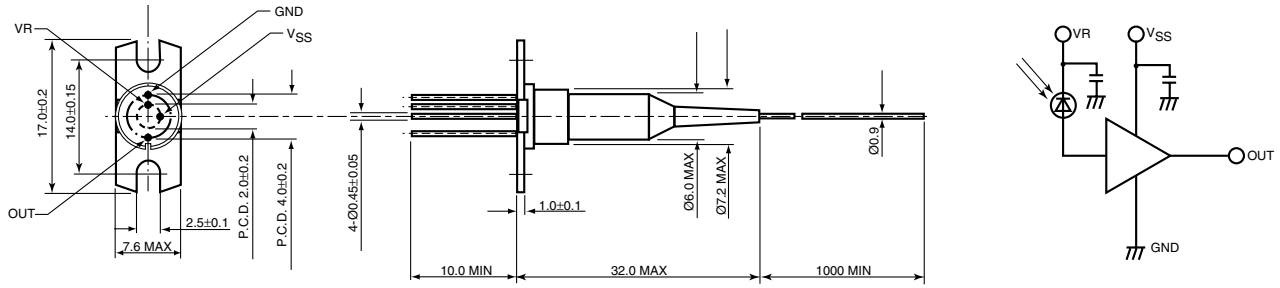
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