

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

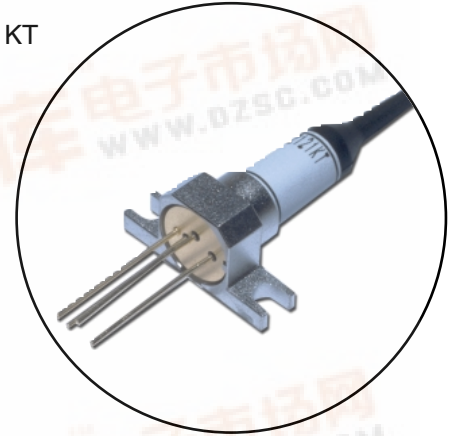
APPLICATIONS

- 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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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 T _a =25°C	-	-39	-38	dBm
		T _a =-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	i _n	avg. within 110MHz	-	1.12	1.4	pA/√Hz

Note: (1) Maximum Input Optical Power, P_{max} 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 Normalized Output Voltage as a function of Peak Photo Current

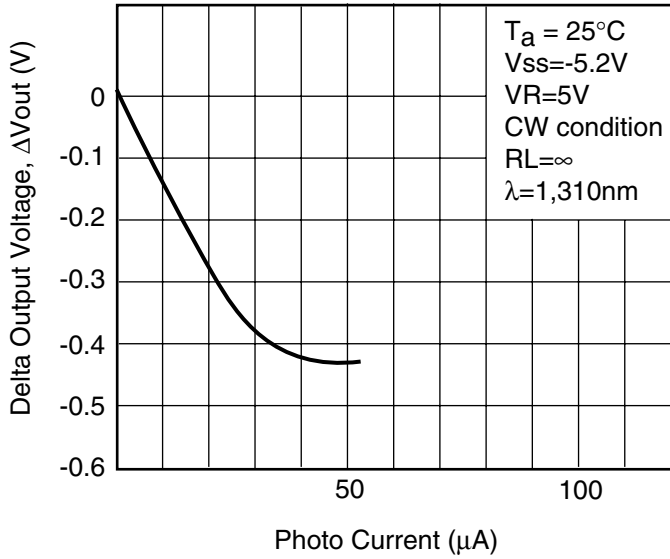


Fig. 2 Relative Frequency Response

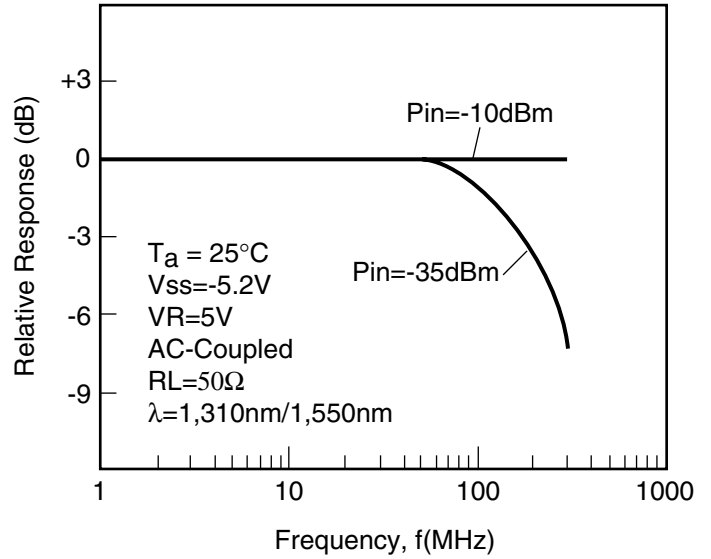


Fig. 3 Equivalent Input Noise Current Density

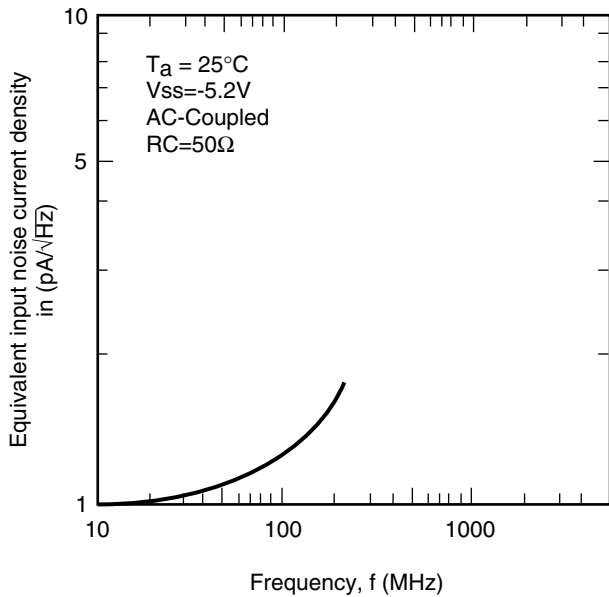


Fig. 4 Eye diagram with a 1,310nm, 156Mbps NRZ, $2^{23}-1$ PRBS incident signal at $T_C = 25^\circ C$

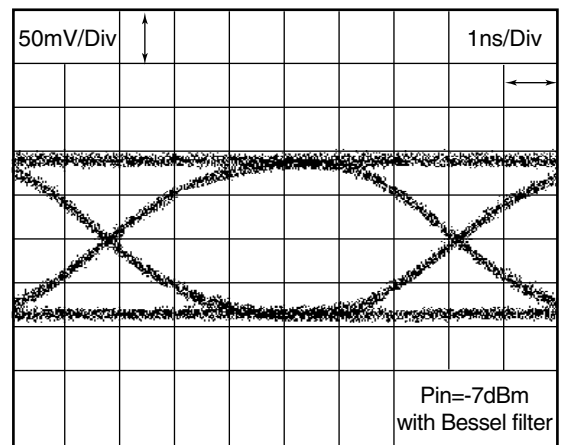
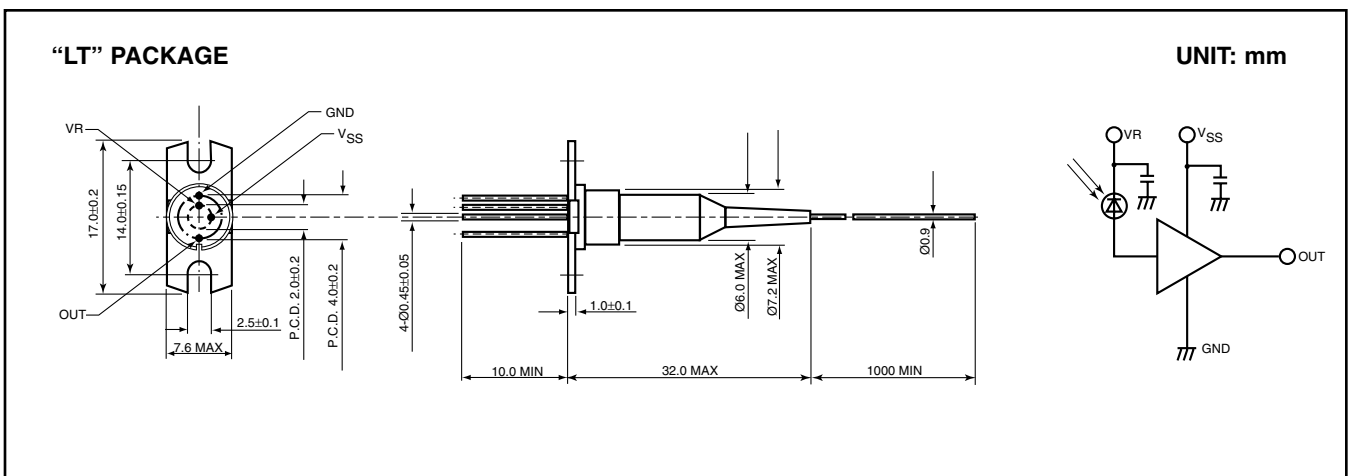
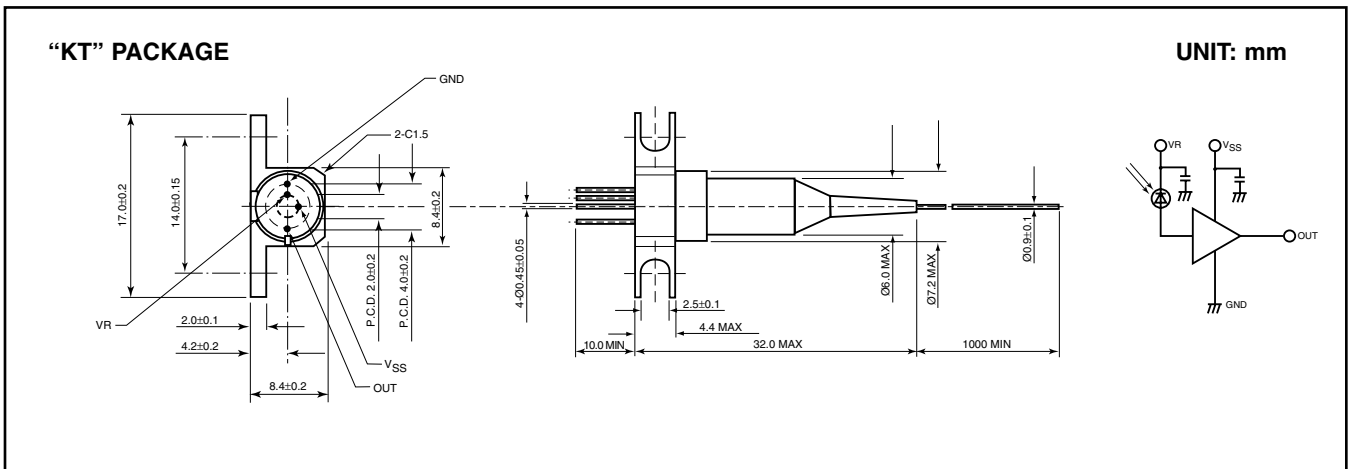
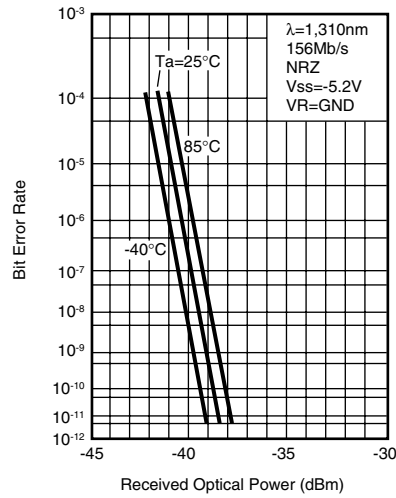


Fig. 5 Bit Error Rate at 1,310nm and a 156Mbps NRZ 2²³-1 PRBS for various case temperature



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- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.