

FEATURES

- Data rate up to 2.5Gb/s
- -23dBm typ. sensitivity
- 30µm active area PIN chip with GaAs pre-amplifier
- Small co-axial package with multi-mode fiber

APPLICATIONS

- High bit rate short haul optical transmission systems operating at 2.5Gb/s

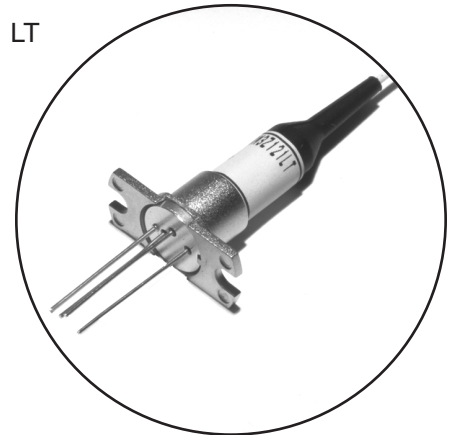
DESCRIPTION

These PIN preamplifiers use an InGaAs PIN chip with GaAs IC preamplifier. The KT package is designed for a horizontal PC board mount. The LT package is secured by a vertical flange. Each package is connected with multi-mode fiber by Nd: YAG welding. The detector preamplifier is DC coupled and has a low electrical output when the PIN is illuminated. These devices are in compliance with ITU-T Recommendations and meet Bellcore Requirements.

KT



LT



ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Storage Temperature	T_{stg}	-40 to +85	$^\circ\text{C}$
Operating Temperature	T_{op}	-40 to +85	$^\circ\text{C}$
Supply Voltage	V_{SS}	-7 to 0	V
PIN Reverse Voltage	V_{R}	0 to 20	V
PIN Reverse Current	I_{R} (Note 1)	2.0	mA

OPTICAL & ELECTRICAL CHARACTERISTICS ($T_a=-40^\circ$ to $+85^\circ\text{C}$, $\lambda=1,310/1,550\text{nm}$, $V_{\text{SS}}=-5.2\text{V}$, $V_{\text{R}}=5\text{V}$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
PIN Responsivity	R15	1,550nm, M=1	0.80	0.85	-	A/W
	R13	1,310nm, M=1	0.80	0.85	-	A/W
AC Transimpedance	Z_t	AC-coupled, $f=100\text{MHz}$, $R_L=50\Omega$, $P_{\text{in}} < -20\text{dBm}$	400	600	-	Ω
Bandwidth	BW	AC-Coupled, $R_L=50\Omega$, $P_{\text{in}} < -27\text{dBm}$, -3dBm from 1MHz	1.8	2.0	-	GHz
Equivalent Input Noise Current Density	i_{n}	AC-Coupled, $R_L=50\Omega$, Average within BW	-	6.5	8	$\text{pA}/\sqrt{\text{Hz}}$
Sensitivity	P_{r}	$T_a=25^\circ\text{C}$, 2.488Gb/s NRZ, PRBS=2 ²³ -1, B.E.R.=10 ⁻¹⁰	-	-23	-22	dBm
		$T_a=-40$ to $+85^\circ\text{C}$	-	-22	-21	dBm
Maximum Overload	P_{o}	$T_a=-40$ to $+85^\circ\text{C}$ 2.488Gb/s NRZ, PRBS=2 ²³ -1, B.E.R.=10 ⁻¹⁰	0	-	-	dBm
		$T_a=-40$ to $+85^\circ\text{C}$ (Note 2)	-3	-	-	dBm
Reverse Voltage	V_{R}	-	5	-	20	V
Power Supply Current	I_{SS}	-	-	-	40	mA
Power Supply Voltage	V_{SS}	-	-5.46	-5.2	-4.94	V

Note: (1) CW condition

(2) 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.

(3) Optical characteristics are specified on the condition that single mode fiber is used as the optical source for testing.

(4) No data is available for either device.

Fig. 1 Output Characteristics

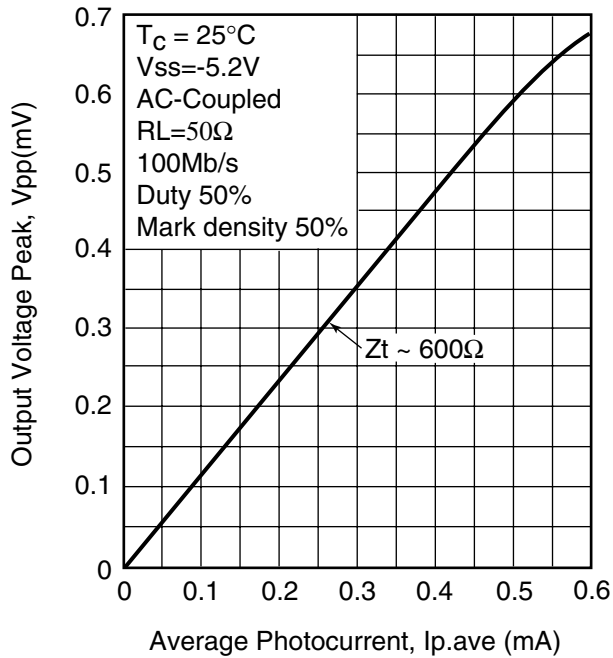


Fig. 2 Relative Frequency Response

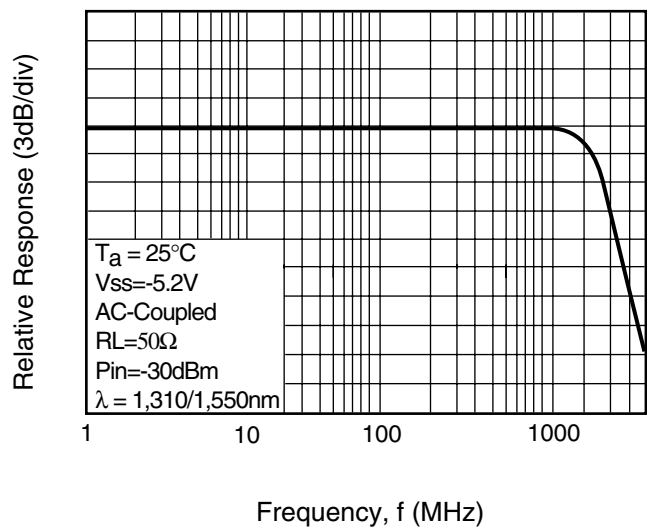
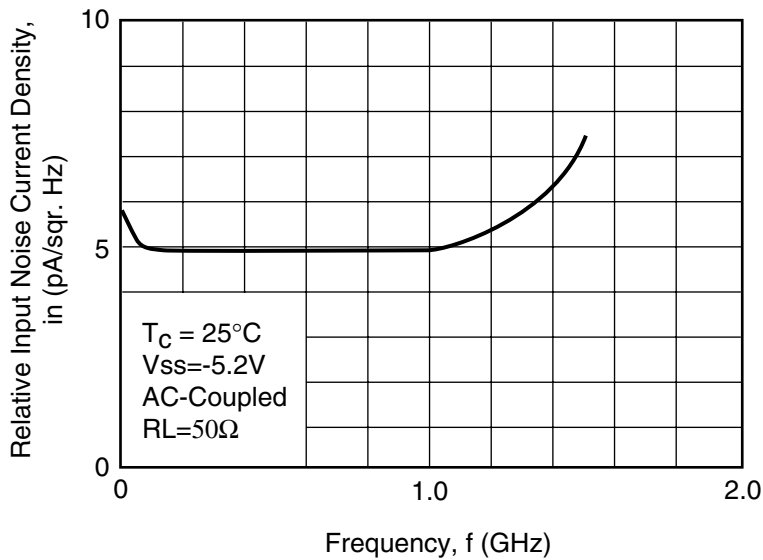
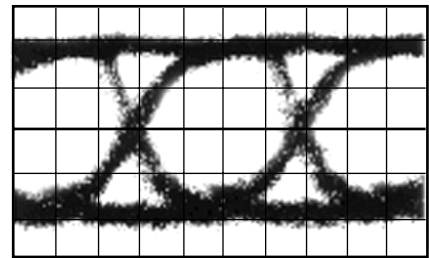


Fig.4 Eye Diagram with a 1,310nm, 2.5Gb/s NRZ, 2²³-1 PRBS incident signal

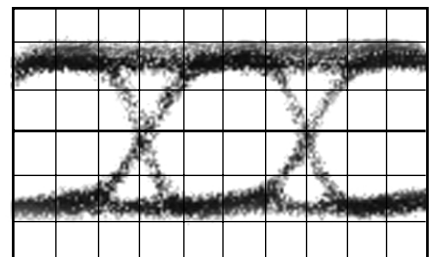
Fig.3 Equivalent Input Noise Current Density



Input optical wave form with Bessel filter

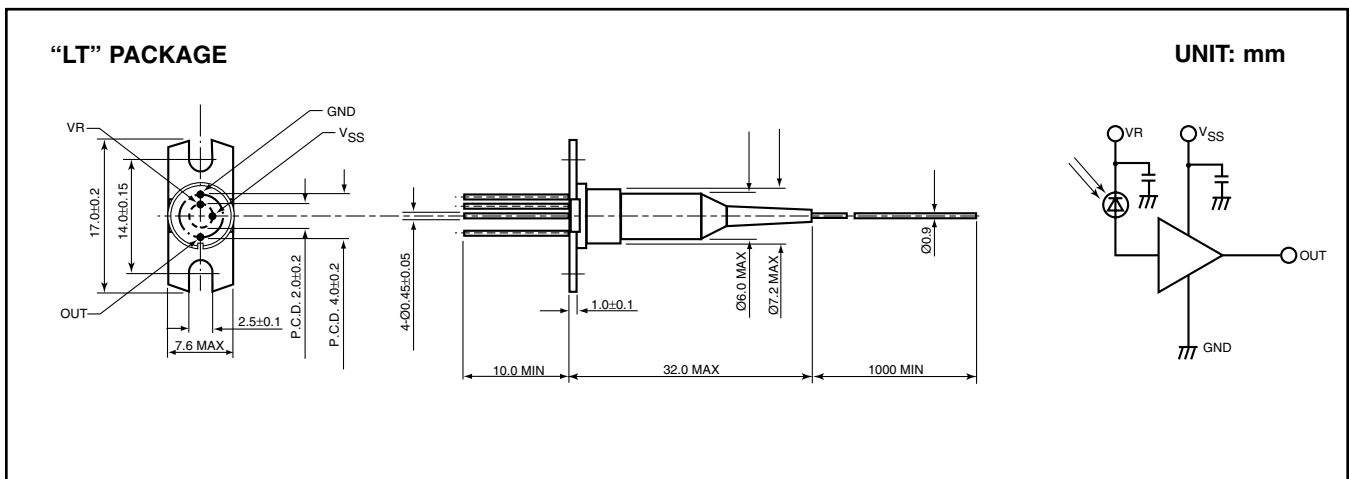
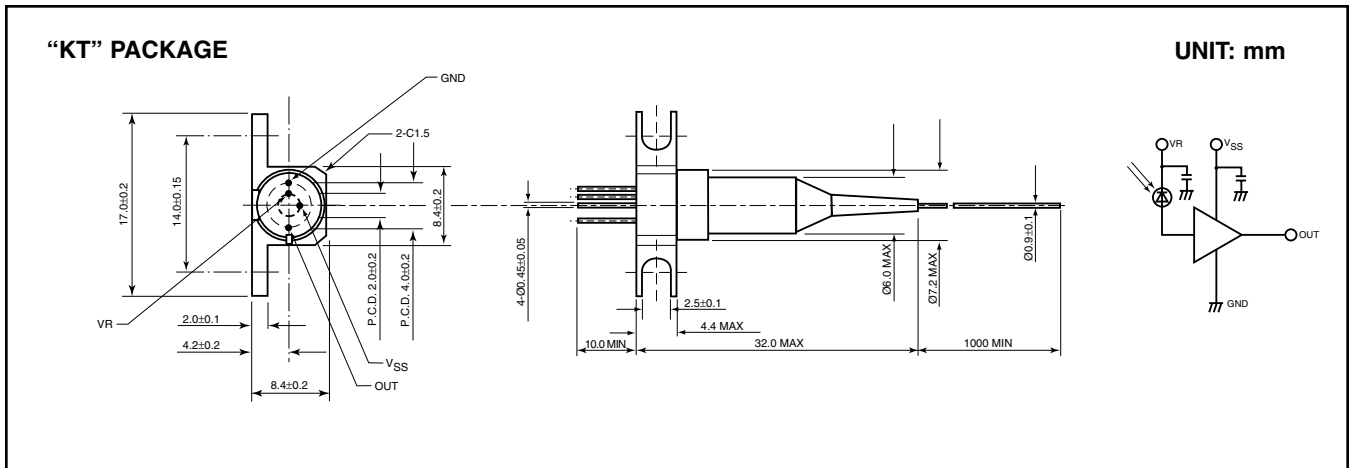
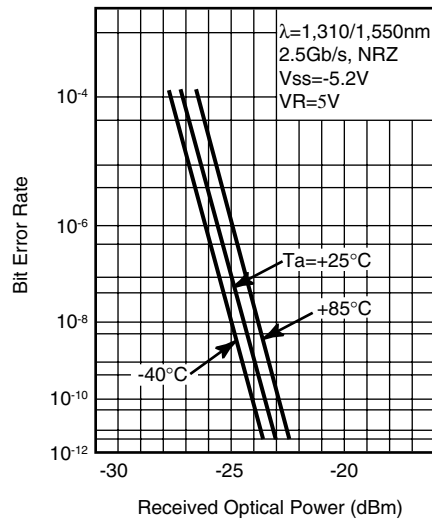


Equivalent output wave form at Pin=-22dBm, Tc=25°C, M=optimum



100ps/div

Fig.5 Bit Error Rate



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