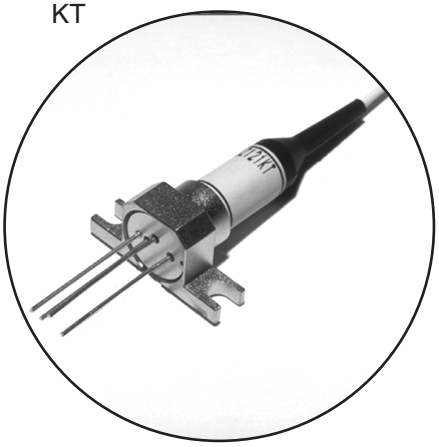
FEATURES

- Data rate up to 2.5Gb/s
- -32dBm typ. sensitivity
- 30µm active area APD chip with GaAs pre-amplifier
- Small co-axial package with single mode fiber

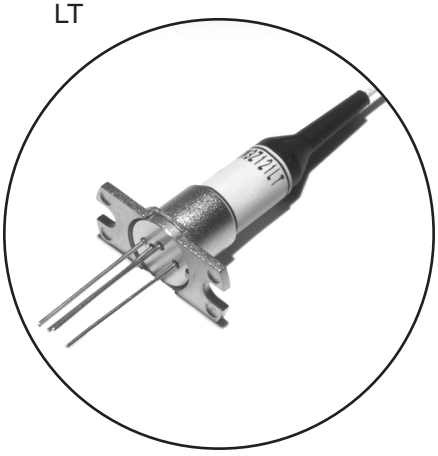
KT



APPLICATIONS

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

LT



DESCRIPTION

These APD preamplifiers use an InGaAs APD 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 single mode fiber by Nd: YAG welding. The detector preamplifier is DC coupled and has a low electrical output when the APD is illuminated.

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FUJITSU

ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Storage Temperature	T_{stg}	-40 to +85	°C
Operating Temperature	T_{op}	-40 to +85	°C
Supply Voltage	V_{SS}	-7 to 0	V
APD Reverse Voltage	V_R (Note 1)	0 to VB	V
APD Reverse Current	I_R (Note 2)	0.6	mA

OPTICAL & ELECTRICAL CHARACTERISTICS (T_C=25°C, λ=1,310/1,550nm, V_{SS}=-5.2V, unless otherwise specified)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
APD Responsivity	R15	1,550nm, M=1	0.80	0.85	-	A/W
	R13	1,310nm, M=1	0.75	0.85	-	A/W
APD Breakdown Voltage	V_B	ID=10μA	40	50	65	V
Temperature Coefficient of VB	γ	Note 3	0.08	0.12	0.15	V/°C
AC Transimpedance	Z_t	AC-Coupled, f=100MHz, RL=50Ω, Pin <-20dBm,	400	600	-	Ω
Bandwidth	BW	AC-Coupled, RL=50Ω, M=3 to 15, -3dBm from 1MHz	1.8	2.0	-	GHz
Equivalent Input Noise Current Density	in	AC-Coupled, RL=50Ω, Average within BW	-	6.5	8	pA/$\sqrt{\text{Hz}}$
Sensitivity	P_r	2.488Gb/s NRZ, PRBS=2^{23}-1, B.E.R.=10^{-10}, VR is set at optimum value	-	-32	-31	dBm
		Tc=-40 to +85°C	-	-31	-30	dBm
Maximum Overload	P_o	2.488Gb/s NRZ, M=3, PRBS=2^{23}-1, B.E.R.=10^{-10}, VR is set at optimum value	-5	-	-	dBm
		Tc=-40 to +85°C, M=3	-7	-	-	dBm
Power Supply Current	I_{SS}	-	-	-	40	mA
Power Supply Voltage	V_{SS}	-	-5.46	-5.2	-4.94	V

Note: (1) VB differs from device to device. VB data is attached to each devices.
(2) CW condition
(3) γ=dVB/dTC

Fig. 1 Output Characteristics

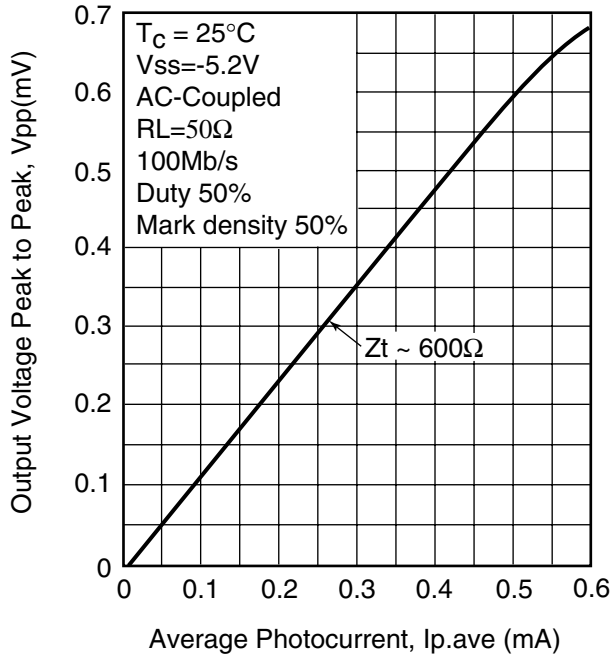


Fig. 2 Relative Frequency Response

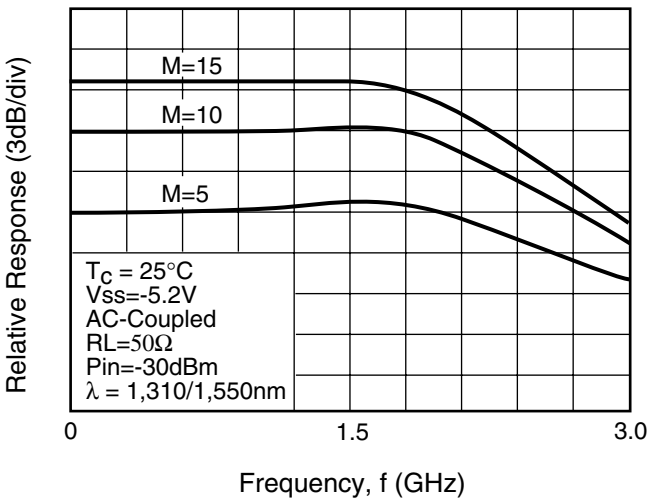


Fig.3 Equivalent Input Noise Current Density

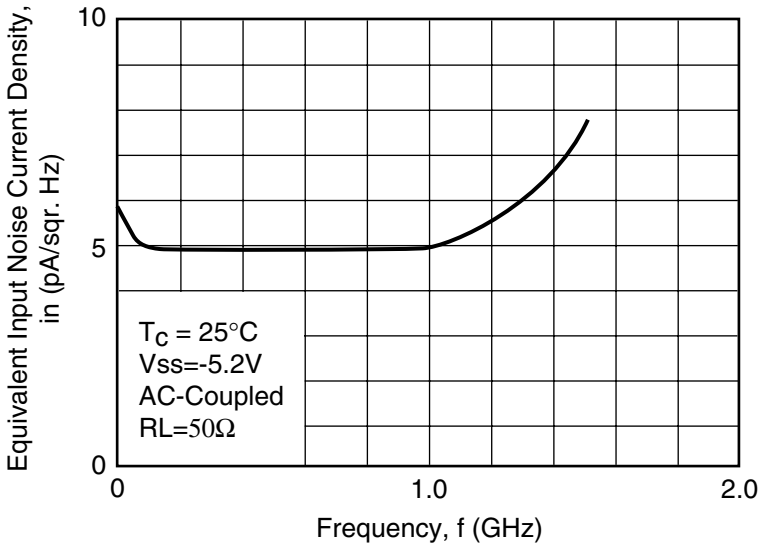
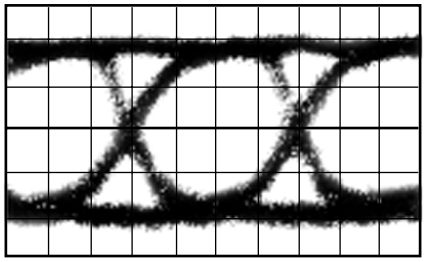
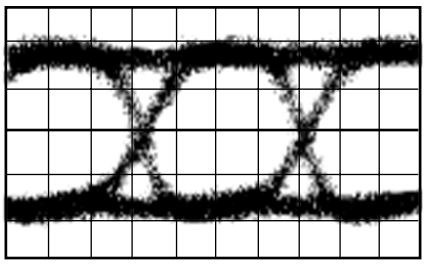


Fig.4 Eye Diagram with a 1,550nm, 2.5Gb/s NRZ, 2^{23}-1 PRBS incident signal

Input optical wave form with Bessel filter

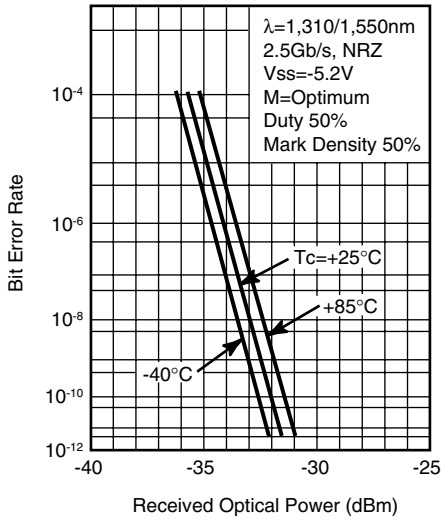


Equivalent output wave form at Pin=-32dBm, Tc=25°C, M=optimum

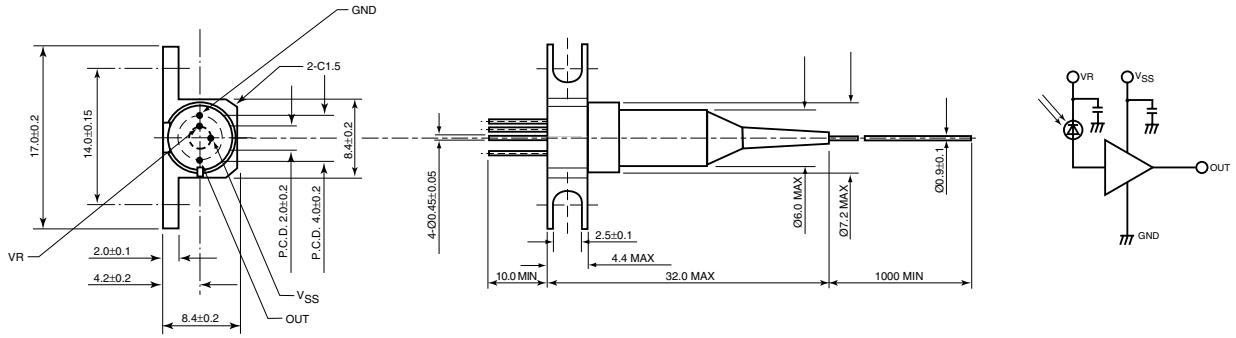


100ps/div

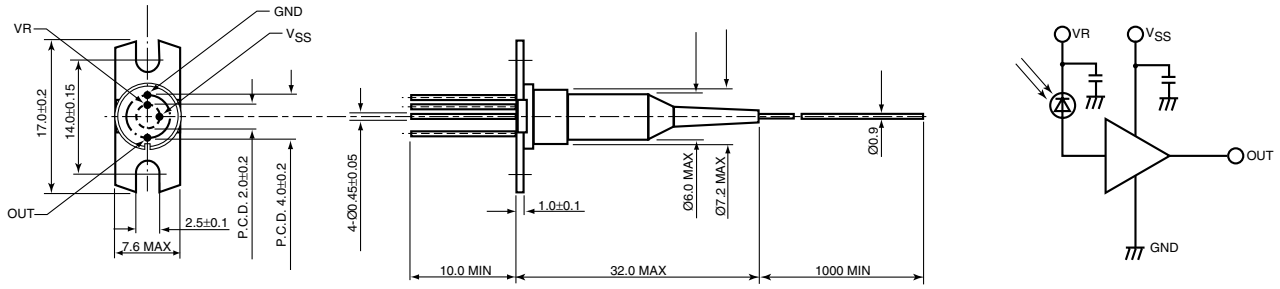
Fig.5 Bit Error Rate



"KT" PACKAGE **UNIT: mm**



"LT" PACKAGE **UNIT: mm**



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- **Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.**
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