

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

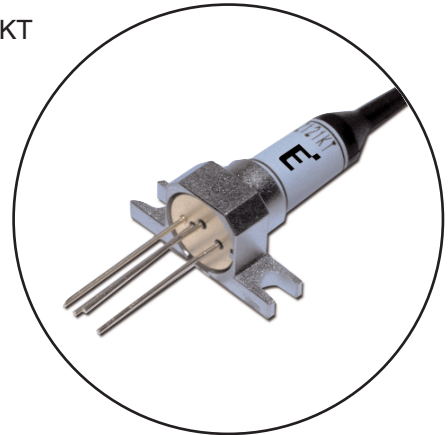
APPLICATIONS

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

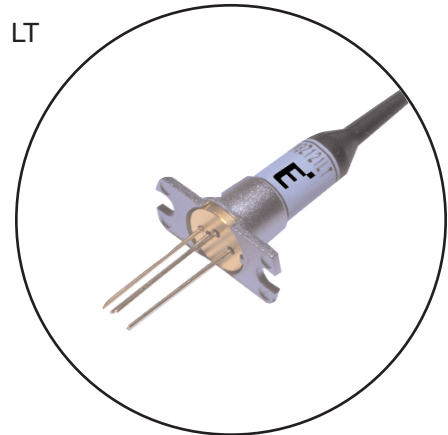
DESCRIPTION

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



FRM3Z231KT/LT InGaAs-PIN/Preamp Receiver

ABSOLUTE MAXIMUM RATINGS (T_a=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
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° to +85°C, λ=1,310/1,550nm, V_{SS}=-5.2V, V_R=5V, unless otherwise specified)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
PIN Responsivity	R15	1,550nm, V _R =1V	0.80	0.85	-	A/W
	R13	1,310nm, V _R =1V	0.80	0.85	-	A/W
AC Transimpedance	Z _t	AC-coupled, f=100MHz, R _L =50Ω, Pin <-20dBm	400	600	-	Ω
Bandwidth	BW	AC-Coupled, R _L =50Ω, Pin <-27dBm, -3dBm from 1MHz	1.8	2.0	-	GHz
Equivalent Input Noise Current Density	i _n	AC-Coupled, R _L =50Ω, Average within BW	-	6.5	8	pA/√Hz
Sensitivity	P _r	T _a =25°C, 2.488Gb/s NRZ, PRBS=2 ²³ -1, B.E.R.=10 ⁻¹⁰	-	-23	-22	dBm
		T _a =-40 to +85°C	-	-22	-21	dBm
Maximum Overload	P _o	T _a =-40 to +85°C 2.488Gb/s NRZ, PRBS=2 ²³ -1, B.E.R.=10 ⁻¹⁰	0	1	-	dBm
Optical Return Loss	ORL	-	27	-	-	dB
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) Optical characteristics are specified on the condition that single mode fiber is used as the optical source for testing.
 (3) No data is attached with either device.

Fig. 1 Output Characteristics

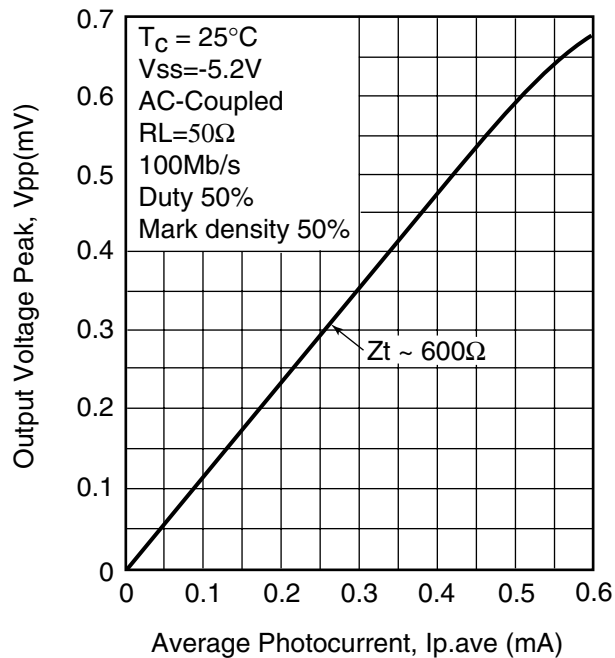


Fig. 2 Relative Frequency Response

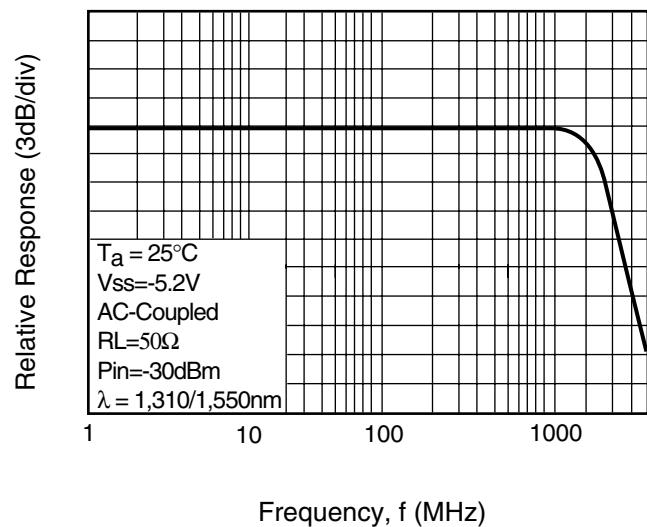


Fig.3 Equivalent Input Noise Current Density

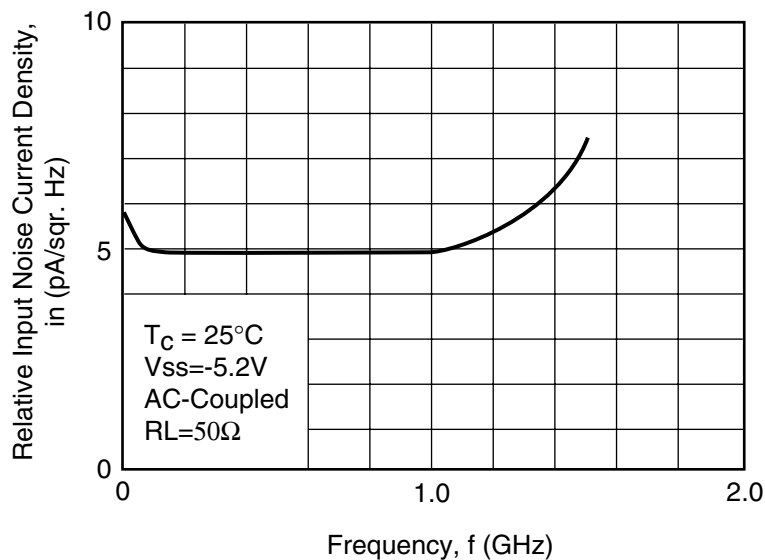
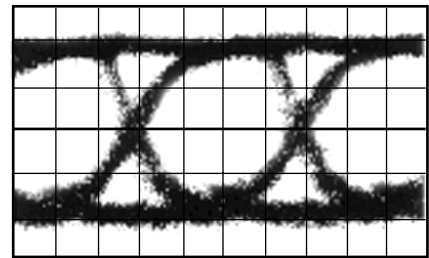
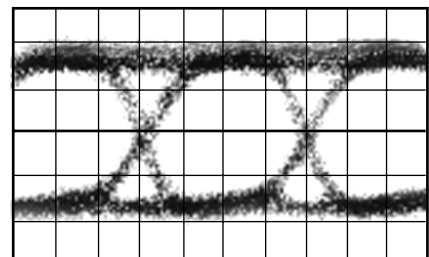


Fig.4 Eye Diagram with a 1,310nm, 2.5Gb/s NRZ, 2²³-1 PRBS incident signal

Input optical wave form with Bessel filter

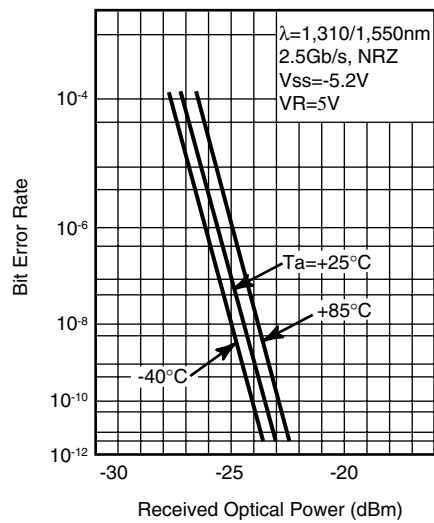


Equivalent output wave form at $P_{in} = -22\text{dBm}$, $T_c = 25^\circ\text{C}$



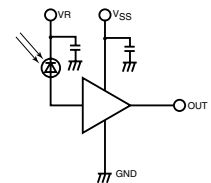
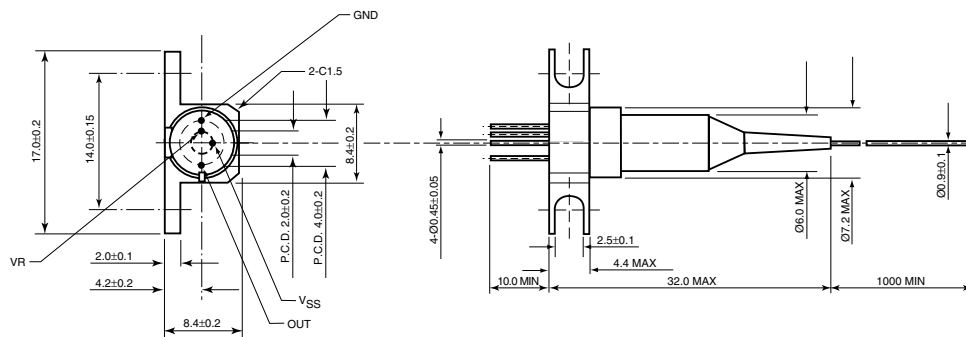
100ps/div

Fig.5 Bit Error Rate



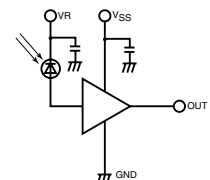
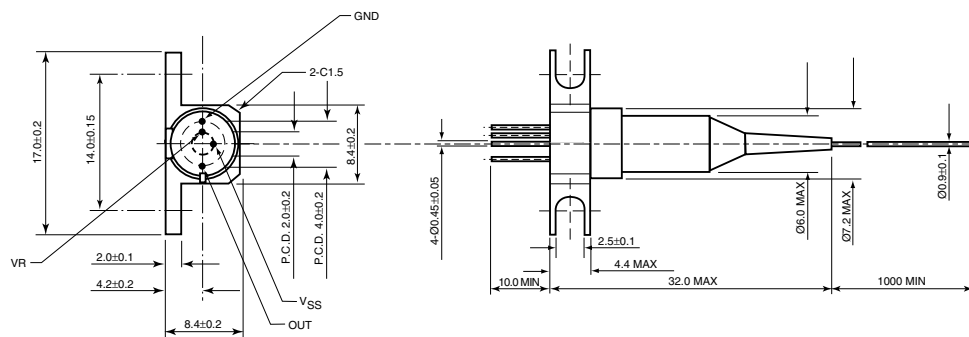
“KT” PACKAGE

UNIT: mm



“LT” PACKAGE

UNIT: mm



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