

InGaAs PD-TIA Receivers

KPDX1GK-T

A high speed InGaAs PIN photodiode is integrated with a transimpedance preamplifier and bypass chip capacitors, and is encapsulated in a small TO-46 package. A ball lens cap with AR coating is hermetically sealed to provide an efficient coupling with a single mode fiber. The pigtail type and the LC-ROSA type are available as an option.

Characteristics

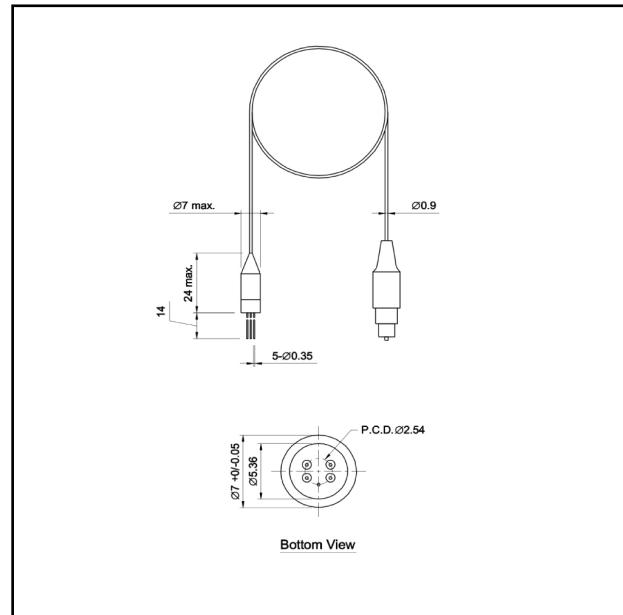
- High sensitivity -32dBm
- Low noise and high speed transimpedance amplifier built-in to meet OC-24
- 5 pin package available for an independent PD connection

Applications

- Optical communications
- Optical LAN
- OE converters

Package

- PIGTAIL



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	Conditions
Supply voltage	V _{cc}	-0.5 to 6.5	V	-
Maximum optical power input	P _{imax}	4	mW	-
Operating temperature	T _{opr}	-40 to +85		-
Storage temperature	T _{stg}	-40 to +85		-

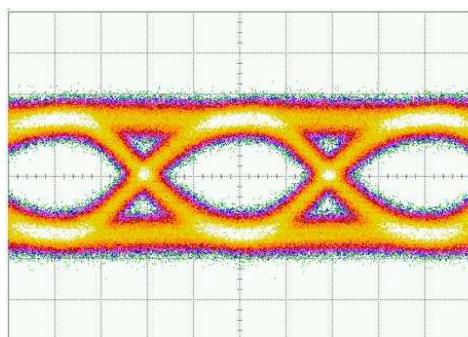
Electrical and Optical characteristics ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Sensitive wavelength		900	-	1700	nm	-
Operating voltage	V _{op}	3	3.3	3.6	V	-
Supply current	I _{cc}	30	42	55	mA	-
Bit rate	BR	-	1.25	-	-	-
Bandwidth @-3dB	BW	-	0.86	-	GHz	R _L =50 P _i =-10dBm Small signal modulation
Optical sensitivity	P _{min}	-	-32	-	dBm	Single ended BER=10 ⁻¹⁰
Output impedance	Z _o	40	50	60		single ended
Differential output voltage	V _o	320	400	480	mVpp	Differential R _L =100
Photo-electric conversion efficiency	PE	-	22.5	-	kV/W	Single ended R _L =50

Pigtail Specifications characteristics ($T_a=25^\circ\text{C}$ unless otherwise noted *only for pigtail type)

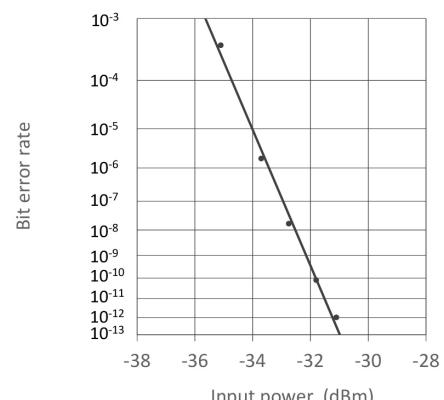
Parameter	Symbol	Value	Unit	Conditions
Optical reflection	ORL	27 min.	dB	=1310nm
Electrical parameters	-	See electric performances of PD-TIA device	-	-
Optical fiber type	-	Single mode fiber	-	-
Optical connector	-	SC connector	-	-
Mode field diameter *	-	9.5 ± 1	μm	-
Clad diameter *	-	125 ± 2	μm	-
Differential index *	-	0.3 ± 0.04	%	-
Optical fiber diameter *	-	0.9 ± 0.1	-	-
Optical fiber length *	-	1100 ± 100	-	-
Minimum bending radius *	-	20	-	-

Eye Diagram



Hor. 200ps/div, Ver. 10mV/div, $P_i = -30\text{dBm}$,
 $\text{BR} = 1.244\text{Gbps}$, Single ended

Bit Error Rate



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