

## 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

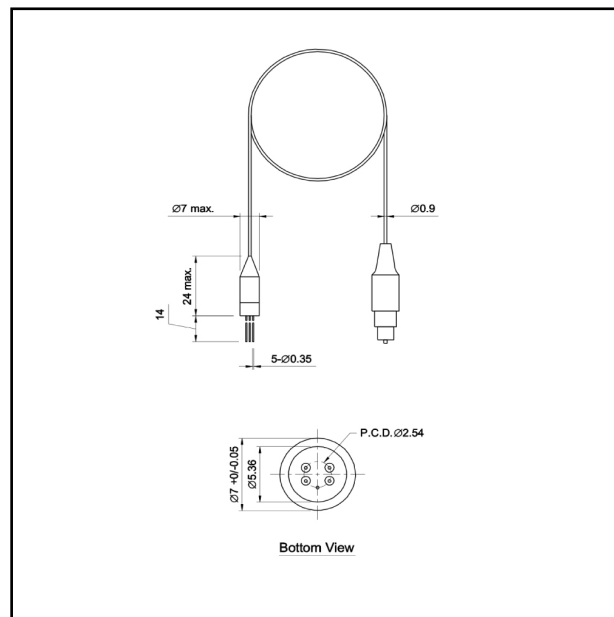
- High sensitivity -32dBm
- Low noise and high speed transimpedance amplifier built-in to meet OC-24
- 5 pin package available for an independent PD connection

#### 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		-

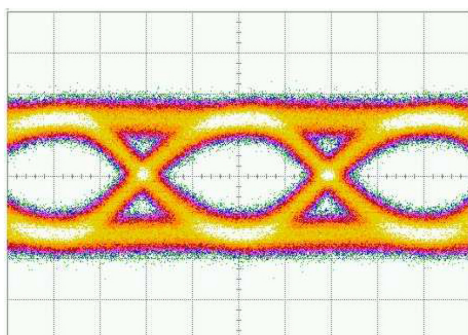
Electrical and Optical characteristics ( $T_a=25^\circ\text{C}$  unless otherwise noted)

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	$R_L=50$ $P_i=-10\text{dBm}$ 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)

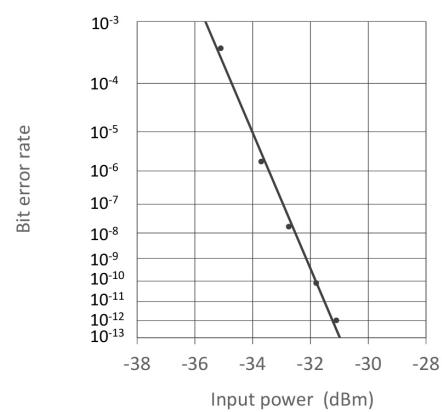
Parameter	Symbol	Value	Unit	Conditions
Optical reflection	ORL	27 min.	dB	=1310nm
Electrical parameters	-	See electric performances of PD-TIA device		
Optical fiber type	-	Single mode fiber		
Optical connector	-	SC connector		
Mode field diameter *	-	$9.5 \pm 1$	$\mu\text{m}$	-
Clad diameter *	-	$125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

Eye Diagram



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

Bit Error Rate



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