2.5Gb/s PIN-TIA Coaxial Pigtail Receiver

PTCM965-412

Features

- *High data-rate up to 2.7Gb/s*
- *Low capacitance high reliability planar InGaAs PIN Photodiode*
- *5pin coaxial pigtail package*
- *Single +3.3V power supply*
- *Typical sensitivity: -23dBm*
- *Minimum overload: 0dBm*
- *Meet ORL for SONET/SDH applications (27dB)*
- *Operating temperature range: -40°C ~ +85°C*
- *Ω type flange*
- *RoHS compliant*

Application

- *SDH STM-16/SONET OC-48 transmission system*
- *2.125Gbps fiber Channel*
- *Other applications*

Description

The PTCM965-412 receiver integrates a 2.5Gb/s PIN Photodiode and a low noise tans-impedance amplifier (TIA) into a hermetic pigtail module. The PIN Photodiode transduces incident light into optical current with high efficiency. The TIA converts the current signal into a voltage signal with a very low input noise current contribution. 5-pin pigtail package of the receiver provide industry standard connection. The electrical output is differential. External AC-coupling is required.

It is optimized for SDH STM-16/SONET OC-48 transmission system, 2.125Gbps fiber Channel and other applications. The receiver typically shows high sensitivity of –23dBm.

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	T_s	°C	-40	85
Relative Humidity	RH	%	5	85
TIA Supply Voltage	V_{cc}	V	-0.5	4
Photodiode Bias Voltage	V_{pd}	V	-0.5	20
Input optical power	P_{in}	dBm	-	6
Lead solder temperature	-	°C	-	260
Lead solder duration	-	S	-	10
Fiber yield strength		kgf		1
Fiber bend radius		mm	30	

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Operating Case Temperature	T_c	°C	-40	25	85
TIA Supply Voltage	V_{cc}	V	2.97	3.3	3.63
Photodiode Bias Voltage	V_{pd}	V	2.97	3.3	3.63
Wavelength range	λ	nm	1250	1310	1620

Specifications *(Tc=25°C, unless otherwise noted)*

Parameter	Symbol	Unit	Min	Typ	Max	Test condition
Electrical Characteristics						
-3dB Bandwidth	BW	GHz	1.8	2.2	-	P_{IN}=-20dBm, from 130MHz
Low Frequency Cut-off	f_{Low}	kHz	-	50	80	-
Trans-impedance	Zt	Ω	-	4000	-	Single-ended, p-p, f=100MHz
Max. Output Swing	Voutp-Voutn	mVp-p	-	275	500	-

Output Impedance	Ro	Ω	-	50	-	Single-ended
TIA Supply Current	Icc	mA	-	42	60	No loads
Optical Characteristics						
Responsivity	R	A/W	0.80	0.85	-	λ=1310nm
Sensitivity	S	dBm	-	-23	-21	NRZ, ER=10dB, 2.48832Gb/s, PRBS 2^{23}-1, BER=10^{-10}
Overload	P_O	dBm	0	-	-	
Optical Return Loss	ORL	dB	27	-	-	λ=1310nm

Block Diagram

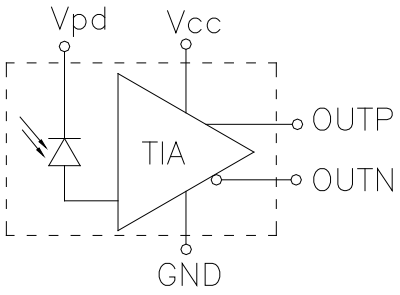
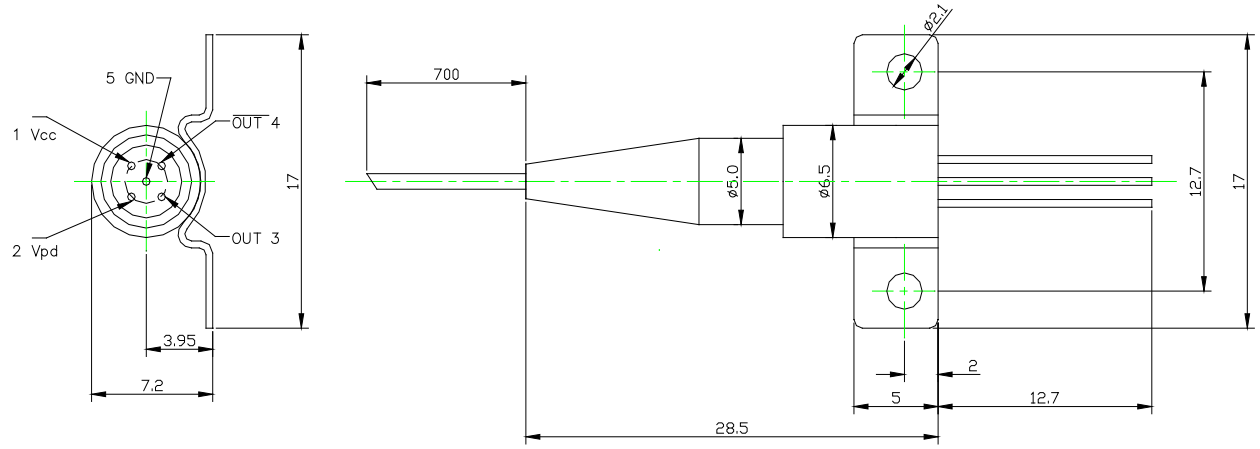


Fig.1 Internal Schematic Diagram of The PTCM965-412

Pin Description

Pin	Description
1	Vcc
2	Vpd
3	Data plus
4	Data minus
5	GND

Package Outline



Regulatory Compliance

Feature	Test method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	>500 V

Ordering Information

Part No.	Specifications						
	Package	Data-rate	Detector	Sensitivity	Overload	Temp	Others
PTCM965-412	5pin coaxial pigtail	2.5Gb/s	PIN+TIA	< -21dBm	0dBm	-40~85°C	Note1, RoHS

Note1: *Ω type flange, Horizontal flange, or no flange and flange type also can be customized.*

Note2: *fiber length can be customized.*

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