

Optical Components

Rev. 2 [12. 2008]

OD9249N

10Gbps PIN-TIA/AGC receiver module

1. DESCRIPTION

OD9249N is a 10Gbps receiver module that incorporates an InGaAs PIN photodiode and an integrated AGC-TIA in a hermetically sealed package. OD9249N adopts compact surface mount package, minimizing the space on PCB. The outline is based on a multi-source agreement (MSA) that defines small footprint coplanar OC-192 receivers.

2. FEATURES

Power supply (TIA): 3.3V
High sensitivity: -19.0dBm Typ.
Differential transimpedance: 0.2 to 7.0k Ω
Power consumption: 0.2W Typ.
Surface-mount and hermetically sealed package
Small footprint co-planar output

3. APPLICATION

SONET OC-192/SDH STM-64 applications
WDM applications

4. OPTICAL AND ELECTRICAL CHARACTERISTICS

($\lambda=1550\text{nm}$, $T_c = +25^\circ\text{C}$, $V_{CC}=+3.3\text{V}$, $V_{PD}=+5\text{V}$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Wavelength	λ	--	1250	--	1620	nm
PIN-PD Responsivity	R_{PD}	$\lambda=1550\text{nm}$	0.75	0.9	--	A/W
		$\lambda=1310\text{nm}$	0.75	0.85	--	
Dark Current	I_D	$V_{PD}=+5\text{V}$	--	--	1.0	nA
Maximum Transimpedance	Z_{tmax}	Differential, $P_{in}=0\text{mW}$	--	7.0	--	k Ω
Minimum Transimpedance	Z_{tmin}	Differential, Overload condition	--	0.2	--	k Ω
Bandwidth	BW	f3dB, $R_L=50\Omega$, $P_{in}=-17\text{dBm}$	8	9	--	GHz
Sensitivity	P_{rmin}	10Gbps, NRZ, $BER=10^{-12}$, PRBS2 ³¹ -1, $R_{ext}=12\text{dB}$	--	-19.0	-18.0	dBm
Overload	P_{rmax}	10Gbps, NRZ, $BER=10^{-12}$, PRBS2 ³¹ -1, $R_{ext}=12\text{dB}$	+2	+3	--	dBm
Group Delay Deviation	GD	130MHz to 8GHz	--	± 30	± 50	ps
Output Voltage Swing	V_{out}	$P_{in}=-17\text{dBm}$, Differential	--	230	--	mV
		$P_{in}>-15\text{dBm}$, Differential	--	340	--	
Supply Current	I_{CC}	$P_{in}=0\text{mW}$	--	60	85	mA
Recommended Supply Voltage	V_{CC}	-	+3.1	+3.3	+3.5	V
	V_{PD}		+4.5	+5	+10	
Power Consumption	P	$P_{in}=0\text{mW}$	--	0.20	0.29	W
Electrical Return Loss	ERL	130MHz to 10GHz Differential S22	--	--	-8	dB
Optical Return Loss	ORL	$\lambda=1550\text{nm}$	--	--	-27	dB

OD9249N**5.ABSOLUTE MAXIMUM RATING**

(Tc = +25 °C, unless otherwise specified)

Parameter	Symbol	Rating	Unit
TIA Supply Voltage	V _{CC}	0 to +3.7	V
PD Supply Voltage	V _{PD}	+15	V
Incident Optical Power	Pin	+5.0	dBm
Operating Temperature	Tc	-20 to 85	°C
Storage Temperature	Tstg	-40 to 85	°C

6. CONNECTOR AND FIBER SPECIFICATIONS

Parameter	Specifications	Unit
Type	SM	--
Mode Field Diameter	10	um
Cladding Diameter	125	um
Jacket Diameter	900	um
Length	1	m
Standard Connector	SC/SPC	--

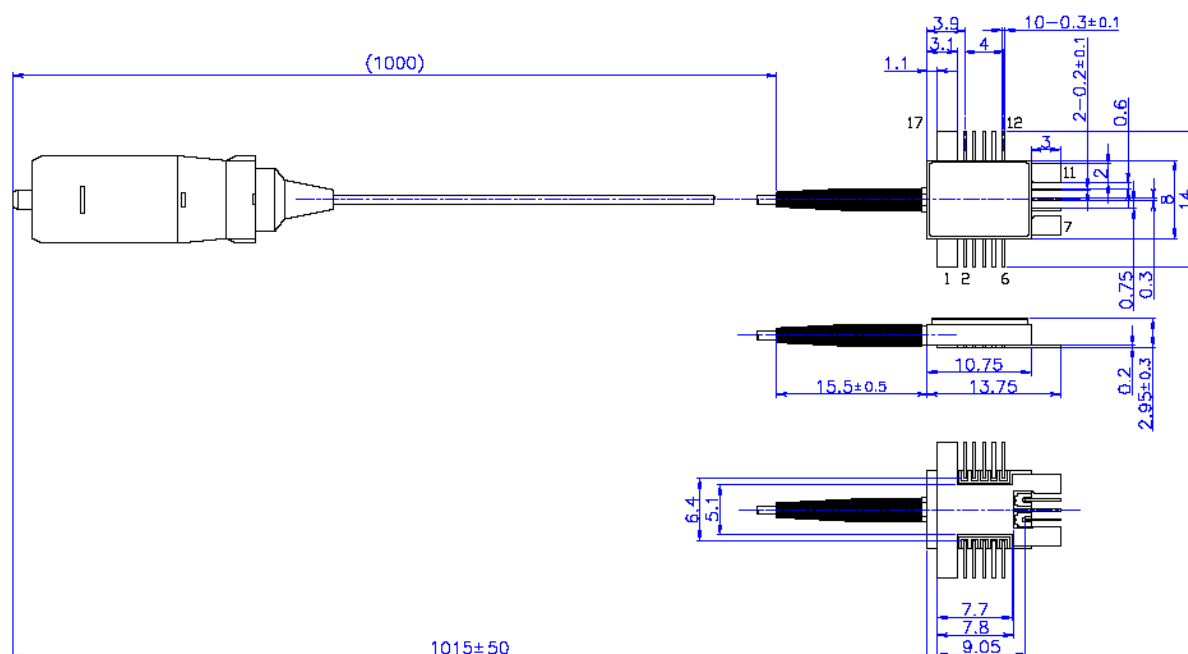
7. ORDERING INFORMATION**OD9249N -**

Connector (SC)* FC LC MU	Fiber Color --: White* Y: Yellow B: Blue
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*: Standard. No need to indicate.

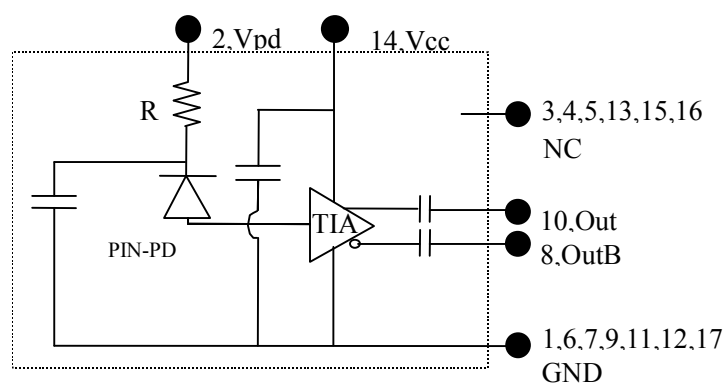
8.OUTLINE DRAWING

Package No. OD9249N (Unit: mm)



Pin Connection			
1	Case GND	10	OUT (AC-coupled)
2	Vpd (PIN-PD Bias)	11	Case GND
3	NC	12	Case GND
4	NC	13	NC
5	NC	14	Vcc (TIA Power supply)
6	Case GND	15	NC
7	Case GND	16	NC
8	OUTB(AC-coupled)	17	Case GND
9	Case GND		

9.BLOCK DIAGRAM



SAFETY INFORMATION ON THIS PRODUCT

Caution GaAs Product	The product contains gallium arsenide, GaAs. GaAs vapor and powder are hazardous to human health if inhaled, ingested or swallowed. Do not destroy or burn the product. Do not crush or chemically dissolve the product. Do not put the product in the mouth. Observe related laws and company regulations when discarding this product. The product should be excluded from general industrial waste or household garbage.
Caution Optical Fiber	A glass-fiber is attached on the product. Handle with care. When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.
Attention ESD sensitive	Appropriate precautions must be taken to avoid exposure to ESD and EOS during handling the product.

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