

Optical Components

Rev. 9 [10. 2008]

OF3241N

10Gbps APD-Preamplifier surface mount receiver module

1. DESCRIPTION

OF3241N is a 10Gbps receiver module that incorporates an InGaAs avalanche photodiode and a low noise TIA in a hermetically sealed package. OF3241N 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

- Data rate up to 10.7Gbps
- +3.3 single power supply
- Surface-mount and hermetically sealed package
- Small footprint coplanar output

3. APPLICATION

SONET OC-192/SDH STM-64 applications

4. OPTICAL AND ELECTRICAL CHARACTERISTICS

(Wavelength=1550nm, Tc =25°C, VCC=+3.3V, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Wavelength	λ	-	1250	--	1620	nm
APD Breakdown Voltage	VBR	ID=10 μ A	25	32	40	V
Temperature Coefficient of VBR	γ	-	0.03	0.05	0.07	V/°C
APD Responsivity	RAPD	$\lambda=1.55\mu\text{m}$	0.75	0.8	--	A/W
		$\lambda=1.31\mu\text{m}$	0.7	0.75	--	
Dark Current	ID	VB=0.9xVBR	--	--	50	nA
Transimpedance	Zt	RL=100 Ω , Pin=-25dBm Differential	2.3	4.0	--	k Ω
Bandwidth	BW	f-3dB, RL=50 Ω Pin=-25dBm, M=9	7	8.5	--	GHz
Sensitivity	Prmin	9.95328Gbps, NRZ, BER=10 ⁻¹² , PRBS2 ³¹ -1, Rext.=12dB, M=Mopt.	--	-27	-26	dBm
Overload	Prmax	9.95328Gbps, NRZ, BER=10 ⁻¹² , PRBS2 ³¹ -1 M=Mopt.	-7	-5	--	dBm
Equivalent Input Noise Current Density	In	Average within BW, Pin=0mW, RL=50 Ω , Single-ended	--	13	18	pA/ $\sqrt{\text{Hz}}$
Maximum Output Voltage Swing	Vout	Single-ended	100	150	--	mV
Supply Current	IEE	Pin = 0mW	--	55	75	mA
Recommended TIA Supply Voltage	VCC	-	3.1	3.3	3.5	V
Output Return Loss	ERL	10MHz to 10GHz Differential S22	--	--	-8	dB
Optical Return Loss	ORL	-	--	--	-27	dB
Thermistor Resistance	Rth	Tthm=25°C	9	10	11	k Ω
Thermistor B Constant* ¹	B	---	3180	3380	3580	K

*1) Optional B constant of 3900+/-100K is available.

5. ABSOLUTE MAXIMUM RATING

(Ta = 25 °C, unless otherwise specified)

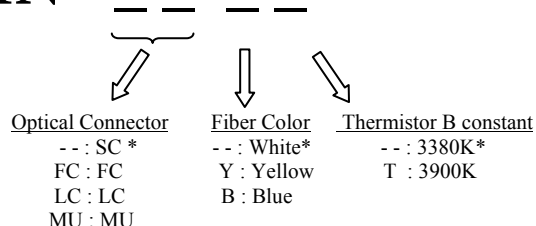
Parameter	Symbol	Rating	Unit
TIA Supply Voltage	V _{cc}	+5.0	V
APD Supply Voltage	V _B	0 to V _{BR}	V
Incident Optical Power	P _{in}	+0	dBm
Operating Temperature	T _c	-20 to +85	°C
Storage Temperature	T _{stg}	-40 to +85	°C

6. CONNECTOR AND FIBER SPECIFICATIONS

Parameter	Specifications	Unit
Type	SM	--
Flame Rating	UL94 V-0	--
	UL1581 VW-1	--
Mode Field Diameter	10	μm
Cladding Diameter	125	μm
Jacket Diameter	900	μm
Length	1	m
Standard Connector	SC/SPC	--
Standard Fiber Color	White	--

7. ORDERING INFORMATION

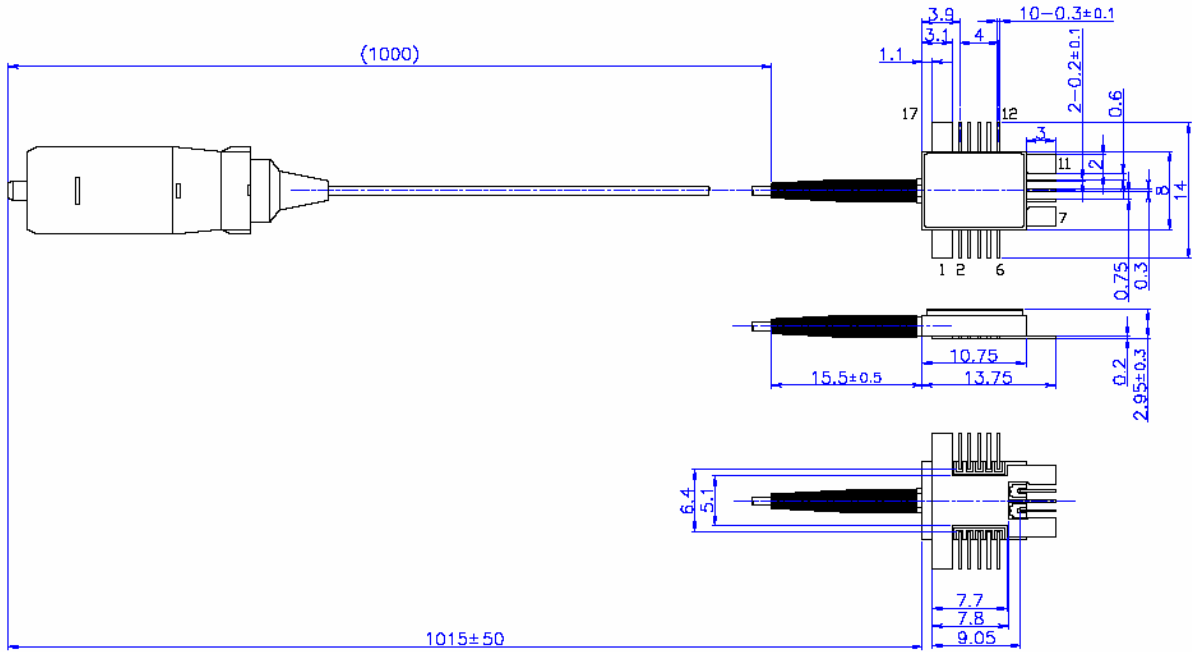
OF3241N -



* : Standard product: No need to indicate.

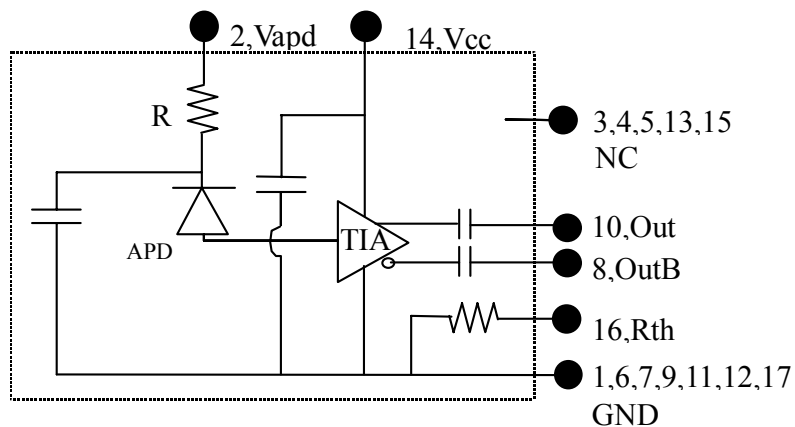
8.OUTLINE DRAWING

Package No. OF3241N (Unit: mm)



Pin Connection			
1	Case GND	10	OUT (AC-coupled)
2	Vapd (APD 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	Thermistor
8	OUTB(AC-coupled)	17	Case GND
9	Case GND		

9. BLOCK DIAGRAM



SAFETY INFORMATION ON THIS PRODUCT

Caution GaAs Product	<p>The product contains gallium arsenide, GaAs. GaAs vapor and powder are hazardous to human health if inhaled, ingested or swallowed.</p> <ul style="list-style-type: none">Do not destroy or burn the product.Do not crush or chemically dissolve the product.Do not put the product in the mouth. <p>Observe related laws and company regulations when discarding this product. The product should be excluded from general industrial waste or household garbage.</p>
Caution Optical Fiber	<p>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.</p>
Attention ESD sensitive	<p>Appropriate precautions must be taken to avoid exposure to ESD and EOS during handling the product.</p>

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