

FEATURES

- Board mount type “GT” package: 17 pins
- InGaAs-PIN with pre-amplifier
- Integrated Design Optimizes Performance at Bit Rates up to 10.7Gb/s
- Electrical Differential Output
- High Sensitivity: -19.0dBm
- Operating Case Temperature: -5°C to 75°C



APPLICATIONS

This APD with preamplifier is intended to function as an optical receiver at 1,310nm or 1,530-1,610nm in SONET, SDH, DWDM or other optical fiber systems operating up to 10.7Gb/s. The typical transimpedance (Z_t) value of 1,200 Ω optimizes the total bandwidth for 10Gb/s application. The detector preamplifier is DC coupled and has an electrical differential output.

DESCRIPTION

The FRM5J141GT incorporates a high bandwidth InGaAs PIN photo diode, a GaAs amplifier in a hermetically sealed board mount type package. The PIN is processed with modern epitaxial techniques resulting in a reliable performance over a wide range of operating conditions.

ABSOLUTE MAXIMUM RATINGS ($T_c=25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Ratings		Unit
		Min.	Max.	
Storage Temperature	T_{stg}	-40	+85	$^\circ\text{C}$
Operating Temperature	T_{op}	-5	+75	$^\circ\text{C}$
Supply Voltage	V_{ss}	-6	0	V
PIN Reverse Voltage	V_R	0	20	V
PIN Reverse Current	I_R	-	4(peak)	mA

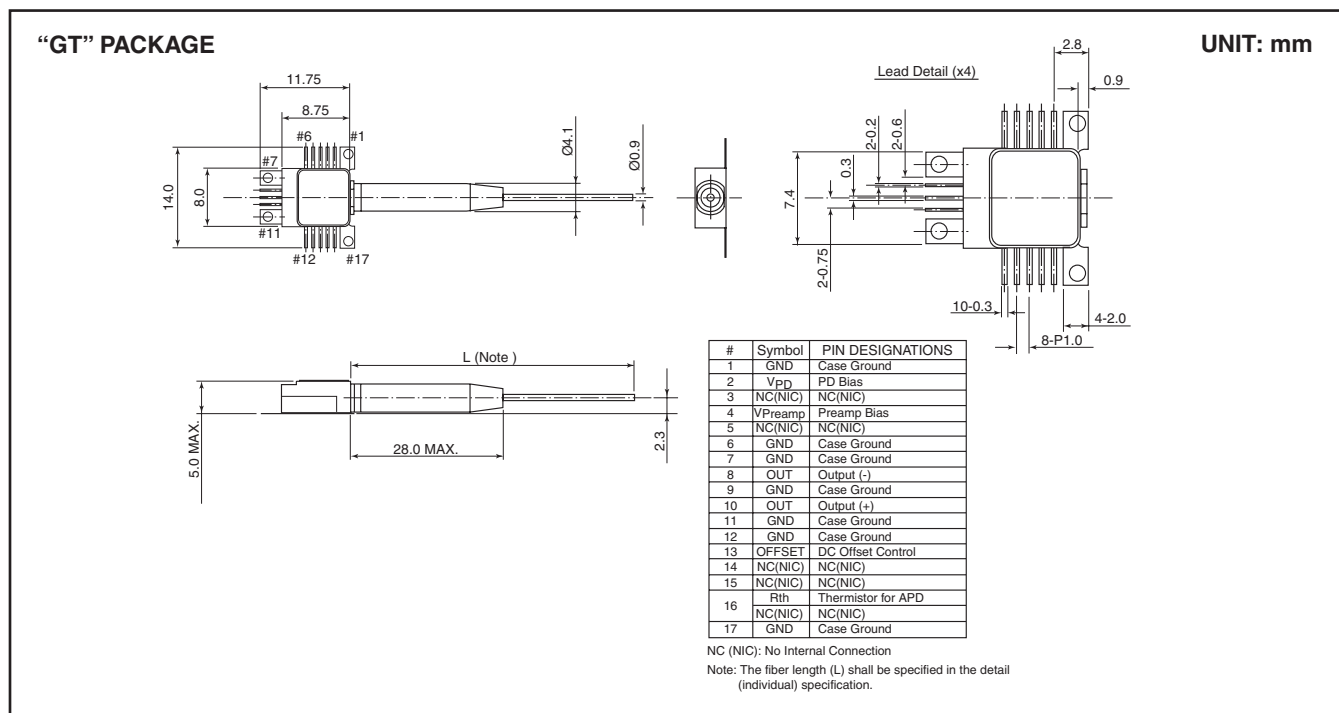
OPTICAL & ELECTRICAL CHARACTERISTICS

(T_C=25°C, λ=1,550nm, V_{SS}=-5.2V, V_R=5V, unless otherwise specified)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
PIN Responsivity	R	λ = 1,310nm, M=1	0.85	0.95	-	A/W
		λ = 1,550nm, M=1	0.85	1.00	-	
		λ = 1,620nm, M=1	-	0.85	-	
AC Transimpedance	Z _t	f = 750MHz, Single-end	800	1200	-	Ω
Maximum Output Voltage Swing	V _{clip}	Saturated Output Voltage	350	550	750	mV
Bandwidth	BW	-3dB from 750MHz, Pin=-16dBm	8.0	10.0	-	GHz
Lower Cut-off Frequency	f _{cl}	-3dB from 750MHz, Pin=-16dBm	-	40	100	kHz
Peaking	d _{pk}	130MHz to BW, Pin=-16dBm	-	1.0	-	dB
Group Delay Deviation	GD	1GHz to 6GHz, Pin=-16dBm	-	30	-	ps _{p-p}
		1GHz to 8GHz, Pin=-16dBm	-	40	-	
Output Return Loss	S ₂₂	130MHz to 6GHz	-	12	-	dB
		130MHz to 8GHz	-	7	-	
Minimum Sensitivity	P _r	10.7Gb/s, NRZ, PRBS=2 ³¹ -1, B.E.R.=10 ⁻¹² , Rext=13dB	25°C	-	-19.0	dBm
			75°C	-	-18.0	
Maximum Overload	P _O	10.7Gb/s, NRZ, PRBS=2 ³¹ -1, B.E.R.=10 ⁻¹² , Rext=13dB	-0.5	0	-	dBm
Optical Return Loss	ORL	λ = 1,550nm	27	-	-	dB
		λ = 1,310nm	27	-	-	
Preamplifier Supply Current	I _{SS}	-	-	110	130	mA
Preamplifier Supply Voltage	V _{SS}	-	-5.46	-5.20	-4.94	V
PIN Supply Voltage	V _R	-	4.75	5	12	V

Note: All the parameters are measured with 50Ω load through external coupling capacitor.

Notes



For further information please contact:

Eudyna Devices USA Inc.

2355 Zanker Rd.
San Jose, CA 95131-1138, U.S.A.
TEL: (408) 232-9500
FAX: (408) 428-9111
www.us.eudyna.com

Eudyna Devices Europe Ltd.

Network House
Norreys Drive
Maidenhead, Berkshire SL6 4FJ
United Kingdom
TEL: +44 (0) 1628 504800
FAX: +44 (0) 1628 504888

Eudyna Devices Asia Pte Ltd.

Hong Kong Branch
Rm. 1101, Ocean Centre, 5 Canton Rd.
Tsim Sha Tsui, Kowloon, Hong Kong
TEL: +852-2377-0227
FAX: +852-2377-3921

Eudyna Devices Inc.

Sales Division
1, Kanai-cho, Sakae-ku
Yokohama, 244-0845, Japan
TEL: +81-45-853-8156
FAX: +81-45-853-8170

CAUTION

Eudyna Devices Inc. products contain **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- Do not put this product into the mouth.
- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.

Eudyna Devices Inc. reserves the right to change products and specifications without notice. The information does not convey any license under rights of Eudyna Devices Inc. or others.

© 2004 Eudyna Devices USA Inc.
Printed in U.S.A.