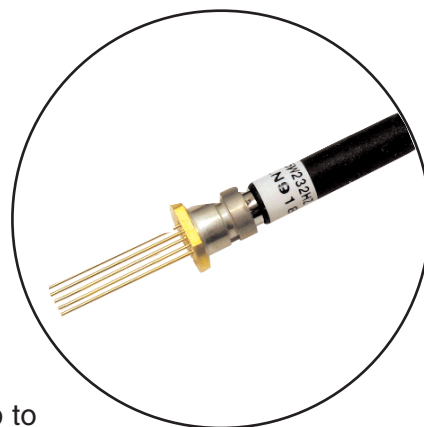


InGaAs-APD/Preamp _____ FRM5W232HZ

Receiver

FEATURES

- InGaAs-APD with 3.3V pre-amplifier
- Wide Band: 2.2GHz
- Data rate up to 2.7Gb/s
- Differential Output
- High Sensitivity: -34dBm typ.
- 5-pin coaxial package
- Operating Case Temperature: -40°C to 85°C



APPLICATIONS

This APD detector preamp is intended to function as an optical receiver in long haul SONET, SDH, and DWDM systems operating up to 2.7Gb/s. The device operates in both the 1,310 and 1,550nm wavelength windows. The detector preamplifier has a differential electrical output.

DESCRIPTION

The FRM5W232HZ incorporates an InGaAs Avalanche Photodiode (APD) detector, a GaAs transimpedance preamplifier. The APD is processed with modern epitaxial techniques resulting in a reliable performance over a wide range of operating conditions. The HY package is a 5-pin coaxial flangless package.

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}	-40	+85	$^{\circ}\text{C}$
Supply Voltage	V_{DD}	0	4.5	V
APD Reverse Voltage	V_{R}	0	$V_{\text{B}}(\text{Note})$	V
APD Reverse Current	I_{R}	-	3(peak)	mA

Note: Since V_{B} may vary from device-to-device, V_{B} data is attached to each device for reference.

OPTICAL & ELECTRICAL CHARACTERISTICS

(T_C=25°C, λ=1,550nm, V_{DD}=+3.3V, unless otherwise specified)

Parameter	Symbol	Test Conditions			Limits			Unit
					Min.	Typ.	Max.	
APD Responsivity	R	$\lambda = 1,310\text{nm}$, M=1			0.75	0.80	-	A/W
		$\lambda = 1,550\text{nm}$, M=1			0.80	0.85	-	
		$\lambda = 1,610\text{nm}$, M=1			-	0.70	-	
APD Breakdown Voltage	VB	ID=10 μ A			40	50	65	V
Temperature Coefficient of VB	Γ	Note (1)			0.08	0.12	0.15	V/°C
AC Transimpedance	Z _t	Pin=-30dBm, f=100MHz, Single-ended			1800	2200	2600	Ω
Bandwidth	BW	Pin=-30dBm, M=10, -3dBm from 1MHz			2.2	2.5	-	GHz
Lower Cut-off Frequency	f _{cl}				-	50	75	kHz
Group Delay Deviation	GD	Pin=-30dBm, M=10, from 500MHz to 1.75GHz			-	-	-	psec
Output Return Loss	S22	Up to 1.75GHz			10	-	-	dB
		Up to 2.5GHz			5	-	-	
Equivalent Input Noise Current Density	i _n	Average within 2.2GHz			-	9.5	11.0	pA/ $\sqrt{\text{Hz}}$
Sensitivity	P _r	2.48832Gb/s, NRZ, PRBS=2 ²³ -1, B.E.R.=10 ⁻¹⁰ , VR=Optimum, Note (3)	R _{ext} =14dB	25°C	-	-34	-33	dBm
				-40°C ~ 85°C	-	-33	-31	
			R _{ext} =10dB, 25°C		-	-33	-	
Maximum Overload	P _{max}	2.48832Gb/s, NRZ, PRBS=2 ²³ -1, B.E.R.=10 ⁻¹⁰ , M=3			-5	-	-	dBm
		M=3, Note (4)			-7	-	-	
Maximum Output Voltage Swing	V _{clip}	Saturated Output Voltage			450	550	800	mV
Optical Return Loss	ORL				30	-	-	dB
Power Supply Current	I _{DD}				-	45	70	mA
Power Supply Voltage	V _{DD}				+3.15	+3.30	+3.45	V

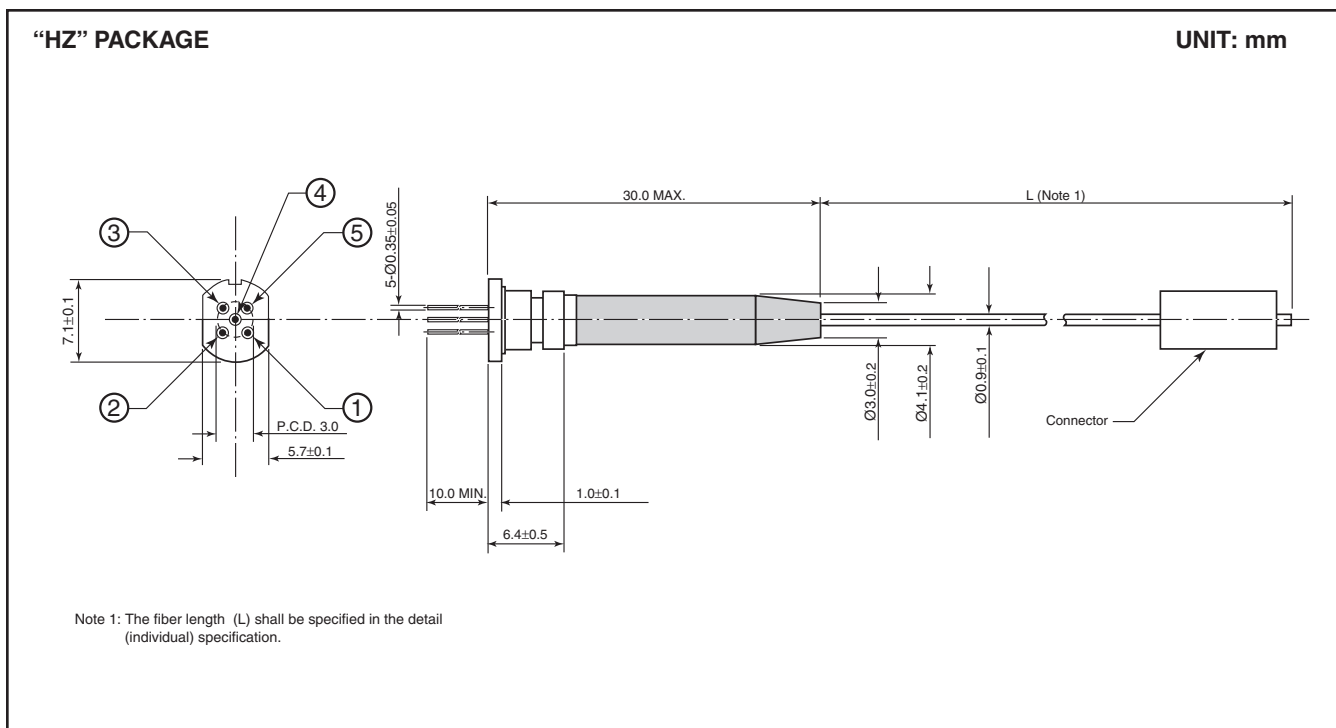
Note 1: Γ=ΔVB/dT_C

Note 2: All the parameters are measured with 50Ω AC-coupled.

Note 3: With f_c=1866MHz Bessel filter.

Note 4: Defined by a 10% distortion of the wave form.

Notes



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- 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.

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