

InGaAs-PIN/Preamp *FRM3Z232BS/BS-A* Receiver

FEATURES

- 2.7Gb/s PIN Receiver module in an industry standard mini-DIL package is available in gull-wing or through-hole configuration
- High Sensitivity: -25dBm (typ.)
- Differential Electrical Output
- Pre-amplifier Power Supply Voltage: +3.3V
- Wide operating temperature range: -40 to +85°C



APPLICATIONS

This PIN detector preamp is intended to function as an optical receiver in intermediate reach 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

This PIN preamplifier uses an InGaAs PIN chip with a GaAs transimpedance preamplifier. The BS package is designed for surface mount PC board assembly, and the BS-A is designed for through-hole mount assembly. The package is connected with a single-mode fiber by Nd: YAG welding techniques. This device is in compliance with ITU-T recommendations and meet the Telcordia requirements.

ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Storage Temperature	T _{stg}	-40 to +85	°C
Operating Temperature	T _{op}	-40 to +85	°C
Supply Voltage	V _{DD}	0 to 4.5	V
PIN-PD Reverse Voltage	V _R	0 to 20	V
PIN-PD Reverse Current	I _R (Peak)	3.0	mA

OPTICAL & ELECTRICAL CHARACTERISTICS

(T_C=25°C, λ=1,550nm, V_R=+3.3V or +5.0V, V_{DD}=+3.3V unless otherwise specified)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
PIN-PD Responsivity	R13	λ = 1,310nm, M=1	0.75	0.80	-	A/W
	R15	λ = 1,550nm, M=1	0.80	0.85	-	
	R16	λ = 1,610nm, M=1	-	0.70	-	
AC Transimpedance	Z _t	Pin=-20dBm, f=100MHz, Single-ended	1800	2200	2600	Ω
Bandwidth	BW	Pin=-20dBm, -3dB from 1MHz	2.2	2.4	-	GHz
Lower Cut-off Frequency	f _{cl}		-	50	75	kHz
Peaking	d _{pk}	Pin=-20dBm, from 1 MHz	-	-	2	dB
Group Delay Deviation	GD	Pin=-20dBm, from 500MHz to 1.75GHz	-	100	-	psec
Output Return Loss	S22	1.75GHz max.	10	-	-	dB
		2.5GHz max.	5	-	-	
Equivalent Input Noise Current Density	i _n	Average within 2.2GHz	-	9.5	11.0	pA/√Hz
Sensitivity	P _r	(Note 3) Ta=25°C, Rext=14dB	-	-25	-24	dBm
		Ta=40°C ~ 85°C, Rext=14dB	-	-24	-22	
		Ta=25°C, Rext=10dB	-	-24	-	
Maximum Overload	P _{max}	2.488Gb/s, NRZ, PRBS=2 ²³ -1, B.E.R.=10 ⁻¹⁰	0	-	-	dBm
		(Note 2)	-3	-	-	
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: All the parameters are measured with 50Ω AC-coupled.

Note 2: Defined by a 10% distortion of the wave form.

Note 3: Test condition is 2.488Gb/s, NRZ, PRBS=2²³-1, B.E.R.=10⁻¹⁰ with f_c=1866MHz Bessel filter.

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Notes

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