InGaAs-APD/Preamp Receiver — *FRM5W232FY*

FEATURES

- 5pins co-axial ROSA(Receiver Optical Subassembly) with LC Receptacle
- APD with +3.3V pre-amplifier
- Wide band: 2.2GHz
- Data rate up to 2.7Gb/s
- Differential output
- High sensitivity: -34dBm typ
- Operating case temperature: -40°C to 85°C

APPLICATION

This APD detector preamp is intended to function as an optical receiver in long 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 APD preamplifier uses an InGaAs APD chip with GaAs transimpedance preamplifier. The FY package is a 5-pin coaxial ROSA (Receiver Optical Subassembly) with LC receptacle. This device is in compliance with ITU-T recommendations and meets the Telcordia requirements.

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

Parameter	Symbol	Ratings		Units
		Min.	Max.	
Storage Temperature	Tstg	-40	+85	°C
Operating Temperature	Top	-40	+85	°C
Supply Voltage	Vdd	0	4.5	V
APD Reverse Voltage	VR	0	VB(Note)	V
APD Reverse Current	IR	-	3(peak)	mA

Note: VB differs from device to device. VB data is attached to each device.

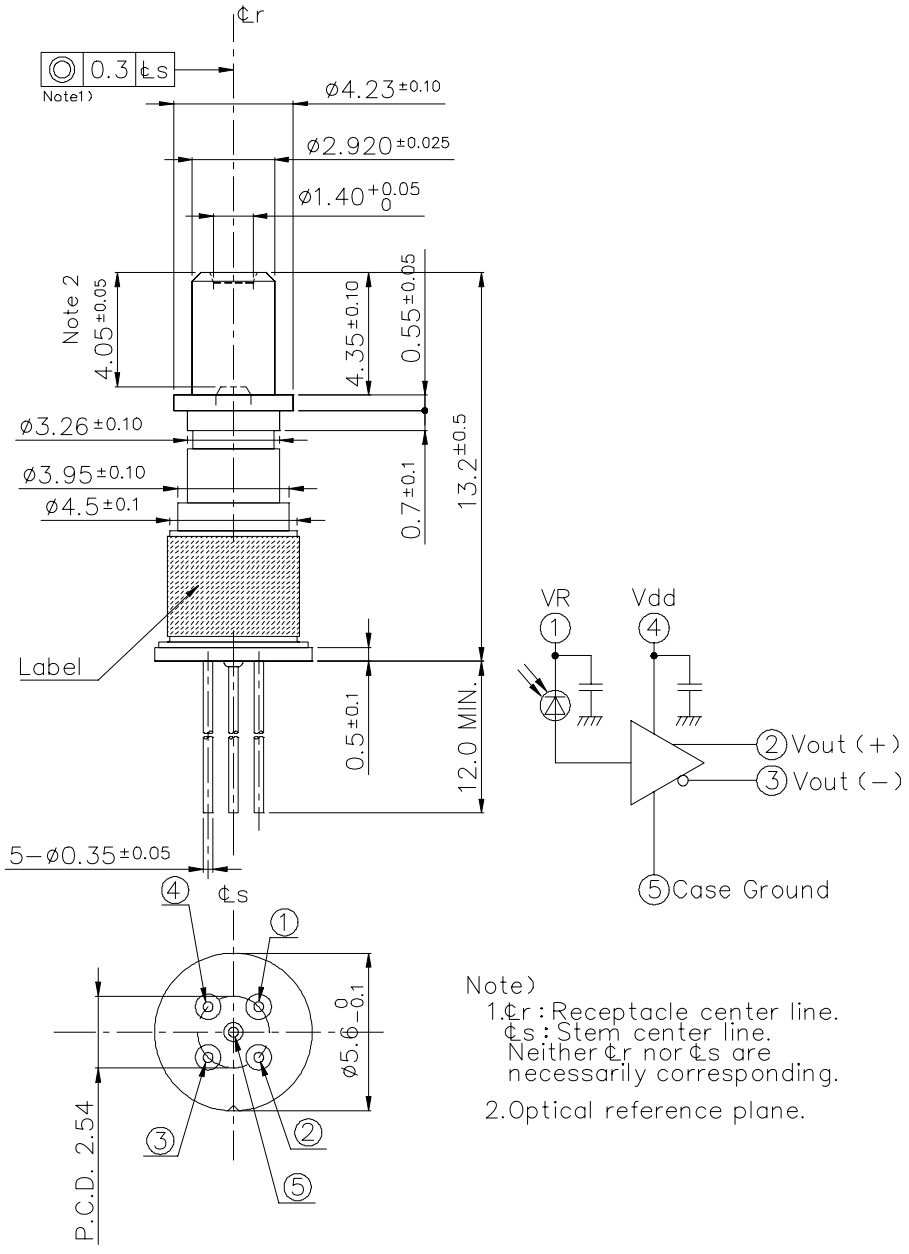
OPTICAL AND ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Test Conditions			Limits			Units
					Min.	Typ.	Max.	
APD Responsivity	R	λ=1310nm, M=1			0.75	0.80	-	A/W
		λ=1550nm, M=1			0.80	0.85	-	
		λ=1610nm, M=1			-	0.70	-	
APD Breakdown Voltage	VB	ID=10uA			40	50	65	V
Temperature Coefficient of VB	Γ	(Note.1)			0.08	0.12	0.15	V/°C
AC Transimpedance	Zt	Pin=-30dBm, f=100MHz, Single-end			1800	2200	2600	ohm
Bandwidth	BW	Pin=-30dBm, M=10 -3dB from 1MHz			2.2	2.5	-	GHz
Lower Cut-off Frequency	fcl				-	50	75	kHz
Peaking	dpk	Pin=-30dBm, M=10, from 1MHz			-	-	+2	dB
Group Delay Deviation	GD	Pin=-30dBm, M=10 from 500MHz to 1.75GHz			-	60	-	psec
Output Return Loss	S22	up to 1.75GHz			10	-	-	dB
		up to 2.5GHz			5	-	-	
Equivalent Input Noise Current Density	IN	Average within 2.2GHz			-	9.5	11	pA/ sqrtHz
Minimum Sensitivity	Pr	2.48832Gb/s, NRZ, PRBS=2^{23}-1, BER=10^{-10}, VR=Optimum (Note.3)	Rext =14dB	25°C	-	-34	-33	dBm
				-40°C ~ 85°C	-	-33	-31	
			Rext=10dB,25°C		-	-33	-	
Maximum Overload	Pmax	2.48832Gb/s, NRZ, PRBS=2^{23}-1, BER=10^{-10}, M=3			-5	-	-	dBm
		M=3 (Note.4)			-7	-	-	
Maximum Output Voltage Swing	Vclip	Saturated Output Voltage			450	550	800	mV
Optical Return Loss	ORL	-			27	-	-	dB
Power Supply Current	Idd	-			-	45	70	mA
Power Supply Voltage	Vdd	-			+3.15	+3.30	+3.45	V

Note.1: Gamma=dVB/dTc
Note.2: All the parameters are measured with 50ohm AC-coupled.
Note.3: with fc=1866MHz Bessel filter
Note.4: Defined by 10% distortion of wave form

UNIT:mm



Note)
1. ℄r : Receptacle center line.
   ℄s : Stem center line.
   Neither ℄r nor ℄s are necessarily corresponding.
2. Optical reference plane.

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