



Differential Amplifier

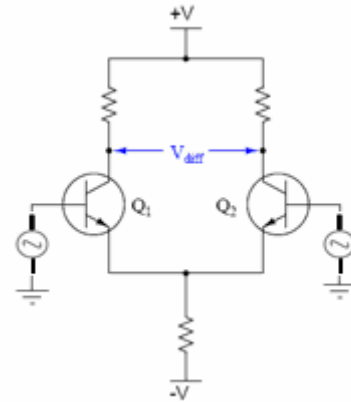
GRDA1

Description

The **GRDA1** is 10 GHz to 20 GHz differential amplifier designed on 2 um InGaP HBT process. The gain of GRDA1 is 5 dB typically with flatness of ± 3 dB over the entire bandwidth. Typical current requirement for GRDA1 is 24 mA.

The one dB compression point of GRDA1 lies at -5 dBm input power. It can be used as single to differential converter, differential to single converter.

Functional Diagram



Applications.

- Single to Differential Converter
- Differential to single converter
- Active Balun

Key Features

- Wide band operation
- High Isolation
- Operating Temperature 0 to 85 °C Range
- Small Die Size, Low Cost

Electrical Specification

Conditions: $V_{cc} = 4.2 \text{ V}$, $I_c = 24 \text{ mA}$ @ 25 °C

Parameter	Min	Typical	Max	Units
Frequency Range	10		20	GHz
Gain	8		2	dB
Pout		-1		dBm
Input Return Loss		7		dB
Output Return Loss		7		dB
P1dB		-5		dBm
Operating Current		24		mA
Supply voltage		4.2		V



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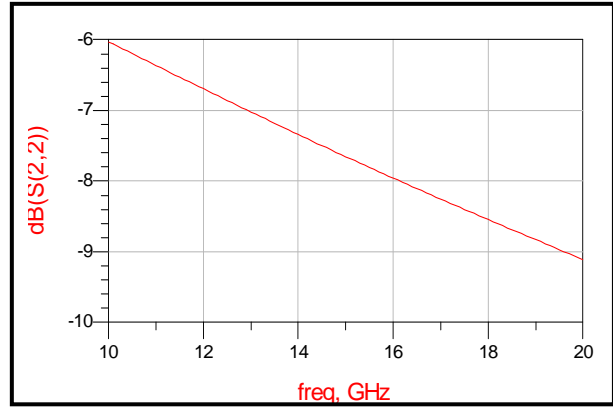
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Simulated Results

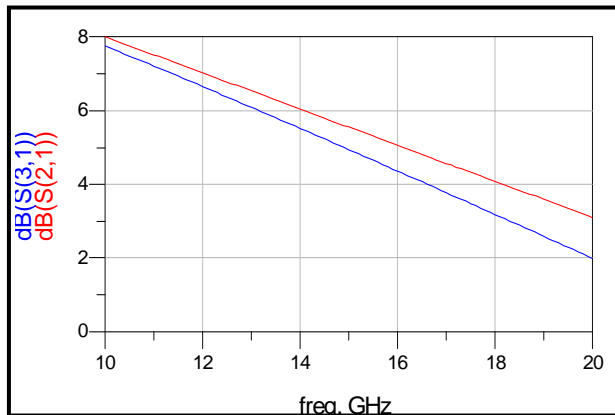
Input Return Loss



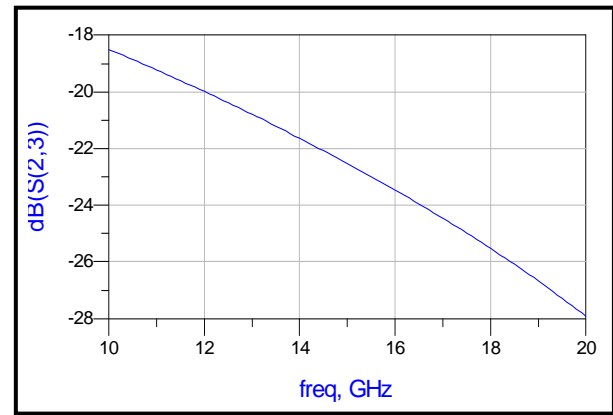
Output Return Loss



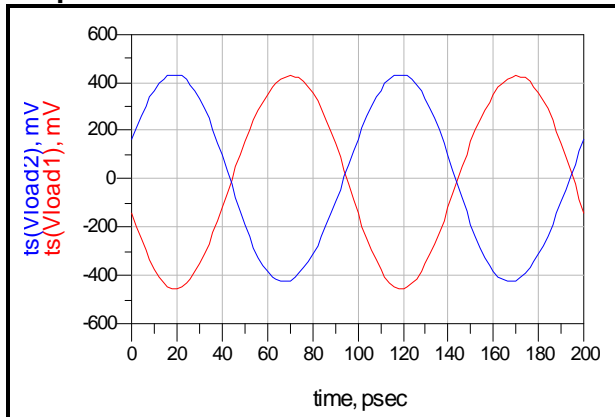
Gain



Isolation



Output Waveform at 10 GHz @Pin -5 dBm



Output Waveform at 20 GHz @Pin -5 dBm

