



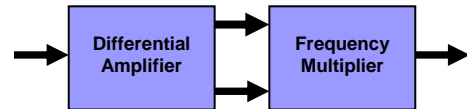
Frequency Multiplier

GRFM1

Description

The GRFM1 is 10 GHz to 20 GHz Frequency multiplier designed on 2 um InGaP HBT process. GRFM1 multiplies the input frequency from 10 GHz to 20 GHz by the factor of 2 so as to produce the output of 20 GHz to 40 GHz. Conversion gain of frequency multiplier is 0dB \pm 2dB. Power requirement of Frequency multiplier is 2 mA at 4.2 V.

Functional Diagram



Applications.

- Frequency Multiplier (X 2)
- LMDS, SATCOM, VSAT

Key Features

- Wide band operation
- Low power requirement
- Operating Temperature 0 to 85 °C Range
- Pout is -1 dBm

Electrical Specification

Conditions: Vcc = 4.2 V, Ic = 26 mA @ 25 °C

Parameter	Min	Typical	Max	Units
Input Frequency Range	10		20	GHz
Gain		0		dB
Pout		-1		dBm
Input Return Loss		7		dB
Output Return Loss		7		dB
Multiplying Factor		2		
Operating Current		26		mA
Supply voltage		4.2		V

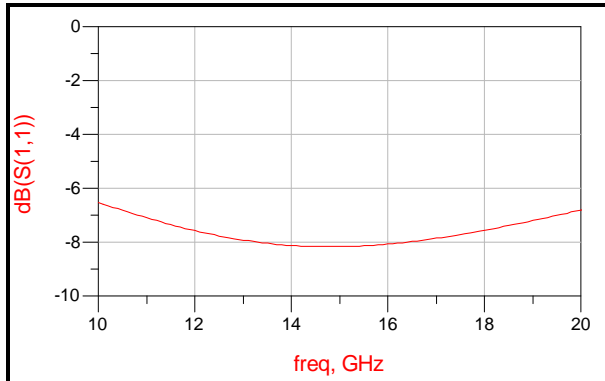


Frequency Multiplier

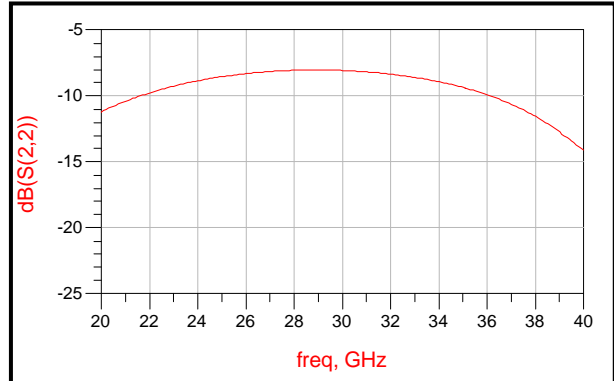
GRFM1

Simulated Results

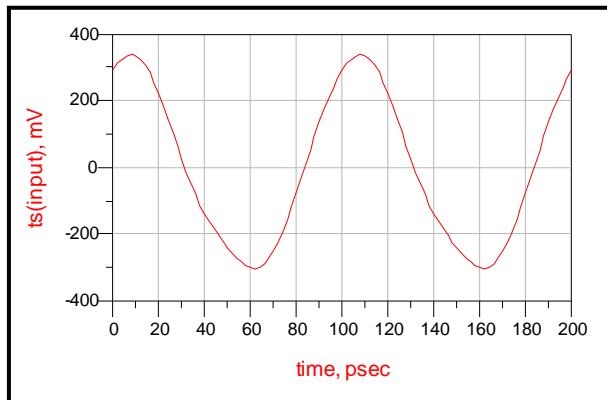
Input Return Loss



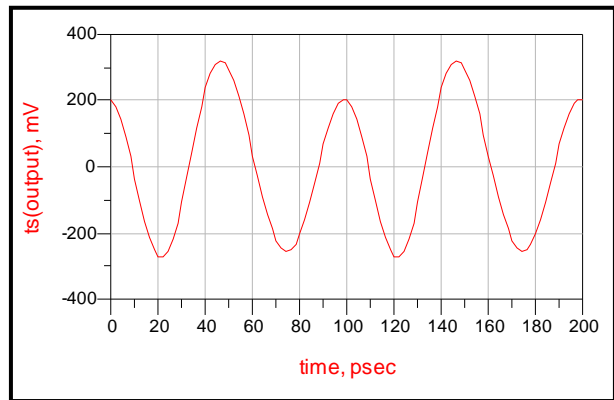
Output Return Loss



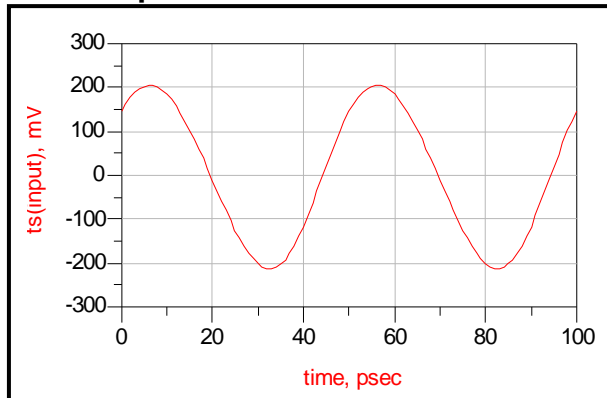
Input waveform at 10 GHz



Output Waveform at 20 GHz



Input Waveform at 20 GHz



Output Waveform at 40 GHz

