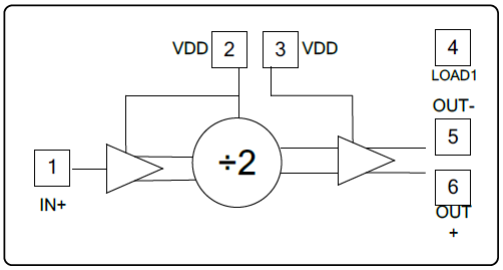
V1.0.0

GaAs InGaP HBT MMIC
Divide-by-2, Frequency Divider
10-20GHz

Features

- Frequency: 10-20GHz
- Output Power: -1dBm
- Single Power Supply: +5V/78mA
- DC blocking capacitor integrated on chip
- Die Size: 1.5 x 0.74 x 0.1 mm

Functional Block Diagram



Typical Applications

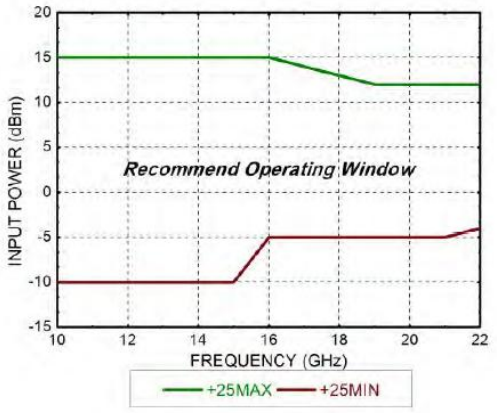
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

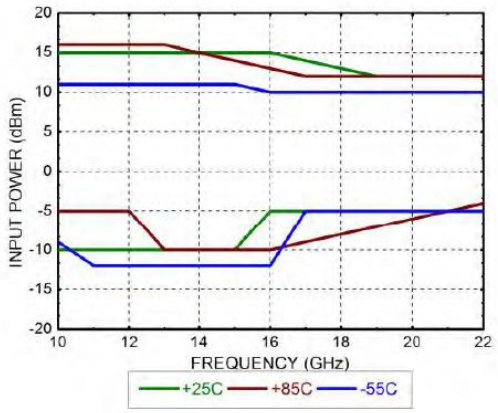
TA = +25°C, VDD = +5V, IDD=78mA

Parameters	Condition	Min.	Typ.	Max.	Units
Maximum Input Frequency			20	26	GHz
Minimum Input Frequency			10		
Input Power	f_{IN}=10-15GHz	-10	0	+15	dBm
	f_{IN}=15-22GHz	-5	3	+12	dBm
Output Power	f_{IN}=10-20GHz	-4	-1.5		dBm
	f_{IN}=20-22GHz	-6	-4		dBm
Single sideband phase noise@100kHz offset	P_{IN}=0dBm, f_{IN}=14GHz		-145		dBc/Hz
Reverse Leakage	OUT+,OUT-, Terminated		50		dB
Operating Current (IDD)			78		mA

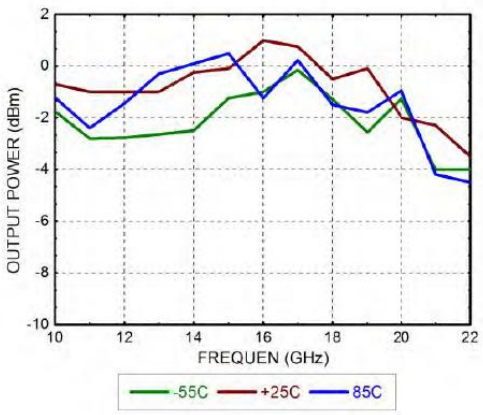
Input sensitivity window, T=25℃



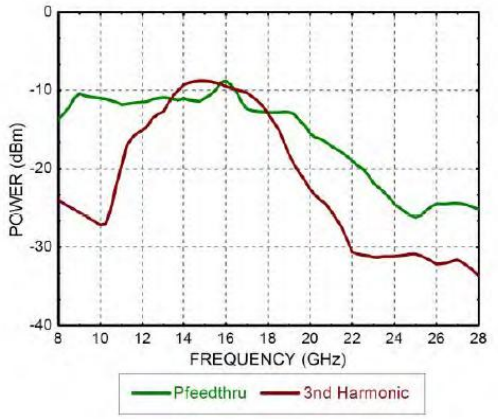
Input sensitivity window vs. Temperature



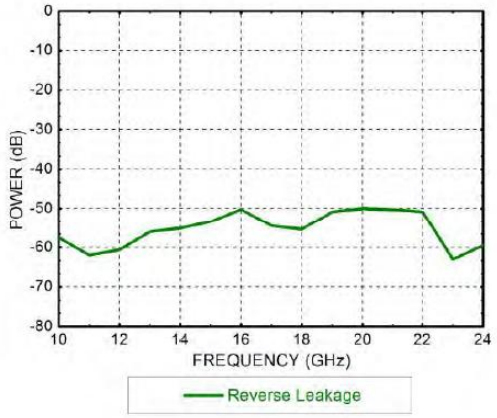
Output Power vs. Temperature



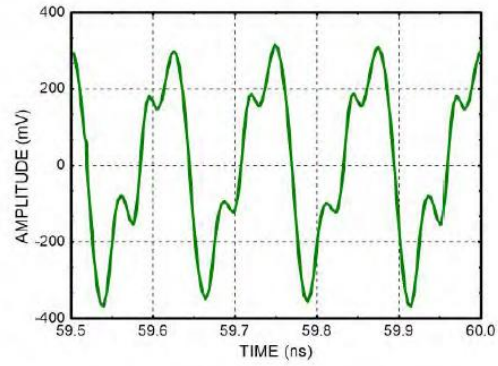
Output Harmonic, Pin=0dBm,T=25℃



Reverse Leakage , Pin=0dBm,T=25℃

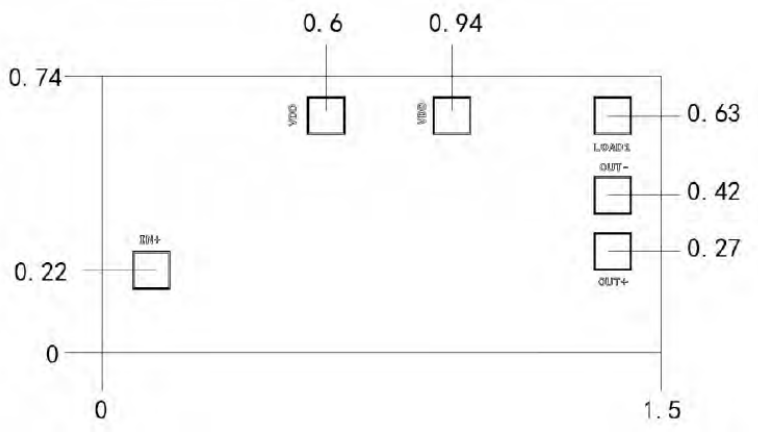


Output Waveform, Fout=8GHz, Pin=0dBm,T=25℃



Outline Drawing:

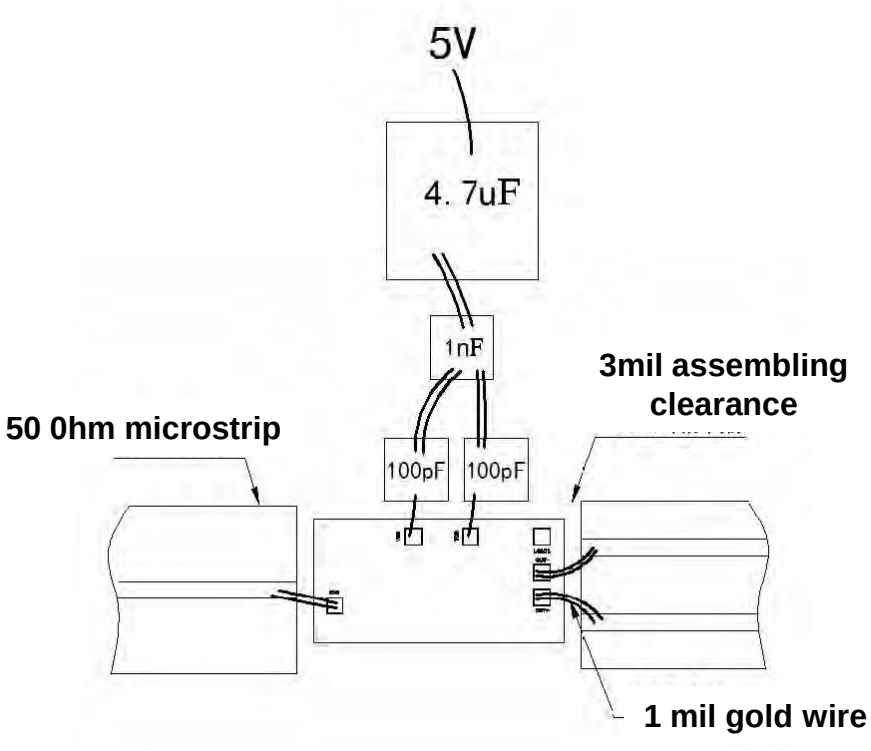
All Dimensions in mm



Pad Description

Pad	Function	Description
1	IN+	RF input, DC blocking capacitor integrated on chip
2,3	VDD	Power supply +5V, external 100pF/1nF/4.7uF bypass capacitor required.
4	LOAD1	Single-ended output configuration port, when Pad5 not used, connect it with Pad4
5	OUT-	Divided signal output, 180° phase difference with Pad6
6	OUT+	Divided signal output, DC blocking capacitor integrated on chip
Die bottom	GND	Die bottom must be connected to RF/DC ground.

Assembly Drawing



•For single-ended output, connect Pad4 and Pad5 with gold bonding

Notes:
1. Die thickness: 100um
2. Typical bond pad is 100*100 μm^2
3. Bond pad metalization: Gold
4. Backside metalization: Gold
5. Backside of the die (GND)
6. No connection required for unlabeled bond pads

Maximum Ratings:
1. Maximum drain voltage: +5.5V
2. Operating temperature: -55℃ to +85℃
3. Storage temperature: -65℃ to +150℃