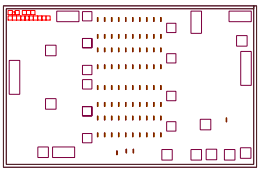
MHA-495433

4.9- 5.4 GHz 2W InGaP HBT MMIC Power Amplifier
With Active Bias
Advanced Data Sheet
June 2008 V0

Features:

CHIP LAYOUT



- **Frequency Range: 4.9 to 5.4 GHz**
- **OIP3: +45 dBm at 5.1 GHz**
- **P1dB: +33.5 dBm at 5.1GHz**
- **Pave: +25.6 dBm @ 2% EVM with 802.16 WiMax 64QAM signal 9V,565mA**
- **Gain: 10 dB @ 5 GHz**
- **Single Supply and on-chip active bias for ease of operation & bias stability**
- **Power On/Off Control with adjustable Vpc on-voltage & quiescent bias current**

Applications:

- **WiMax**
- **Broadband Wireless**
- **Point-to-point Radios**

Description:

The MHA-495433 is a high-performance reliable MMIC power amplifier utilizing high-reliability, high-breakdown voltage InGaP HBT technology. Power MMIC is ideally suited for driver or output stages in wireless applications such as 802.16 WiMAX, 802.11 WLAN & ISM, point-to-point radios & Telecom Infrastructure. MHA-495433 HBT MMIC Power Amplifier Chip has 50-ohm fully-matched output, pre-matched input, on-chip DC blocking capacitor, active bias and power detector built into the chip.

Electrical Specifications: *@ Vcc=+9.0V, Icq=550mA, Vpc=4.1 V, Tbase=25 ℃, Z0=50 ohm* (1)

Parameter	Units		
Frequency Range	GHz	4.9 - 5.4	
Gain (Typ)	dB	10	@ 5 GHz
Gain Flatness(Typ)	+/-dB	0.5	
Input Return Loss(Typ)	dB	10	
Output Return Loss(Typ)	dB	15	
Output P-1dB(Typ)	dBm	34.0	4.9 GHz, Icc=726mA
		33.5	5.1 GHz, Icc=685mA
		33.0	5.3 GHz, Icc=681mA
Pout @ 2% EVM	dBm	25.6	4.9 GHz, Icc=568mA
		25.7	5.1 GHz, Icc=570mA
		25.4	5.3 GHz, Icc=565mA
Output IP3(Typ)	dBm	45	5.1 GHz
@ 22 dBm/tone, 1 MHz separation			
Power Control Voltage Vpc	V	4.1	ON
		< 2	OFF
Power Control Current Ipc	mA	12	ON
Operating Bias Conditions: Vcc	V	+ 9	
Icq	mA	550	
Detector Output Voltage Vdet Range	V	TBD	

(1) All Data is measured on 50 ohm Microstrip Carrier with external partial input match

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Please visit MwT website www.mwtinc.com for information on other MwT MMIC products.

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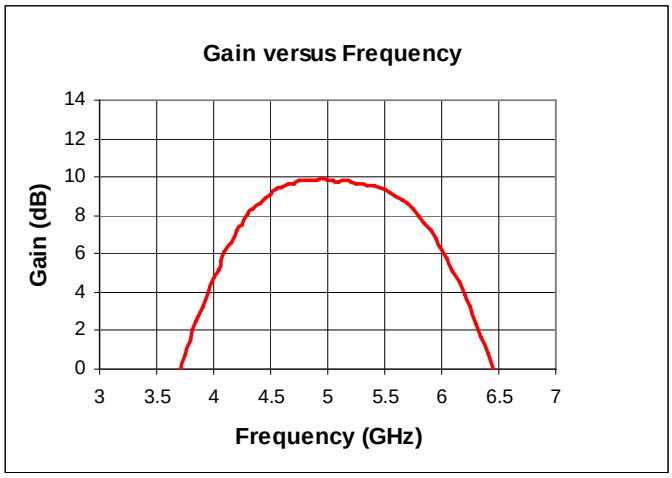
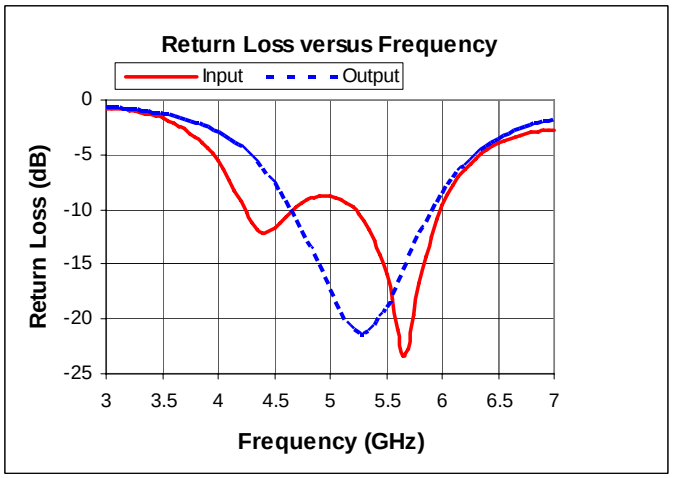
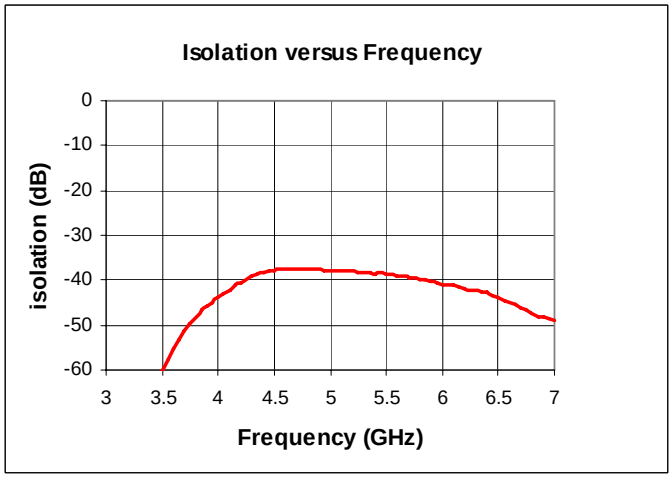
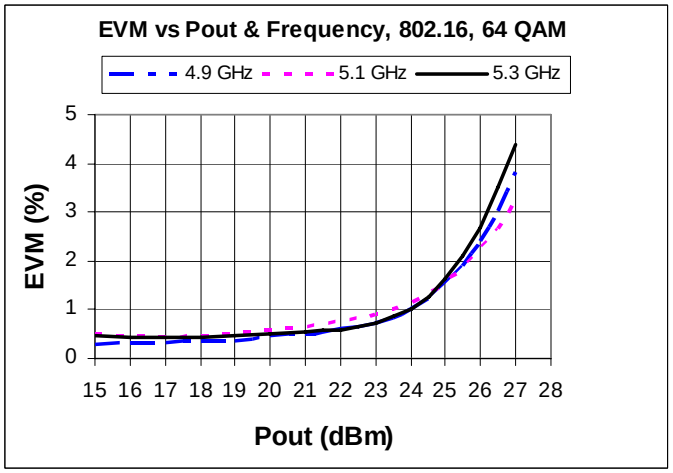
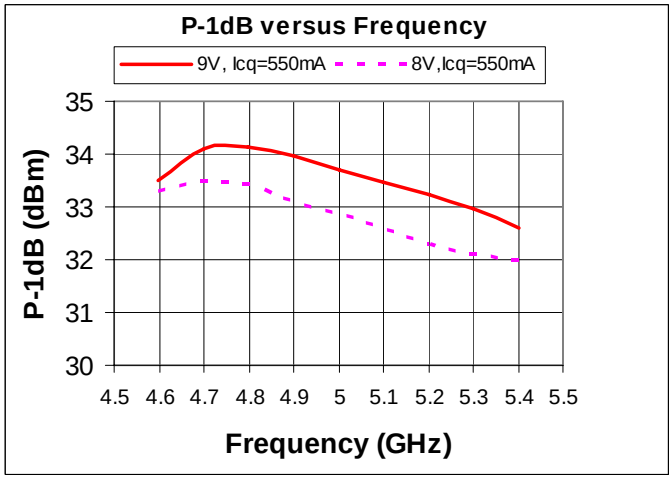
Typical RF Performance: *Vcc=+9V, Icq=550mA, Tbase=25 ℃, Z0 = 50 Ohm, on Microstrip Carrier*

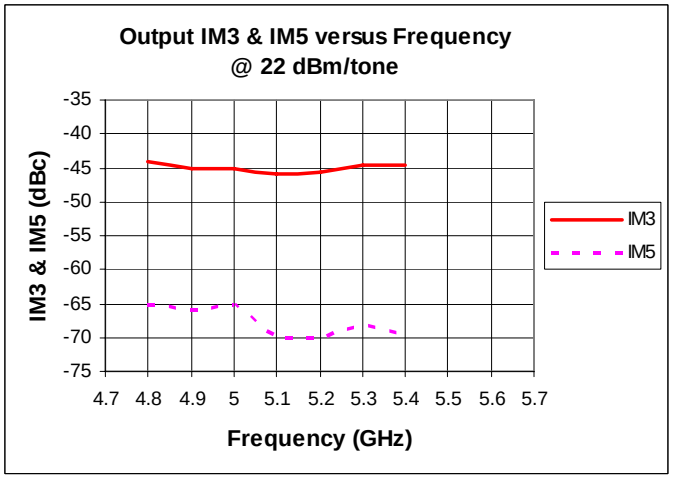












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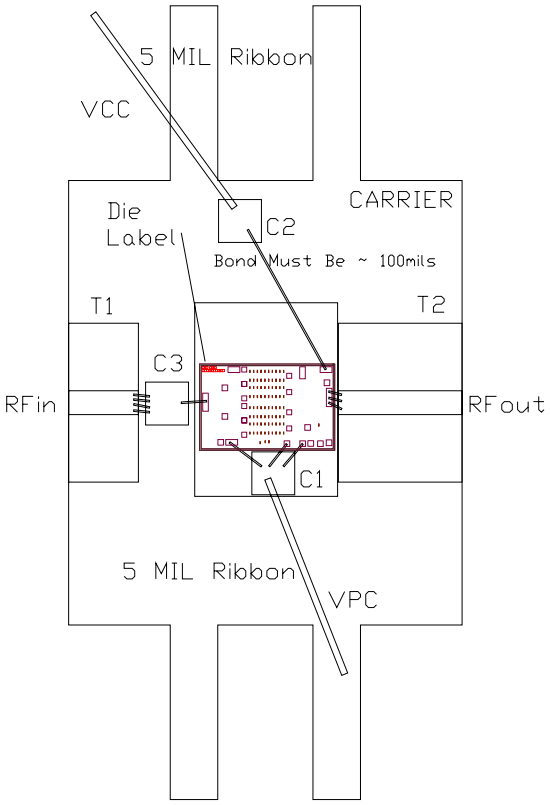
Absolute Maximum Ratings:

SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
Vcc	Collector Voltage	V	10
Icq	Quiescent Collector Current	mA	700
Pdiss	DC Power Dissipation	W	TBD
Pin max	RF Input Power	dBm	TBD
Toper	Operating Case/Lead Temperature Range	°C	- 40 to + 85
Tch	Channel Temperature	°C	170
Tstg	Storage Temperature	°C	-60 to +150

*****Operation of this device above any one of these parameters may cause permanent damage.

Mechanical Information:

50 ohm Microstrip Carrier MMIC Assembly with external match & bypass capacitors



Bill of Materials:

C1, C2: 750 pF Ceramic Chip Capacitor
C3: 0.6 pF Ceramic Chip Capacitor
T1, T2: 50 ohm Microstrip Line on 15 mil thick Alumina Substrate