

DESCRIPTION

The MWS W-CDMA is a high-efficiency linear amplifier targeting 3.5V mobile handheld systems. The device is manufactured in an advanced InGaP/GaAs Heterojunction Bipolar Transistor (HBT) RF IC fab process. It is designed for use as a final RF amplifier in 3.5V W-CDMA and CDMA2000, spread spectrum systems,

and other linear applications in the 1800MHz to 2000MHz band.

There are two 16-pin package versions for this Power Amplifier. One is a 3mm x 3mm chip scale package (CSP) with external input/output match and the other is an internally I/O matched module.

KEY FEATURES

- Single 3.5V Supply
- 27dBm Linear Output Power
- 25dB Power Gain
- >40% Linear Efficiency
- <40mA Idle Current

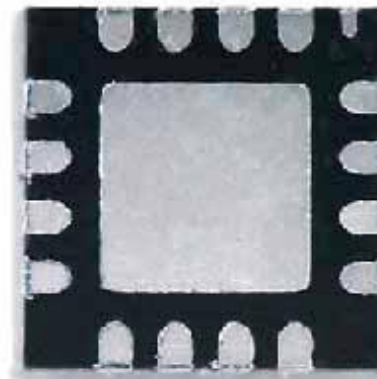
APPLICATIONS

- 3V 1920-1980 W-CDMA Handsets
- 3V 1850-1910 CMDA2000 Handsets
- Spread Spectrum Systems
- Other Linear Wireless Applications

IMPORTANT: For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

PRODUCT HIGHLIGHT

16-Pin Leadless Package



3mm

3mm


 Actual Size

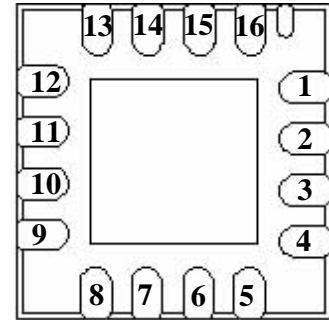
PACKAGE ORDER INFO

T _J (°C)	Type	Plastic MLP
		16-PIN
	W-CDMA	MWS11-PH41-CS
	CDMA-2000	MWS11-PH43-CS

ABSOLUTE MAXIMUM RATINGS

Supply Voltage (RF Off)	8.0V _{DC}
Supply Voltage (P _{OUT} ≤31 dBm)	5.0V _{DC}
Control Voltage (V _{REF})	3.0V _{DC}
Input RF Power	6dBm
Operating Case Temperature	-30°C to 100°C
Storage Temperature	-30°C to 150°C

Note: Exceeding these ratings could cause damage to the device. All voltages are with respect to Ground. Currents are positive into, negative out of specified terminal

PACKAGE PIN OUT

 MLP PACKAGE
(Bottom View)

FUNCTIONAL PIN DESCRIPTION (16 PIN) THREE STAGE VERSION

PIN NAME	DESCRIPTION
RF IN(5)	RF input. A DC block capacitor of >20 pF is required. Input impedance match can be achieved by using a shunt capacitor followed by a section of transmission line.
VB1(3)	First stage bias current control voltage. The VB1 pin can be connected with the second stage control voltage (VB2) into a single reference voltage through an external resistor bridge.
VB2(1)	Second stage bias current control voltage. The VB2 pin can be connected with VB1 into a single reference voltage through an external resistor bridge.
VCC(16)	Supply for the bias reference and control circuits.
VC1(4)	Power supply for first stage and interstage match. VC1 should be fed through an inductive line terminated with a 100 pF bypassing capacitor on the supply side.
RF OUT (9,10,11,12)	RF output and power supply for the second stage. A DC block capacitor of >20 pF is required following the external output impedance matching network. The biasing may be provided by a quarter-wavelength transmission line terminated with a 100 pF bypassing capacitor on the supply side.
GND (2)	Ground for the bias reference and control circuits.



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MWS11-PH4x-CS

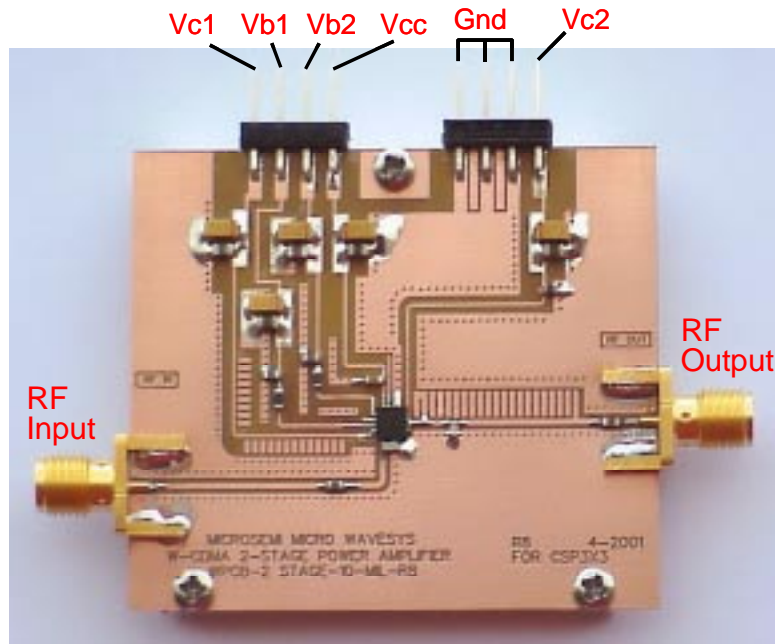
W-CDMA Power Amplifier

PRELIMINARY

ELECTRICAL CHARACTERISTICS

Test conditions: T = 25°C, V_{CC} = 3.5V unless otherwise specified.

Parameter	Symbol	Test Conditions	MWS11-PHxx-CS			Units
			Min	Typ	Max	
Frequency Range	f		1920		1980	MHz
Nominal Linear Output Power (WCDMA Modulation)	P _{out}			27		dBm
Power Gain	G _p		23	25		dB
Second Harmonic				-40		dBc
Third Harmonic				-40		dBc
Fourth Harmonic				-40		dBc
Power Added Efficiency	PAE	V _{CC} = 3.5V at 27dBm output power	40			%
Adjacent Channel Power Rejection @5 MHz	ACPR	V _{CC} = 3.5V at 27dBm output power			-38	dBc
	ACPR-ALT				-48	dBc
Quiescent Current	I _{cq}			38	40	mA
Input VSWR				< 2:1		
Output Load VSWR		No oscillations		>10:1		
Power supply Voltage			3	3.5	5	V

EVALUATION BOARD

Router-Milled 10 mil GETEK PCB
Board Size: 2.0" x 1.8"



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NOTES

www.Microsemi.com

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