IBM2018M009
Product Overview

Advance

800MHz CDMA/AMPS Power Amplifier

Features

- IS-95 dual mode operation in 824-849MHz band
- +28.5dBm output power for CDMA operation
- +31.5dBm output power for AMPS operation
- 34% PAE (CDMA mode), 48% PAE (AMPS mode)
- Internally 50 ohm matched
- On-chip VSWR protection
- Power down mode
- Single power supply operation
- Low standby current: <2µA
- Small-outline, 6mm x 6mm LGA module

Applications

- CDMA Handsets

Description

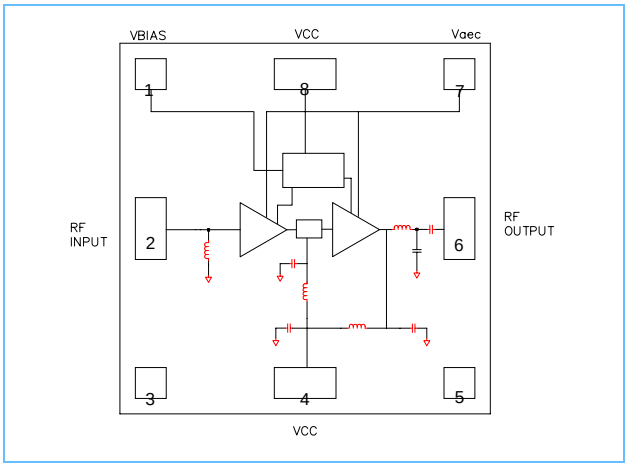
The IBM 2018M009 800MHz CDMA/AMPS Power Amplifier (PA) is a single-band, two-stage power amplifier module using IBM's Silicon Germanium (SiGe) BiCMOS technology for maximum efficiency in wireless handset applications. The power amplifier module integrates all input and output matching elements for compact board layout and enhances reduced design time.

The 800MHz CDMA/AMPS PA is optimized for both the U.S. Analog Mobile Phone System (AMPS) and Code Division Multiple Access (CDMA) operations in compliance with IS-95 standards.

Advanced on-chip bias circuitry ensures reliable performance in both operating modes. The power amplifier features a power down function that extends battery life. An efficiency control allows the power amplifier to operate in high/low power CDMA or AMPS mode. On-chip VSWR protection allows the power amplifier to pass industry-standard ruggedness tests at full RF drive (+6dBm input) with a 10:1 load VSWR at Vcc= 4.5Vdc.

The 800MHz CDMA/AMPS PA is available in a 9-pin, 6mm x 6mm, low profile module. The incorporation of internal impedance matching components of the input and output and bias conditioning elements result in optimal operating performance and efficient package size.

IBM2018M009 Pin-Out and Block Diagram



Ordering Information

To order samples or an evaluation board, please visit the IBM Microelectronics Division Website at:

www.chips.ibm.com/support/howtobuy.html

Part Number	Description	Packaging
IBM2018M009	800MHz CDMA PA Module	6mm x 6mm LGA
IBM2018EVBA	800MHz CDMA PA Demonstration Board	--

Note: The IBM2018EVBA is susceptible to damage from electrostatic discharge (ESD). Observe normal ESD precautions at all times when handling or using the device.

Absolute Maximum and Minimum Ratings

Parameter	Minimum	Maximum	Units
Supply voltage	3.1	5.0	Vdc
Standby current	--	2.0	µA
Power control Vaec	--	4.0	Vdc
Input RF power (AMPS)	--	+6	dBm
Operating temperature	-30	+85	°C
Storage temperature	-65	+150	°C

Typical Performance

RF Specifications, AMPS Mode

(Vcc = 3.4Vdc, T=25°C, Vaec = 2.0Vdc, Continuous Wave)

Parameter	Minimum	Typical	Maximum	Units
Frequency range	824.0	836.5	849.0	MHz
Gain vs. temperature -30 to +85°C	--	±1.5	--	dB
Output power	+31.5	--	--	dBm
PAE	--	48	--	%
Quiescent Current	--	--	40	mA
Harmonics	--	--	-30	dBc
Input VSWR	--	--	2:1	--
Ruggedness VSWR @ 5V (No damage)	10:1	--	--	--

RF Specifications, CDMA High Power Mode

(V_{CC} = 3.4Vdc, T= 25 °C, Vaec = 0.7Vdc, IS-95 reverse link modulation.)

Parameter	Minimum	Typical	Maximum	Units
Frequency range	824.0	836.5	849.0	MHz
Gain	--	28	--	dB
Gain vs. temperature -30 to +85 °C	--	±1.0	--	dB
Output power	+28.5	--	--	dBm
PAE	34	--	--	%
Quiescent Current	--	--	100	mA
ACPR (±885KHz)	--	--	-46	dBc
ALT1 (±1.98 MHz)	--	--	-56	dBc
Harmonics	--	--	-30	dBc
Input VSWR	--	--	2:1	--
Ruggedness VSWR @ 5V (No damage)	10:1	--	--	--

RF Specifications, CDMA Low Power Mode (V_{CC} = *3.4Vdc, T= 25 °C, Vaec = 1.3Vdc, IS-95 reverse link modulation.)*

Parameter	Minimum	Typical	Maxi-mum	Units
Frequency range	824.0	836.5	849.0	MHz
Gain	--	26	--	dB
Gain vs. temperature -30 to +85 °C	--	±1.5	--	dB
Output power	+12	--	--	dBm
PAE	4	--	--	%
Quiescent Current	--	--	70	mA
ACPR (±885KHz)	--	--	-47	dBc
ALT1 (±1.98 MHz)	--	--	-56	dBc
Harmonics	--	--	-30	dBc
Input VSWR	--	--	2:1	--

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