tyco Electronics

RoHS Compliant

MACOM

3.6 V, 450 mW DECT RF Power Amplifier IC 1880 - 1900 MHz

MAAM-007219
V1

Features

- Ideal for DECT Applications
- Output Power: +26.5 dBm
- Power Gain: 24.5 dB
- Single Positive Supply
- Class A Bias
- No External RF Matching Required
- Lead-Free SOIC-16 Package
- 100% Matte Tin Plating over Copper
- Halogen-Free "Green" Mold Compound
- 260°C Reflow Compatible
- RoHS* Compliant version of MA02203AD

Description

The MAAM-007219 is a two stage power amplifier designed for DECT applications to have an output power of +26.5 dBm with an input power of 2.0 dBm. This power amplifier operates at +3.6 volts with 35% typical power added efficiency. The MAAM-007219 is mounted in a narrow body lead-free 16-pin SOIC plastic package.

The MAAM-007219 is fabricated using M/A-COM's self-aligned MSAG®-Lite MESFET process for a low single supply voltage, high power efficiency, and excellent reliability.

Ordering Information [1]

Part Number	Description
MAAM-007219-000000	Bulk Packaging
MAAM-007219-TR3000	13 inch, 3000 piece reel

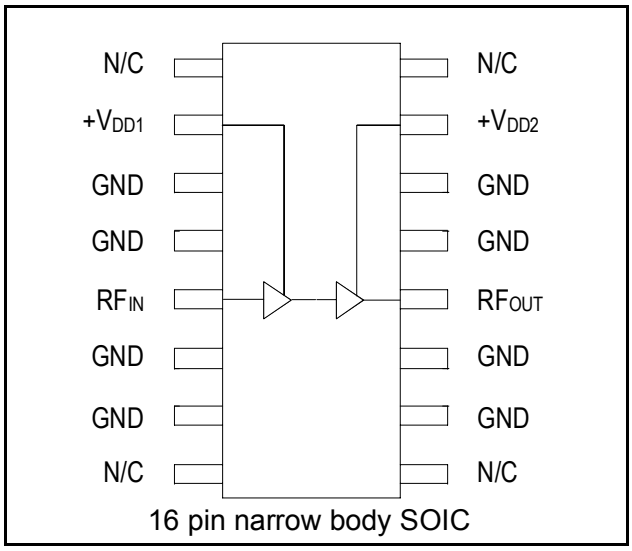
1. Reference Application Note M513 for reel size information.

Absolute Maximum Ratings [2,3]

Parameter	Absolute Maximum
Input Power	+6 dBm
Operating Voltages	+5.5 volts
Operating Temperature, Ts	-40°C to +75°C
Channel Temperature	+150°C
Storage Temperature	-40°C to +150°C

2. Exceeding any one or combination of these limits may cause permanent damage to this device.
3. M/A-COM does not recommend sustained operation near these survivability limits.

Functional Schematic



16 pin narrow body SOIC

Pin Configuration

Pin	Function	Description
1	N/C	No Connection
2	V_{DD1}	First Stage Supply Voltage
3	GND	Ground
4	GND	Ground
5	RF_{IN}	RF Input
6	GND	Ground
7	GND	Ground
8	N/C	No Connection
9	N/C	No Connection
10	GND	Ground
11	GND	Ground
12	RF_{OUT}	RF Output
13	GND	Ground
14	GND	Ground
15	V_{DD2}	Second Stage Supply Voltage
16	N/C	No Connection

* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

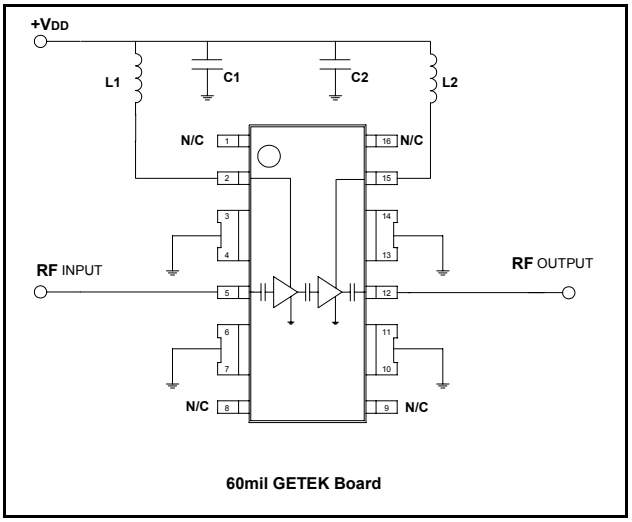
Visit www.macom.com for additional data sheets and product information.

Electrical Specifications: T_S = 40 °C [4], V_{DD} = +3.6 V, F = 1880 MHz, P_{IN} = +2 dBm, Z_0 = 50 Ω

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Output Power		dBm	25.5	26.5	27.5
Pout Frequency Dependency		dB	—	0.2	—
Power Gain		dB	—	24.5	—
Current Consumption		mA	—	350	420
Input VSWR, PA On		-	—	1.6:1	2.0:1
Input VSWR, PA Off	V_{DD1}, V_{DD2} = 0 V	-	—	1.4:1	—
Isolation, PA Off	V_{DD1}, V_{DD2} = 0 V	dB	—	40	—
2nd Harmonics		dBc	—	-31	—
3rd Harmonics		dBc	—	-55	—
Thermal Resistance	Junction of 2nd stage FET to pin 11, Duty Cycle=50%	°C/W	—	63	—
Load Mismatch	V_{DD} = 4.6 V, VSWR = 10:1, P_{IN} = 7 dBm	-	No degradation		
Stability	P_{IN} = -3 to +7 dBm, V_{DD} = 0 - 4.6 V, P_{OUT} = 0 mW to 450 mW, T_S = -40 to +75 °C, Load VSWR = 10:1	-	All spurs < -60 dBc		

4. Ts is the temperature measured at the soldering point of pin 11.

Application Schematic



60mil GETEK Board

Component List

Item	Description	P/N
C1, C2	100 pF DLI multilayer ceramic chip capacitor	C11AH101K5TXL
L1	8.2 nH Coilcraft chip inductor	1008CT.080XKBB
L2	27 nH Coilcraft chip inductor	1008CS.270XKBB

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

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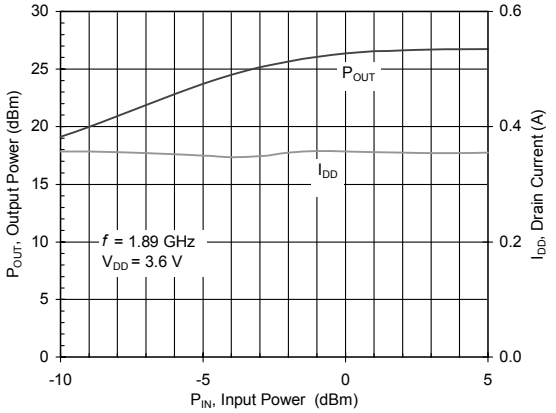
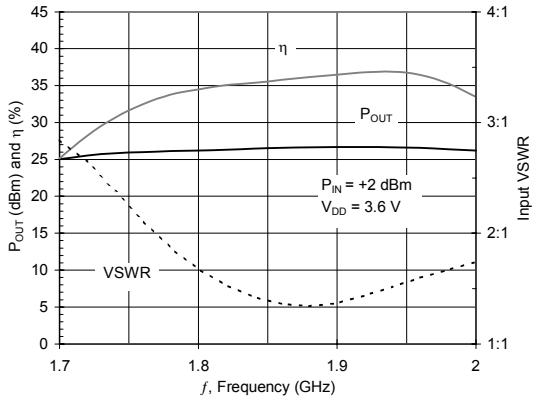
Typical Performance Curves

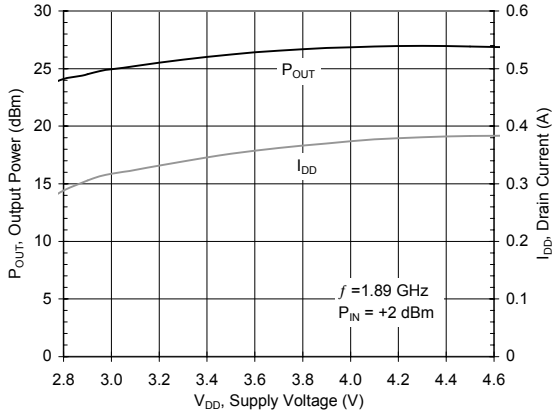
Output Power and Current vs. Input Power



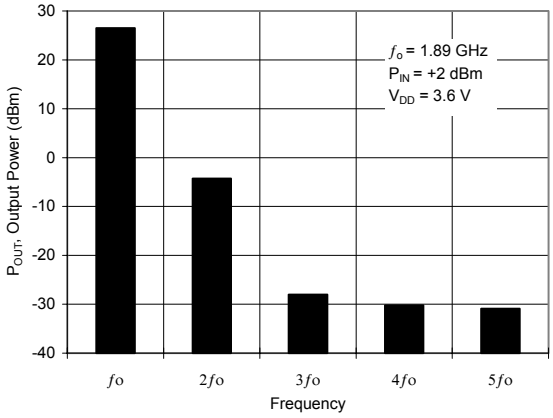
Output Power, PAE, and VSWR vs. Frequency



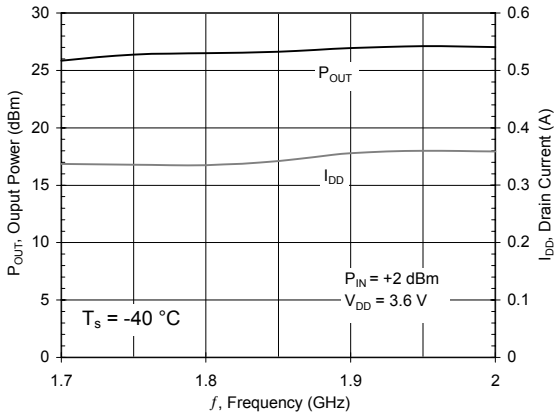
Output Power and Current vs. Supply Voltage



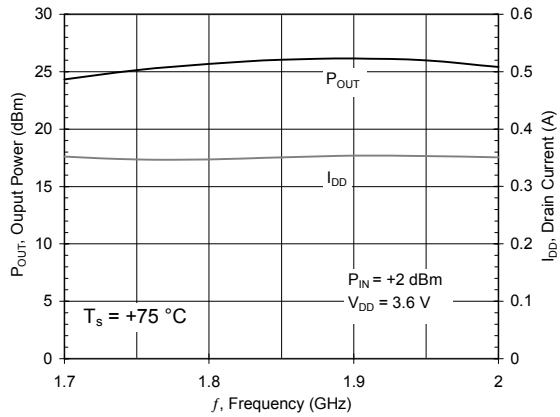
Harmonics



Output Power and Current vs. Frequency, Ts = -40°C



Output Power and Current vs. Frequency, Ts = +75°C



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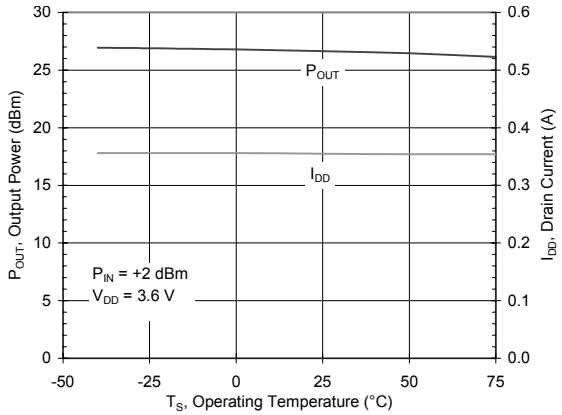
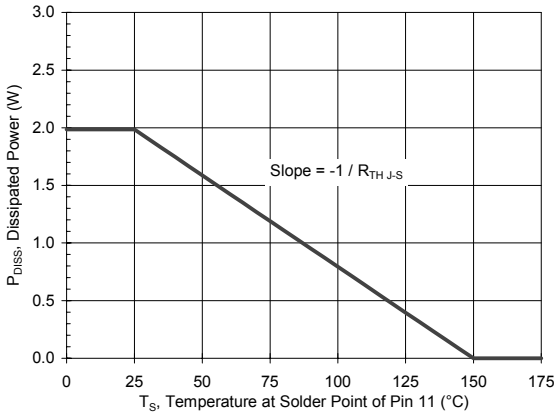
Typical Performance Curves

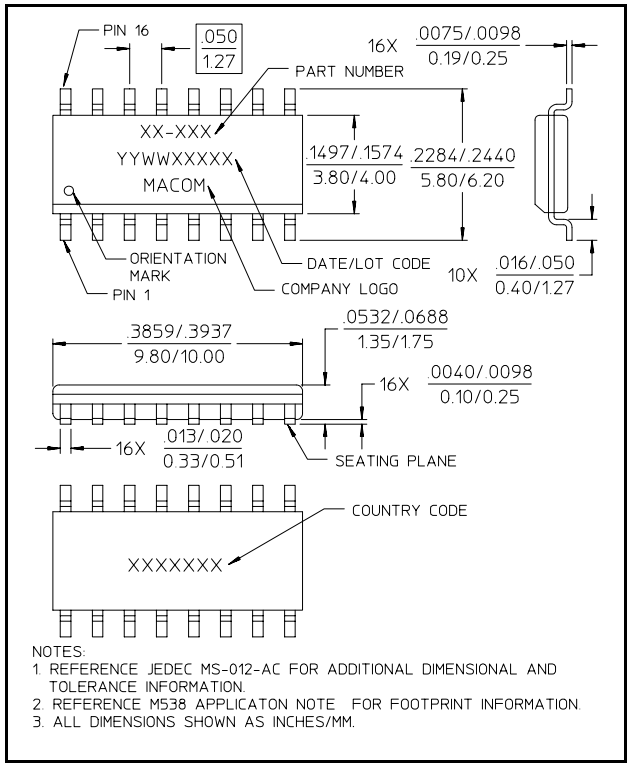
Output Power and Current vs. Temperature



Power Dissipation vs. Temperature



Lead Free SOIC-16 †



† Reference Application Note M538 for lead-free solder reflow recommendations.

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