

**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 <sup>1</sup>**

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.

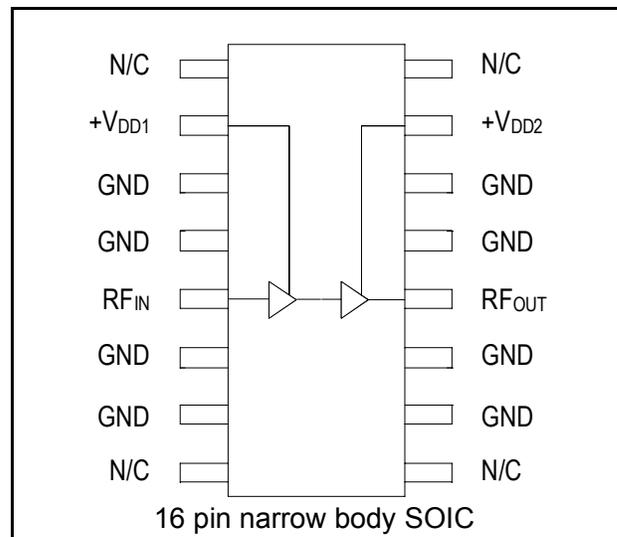
**Absolute Maximum Ratings <sup>2,3</sup>**

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.

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

**Functional Schematic**



**Pin Configuration**

Pin	Function	Description
1	N/C	No Connection
2	V <sub>DD1</sub>	First Stage Supply Voltage
3	GND	Ground
4	GND	Ground
5	RF <sub>IN</sub>	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 <sub>OUT</sub>	RF Output
13	GND	Ground
14	GND	Ground
15	V <sub>DD2</sub>	Second Stage Supply Voltage
16	N/C	No Connection

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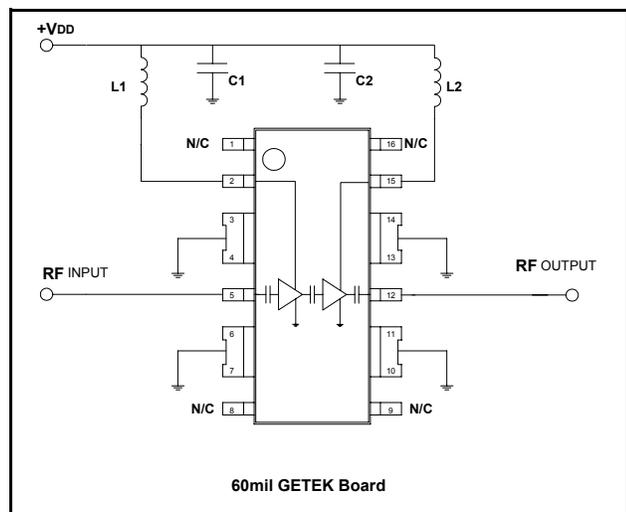
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**Electrical Specifications:  $T_S = 40\text{ }^\circ\text{C}^4$ ,  $V_{DD} = +3.6\text{ V}$ ,  $F = 1880\text{ MHz}$ ,  $P_{IN} = +2\text{ dBm}$ ,  $Z_0 = 50\text{ }\Omega$**

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	$V_{DD1}, V_{DD2} = 0\text{ V}$	-	—	1.4:1	—
Isolation, PA Off	$V_{DD1}, V_{DD2} = 0\text{ V}$	dB	—	40	—
2 <sup>nd</sup> Harmonics		dBc	—	-31	—
3 <sup>rd</sup> Harmonics		dBc	—	-55	—
Thermal Resistance	Junction of 2nd stage FET to pin 11, Duty Cycle=50%	$^\circ\text{C/W}$	—	63	—
Load Mismatch	$V_{DD} = 4.6\text{ V}$ , VSWR = 10:1, $P_{IN} = 7\text{ dBm}$	-	No degradation		
Stability	$P_{IN} = -3\text{ to }+7\text{ dBm}$ , $V_{DD} = 0 - 4.6\text{ V}$ , $P_{OUT} = 0\text{ mW to }450\text{ mW}$ , $T_S = -40\text{ to }+75\text{ }^\circ\text{C}$ , Load VSWR = 10:1	-	All spurs < -60 dBc		

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

**Application Schematic**



**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**

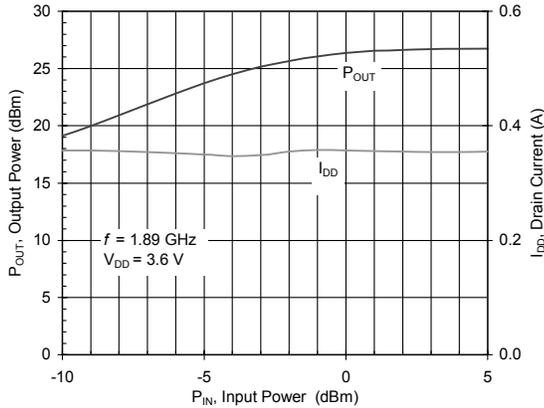
Please observe the following precautions to avoid damage:

**Static Sensitivity**

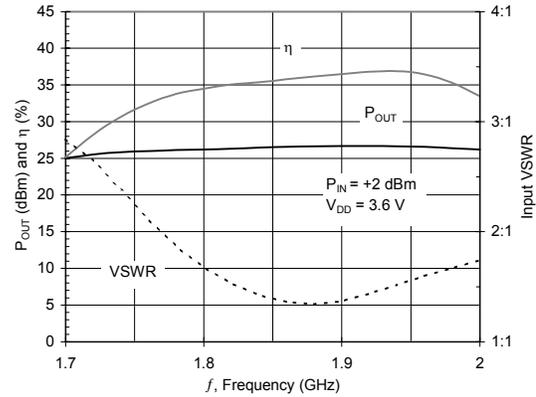
Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

**Typical Performance Curves**

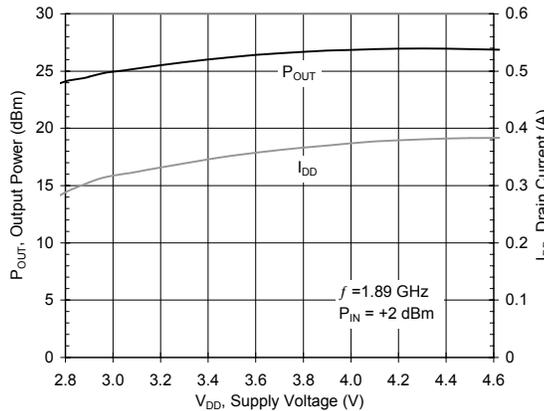
**Output Power and Current vs. Input Power**



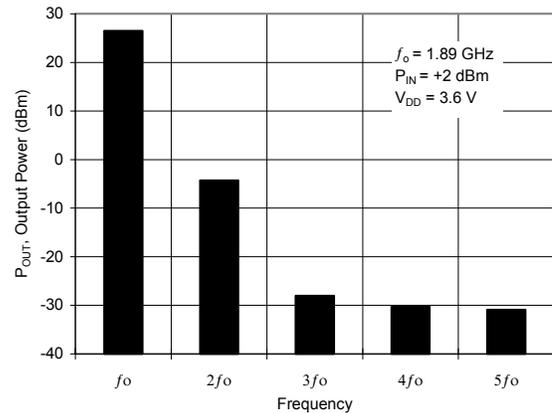
**Output Power, PAE, and VSWR vs. Frequency**



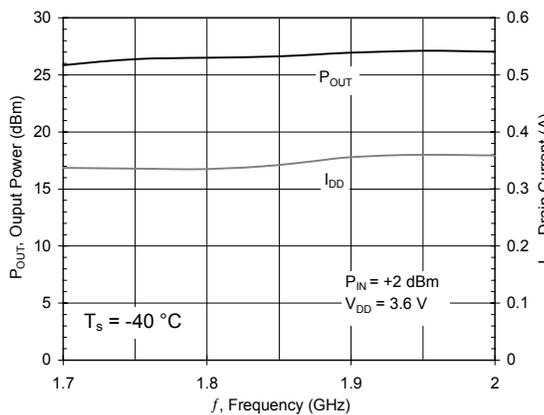
**Output Power and Current vs. Supply Voltage**



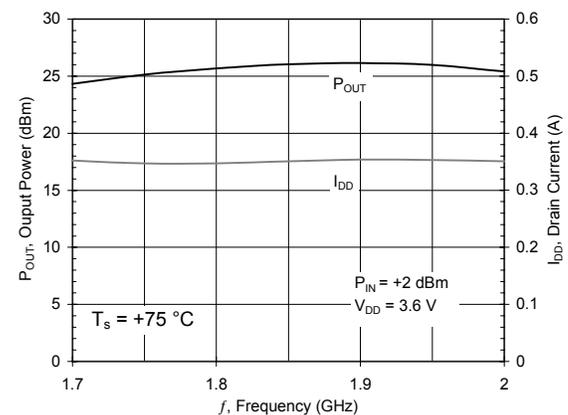
**Harmonics**



**Output Power and Current vs. Frequency,  $T_s = -40^\circ\text{C}$**



**Output Power and Current vs. Frequency,  $T_s = +75^\circ\text{C}$**

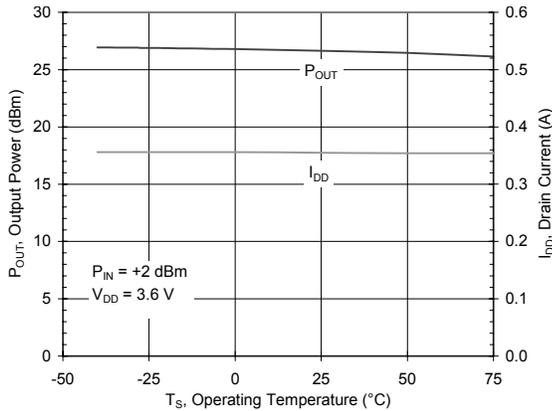


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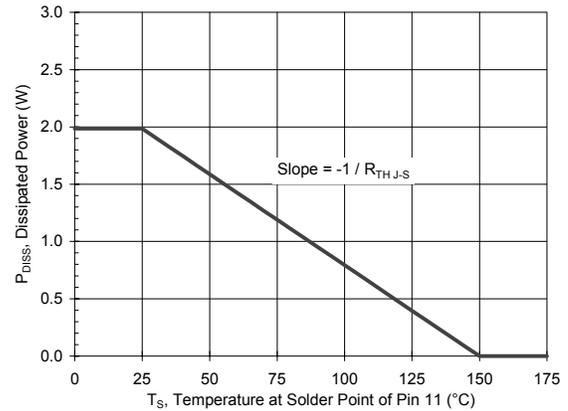
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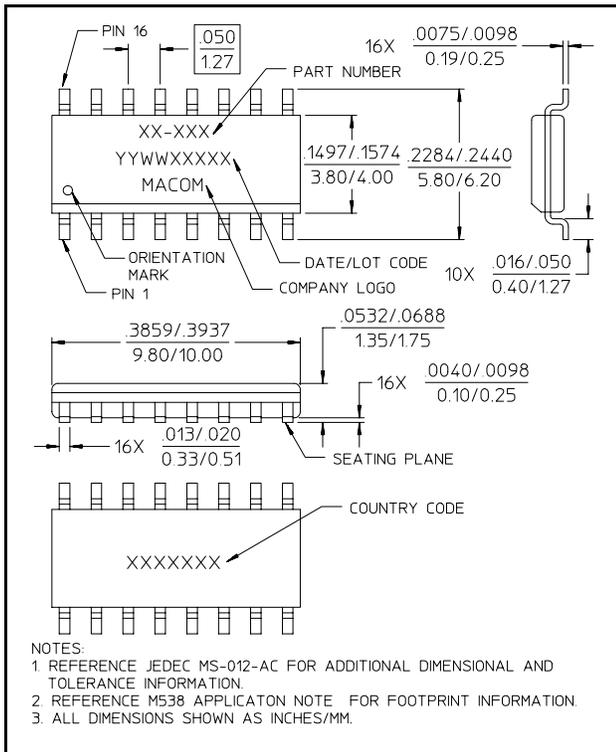
**Output Power and Current vs. Temperature**



**Power Dissipation vs. Temperature**



**Lead Free SOIC-16 †**



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