

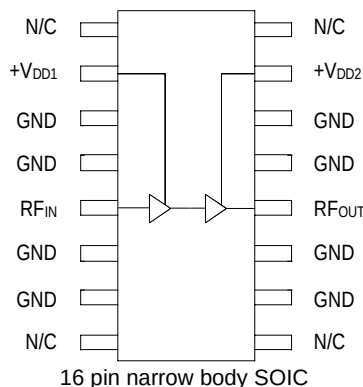
3.6V 450mW RF Power Amplifier IC for DECT ITT332203AD

Applications

DECT
PCS
Personal Wireless Telephony (PWT)
Cordless PBX
Radio/Wireless Local Loop (RLL/WLL)

Features

- Single Positive Supply
- Class A Bias
- 1800 to 2000 MHz Operation
- 50 Ω Input & Output Impedance
- Small Size - 16 Pin Narrow Body SOIC Plastic Package
- Self-Aligned MSAG[®]-Lite MESFET Process
- Guaranteed Stability and Ruggedness



Typical 3.6 Volt Performance

26.5 dBm Output Power
25.5 dB Power Gain
35% Power Added Efficiency
< -30 dBc 2nd Harmonic
< -50 dBc 3rd, 4th, 5th Harmonics

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

Rating	Symbol	Value	Unit
DC Supply Voltage (Pins 2 & 15)	V _{DD}	5.5	Vdc
RF Input Power	P _{IN}	6	mW
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-40 to +150	°C

ELECTRICAL CHARACTERISTICS V_{DD}=3.6 V, P_{IN}=+2 dBm, T_S=40 °C (Note 1), 50 Ω System.

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	—	1880	—	1900	MHz
Output Power (P _{IN} = 0 to +4 dBm)	P _{OUT}	25.5	26.5	27.5	dBm
Isolation, PA Off (V _{DD} = 0.0 V)	—	40	—	—	dB
Frequency Dependency	P _{OUT}	—	0.2	0.5	dB
Current Consumption	I _{DD}	—	350	420	mA
Input VSWR, PA On (50 Ω Ref.)	—	—	1.6:1	2.0:1	—
Input VSWR, PA Off (V _{DD} = 0.0 V), 50 Ω Ref.	—	—	1.4:1	2.0:1	—
Thermal Resistance (Junction of 2nd stage FET to pin 11, Duty Cycle=50%)	R _{TH J-S}	—	—	63	°C/W
Load Mismatch (V _{DD} = 4.6 V, VSWR = 10:1, P _{IN} = 7 dBm)	—	No Degradation in Power Output			
Stability (P _{IN} =-3 to +7 dBm, V _{DD} =0-4.6 V, 0 mW < P _{OUT} < 450 mW, T _S =-40 to +75 °C, Load VSWR = 10:1)	—	All non-harmonically related outputs more than 60 dB below desired signal			

Note 1: T_S is the temperature measured at the soldering point of pin 11, mounted on 60 mil GETEK evaluation board in a free air condition with ambient room temperature T_A=25°C. The electrical data presented herein was taken with the evaluation board shown in Figures 1 & 10, under room temperature conditions and CW operation at V_{BAT} = 3.6 V, unless otherwise specified.

Specifications Subject to Change Without Notice

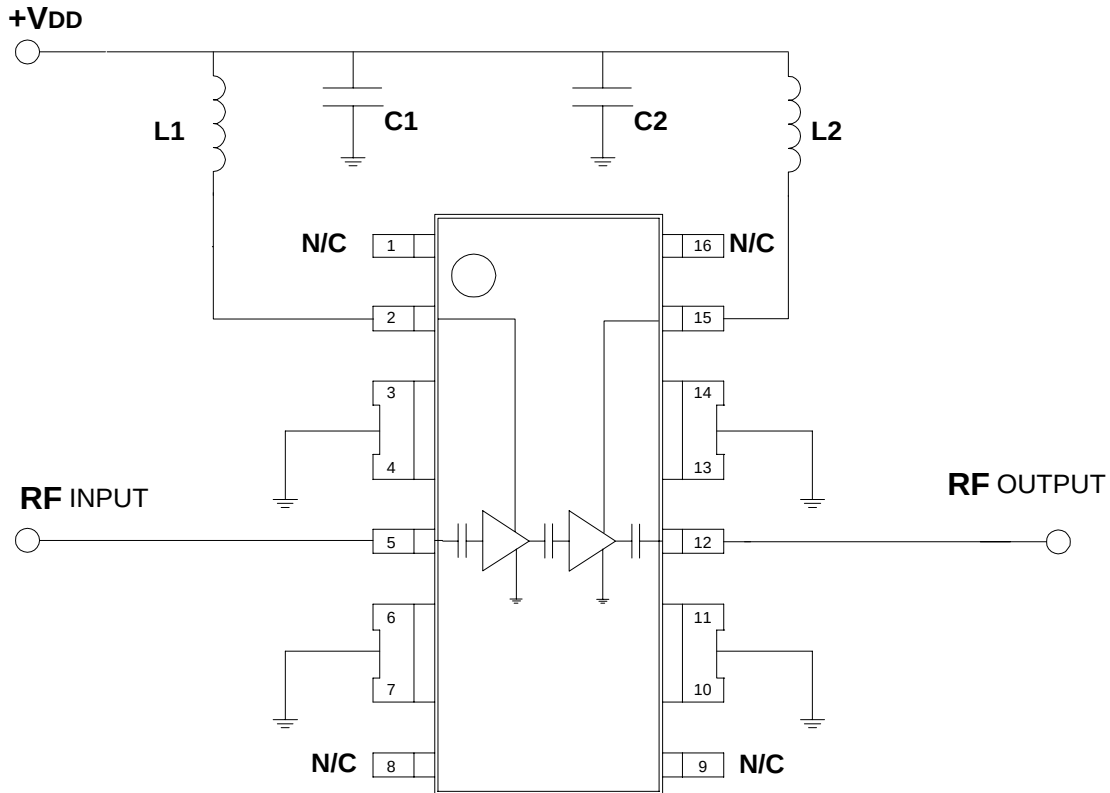
900690 F, November 1999



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APPLICATION INFORMATION



60mil GETEK Board

Figure 1. Evaluation Board Schematic

List of components:

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)

Component layout and printed circuit board drawing for RF IC evaluation board are shown in Figure 10.



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TYPICAL CHARACTERISTICS

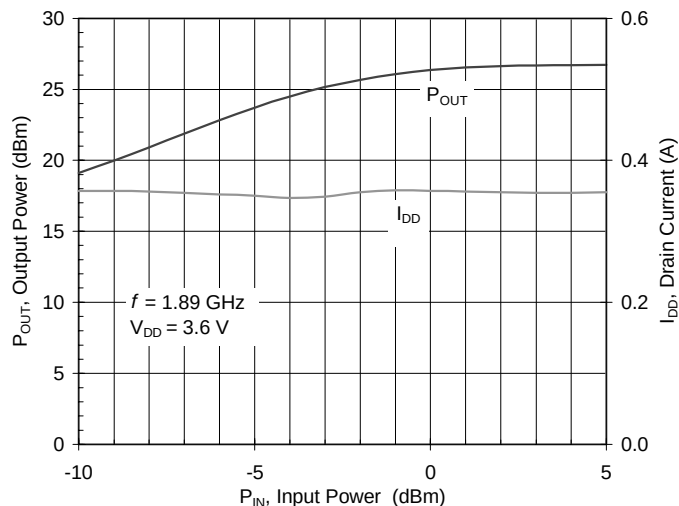


Figure 2. Output power and drain current vs. input power

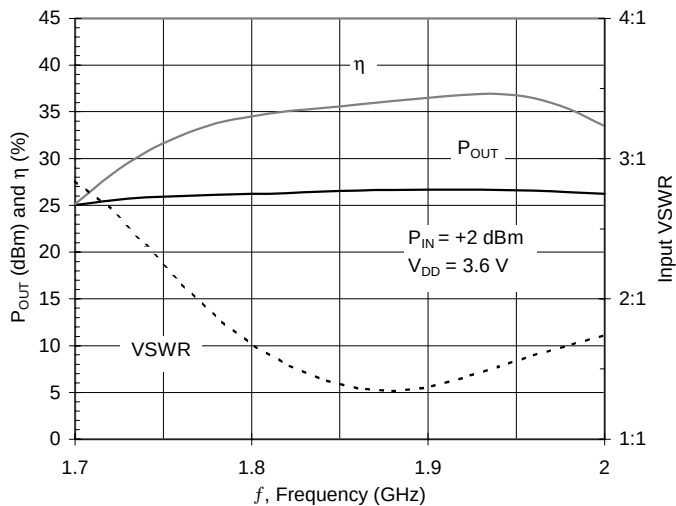


Figure 3. Output power, power added efficiency, and input VSWR vs. frequency

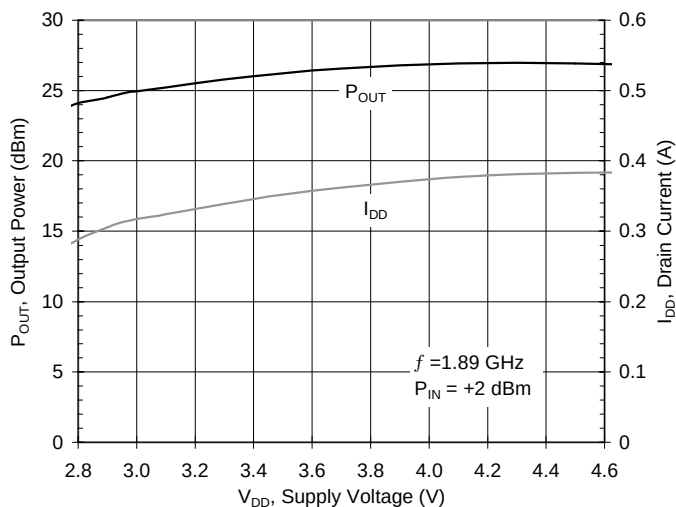


Figure 4. Output power and drain current vs. supply voltage

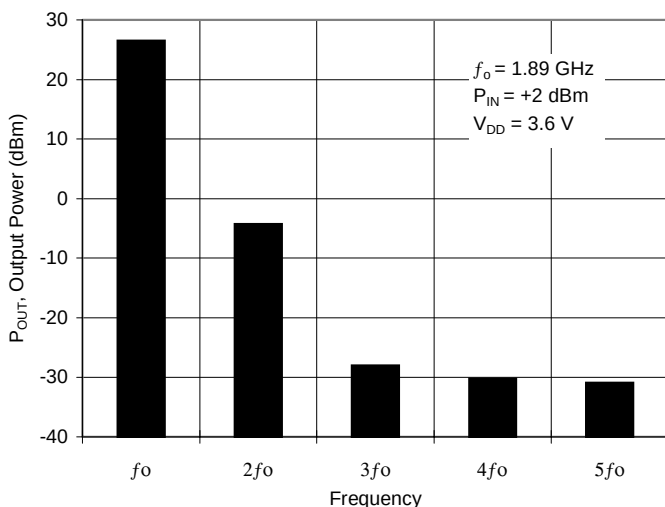


Figure 5. Harmonics

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TYPICAL CHARACTERISTICS

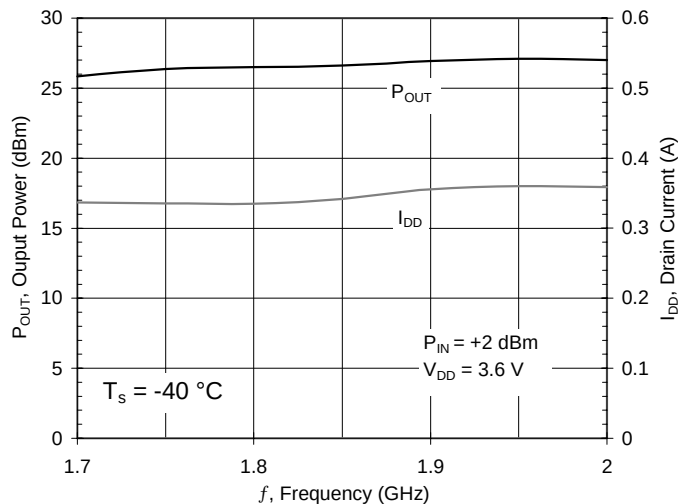


Figure 6. Output power and drain current vs. frequency for $T_s = -40^\circ\text{C}$

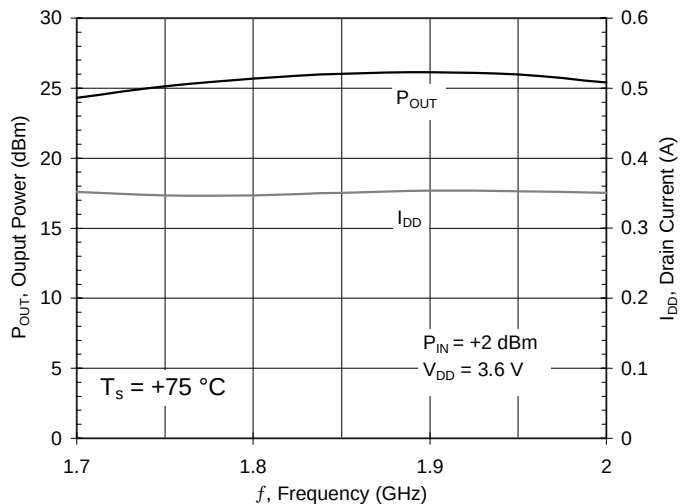


Figure 7. Output power and drain current vs. frequency for $T_s = +75^\circ\text{C}$

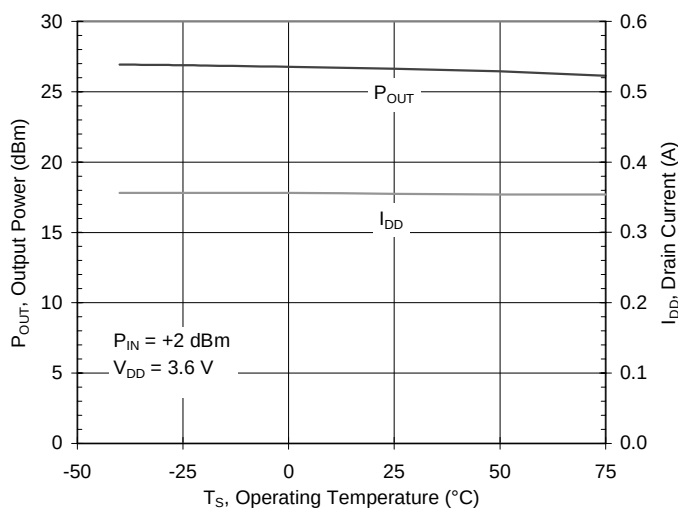


Figure 8. Output power and drain current vs. temperature

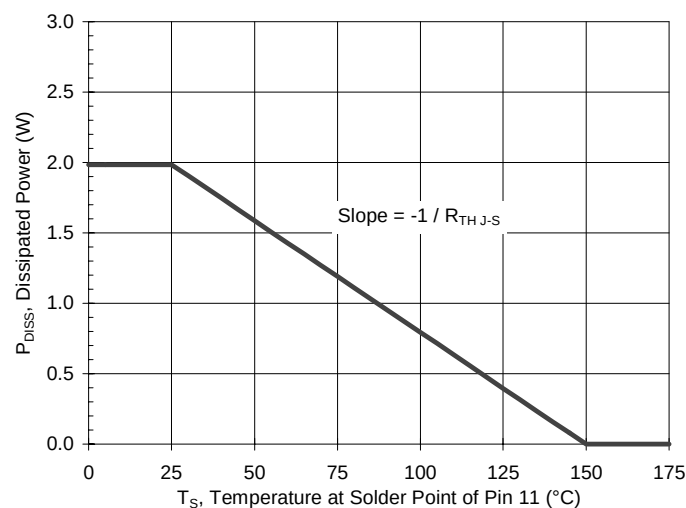
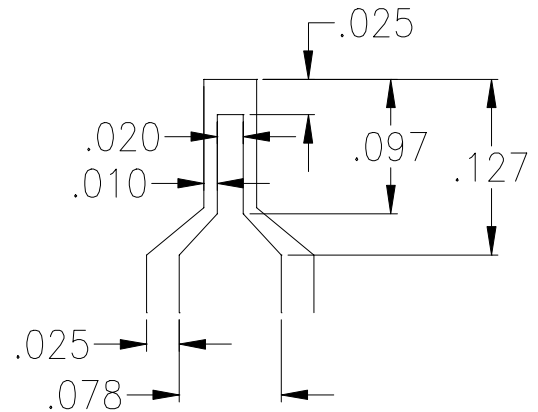
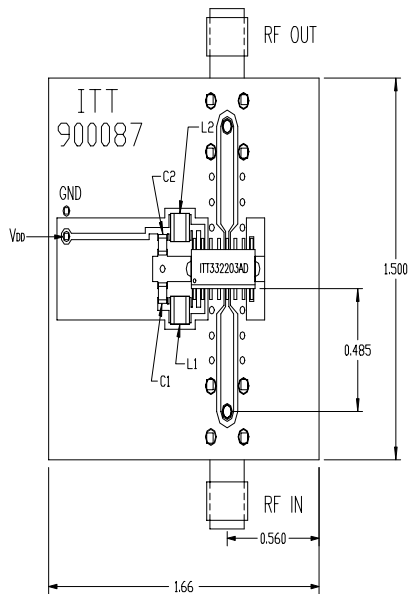


Figure 9. Maximum operating temperature chart (50% duty cycle)

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MECHANICAL DATA



Top view
50Ω lead transition
Figure 10. Component layout and printed circuit drawing for evaluation board