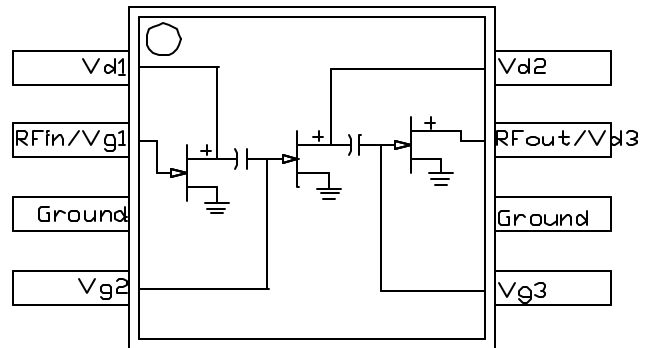


3.3V 800mW RF Power Amplifier IC for ISM900 ITT2113GJ

PRELIMINARY

FEATURES

- Over 60% Power Added Efficiency from +1.0V to +5.0V
- Single Positive Supply
- 100% Duty Cycle
- 800 – 1000 MHz Operation
- 8 Pin MSOP Full Downset Plastic Package
- Self-Aligned MSAG®-Lite Technology



Note: Full Downset Paddle Soldered to Board Ground

DESCRIPTION

The ITT2113GJ is a saturated RF power amplifier for high power ISM 900 MHz devices. It has extremely good low voltage performance – the device maintains over 60% power added efficiency when operated within +1.0 V to +5.0V.

MAXIMUM RATINGS (T_S = 35 °C unless otherwise noted)

Rating	Symbol	Value	Unit
DC Supply Voltage	V _{DD}	5.5	V
RF Input Power	P _{IN}	8	mW
Junction Temperature	T _J	+150	°C
Storage Temperature Range	T _{STG}	-40 to +150	°C

ELECTRICAL CHARACTERISTICS

V_{DD} = 3.3 V, P_{IN} = -2 dBm, Duty Cycle = 100%, T_S = 35 °C (Note 1), Output externally matched to 50 Ω

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	<i>f</i>	902		928	MHz
Output Power, <i>f</i> = 915 MHz	P _{OUT}		29		dBm
Power Added Efficiency, <i>f</i> = 915 MHz	η		64		%
Harmonics	2 <i>f</i> , 3 <i>f</i> , 4 <i>f</i>		-21		dBc
Input VSWR	—		2		:1
Thermal Resistance, Junction to Case	R _{TH J-S}		20		°C/W
Load Mismatch (V _{DD} = 5.5 V, VSWR = 8:1, P _{IN} = 0 dBm)	—	No Degradation in Power Output			

Note 1: T_S is the temperature measured at the soldering point of the downset paddle on the bottom of the IC, 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 Figure 6, under room temperature conditions and CW operation, unless otherwise specified.

TYPICAL CHARACTERISTICS

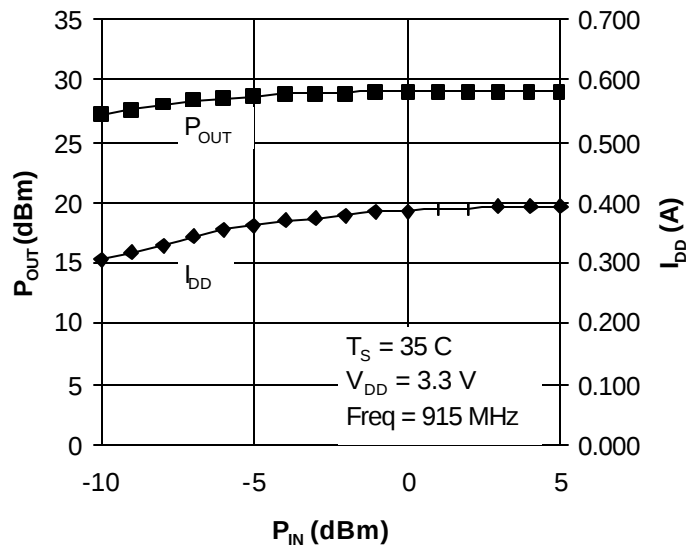


Figure 1. Output power and drain current vs. input power

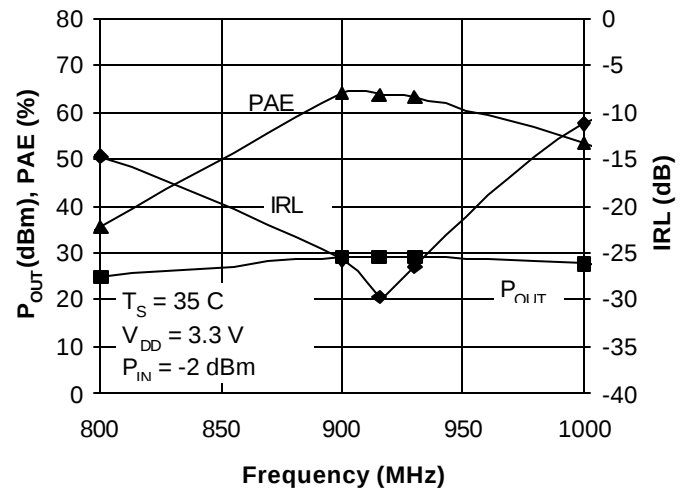


Figure 2. Output power, input return loss and efficiency vs. frequency

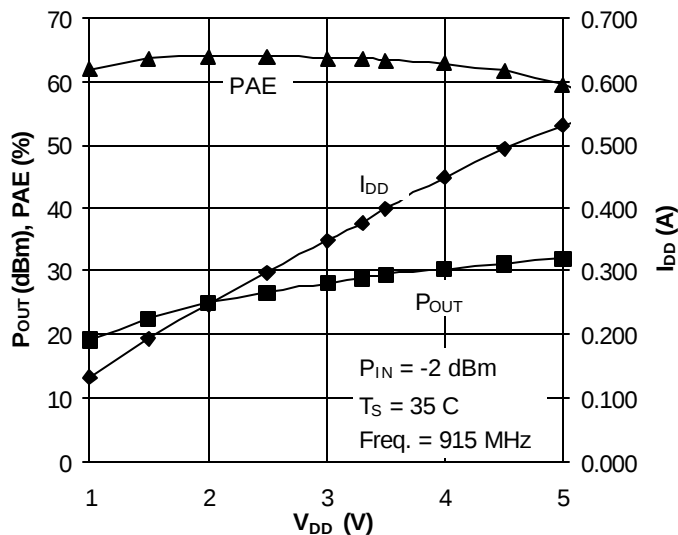


Figure 3. Output power, drain current and efficiency vs. supply voltage

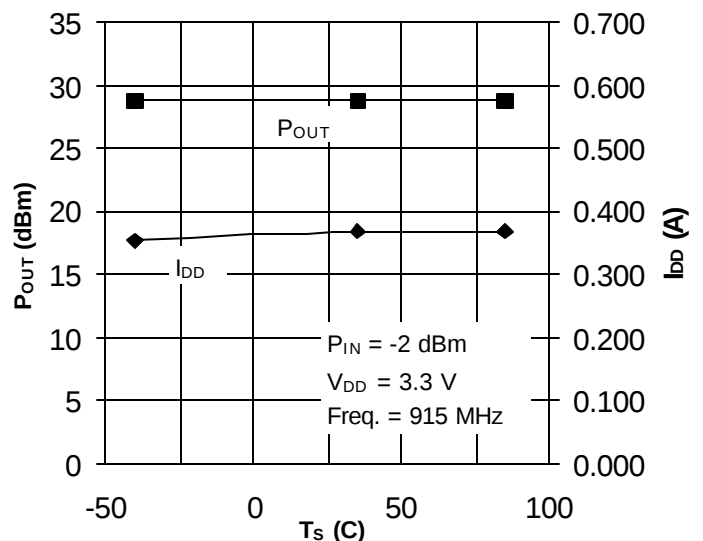


Figure 4. Output power and drain current vs. temperature

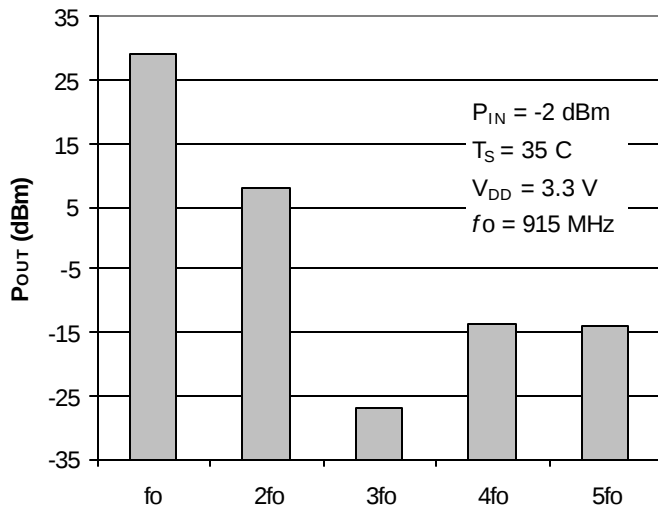


Figure 5. Harmonics

MECHANICAL DATA

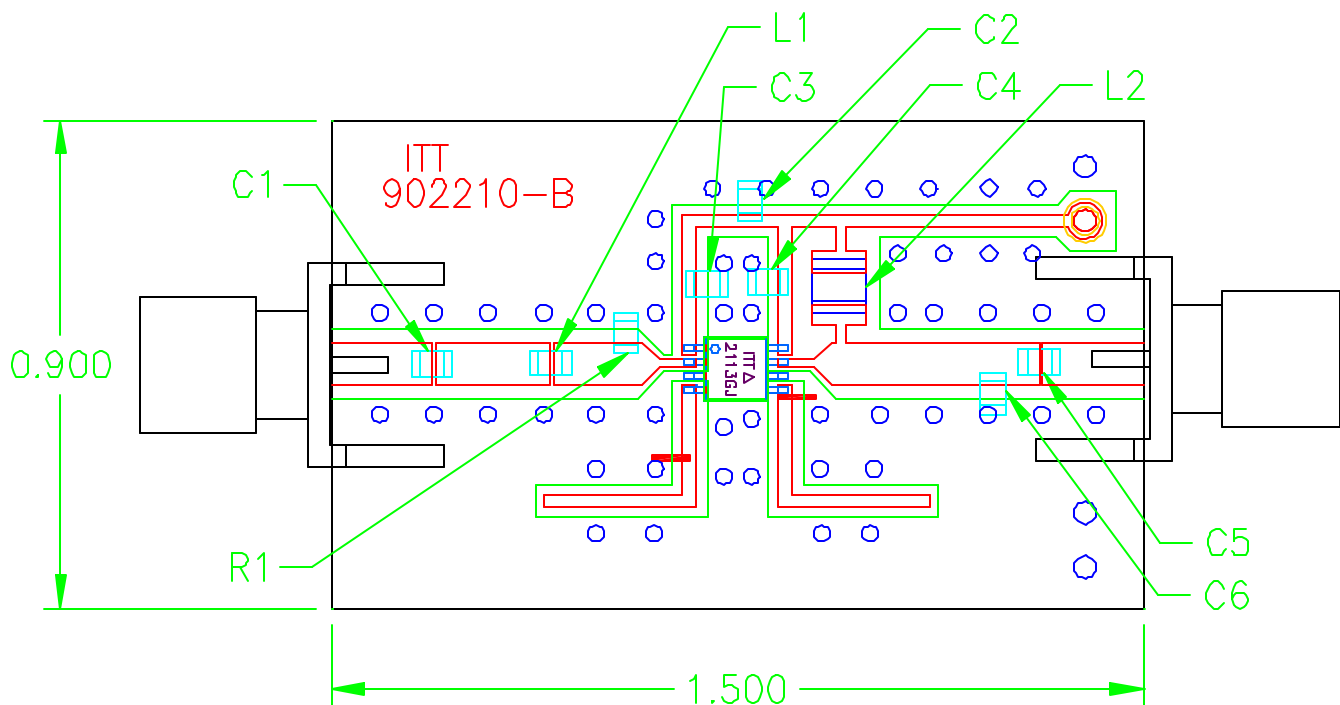


Figure 6. Component layout and printed circuit drawing for evaluation board.

APPLICATION INFORMATION

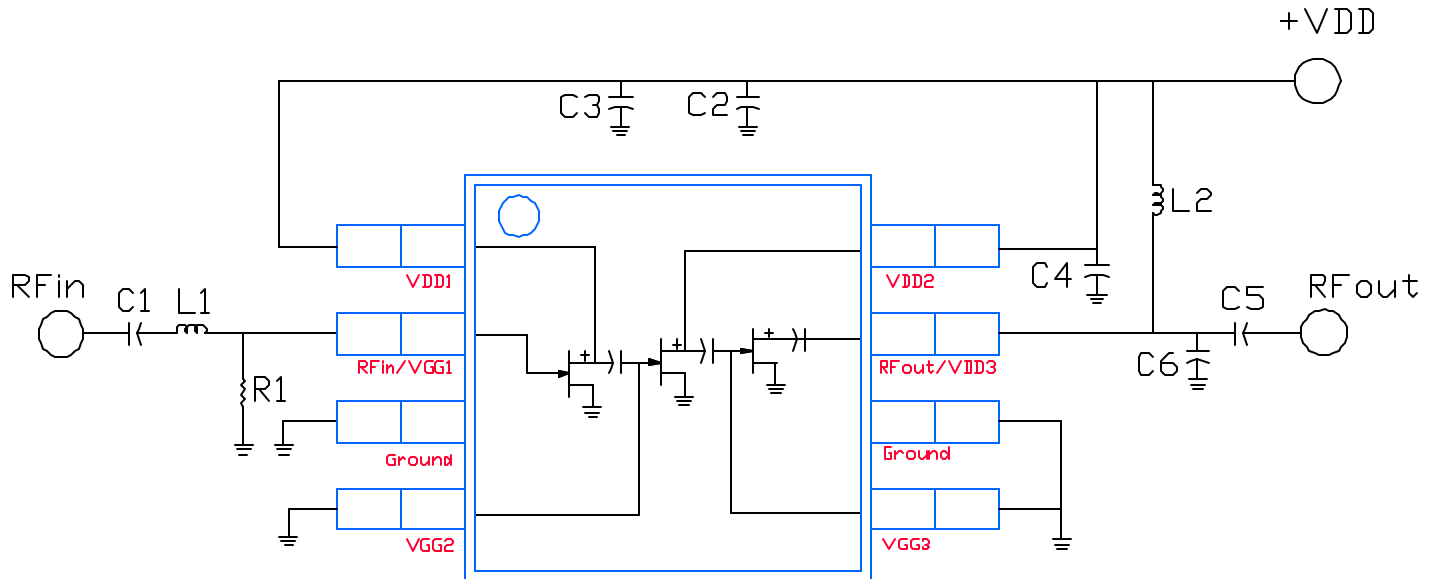


Figure 7. Evaluation Board Schematic

External components:

C1 – C5	Dielectric Labs 100 pF 0805 C11AH101K5TXL
C6	Dielectric Labs 5.1 pF 1815 C11AH5R1C5TXL
L1	Toko 18 nH 0603 LL1608-F18NK
L2	Coilcraft 27 nH 1008 1008CS-270XKBB
R1	Panasonic 301 Ω 0603 ERJ-3EKF3010

