

3.5V 3.3W RF Power Amplifier IC for GSM ITT2110AH / ITT2111AH / ITT2112AH

PRELIMINARY DATA SHEET

General Description

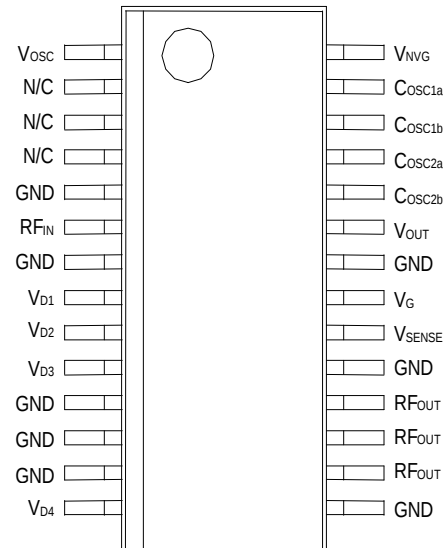
The ITT211X family of GaAs MESFET power amplifiers is designed for Class IV GSM cellular phones. With 3.3W output power, these parts are suitable for dual band GSM/PCN designs. The ITT2110AH and ITT2111AH include a built-in negative voltage generator, while the ITT2112AH is a stand-alone dual bias PA. Also, the ITT2110AH has a detected power "sense" output that eliminates the need for a coupler and detector in the AGC circuit.

Features

- Single Bias (ITT2110AH, ITT2111AH)
- Detected Output Power Sense (ITT2110AH)
- Class AB Operation
- Self-Aligned MSAG®-Lite MESFET Process
- Guaranteed Stability and Ruggedness

Typical 3.5 Volt Performance

35.2 dBm Power Output
35.2 dB Power Gain
41% Power Added Efficiency



28 pin narrow body SSOP
ITT2110AH

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

Rating	Symbol	Value	Unit
DC Supply Voltage (Pins 8, 9, 10, 14)	V _{DD}	10	Vdc
DC Gate Bias Voltage (Pin 21)	V _G	-5	Vdc
DC Supply Voltage (NVG – ITT2110AH, ITT2111AH: Pins 1, 28)	V _{OSC} , V _{NVG}	10	Vdc
RF Input Power	P _{IN}	10	mW
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-40 to +150	°C

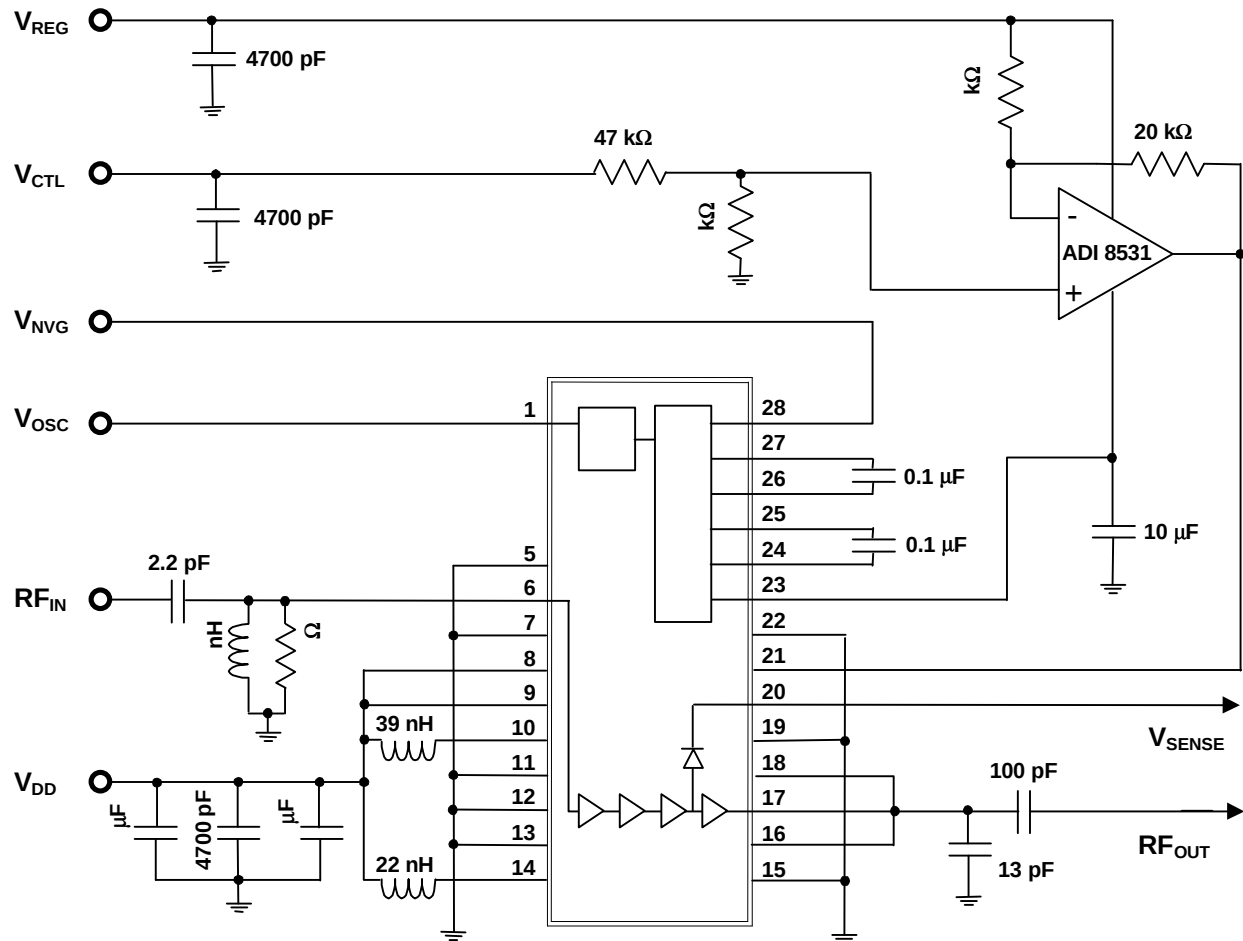
ELECTRICAL CHARACTERISTICS V_{DD}=3.5 V, P_{IN}=0 dBm, T_A=25 °C, Input and output externally matched to 50 Ω.

Characteristic	Symbol	Typical	Unit
Frequency Range	f	880 to 915	MHz
Output Power (V _{CTL} adjusted for desired output power)	P _{OUT}	35.2	dBm
Power Gain (P _{OUT} = 35.2 dBm)	G _P	35.2	dB
Power Added Efficiency (P _{OUT} = 35.2 dBm)	η	41	%
Harmonics (P _{OUT} = 35.2 dBm)	2f ₀ , 3f ₀	<-40	dBc
Input VSWR (P _{OUT} = 35.2 dBm), 50 Ω Ref.	—	<2:1	—
Thermal Resistance (Junction of 4 th stage FET to solder point of pin 11)	R _{TH J-S}	17	°C/W
Load Mismatch (V _{DD} = 5.1V, VSWR = 10:1, P _{IN} = +6 dBm)	—	No Degradation in Power Output	
Stability (P _{IN} = -3 to +10 dBm, V _{DD} = 2 to 5.1 V, P _{OUT} < 35.2 dBm, Load VSWR = 10:1)	—	All non-harmonically related outputs more than 70 dB below desired signal	



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APPLICATION INFORMATION



ATTENTION
Static-Sensitive Devices
Handling Precautions Required

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TYPICAL CHARACTERISTICS (ITT2110AH)

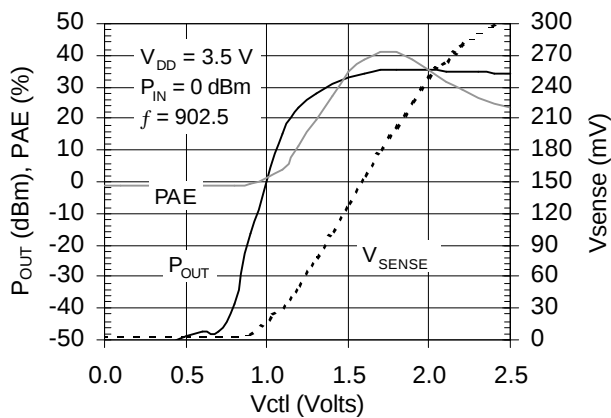


Figure 2. Power, Efficiency and Vsense vs. Control Voltage

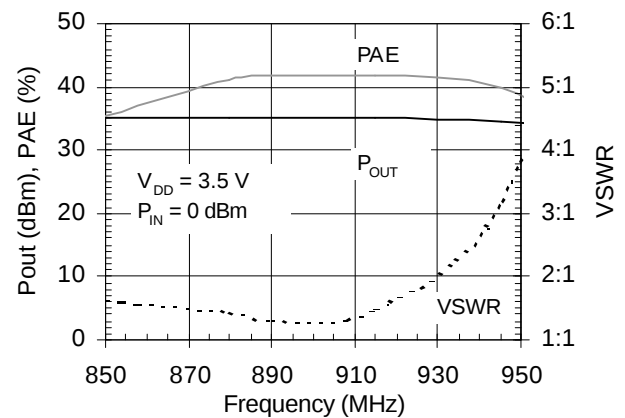


Figure 3. Power, Efficiency and VSWR vs. Frequency

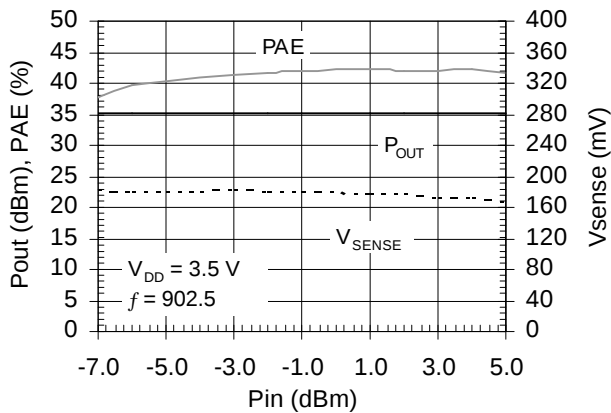


Figure 4. Power, Efficiency and Vsense vs. Input Power

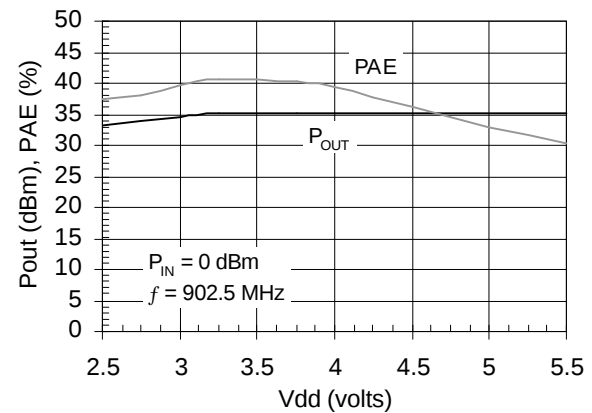


Figure 5. Power, Efficiency and Vsense vs. Drain Voltage

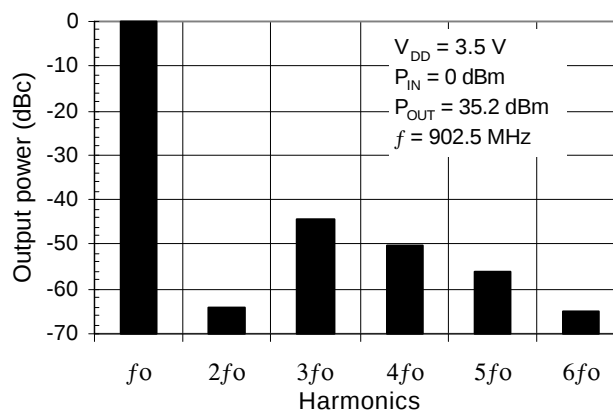


Figure 6. Harmonics