AWT6103M5

Cellular Dual Mode AMPS/TDMA Mode
3.5V/30 dBm Linear Power Amplifier Module

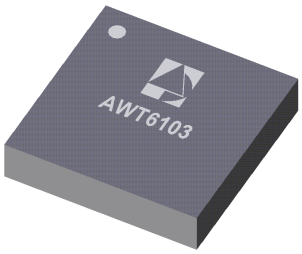
Advanced Product Information Rev. 1

FEATURES

- InGaP HBT Technology
- High Efficiency 50% AMPS
- High Efficiency 45% TDMA
- Low Leakage Current (<25µA)
- SMT Module Package
- Small Foot Print (6mm x 6mm)
- Low Profile (1.6mm)
- 50 Ω Input and Output Matching
- Low Quiescent Current (I_{CQ} 50mA Typ)
- Shut Down and Mode Control

APPLICATIONS

- Dual Mode AMP/TDMA Handsets



6x6mm Module Package

Description

The AWT6103 is a 3.5V power amplifier module for use in Dual Mode AMPS/TDMA handsets.

Absolute Minimum and Maximum Ratings

SIGNAL	MIN	MAX	UNITS
Supply Voltage (Vcc)		+5	V
Input Power (RF_{IN})		+10	dBm
Bias Voltage (V_{REF})		+3.5	V
V_{MOD} Voltage (V_{MOD})		+3.5	V
Storage Temperature (T_{STG})	-55	100	°C
Operating Temperature (T_C)	-25	80	°C

Electrical Specifications AMPS:

(Unless otherwise specified: V_{cc} = 3.5V, $Z_{IN} = Z_{OUT}$ =50Ω System, T_C = 25 °C)

Parameter	Minimal	Typical	Maximum	Units
Frequency Range	824		849	MHz
Supply Voltage Range	3.0	3.5	5.0	V
Ref voltage Range	2.75	2.8	2.9	V
Ref current		2		mA
Output Power, V_{CC} = 3.5V	32.0			dBm
Output Power, V_{CC} = 3.0V	31.0			dBm
Input Impedance			2:1	
Output Impedance			2:1	
Efficiency Pout = 32 dBm		50		%
Icq (V_{MODE} = 2.7V) Low Power Mode		50		mA
Noise at Receiver Band $P_{OUT} \leq$ 32 dbm			-90	dBm/30 kHz
Gain, P_{OUT}= 32 dBm		26		dB
Leakage Current V_{CC} = 3.5V; V_{REF} = 0V ; V_{MODE} = 2.7V		25		µA
Harmonics 2fo, P_{OUT} = 32 dBm		-30		dBc
3fo, P_{OUT} = 32 dBm		-30		dBc
Stability (out of band load VSWR < 20:1) (in band load VSWR < 10:1)			-60	dBc, all spurious Pin - 50 dBm … +0 dBm
Ruggedness Stress for no permanent degradation or failure, VCC = 5.0 V	10:1			

Bias Table

V_{MODE}	V	ICQ Typ	Power Range	P_{OUT} Levels	Mode
High	2.7	50 mA	All	0-32 dBm	AMP All Power
High	2.7	50 mA	Low	0-22 dBm	NADC Low Power
Low	0	100 mA	High	22-30 dBm	NADC High Power

Electrical Specifications (TDMA 824-849 MHz)

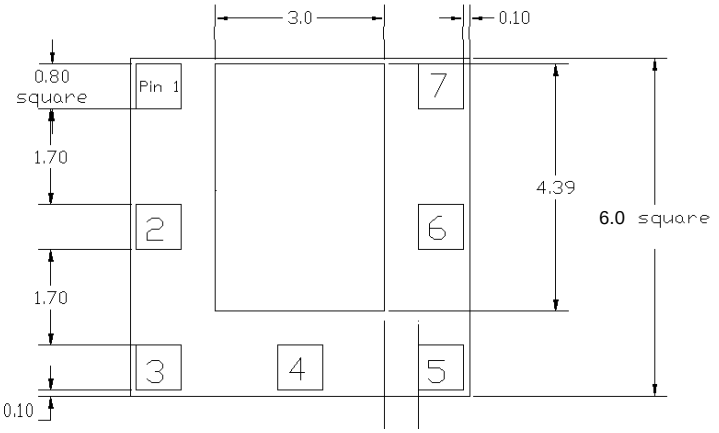
(Unless otherwise specified: V_{cc} = 3.5V, Z_{IN} = Z_{OUT} =50Ω System, T_C = 25 °C)

Parameter	Minimum	Typical	Maximum	Units
Frequency Range	824		849	MHz
Supply Voltage Range	3.0	3.5	5.0	V
Ref. Voltage Range	2.75	2.8	2.9	V
Ref. Current		2		mA
Output Power, V_{CC} = 3.5V	30			dBm
Output Power, V_{CC} = 3.0V	29			dBm
Input VSWR			2:1	
Output VSWR			2:1	
Power Added Efficiency Pout = 30 dBm		45		%
Power Added Efficiency Pout = 16 dBm (V_{MODE} = 2.7V) Low Power Mode		7		%
Icq (V_{MODE} = 2.7V) Low Power Mode		50		mA
Linearity (P_{OUT} avg. = 30 dBm) & V_{CC}=3.5V	NADC - modulation			
ACPR +/- 30 kHz			-28	dBc
ACPR +/- 60 kHz			-48	dBc
ACPR +/- 90 kHz			-50	dBc
Noise at Receiver Band Pout ≤ 30 dbm			-90	dBm/30 kHz
Gain, P_{OUT} = 30 dBm	25	28	31	
Leakage current V_{CC}=3.5V ; V_{MODE} =2.7V ; V_{REF} = 0V		25		µA
Harmonics 2fo, P_{OUT} = 30 dBm		-30		dBc
3fo, P_{OUT} = 30 dBm		-30		dBc
Stability (out of band load VSWR < 20:1) (in band load VSWR < 10:1)			-60	dBc, all spurious Pin - 50 dBm ... +0 dBm
Ruggedness Stress for no permanent degradation or failure, V_{CC} = 5.0 V	10:1			

Pin Description

Pin	Name	Description
1	V_{CC}	Supply Voltage
2	RF_{IN}	RF Input Signal
3	V_{REF}	Bias
4	V_{MODE}	Mode Control
5	V_{CC}	Supply Voltage
6	RF_{OUT}	RF output
7	GND	Ground

Package Outline Top View



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