



AWT6103M5

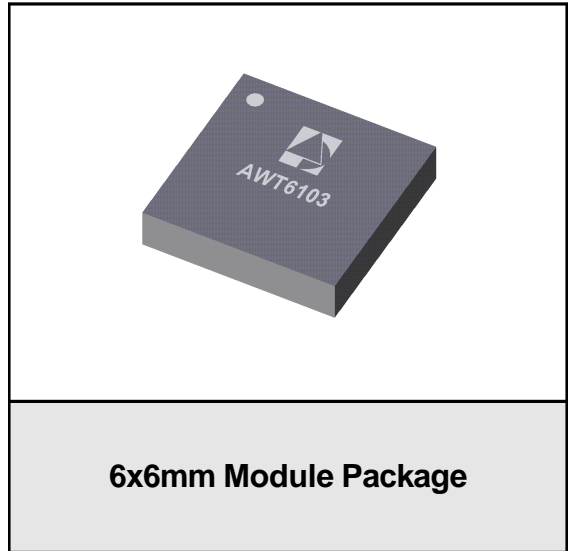
Cellular Dual Mode AMPS/TDMA Mode
 3.5V/30 dBm Linear Power Amplifier Module
 Advanced Product Information Rev. 1

FEATURES

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

APPLICATIONS

- Dual Mode AMP/TDMA Handsets



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 (V_{CC})		+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	$^{\circ}$ C
Operating Temperature (T_C)	-25	80	$^{\circ}$ C

Electrical Specifications AMPS:

(Unless otherwise specified: $V_{CC} = 3.5V$, $Z_{IN} = Z_{OUT} = 50\Omega$ System, $T_C = 25^\circ C$)

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 $P_{OUT} = 32$ dBm		50		%
I_{CQ} ($V_{MODE} = 2.7V$) 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, $V_{CC} = 5.0 V$	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

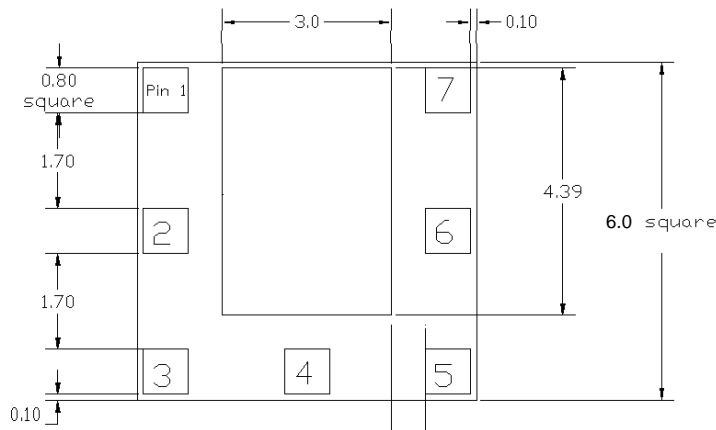
Electrical Specifications (TDMA 824-849 MHz)(Unless otherwise specified: $V_{CC} = 3.5V$, $Z_{IN} = Z_{OUT} = 50\Omega$ System, $T_C = 25\text{ }^\circ\text{C}$)

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 $P_{out} = 30\text{ dBm}$		45		%
Power Added Efficiency $P_{out} = 16\text{ dBm}$ ($V_{MODE} = 2.7V$) Low Power Mode		7		%
I_{cq} ($V_{MODE} = 2.7V$) Low Power Mode		50		mA
Linearity ($P_{OUT\text{ avg.}} = 30\text{ dBm}$) & $V_{CC} = 3.5V$	NADC - modulation			
ACPR +/- 30 kHz			-28	dBc
ACPR +/- 60 kHz			-48	dBc
ACPR +/- 90 kHz			-50	dBc
Noise at Receiver Band $P_{out} \leq 30\text{ dbm}$			-90	dBm/30 kHz
Gain, $P_{OUT} = 30\text{ dBm}$	25	28	31	
Leakage current $V_{CC} = 3.5V$; $V_{MODE} = 2.7V$; $V_{REF} = 0V$		25		μA
Harmonics 2fo, $P_{OUT} = 30\text{ dBm}$		-30		dBc
3fo, $P_{OUT} = 30\text{ dBm}$		-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, $V_{CC} = 5.0\text{ V}$	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



ANADIGICS, Inc.
 35 Technology Drive
 Warren, New Jersey 07059
 Tel: (908) 668-5000
 Fax: (908) 668-5132

<http://www.anadigics.com>
Mktg@anadigics.com

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