



ACU50752S3C

CATV/TV/Cable Modem Upconverter MMIC

Advanced Product Information

Rev. 0

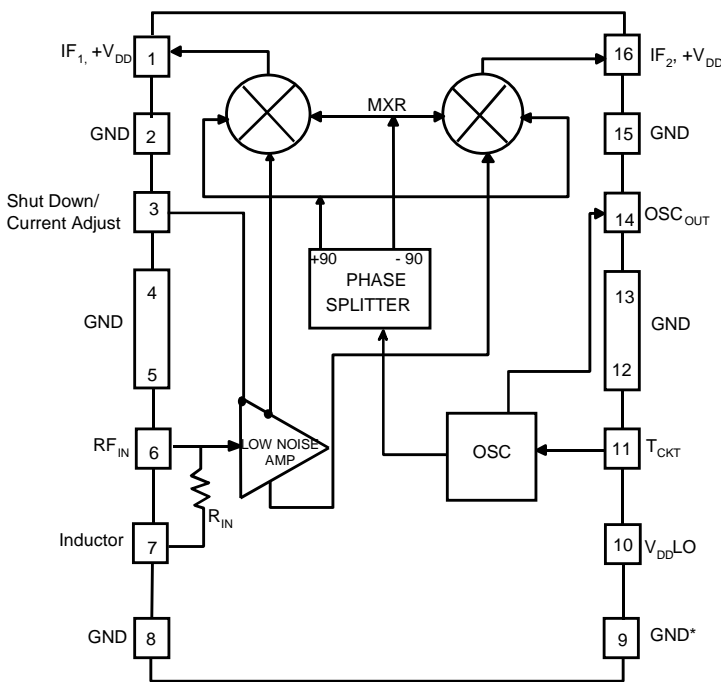
FEATURES

- Integrated Monolithic Upconverter
- Compatible with all digital and analog modulation types
- 5 Volt Operation
- Low Power Consumption
- Low Noise Figure
- High Conversion Gain
- Low Distortion
- Excellent Oscillator Purity and Phase Noise
- Remote Shutdown Feature
- Small Size
- Low Cost
- High Reliability



S3C
16 Pin SOIC Package

FUNCTIONAL BLOCK DIAGRAM



* Varactor return. Do not connect to common ground

DESCRIPTION

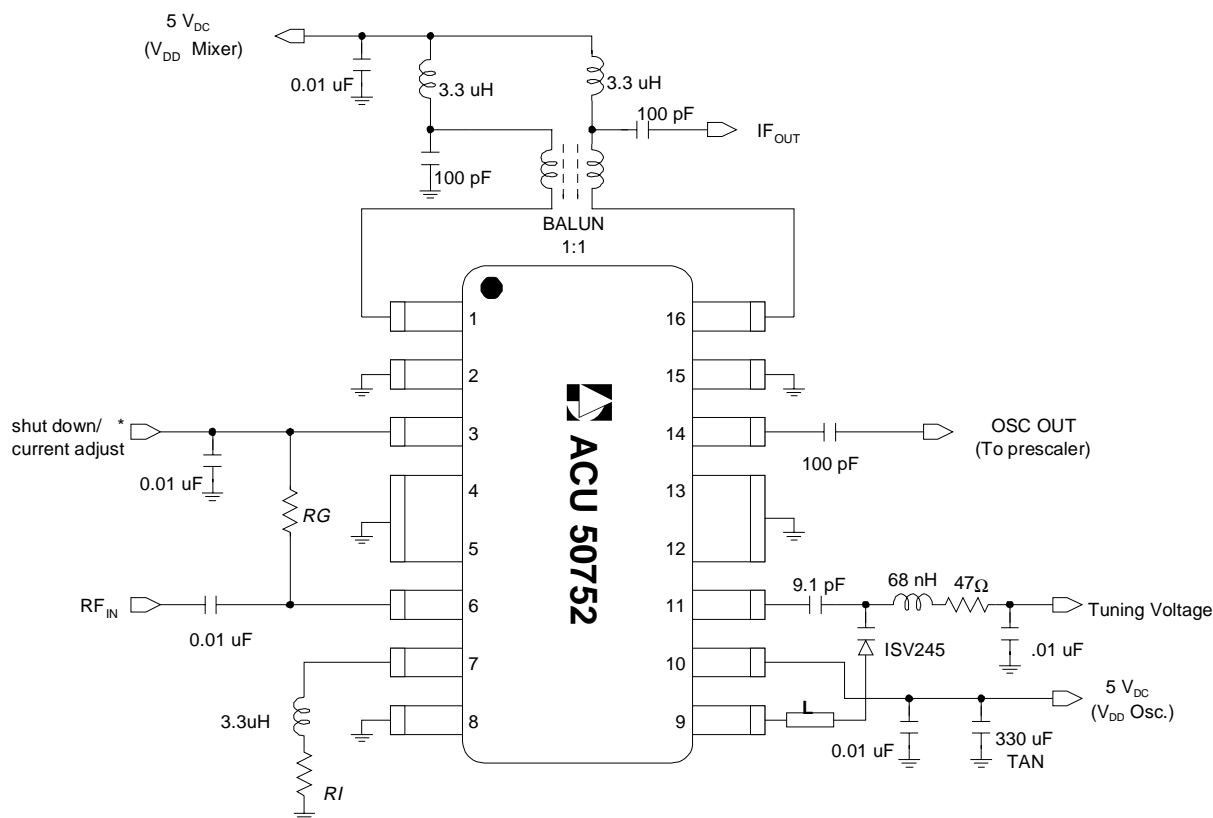
The ACU50752 is a Monolithic GaAs IC designed to perform the upconverter functions in a double conversion tuner: gain block, local oscillator and balanced mixer. The specifications meet the requirements of CATV, TV and Cable Modem applications. Supplied in a 16-lead SOIC package and requiring only a single polarity 5 V supply (or 3.5 V, with slightly reduced performance), the IC is well suited in situations where small size, low cost, low auxiliary parts count and a no-compromise performance is important. It provides tuner manufacturers the opportunity to reduce cost by lowering the component count and decreasing the amount of labor-intensive production alignment steps, while significantly improving performance and reliability.

ABSOLUTE MAXIMUM RATINGS

PARAMETER	ABSOLUTE MAXIMUM	
$V_{DD}/V_{IF}/V_{OSC}$ (Pins 1,10,14,& 16)	9	V_{DC}
V_{RF}/V_{TUNE} (Pins 6 & 11)*	0	V_{DC}
RF Input Voltage	+60	dBmV
Storage Temperature	- 55 to +200	°C
Soldering Temperature	260	°C
Soldering Time	5	Sec.
Operating Case Temperature	- 40 to + 85	°C

OPERATING RANGES

PARAMETER	MIN.	TYPICAL	MAX.	UNITS
Frequency				
RF	50		860	MHz
IF	900		1200	
LO	950		2060	
V_{TUNE}	1.5		27	Volts
V_{DDIF}	4.75	5	5.25	Volts
V_{DDL0}	4.75	5	5.25	Volts
I_{DDIF}		58	80	mA
I_{DDL0}		60	80	mA



NOTES:

- L = Printed inductor
- RG = Gain control/impedance match resistor (240Ω for 8 dB gain)
- RI = Current adjust resistor (2.7Ω for 60 mA mixer current)
- * = Apply -2V DC for shutdown, 0 < VDC < 0.3 for 60 mA mixer current

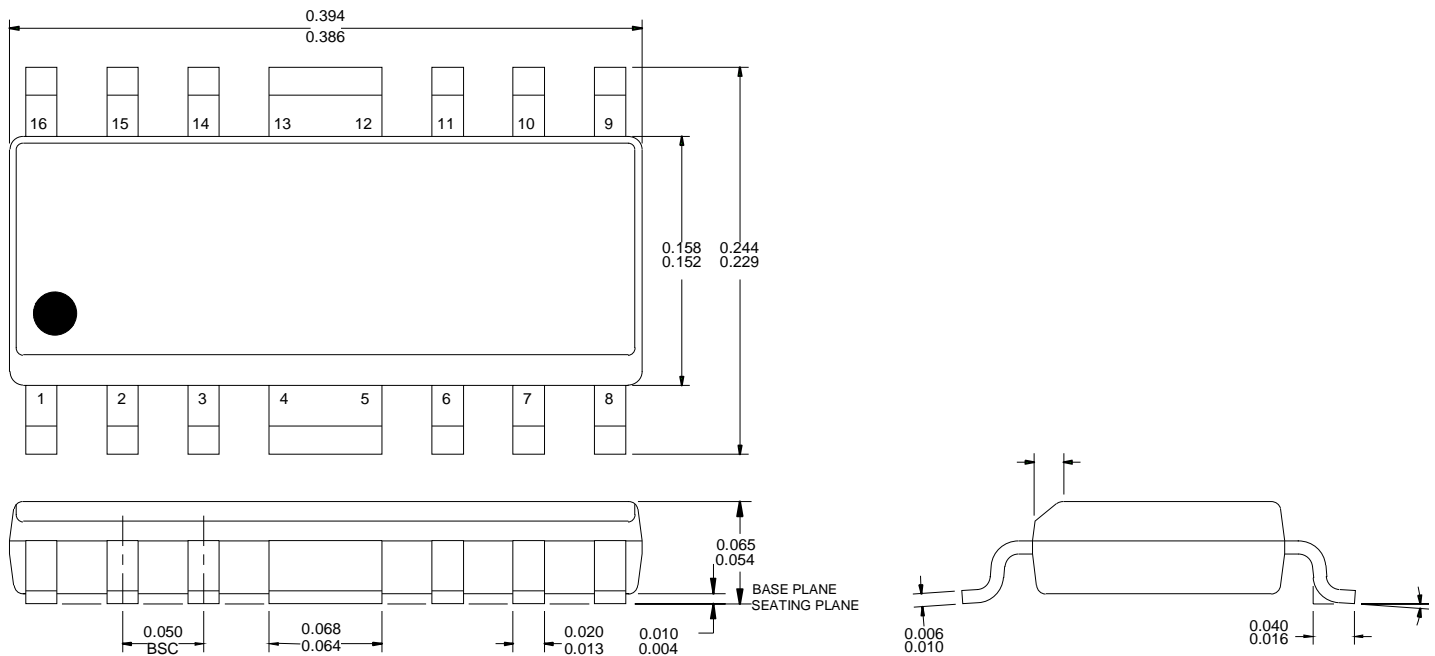
ELECTRICAL SPECIFICATIONS(Packaged Unit, $T_A = 25^\circ\text{C}$, V_{DDIF}/V , $V_{DDLO} = +5\text{V}$, $R_F = 50$ to 860 MHz , $I_F = 1170\text{ MHz}$)

PARAMETER	MIN.	TYP.	MAX.	UNIT
Conversion Gain ¹	5.0	8.0	-	dB
Gain Flatness ¹	-	1.0	-	dB
SSB Noise Figure ¹	-	6.5	8.0	dB
CSO ²	-	-60	-57	dBc
CTB ²	-	-60	-57	dBc
Cross Modulation ³	-	-62	-60	dBc
2-Tone 2nd Order Input IP ⁴	-	40	-	dBm
2-Tone 3rd Order Input IP ⁴	-	18	-	dBm
LO Phase Noise ⁵	-	-84	-81	dBc/Hz
LO Power to Prescaler	-10	-5	-	dBm
LO to RF Leakage	-	-22	-	dBm
LO to IF Leakage	-	-24	-	dBm
RF to IF Isolation	40	50	-	dB
Tuning Voltage ¹	1.0	-	22	V
Shutdown Voltage(Pin 3)	-	-2	-	V
V_{DDIF}	4.75	5.0	5.25	V
V_{DDLO}	4.75	5.0	5.25	V
I_{DDIF}		58	80	mA
I_{DDLO}		60	80	mA
Power Consumption		600	800	mW

Notes:

1. As measured in ANADIGICS test fixture
2. 128 Channels @ + 7 dBmV
3. 128 Channels, 99 % Modulation @ 15 KHz
4. Two tones @ -15 dBm each
5. At 10 KHz offset

PACKAGE OUTLINE



ANADIGICS, Inc.
35 Technology Drive
Warren, New Jersey 07059

Tel: (908) 668-5000 / Fax: (908) 668-5132

Email: Mkg@anadigics.com

www.anadigics.com

IMPORTANT NOTICE

ANADIGICS, Inc. reserves the right to make changes to its products or discontinue any product at any time without notice. The Advanced Product data sheets and product specifications contained in this data sheet are subject to change prior to a products formal introduction. The information in this data sheet has been carefully checked and is assumed to be reliable. However, ANADIGICS assumes no responsibility for inaccuracies. ANADIGICS strongly urges customers to verify that the information they are using is current before placing orders.

WARNING

ANADIGICS products are not intended for use in life support appliances, device, or systems. Use of an ANADIGICS product in any such application without written consent is prohibited.