



ACU50752S3C

CATV/TV/Cable Modem Upconverter MMIC

Advanced Product Information

Rev. 0

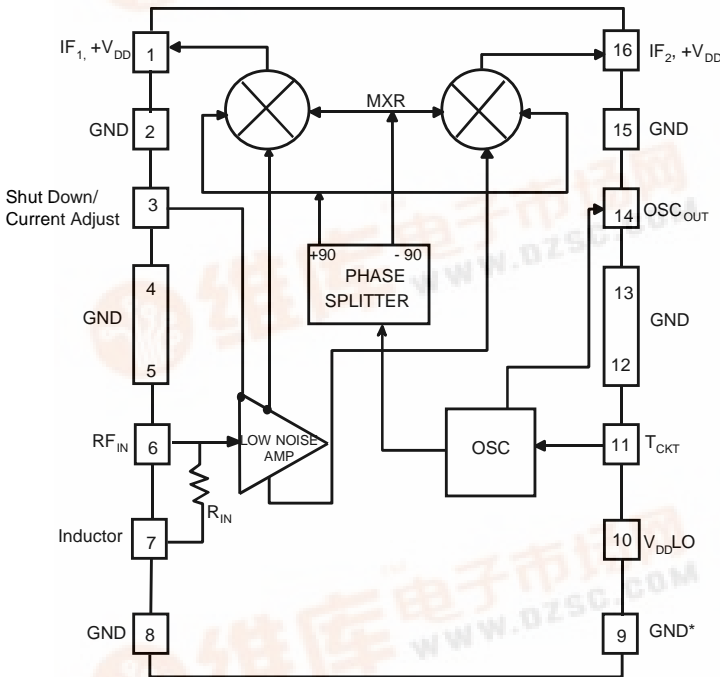
FEATURES

- 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.

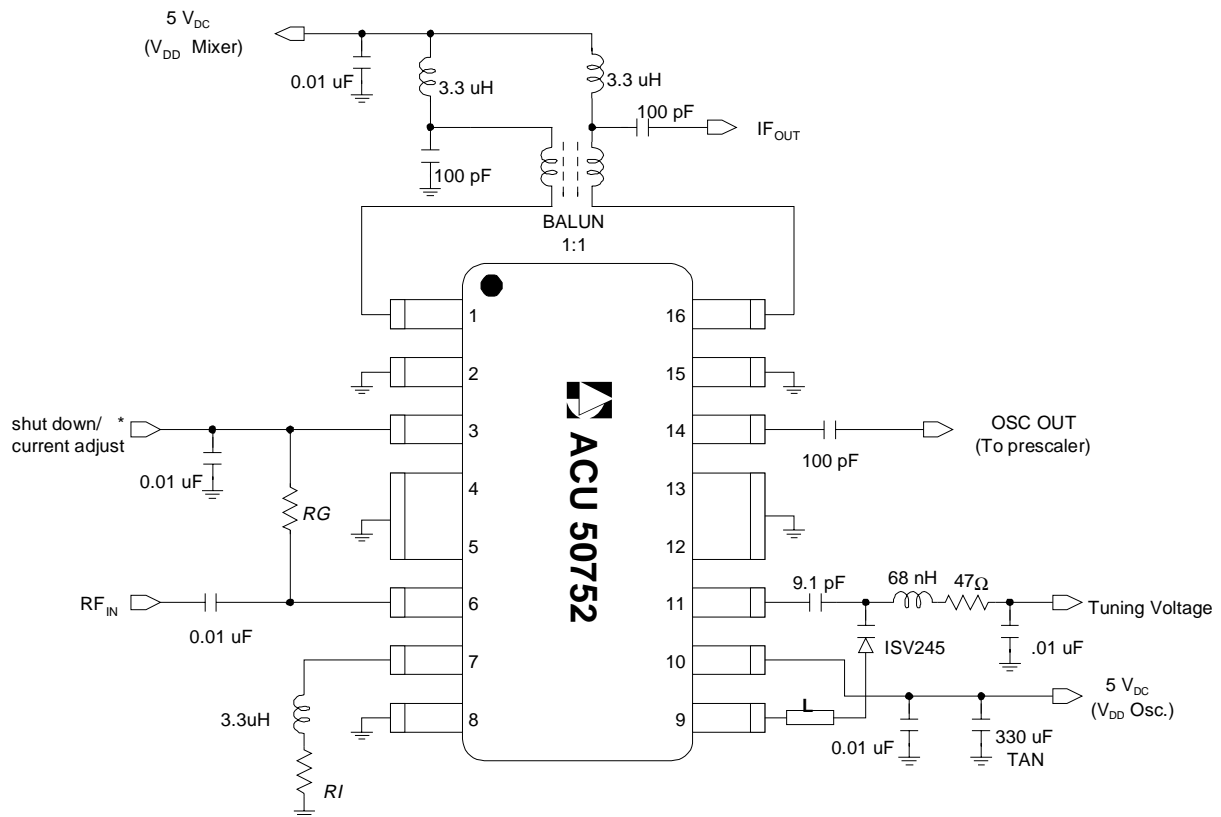
ABSOLUTE MAXIMUM RATINGS

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

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ELECTRICAL SPECIFICATIONS

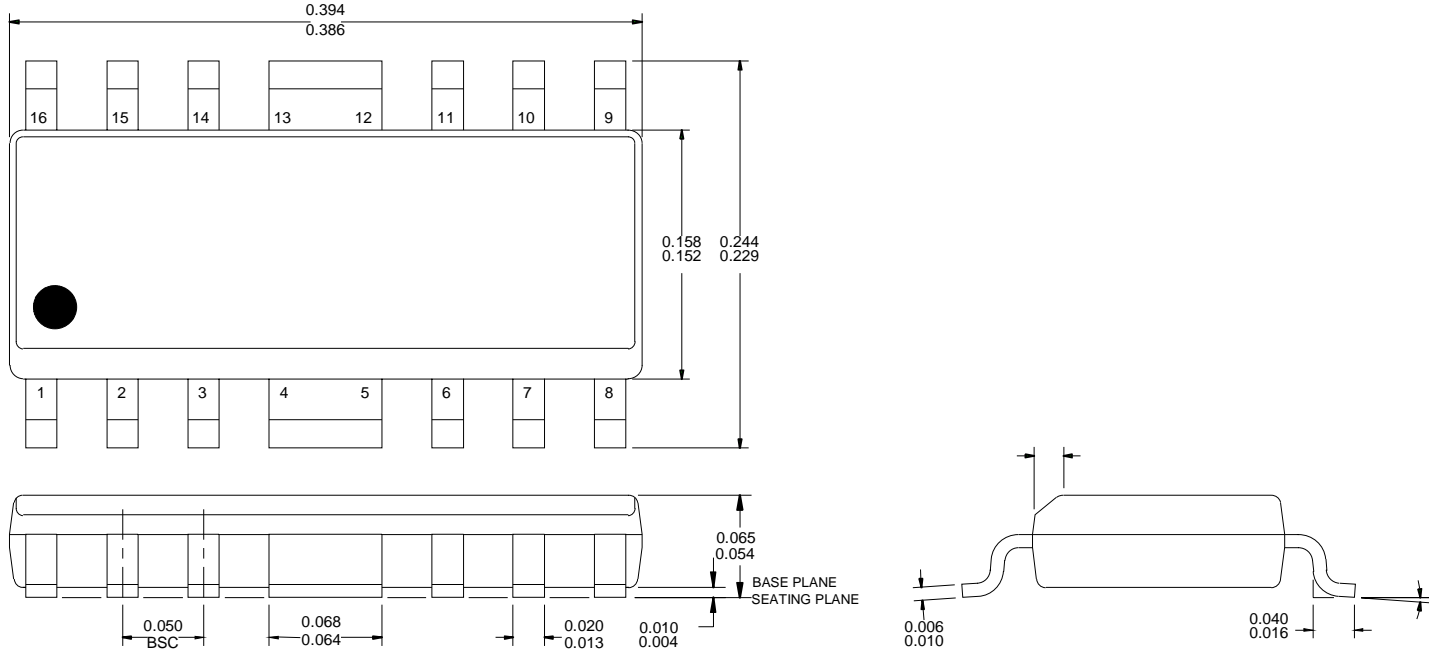
(Packaged Unit, $T_A = 25^\circ\text{C}$, V_{DDIF}/V , $V_{\text{DDL0}} = +5\text{V}$, RF = 50 to 860 MHz, IF = 1170 MHz)

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_{DDL0}	4.75	5.0	5.25	V
I_{DDIF}		58	80	mA
I_{DDL0}		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

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WARNING

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