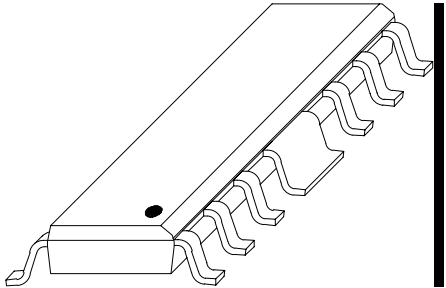


## DESCRIPTION

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.

FEATURES	ACU50752
<ul style="list-style-type: none"> <li>■ Integrated Monolithic Upconverter</li> <li>■ Compatible with all digital and analog modulation types</li> <li>■ 5 Volt Operation</li> <li>■ Low Power Consumption</li> <li>■ Low Noise Figure</li> <li>■ High Conversion Gain</li> <li>■ Low Distortion</li> <li>■ Excellent Oscillator Purity and Phase Noise</li> <li>■ Remote Shutdown Feature</li> <li>■ Small Size</li> <li>■ Low Cost</li> <li>■ High Reliability</li> </ul>	

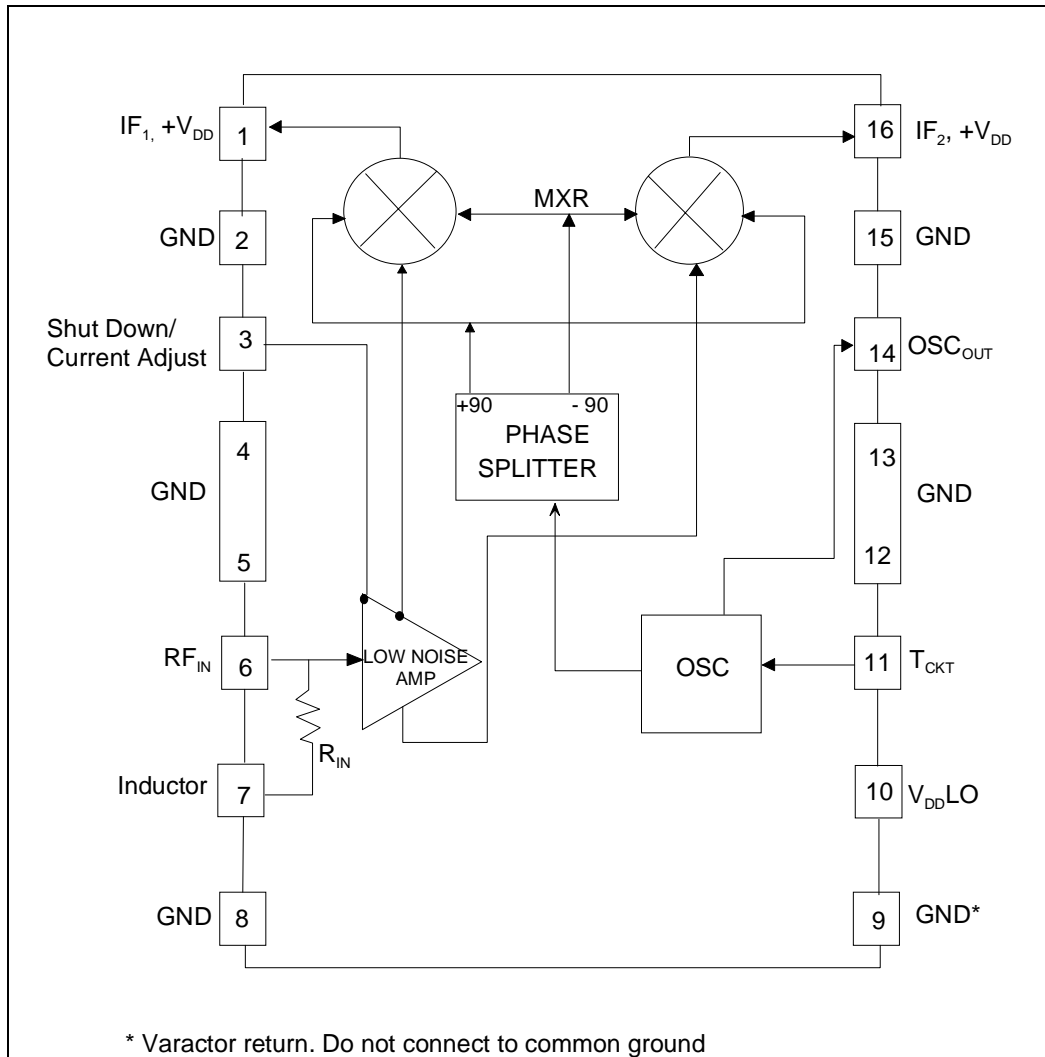
## Absolute Maximum Ratings

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

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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
$V_{DDLO}$	4.75	5	5.25	Volts
$I_{DDIF}$		58	80	mA
$I_{DDLO}$		60	80	mA



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## ELECTRICAL SPECIFICATIONS:

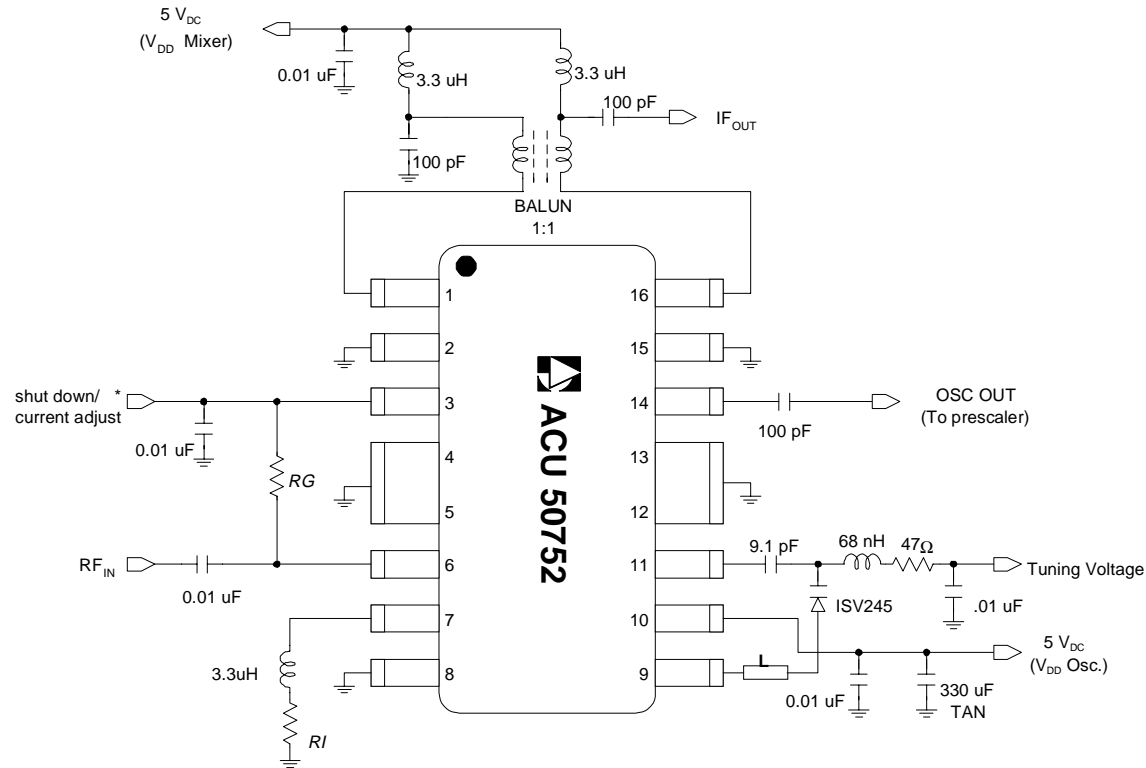
(Packaged Unit,  $T_A = 25^\circ\text{C}$ ,  $V_{\text{DDIF}}/V_{\text{DDLO}} = +5\text{V}$ ,  $\text{RF} = 50$  to  $860$  MHz,  $\text{IF} = 1170$  MHz)

PARAMETER	MIN.	TYP.	MAX.	UNIT
Conversion Gain <sup>1</sup>	5.0	8.0		dB
Gain Flatness <sup>1</sup>		1.0		dB
SSB Noise Figure <sup>1</sup>		6.5	8.0	dB
CSO <sup>2</sup>		-60	-57	dBc
CTB <sup>2</sup>		-60	-57	dBc
Cross Modulation <sup>3</sup>		-62	-60	dBc
2-Tone 2nd Order Input IP <sup>4</sup>		40		dBm
2-Tone 3rd Order Input IP <sup>4</sup>		18		dBm
LO Phase Noise <sup>5</sup>		-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 <sup>1</sup>	1.0		22	V
Shutdown Voltage(Pin 3)		-2		V
$V_{\text{DDIF}}$	4.75	5.0	5.25	V
$V_{\text{DDLO}}$	4.75	5.0	5.25	V
$I_{\text{DDIF}}$		58	80	mA
$I_{\text{DDLO}}$		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

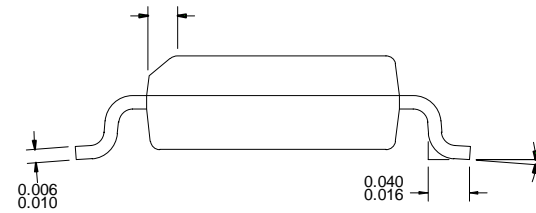
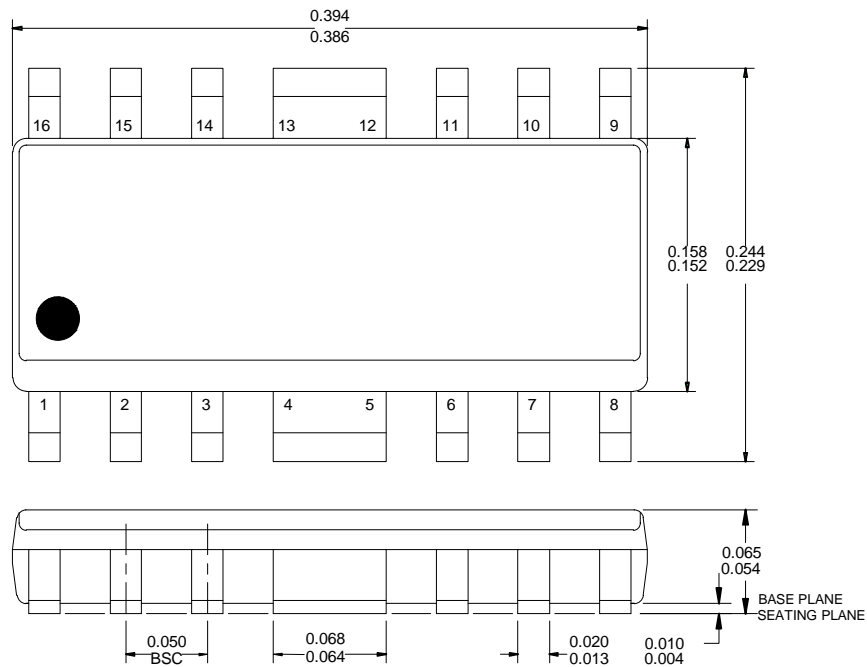
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**NOTES:**

- 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,  $0 \leq V_{DC} \leq 0.3$  for 60 mA mixer current

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