



Sicomm Technology Limited

SRT3300 Datasheet

Low Power FM Demodulator for Walkie-Talkie

Version 0.3

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1. PRODUCT INTRODUCTION

SRT3300 is a high sensitivity, low power and low voltage demodulator chip for high performance FM system applications. The device provides frequency conversion for 2nd IF (Intermediate Frequency) FM demodulation using quadrature discriminator, and other functions such as limiting amplification, active filtering, squelch, scan control and mute switch. This device is assembled in a small plastic QFN package.

2. FEATURES

- Single supply voltage from 2.5 to 7V
- Low current consumption: 5.0mA at Vcc = 4.0V
- Excellent Input sensitivity: Limiting voltage $-3.0\text{ dB} = 3.0\mu\text{V}$
- Low Number of required external components
- Small package 4x4mm QFN-16 in 0.5mm pitch

3. TYPICAL APPLICATIONS

- Walkie-Talkie, like Family Radio Service (FRS) and General Mobile Radio Service (GMRS)
- Commercial and consumer FM systems
- Coreless phone equipments



4. ABSOLUTE MAXIMUM RATINGS

The absolute maximum ratings given in table must not be violated under any circumstances. Stress exceeding one or more of the limiting values may cause permanent damage to the device.

Ambient temperature $T_{amb} = 25^{\circ}\text{C}$

Parameter	Specification			Unit	Condition
	Min	Typ.	Max		
Power supply voltage			10	V	
Detector input voltage			1.0	V _{pp}	
Mute function voltage	-0.5		5.0	V _p	
RF input voltage			1.0	V _{rms}	$V_{cc} \geq 4.0\text{V}$
ESD protection voltage		2.0		kV	
Thermal resistance		30		$^{\circ}\text{C}/\text{W}$	
Lead temperature			260	$^{\circ}\text{C}$	
Storage temperature	-65		150	$^{\circ}\text{C}$	

5. ELECTRICAL CHARACTERISTICS

Parameter	Specification			Unit	Condition
	Min	Typ.	Max		
Supply voltage (VDD)	2.5		7.0	V	
Operation temperature	-20		70	$^{\circ}\text{C}$	
Operation current		5.0 7.0		mA	Squelch off Squelch on
Input frequency range		21.7	40	MHz	
Input voltage sensitivity		3.0		μV	-3dB limiting
Detector output voltage		2.0		V _{dc}	



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Detector output impedance		300		Ω	
Audio output voltage	130	180		mVrms	
Filter voltage gain	40	48		dB	F = 10kHz, V _{in} = 5mV
Filter output voltage		1.5		Vdc	
Filter trigger hysteresis		50		mV	
Mute function on resistance		10		Ω	Low mute level
Mute function off resistance		10		M Ω	High mute level
Scan function low output			0.5	Vdc	Mute off
Scan function high output	3.0			Vdc	Mute on
Mixer conversion gain		28		dB	
Mixer input resistance		3.3		k Ω	
Mixer input capacitance		2.2		pF	

6. BLOCK DIAGRAM

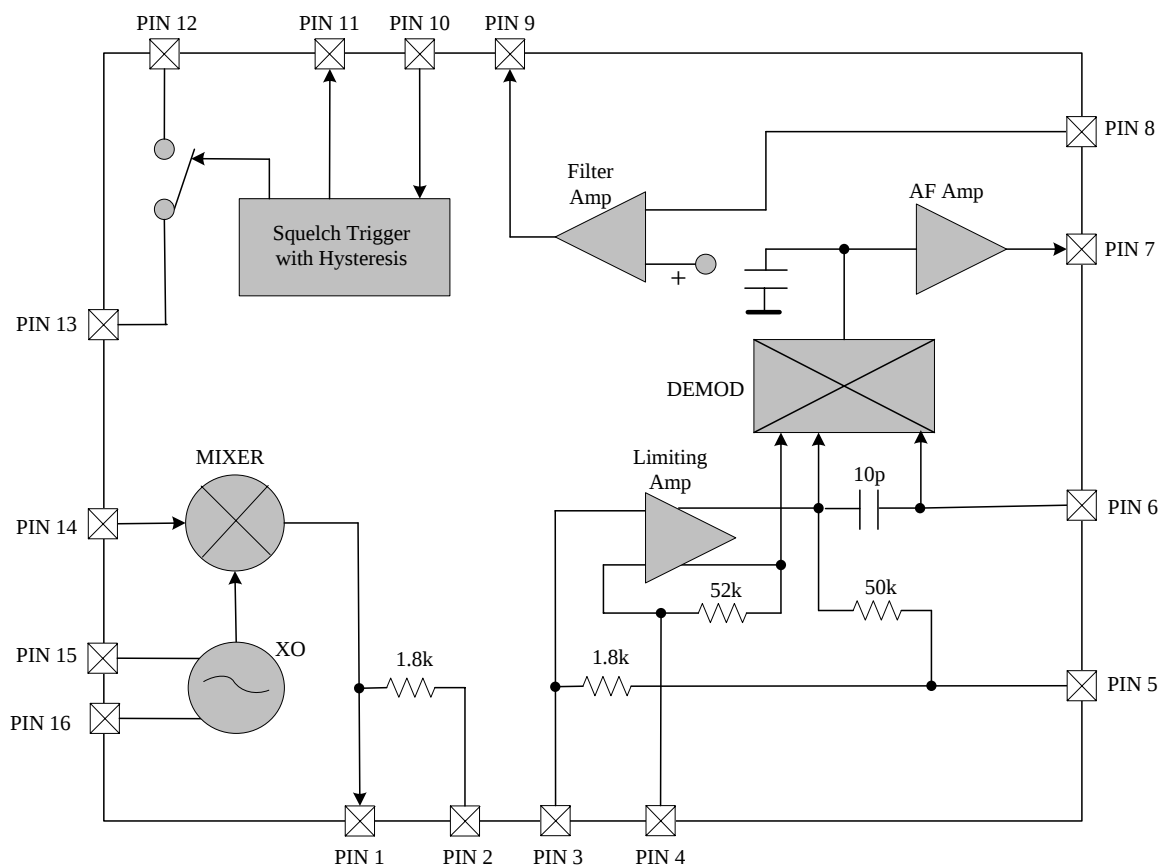


Fig.1: Block Diagram

7. PIN DESCRIPTION

Pin out and their functions in the table below are defined for the chip SRT3300.

Pin No.	Pin Name	Pin Type	Description
1	MIX_OUT	Analog output	Mixer IF output
2	VCC	Analog supply	Chip power supply
3	LIM_IN	Analog input	Limiting amplifier input
4	DCOP	Analog input/output	Decoupling capacitor connection
5	DCON	Analog	Decoupling capacitor connection

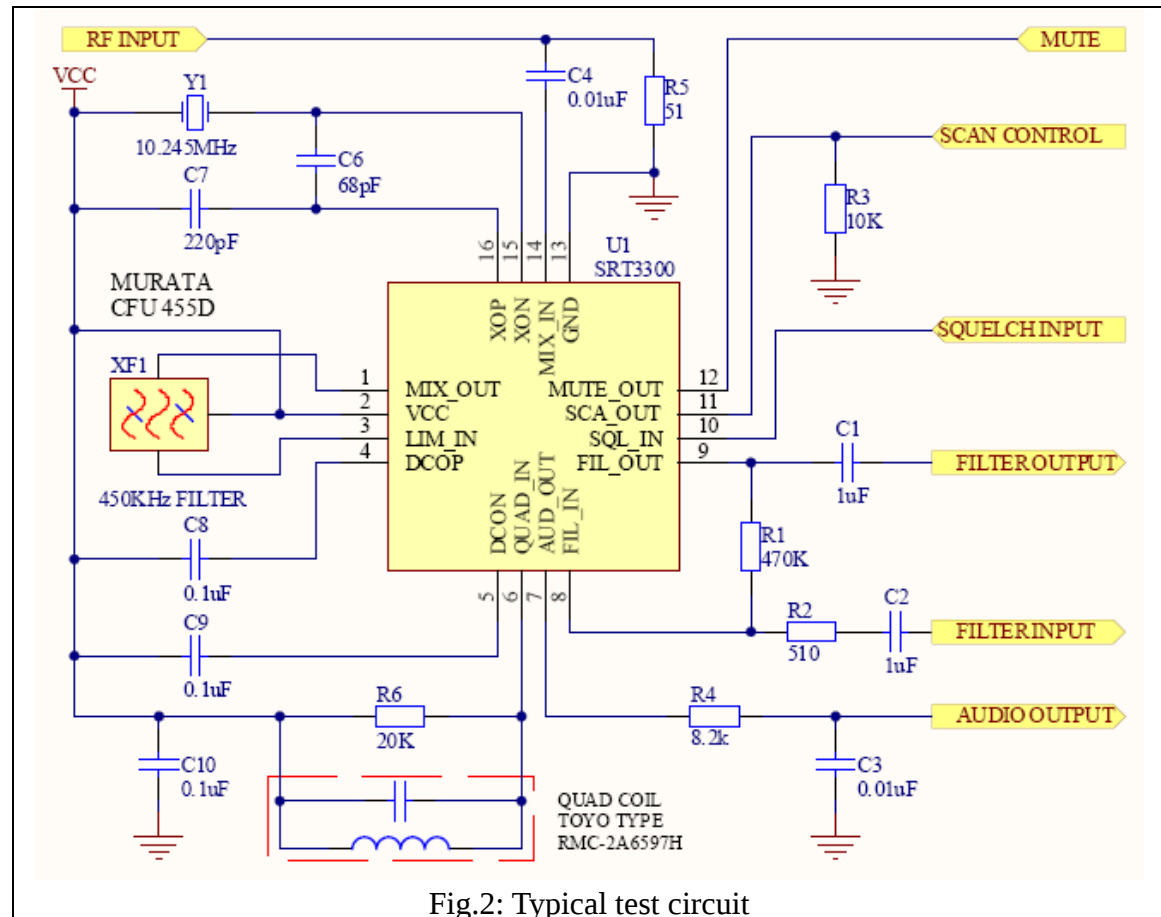


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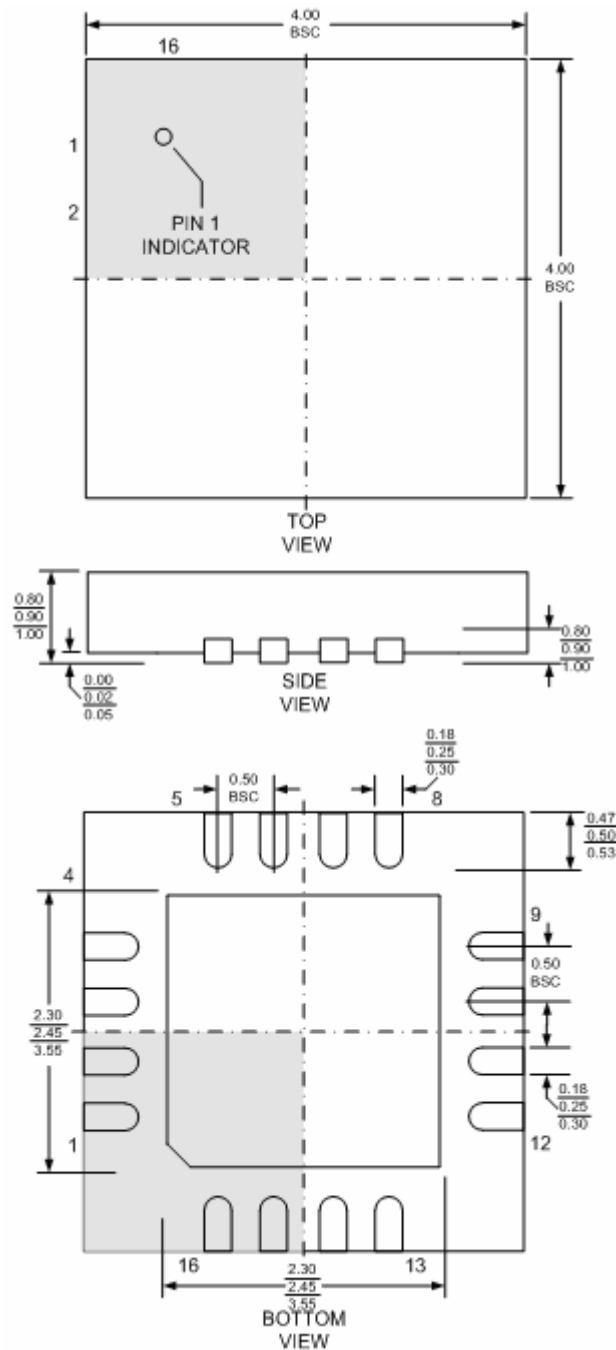
		input/output	
6	QUAD_IN	Analog input	Quadrature discriminator input
7	AUD_OUT	Analog output	Recovered audio output
8	FIL_IN	Analog input	Active filter input
9	FIL_OUT	Analog output	Active filter output
10	SQL_IN	Analog input	Squelch function control
11	SCA_OUT	Analog output	Scan function control
12	MUTE_OUT	Analog output	Mute function control
13	GND	Ground	Chip grounding
14	MIX_IN	Analog input	Mixer RF input
15	XON	Analog input/output	Crystal oscillator connection
16	XOP	Analog input/output	Crystal oscillator connection

8. APPLICATION INFORMATION



Note:

9. PACKAGING INFORMATION



Dimensions shown in millimeters

Fig.3: 4x4mm QFN 16-pin package



10. DISCLAIMERS

- Life support applications — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Sicomm customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Sicomm for any damages resulting from such applications.
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