

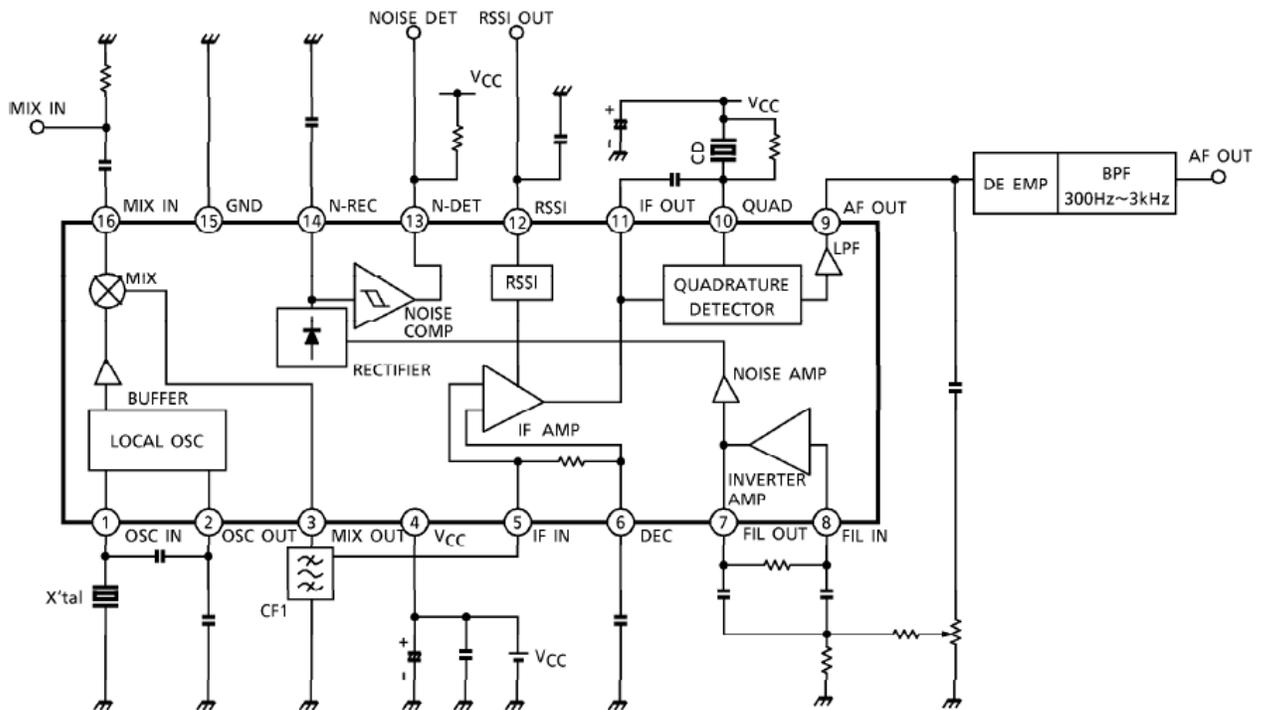
# TA31136 Audible S Meter

By  
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The TA31136 FM Detector Integrated Circuit from Toshiba is used in many modern FM ham rigs. This includes mobiles from Kenwood, Icom, and Yaesu, as well as many handhelds. This chip includes a Received Signal Strength Indicator (RSSI) pin that has a linear output voltage that corresponds to signal strength. This is a very convenient signal to have access to for transmitter hunting. The output is good over about a 70 dB range.

The block diagram for the IC is shown below from the Toshiba datasheet. Pin 12 is the RSSI output.

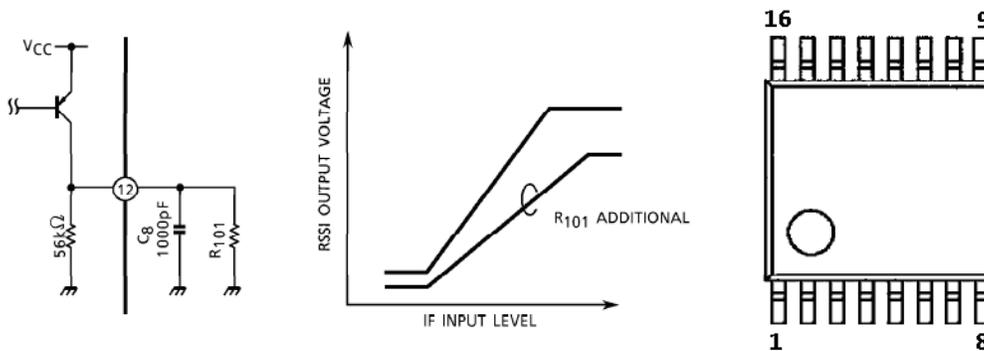
## BLOCK DIAGRAM



The description of the RSSI pin, again from the Toshiba datasheet is shown below, along with the physical pin out of the device.

#### RSSI function

A DC voltage corresponding to the input level of IF input pins (pin 5) is output to the RSSI pin (P12). While the linear range is about 80dB when  $V_{CC} = 2V$ , the range can be expanded to 80dB. However, in such a case, note that the temperature characteristics of the RSSI output may alter due to a disparity between the temperature coefficient of the external resistor and the internal resistance of the IC.



This project is the evolution of an earlier project in which the circuit was built dead bug style with ugly construction. The popularity of this circuit demanded that a printed circuit board be made, and that has been done. The Eagle board files are available on this site. The board is a single sided board and uses all surface mount parts. The schematic for the project is shown below in Figure 1. One part has changed since the original project, and that is the flip flop (U1). This part is much simpler to solder for the hobbyist that the part used in the original project.



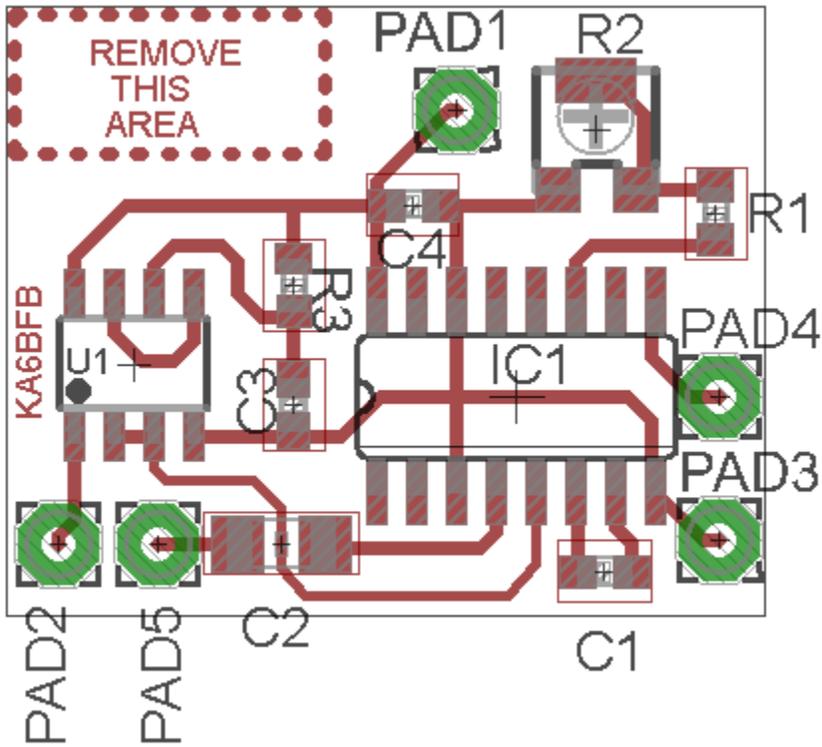


Figure 2. Parts placement diagram

#### Parts List

Part	Value	Package
C1	.01 uF	0603
C2	.0047 uF	1206
C3	1 uF	0603
C4	.1 uF	0603
IC1	4046D	SO16
R1	10k	0603
R2	50k	3MM
R3	100k	0603
U1	TC7W00F	FM8

Figure 3. Parts List

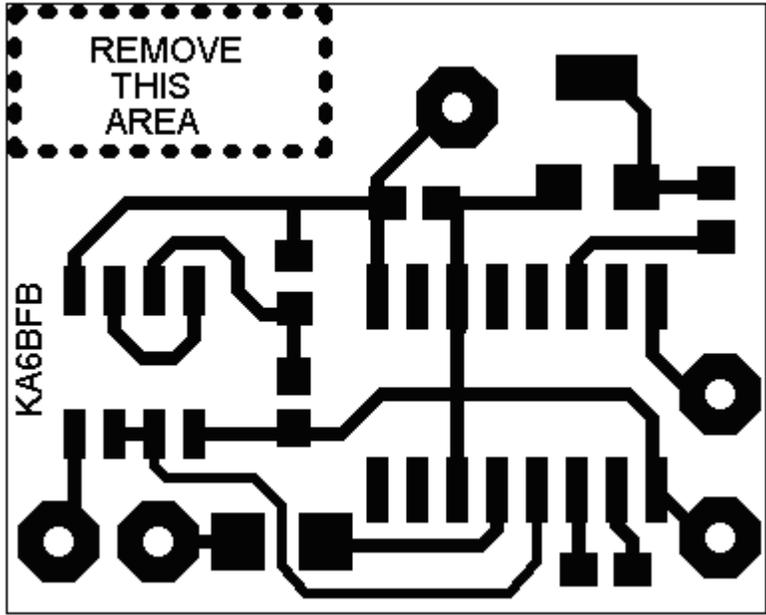


Figure 4. Copper layer of PCB.