

Simple RF Detector - Phil Salas AD5X

This simple RF detector works well from HF through about 500 MHz. Figure 1 is the schematic. Almost any RF energy detected by the 1N60 diodes will forward bias the junction of the PN2222A transistor, which lights the super-bright LED which can be easily seen in daylight. No on/off switch is required, since no current is drawn from the battery unless the transistor is biased on.

Table 1 is the parts list and recommended supplier source (www.mouser.com & www.allelectronics.com). I built everything into the small (2.36" x 1.38" x 0.8") plastic box called out in the parts list. Figure 2 shows the hole sizes and dimensions necessary for mounting the telescoping antennas and LED. You can just drill mounting holes for the screws and mount the antennas on the outside of the box. But mounting them the way I did provides extra support for the antennas, and will also make the package more compact since a portion of the antennas are inside the box. All wiring is point-to-point, and the battery is held in place with a piece of double-sided tape. Figure 3 is a pictorial of the wiring. The photos show the internal and external views of the final unit. I labeled the RF detector case using Casio "White on clear" labeling tape (Casio XR9 -AX-s).

For best sensitivity, extend the telescoping whips to their full 19" length. But you'll find that this unit does a good job of sensing RF even with the whips collapsed.

Table 1 – Parts List

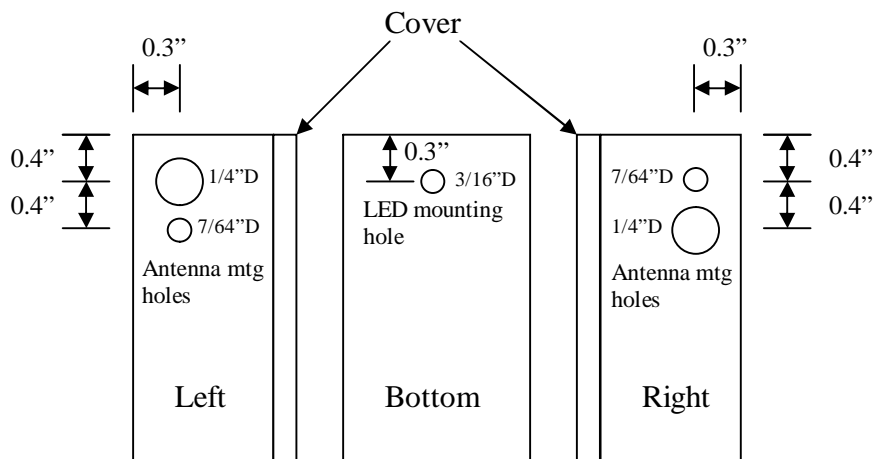
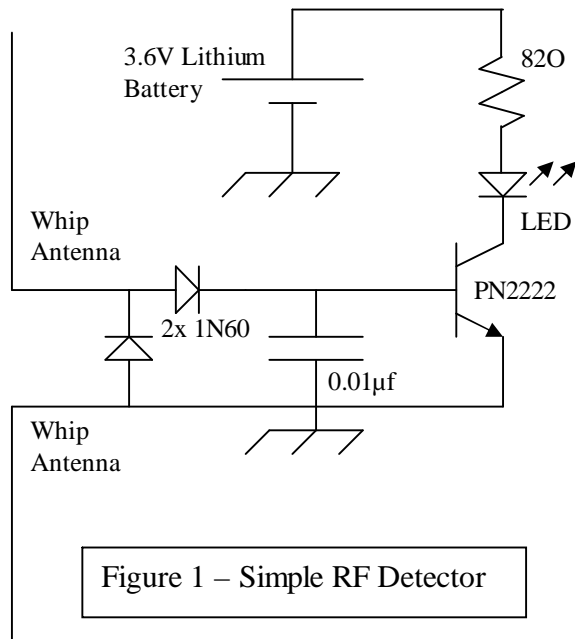
<u>QTY</u>	<u>Description</u>	<u>Source/Part Number</u>	<u>Cost Each</u>
2	6-section 19" antenna	Mouser 43AR106	\$1.38
2	2.6mm screws	Mouser 48SM026	\$0.12
2	#4 solder lugs	Mouser 534-909	\$0.15
1	3.6V Lithium battery	Mouser 667-TL2150P	\$5.51
1	6000mcd red LED	All Electronics LED-94	\$0.75
1	820 ¼ watt resistor	All Electronics 82-1/4	10/\$0.50
1	PN2222A transistor	All Electronics PN2222A	5/\$0.80
2	1N60 germanium diode	All Electronics 1N60	2/\$1.00
1	Small plastic box	All Electronics 1551 -HBK	\$1.20



Inside Wiring View



Final Unit



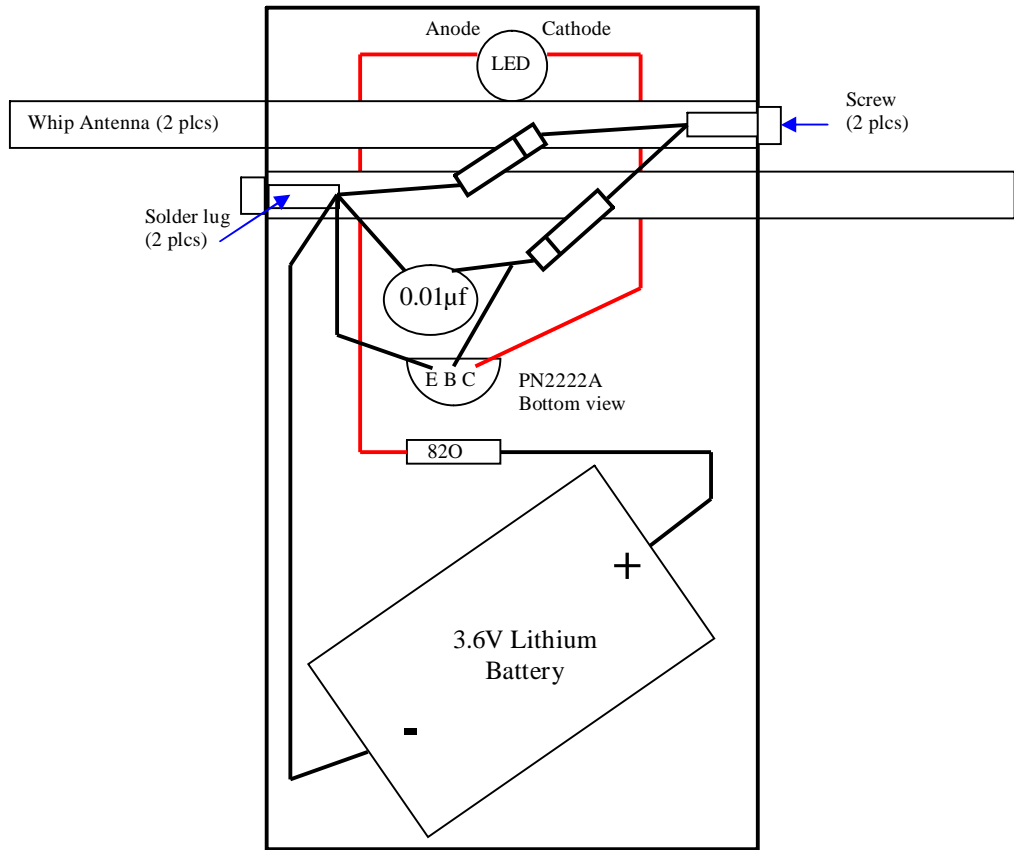


Figure 3 – Wiring Diagram