

Rock-Mite Modification (for Shift LED)

By Rob L. Dey, KA2BEO

6/21/2012, 7/2/2012



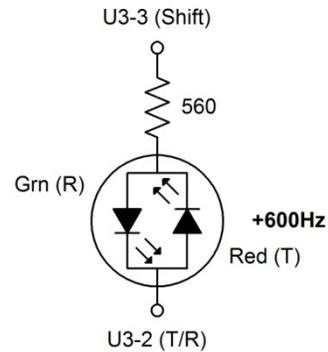
Summary

Add an LED lamp to your Small Wonder Labs Rock-Mite kit that indicates the +600Hz shift, and changes color during transmit too. For owners of the American Morse Mity Box, this modification fills the hole intended for the optional volume control. This mod adds 5mA (in shifted mode only) to the overall power supply current.

Bill-of-Materials (BOM)

Qty	Manufacturer	Number	Description	Vendor	Price
1	Stackpole	CF14JT560R	Resistor 560-ohm 5% 1/4W carbon film	Digi-Key	\$0.08
1	Kingbright	WP57EGW	LED lamp (bi-color, diffused) T1-3/4 (5mm) 60° 7.5mcd (typ) @ 5mA (1.9Vred/2.0Vgrn)	Digi-Key	\$0.33
1	Avago	HLMP-0103	LED lamp holder (panel, 5mm) 0.250"ID/0.318"OD (2 pieces)	Digi-Key	\$0.43

Schematic



Installation

Remove the PC board from its enclosure. Strip, tin, and solder two small gauge wires to the bottom of the PC board at U3 pins 2 and 3. Drill a $\frac{1}{4}$ " diameter hole for the indicator, if one is not present. Install the LED lamp holder from the front panel, snap the LED lamp into its holder from behind the front panel. Install the retaining ring over the rear of the holder. This part is the most difficult, because significant force is required to snap the retaining ring into place. One method that helps is to use a 5mm wrench socket on the front of the assembly (against the lamp) and a 5.5mm wrench socket on the rear of the assembly (against the ring). With the smaller socket placed firmly on a hard surface, push the larger socket downward to lock the retaining ring into place. With the tough part completed, solder the resistor to pin 1 of the LED lamp, which is on the flat side, with the shorter wire lead. Use an ohmmeter to confirm the wire that is connected to U3 pin 3 and solder this wire to the resistor. Solder the remaining wire to the longer wire lead of the LED lamp. Insert the PC board, and secure the lid of the enclosure.

Operation

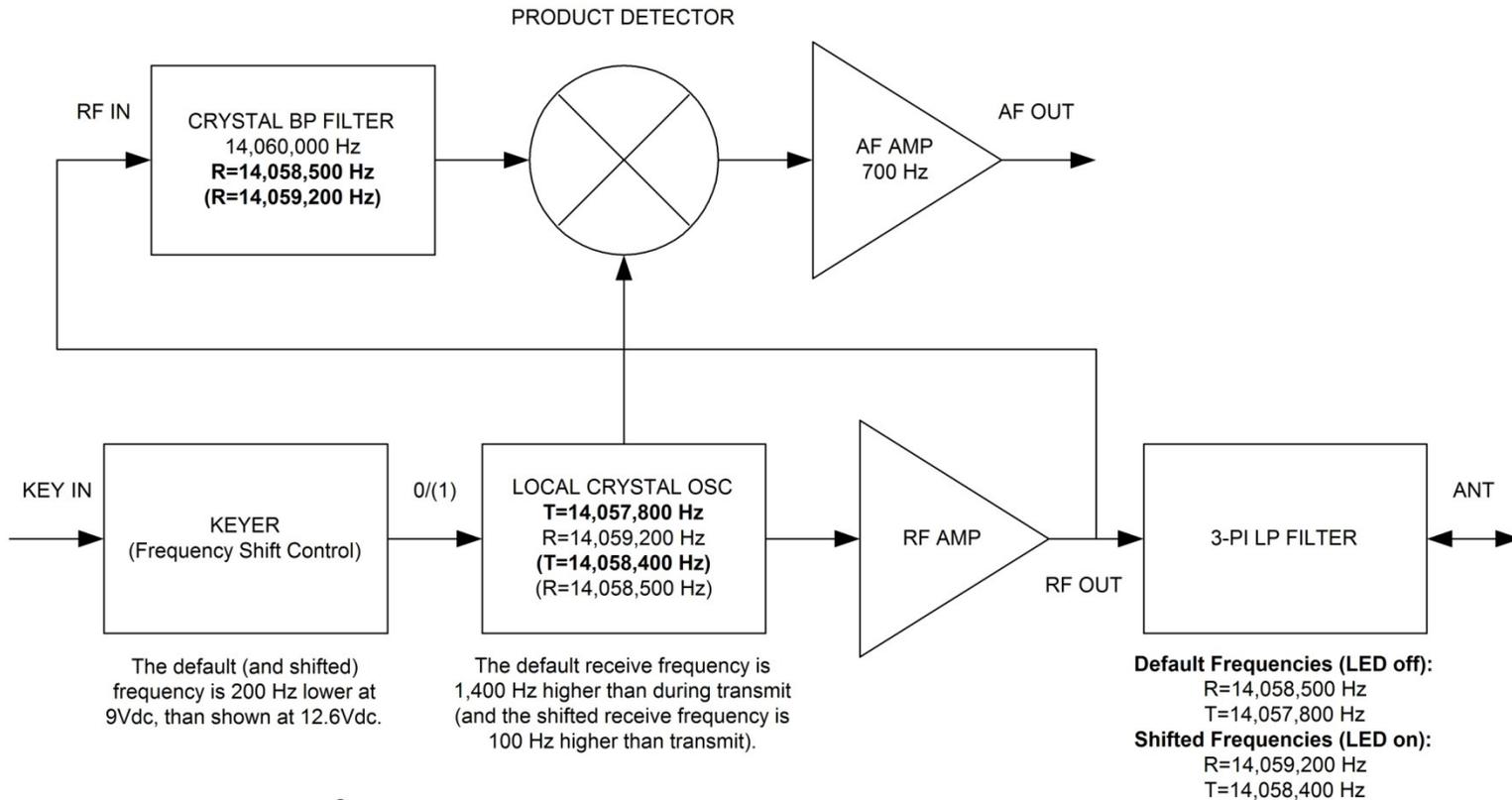
The LED lamp lights only when the shift mode is enabled. It is green during receive and red during transmit.

NOTE: You may also see some green flickering when transmitting in the non-shifted mode.

Block Diagram

Rock-Mite-20 Frequencies

6/21/2012 RLD, KA2BEO



The default (and shifted) frequency is 200 Hz lower at 9Vdc, than shown at 12.6Vdc.

The default receive frequency is 1,400 Hz higher than during transmit (and the shifted receive frequency is 100 Hz higher than transmit).

