

The Badger

... a Morse-sounding Badge IDer

PCB LAYOUT NOTES:

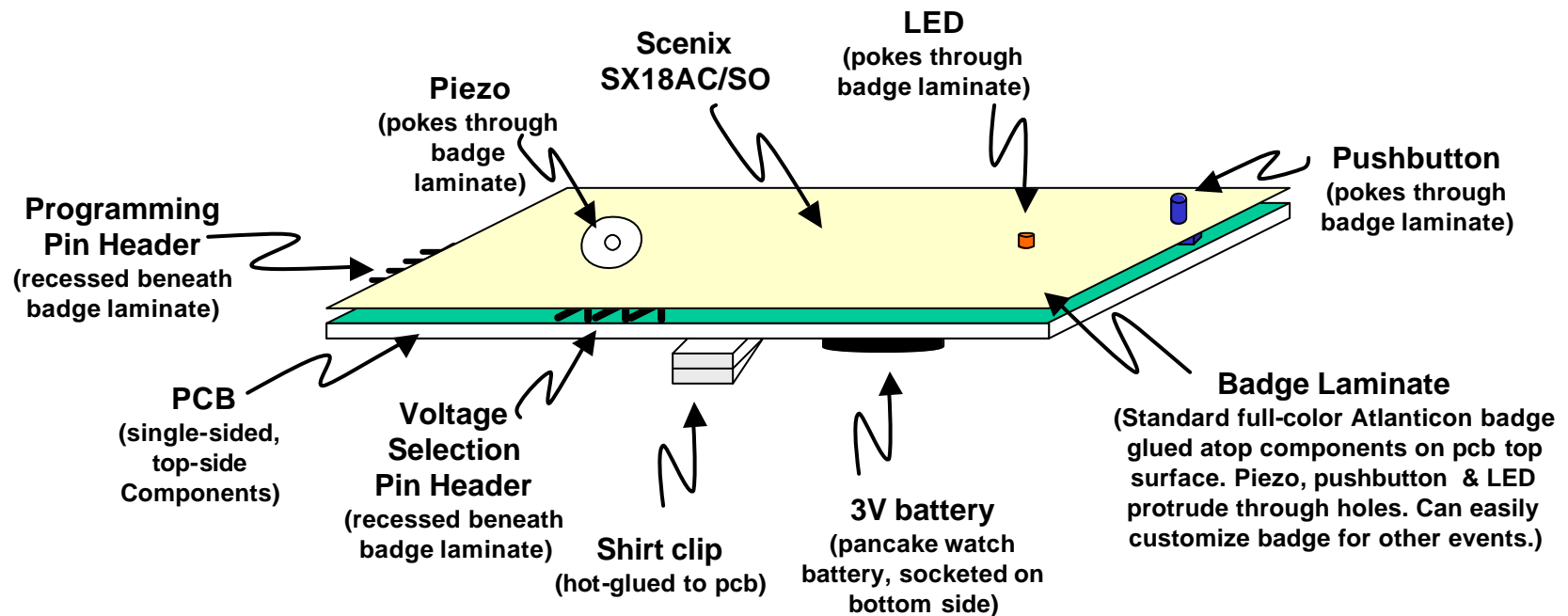
1. PCB should be 3.5" x 2.5" to fit existing laminate material.
2. Pancake battery is socketed and mounted on bottom side. (Pick a cheap socket from Mouser or DK.)
3. Component locations (for piezo, LED and pushbutton) are critical, allowing badge graphic design to proceed in parallel. Follow layout sketch dimensions.
4. Pin headers P2 and P5 are not populated. Pads provided on 0.1" centers for optional installation by homebrewer.
5. SOIC package (U1) should be assembled to board during pcb fab process (i.e., not for user assembly).
6. LED D1 is thru-hole package (I have them). 3/16" dia, 3/8" high. Leads on 0.1" centers.
7. Piezo is 11/16" diameter, 1/8" high, with leads exiting body at single point along side/edge. Pads can be provided on 0.3" centers for easy assembly.
8. Pushbutton is through-hole (?) You picked the component!
9. Q1, R1 and R2 can be through-hole, I think, for assembly ease. Can be mounted low enough, within thickness offered by pushbutton? Else go with SMT.

OPERATION NOTES (FYI)

1. Morse-sounding callsign upon pushbutton activation. 5 modes (so far) selectable by pushbutton: normal callsign only, callsign auto repeat, auto repeat with code word appended, tone adjust, Morse speed adjust, and Keyer mode.
2. Pressing PB during any sounding sequence puts badge to sleep. Badge sleeps at end of normal sequence. Sleep mode draws mere microamps. Pushbutton awakens microcontroller and sounds the normal callsign sequence.
3. Tone adjust mode sounds continuous tone, with pushbutton sequence to move frequency up/down in small increments to optimize piezo output depending on variabilities presented by microcontroller, battery voltage and piezo. New frequency value stored in SX18 RAM1, which is maintained during sleep mode. Tone adjust sequence must be done whenever battery replaced.
4. Morse speed adjust made by pushbutton sequence while sounding continuous stream of dits. Speed values stored in RAM, same as tone adjust value.

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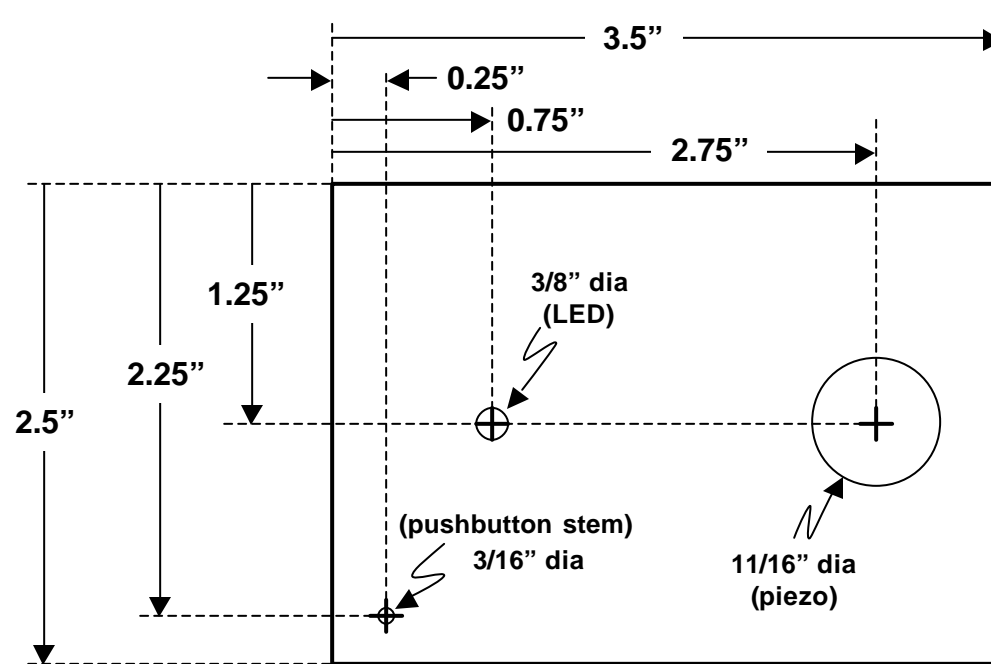
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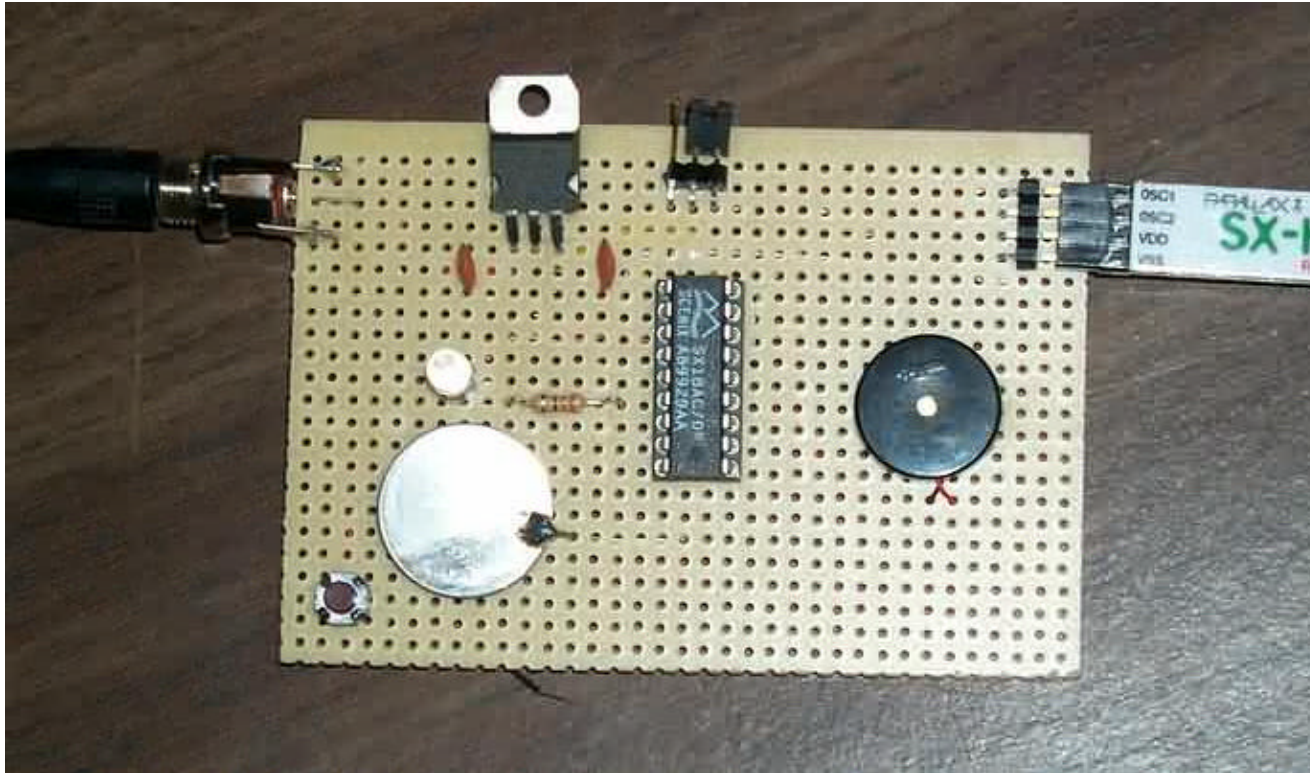
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PCB Layout Dimensions

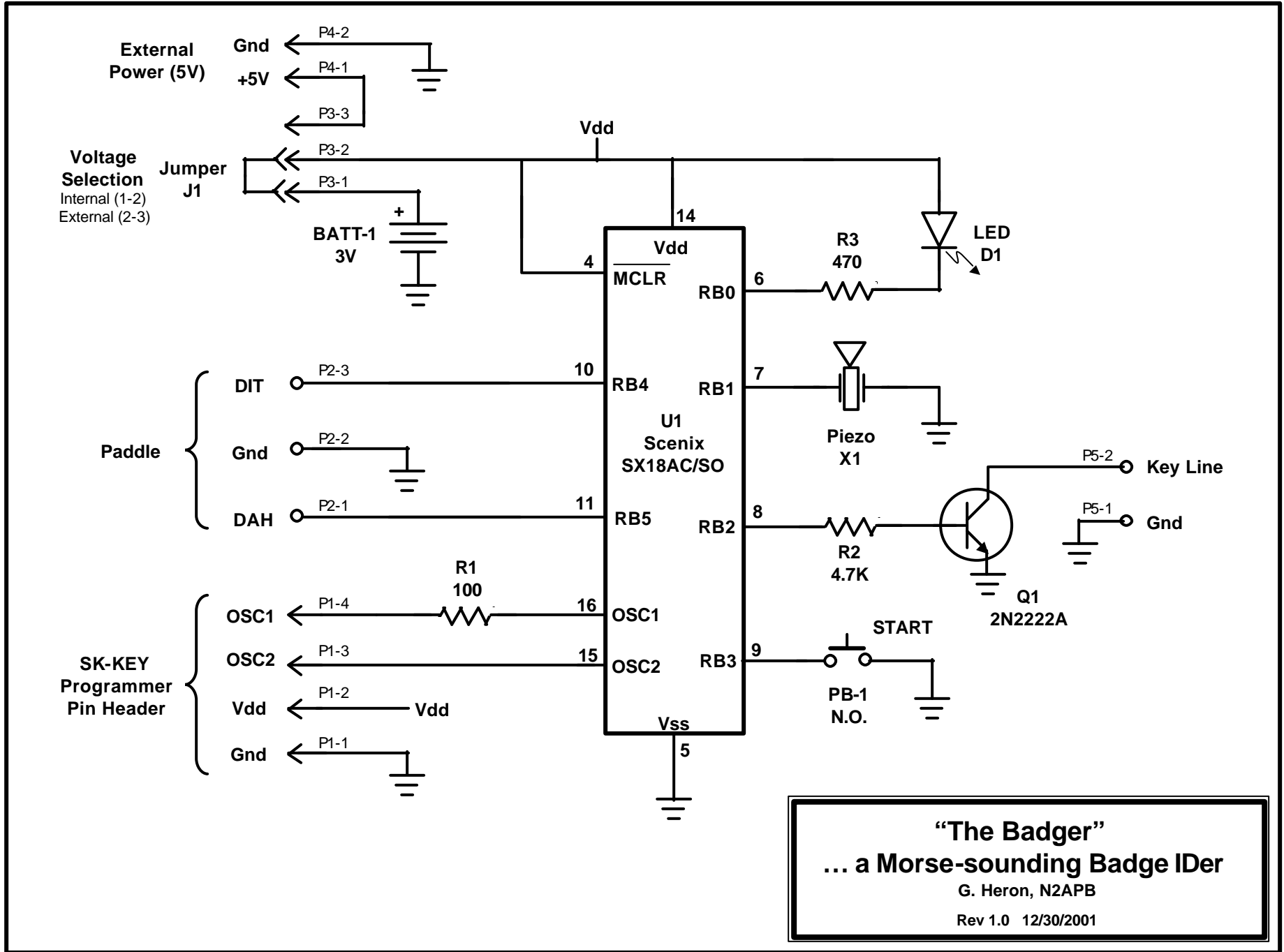


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Prototype-1



“The Badger”
... a Morse-sounding Badge IDer
 G. Heron, N2APB
 Rev 1.0 12/30/2001