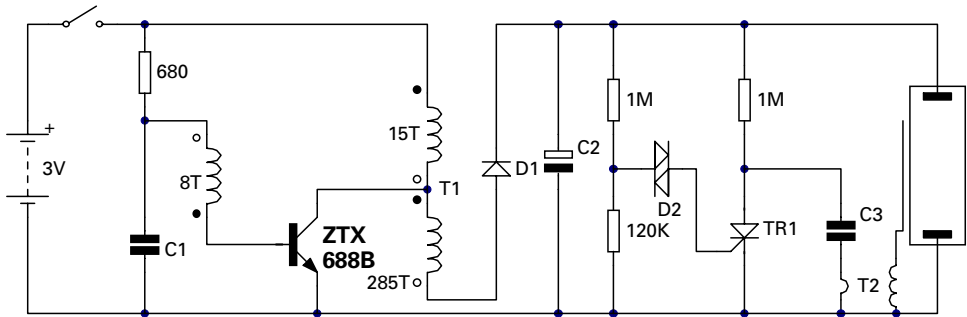


3V Distress Beacon



Essential characteristics of personal distress beacons (as used in hazardous areas by fire-fighters, mountain and air/sea rescue, etc.) are that they are compact, reliable and have good endurance capabilities. This leads to two cell supply designs whose efficiency is often degraded by the switching performance of the converter transistor.

A high gain low saturation voltage ZTX688B allows this 3V powered personal alarm beacon to operate with an efficiency of more than 70%, maximising flash brightness and battery life. This efficiency is obtained by combining an energy saving flyback design with the low on-state losses and low base drive requirements of the Zetex matrix based ZTX688B (which features a saturation voltage of 0.1V at 1A with only

5mA base drive). The small size of the E-Line (TO92 style) package helps to keep unit size to a minimum. Battery life is further extended by the design's capability of operating with supplies down to 1V.

Circuit action is as follows: The converter circuit charges up C2 until the resistive potential divider (1M/120k) provides enough voltage to break down the diac D2. The triac TR1 then switches C3's charge into the pulse transformer, which ionises the tube into conduction using the charge on C2. The cycle then repeats. For slow/infrequent flash rates, small modifications to the circuit allow the converter section to shut down when the reservoir capacitor is charged, thus providing an efficiency enhancement.