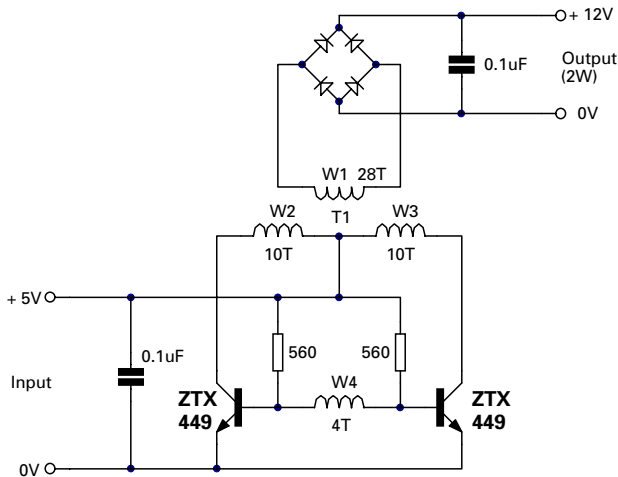


High Efficiency Hybrid DC-DC Converter



To meet the growing requirement of DC-DC converters that fit into 0.6 inch pitch DIL IC packages (for LAN hub power supplies for example), efficient but low cost hybrid circuits must be used. Using low switching loss bipolar transistors from Zetex, converters such as the circuit shown here can be constructed on small substrates giving power densities of over 1.7W/cc. Operating at over 80kHz the toroidal transformer and ceramic decoupling capacitor volumes are minimised, while the consistency of the h_{FE} process provides a balanced switching performance with no worry of low

temperature start-up or transistor induced shoot-through.

The ZTX449 devices, possessing a saturation voltage of only 150mV at 0.5A give the 2W converter an efficiency of over 77%, thus keeping power losses and internal heating at a low level. Maximum operating temperature is ultimately limited by the magnetics but the standard industrial range of -20°C to +85°C is easily covered. Other devices are available that exhibit higher gain and/or higher voltage ratings for other supply voltage options.