

Isolated Multi-output Power Supply – Four for One

A CIRCUIT was required which would provide several *isolated* power supplies, for use in driving a power FET bridge network. Multiple mains transformers could have been used but this would have been bulky and expensive, and because the current demanded by the power supplies was low, the circuit shown in Fig.4 was devised.

The secondary of a mains transformer (not shown) is rectified by diodes D1 to D4 and filtered to provide a regulated +15V supply via voltage regulator IC1. This is used as the

input to a small inverter circuit. Resistor R1, capacitor C5 and IC3a form a 200kHz oscillator which is passed to a flip-flop formed by IC2b, one half of a 4027, the output of which is 100kHz with 50 per cent duty cycle applied alternately to the two MOSFETs TR1 and TR2.

A delay is included by the diode and RC networks present on the inputs to the inverters IC3e and IC3d. This eliminates the possibility that both transistors could switch on together for a short period. Both transis-

tors then drive the primary winding (18 turns each) of transformer T1 which is a small custom-wound high frequency transformer.

Transformer T1 is wound on a standard "RM8" bobbin with an inductance factor (A_L) of 250. The circuit has four secondary windings (20 turns each) which are rectified and filtered to provide the isolated supplies. Each output is easily capable of providing 15V at 20mA.

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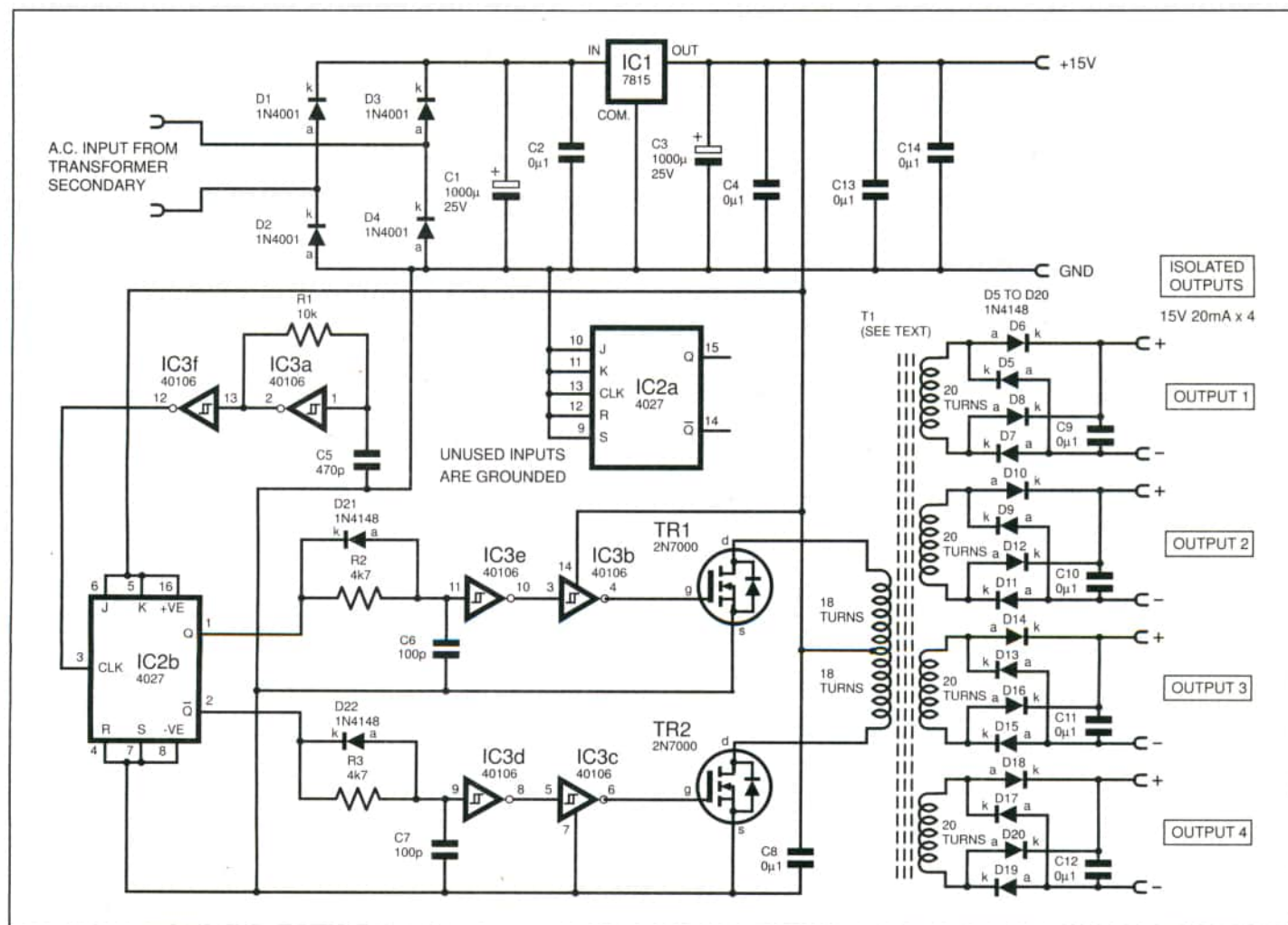


Fig.1. Circuit diagram for the Isolated Multi-output Power Supply