

## 10. RS232C INTERFACE

10.1 The RS232C port is controlled by registers within the gate array accessed by the CPU during I/O read/write cycles to locations with address bit 4 (A3) set to 0. Single bit latches register the state of the interface control signals RTS, CTS and DCD; shift registers clocked at the selected baud rate perform the serial/parallel conversions for data transmission and reception. The physical port is presented on SK10, the conversion from RS232C levels to/from logic levels being carried out by discrete components (see Figure 1.6).

### 10.2 Output Circuits

10.2.1 Output circuits TXD and RTS, on the emitter of TR14 and TR15 respectively, switch between  $\pm 5V$  driven by outputs from the gate array on IC4 pins 37 and 38. When the gate array outputs are at +5V (logic 1) TR14 and TR15 are turned on, switching the respective output circuit to -6V. Conversely, when the array's outputs are at 0V (logic 0) TR11 and TR12 are turned on, switching the respective output circuits to +5V.

### 10.3 Switched Power Rails

10.3.1 It will be noted that the -6V rail for the output circuits is switched via TR16, the latter controlled by TR13/17 and the line pulse output on IC4 pin 45. Except during the coma and doze states, when the display is turned off, LP filtered by R39/C10 turns TR17, TR13 and TR16 on, enabling both the +5.5V and -6V switched power rails. In the coma and doze states, LP and the base of TR17 are both held at +5.5V turning off all three transistors and the switched power rails. In this state, with IC4 pins 37 and 38 held at +5.5V, the TXD and RTS output circuits on SK10 are allowed to float.

### 10.4 Input Circuits

10.4.1 Input circuits RXD, CTS and DCD are routed to IC4 pins 41, 42 and 43 via identical resistor/diode networks. Zener diodes D9 - D10 limit the excursion of the input signals to between +5.1V (logic 0) and -0.5V (logic 1); resistors R23, 26 and 29 maintain the inputs at 0V when the interface is disconnected.

10.4.2 Resistor R82 attached between the body of SK10 and the +5.5V supply available on pin 1, serves as a discharge path for any static build-up on the mating connector.