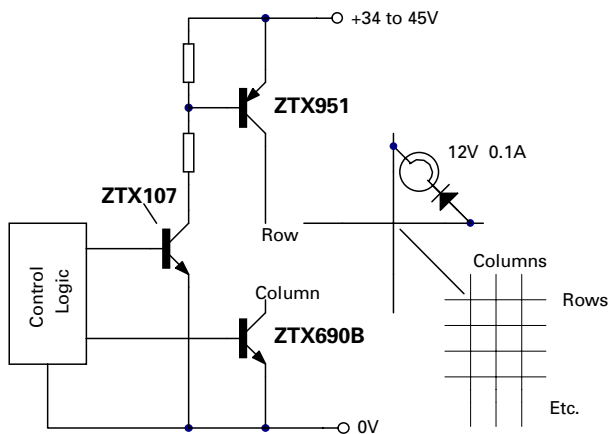# Gaming Machine Lamp Driver

x 8 for an 8 x 8 matrix of lamps

In slot machines and other applications where a large number of lamps must be controlled, matrix circuits are employed to radically reduce the number of lamp drivers required. Here, each row is selected in turn by control logic or more usually by an appropriately configured micro-controller. During row selection, the appropriate column drivers are activated to give the required display output. Consequently, each row driver must drive 8 lamps simultaneously, taking a worst case surge current of 6A. The column drivers must have very high gains to pass surges of up to 800mA using direct logic interfacing. TO126 or TO220 packaged Darlingtons are routinely selected for these drivers.

The ZTX951 and ZTX690B Super E-Line (TO92 style) transistors can easily replace these costly drivers. The high gain ZTX690B features a saturation voltage of 220mV at 800mA with just 4mA of base current allowing direct logic drive. The ZTX951 needs 100mA of base current to handle lamp turn-on surges, and will give a saturation voltage below 100mV in normal operation.

The number of bulbs driven can be easily increased by adding row drivers and increasing the supply voltage to maintain lamp power with reduced duty cycles. With a supply of 45V, 16 rows (128 lamps) can be accommodated.