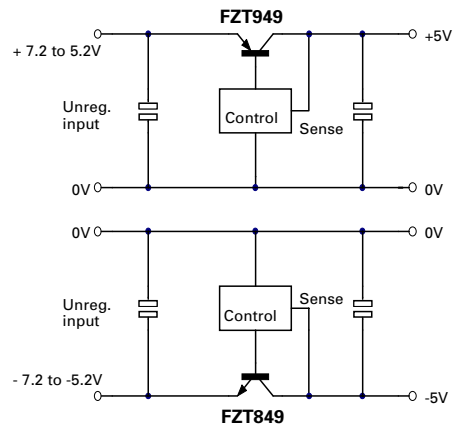


Low Drop Out Linear Regulators



Unlike standard regulator circuits and ICs which need at least 2V or more across the series pass transistor to operate, low drop out (LDO) regulators can function with only 100 - 200mV differential.

Low drop-out voltage regulators are essential for many battery powered applications including computers and other logic applications, in order to maximise useful battery life and reduce re-charge frequency.

Automotive electronics is another applicable area, where in engine management systems they are employed to ensure that the circuitry is correctly powered even when the automobile is cranking, and the battery's terminal voltage has fallen to 6 or 7V. They are also useful in mains powered

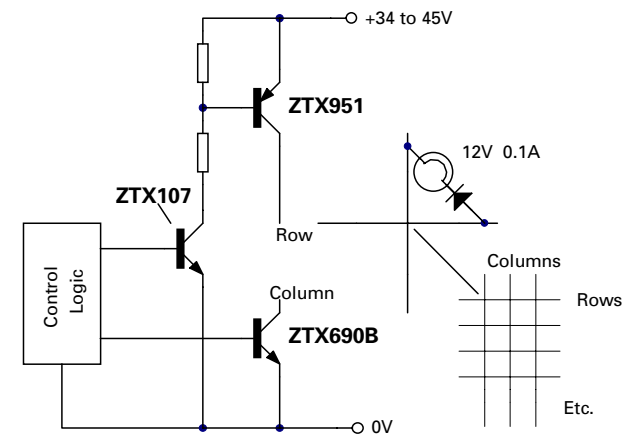
applications where power dissipation / heatsink savings can be realised.

The ultra low saturation voltage of the ZBD849 and ZBD949 transistors enable these linear regulators to operate at currents of 5A continuously with drop-out voltages of only 180mV for the NPN circuit and 350mV for the PNP.

Packaged in the compact TO126, these high performance transistors are easy to mount and can be used free-standing for lower output current applications. Surface mount and through-hole options are available in the SOT223 and E-Line (TO92 style) packages.

The control circuit used can be a standard IC such as the LT1123 or a discrete design if the application requires extra flexibility.

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 Darlington's 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.

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