

Fairy Lights

017

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This simple and cheap circuit is not just for Christmas! There are just two resistors, a small-signal transistor such as a BC547, one 'flashing' LED and a string of 'normal' LEDs. The flashing LED works as an oscillator and switches the transistor on and off; and the transistor switches all the other LEDs. An (unregulated) 12 V mains supply can be used for power.

No current-limiting resistor is required in the LED chain, because the forward voltages of the LEDs in the chain add up to the supply voltage. If red LEDs are used, with a voltage drop of 1.65 V, then 12 V will supply seven; alternatively, use six yellow (2.1 V each) or five green (2.7 V). You can of course always mix the colours.

Variation:

Alongside the NPN transistor add a PNP transistor with its emitter connected to +12 V, with another string of LEDs connected down to ground. The two strings will flash alternately.

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