

Constant-current LED navigation lights

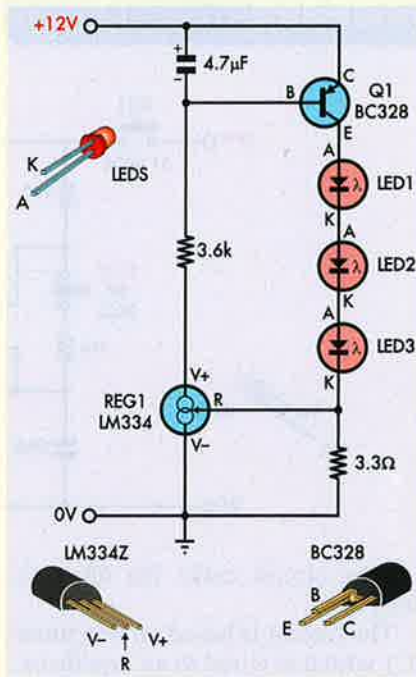
This constant-current LED circuit has been used as the basis for a 24-LED navigation light on a yacht. The LEDs were arranged in two staggered rows around a 32mm plastic pipe placed in a small glass jar. For a 24-LED array, eight of these current sources will be required.

The LED drive circuit works as follows. The LM334 constant current source maintains a nominal 64mV between its "R" and "V-" terminals and it does this by adjusting the base current of transistor Q1 so that the collector current is 19.39mA. At this current, the voltage across the 3.3Ω resistor is maintained at 64mV and so the three series-connected LEDs are operated at a constant 19.4mA. Four of these drive circuits were



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each built onto two circular pieces of Veroboard which were then stacked inside the glass jar. The 24 LEDs were then wired to the drive circuits.



The accompanying photos show how the assembly is wired and housed in the jar. The plastic lid needs to be painted with several coats of white acrylic to prevent deterioration due to UV exposure.

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Josh Stevenson
is this month's
winner of a
Peak Atlas Test
Instrument