LED as a mains NEON

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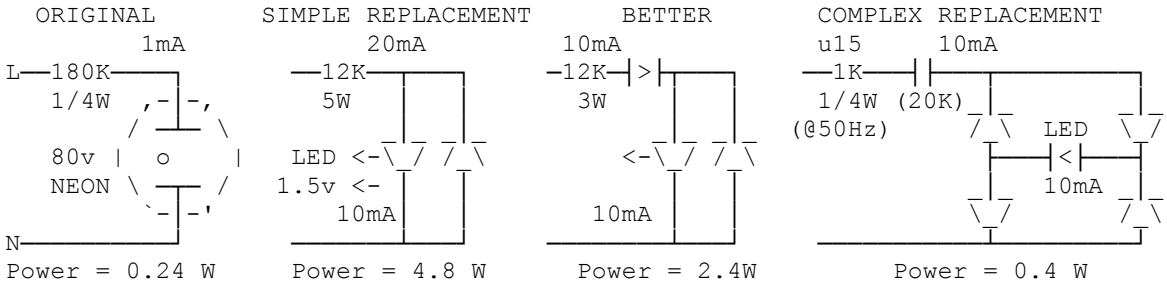
To : TECH@WW

By G8MNY (New Oct 05)

Neon lamps that run too brightly usually don't last long as the glass blackens with electrode metal. To replace the neon does not cost much if you have a source of them. But to replace the whole thing for an LED with a bridge rectifier & a suitable mains capacitor & surge R is far more expensive..



The Neon has 80V drop & to give reasonable brightness 1mA is needed. Whereas the LED needs say 10mA @ 1.5v drop for the same sort of brightness as it is far more directional light source. 100Hz flicker (50Hz 3 each end).

With just a reverse protection diode & a R, the R needs to be many watts (5W)! 50Hz flicker.

Adding a high voltage series diode in the arrangement halves the power, but will add DC component to the supply & also it may cause more QRM. 50Hz flicker.

Using a mains AC capacitor to drop most current due to it's impedance makes for a more efficient if complex arrangement, but still a spike current limiting R is needed as well. Using a bridge rectifier also doubles the current into the LED, making it more efficient. The C needs to be about 0.15uF @250V AC with a surge R (fuse type) of say 1K. 100Hz flicker.

Why don't U send an interesting bulletin?

73 de John G8MNY @ GB7CIP