Subject: Re: SMPS Trick
Posted by Wayne Parham on Sun, 05 May 2024 13:33:49 GMT
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That's a great suggestion, Bruce!

On an unrelated but similar note, I've noticed that the similarly designed inexpensive AC-to-AC international voltage converters do the same thing. They don't generate a sine wave but instead create a pulse train that has sharp edges that are nasty and harsh.

One would think they would just use a step-up or step-down transformer - and some do - but they tend to be larger devices so the inexpensive ones use a switching circuit that isn't particularly clean.

In fact, the output signal is so dirty, the sharp pulses exceed the breakdown voltage of the internal surge-protection devices in most barrier strips. So if you use one of those on the output of the converter, it will instantly short-circuit, as designed to protect connected devices from the pulses generated by the converter. The result of all that is instantaneous destruction of both barrier strip and AC converter.

The problem of international voltage conversion is compounded by the fact that it isn't just the voltage that's different, but also the frequency. If the connected device requires accurate line frequency, a transformer alone won't do the job. But most devices don't care about the 50/60Hz difference, so a transformer works just fine, and avoids the nasty switcher circuit. The most popular things that used the line frequency for time base were televisions with cathode ray tubes - using line frequency as a time base for vertical deflection - and those are largely a thing of the past.