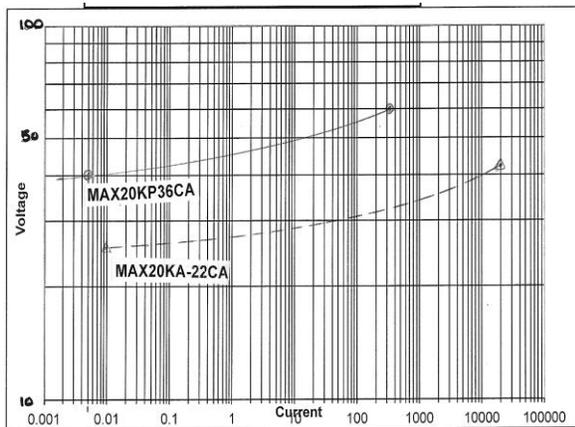


Can a TVS be used as a regulator instead of a Zener Diode

Normally TVS Diodes are transient absorbing devices. They could be used as a regulator but only under very special conditions.

But the voltage control is not that precise and the TVS devices are not continuous operating components, their V-I characteristics are usually specified, and their duty cycle must be controlled.



The V-I pulse characteristic is shown in Fig 1, for two typical TVS devices. These pulse widths can be 8/20, 10/1000 usec. or other short term pulses.

Fig 1

The duty cycle is also limited to a non-repetitive pulse. As shown in Fig 2.

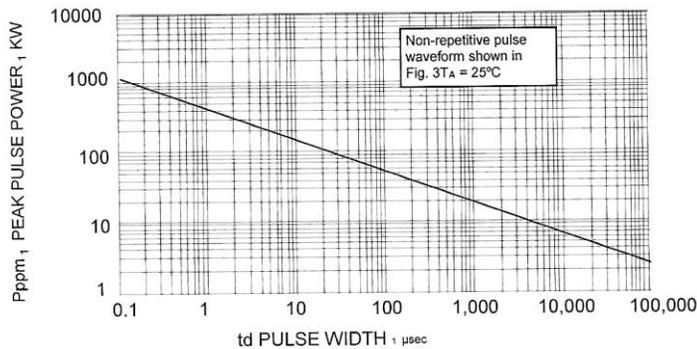


Fig 2

Zener diode construction is different than TVS. Zener construction is a P-N junction and has a negative temperature coefficient.

A TVS has a P-N junction plus an additional P-N junction that controls the breakdown they also have a positive temperature coefficient.

Can a TVS be used as a regulator instead of a Zener Diode

Zener diodes will need a heat sink to control higher currents when operating at higher continuous currents. TVS devices cannot operate at practical continuous currents and are not practical to heat sink..

TVS could effectively be used as a regulator even with a series resistor. They may be able to regulate using a series resistor but not with any practical system conditions.

TVS and Zeners are designed differently as noted in the previous info. But only under very special and selected conditions could a TVS be used as a regulator.

I have not seen a TVS used as a regulator in any system.

If there is such please let us know.