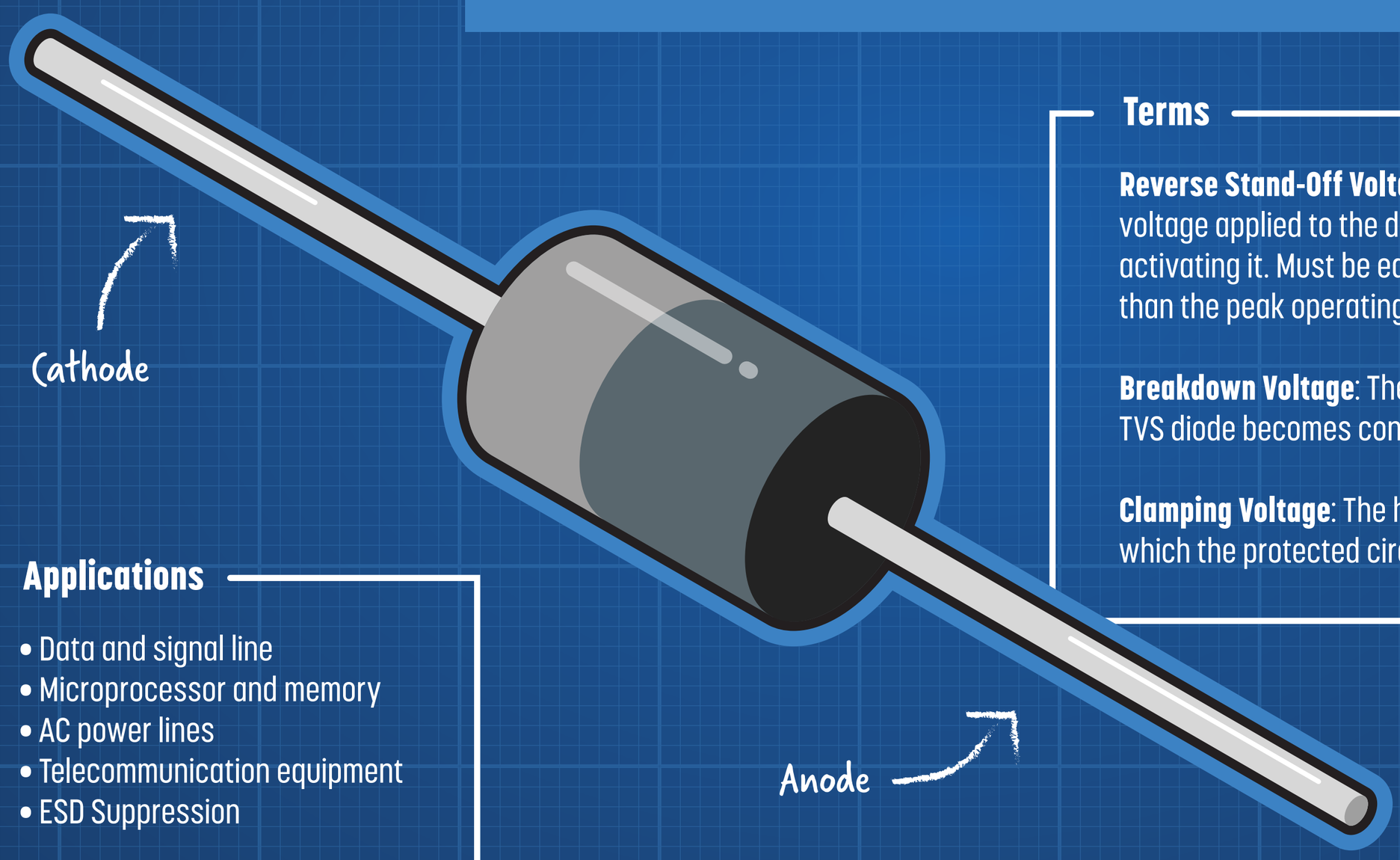
@ttiinc

What are TVS DIODES?

Transient Voltage Suppression (TVS) Diodes provide a safe path for voltage or current spikes (**Transients**) to go to ground, safely away from sensitive semiconductors. During normal operation, TVS diodes are non-conductive, but when a transient occurs, the TVS diode becomes conductive and safely shunts the transient away from the protected circuit.

They can be commonly found protecting components from **Electrostatic Discharges (ESD)** or keeping transients away from sensitive data lines on PCBs.



Terms

Reverse Stand-Off Voltage: The maximum voltage applied to the diode without activating it. Must be equal to or greater than the peak operating voltage.

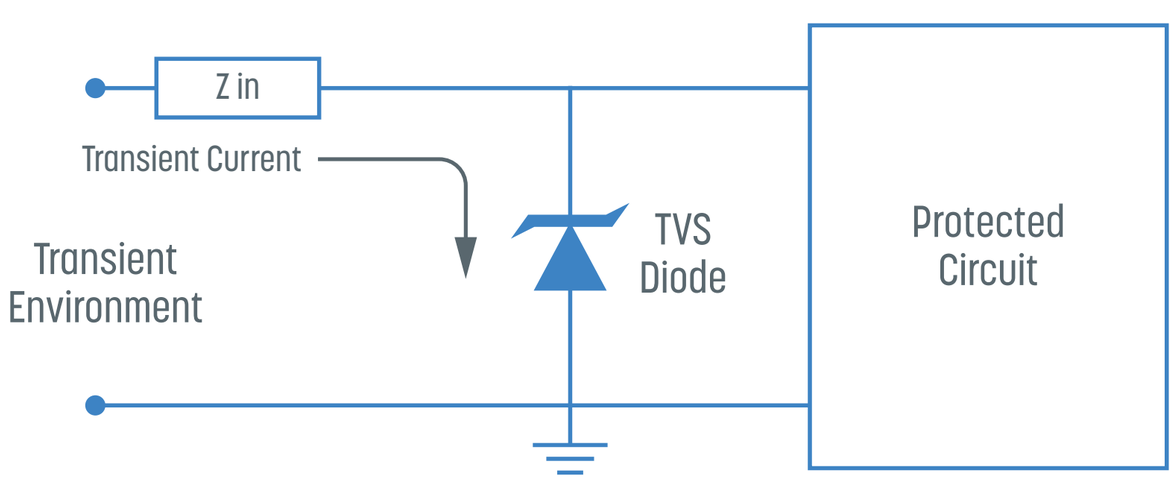
Breakdown Voltage: The voltage where the TVS diode becomes conductive.

Clamping Voltage: The highest voltage to which the protected circuit will be exposed.

Applications

- Data and signal line
- Microprocessor and memory
- AC power lines
- Telecommunication equipment
- ESD Suppression

Circuit Diagram



Types

Unidirectional: Works like a normal diode in the forward direction, and works similar to a zener diode in reverse.

Bidirectional: Does not conduct in either direction until the voltage threshold is reached.