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DEFINING THE REQUIREMENTS FOR PROTECTION

- Joule rating - maximum amount of energy a device can absorb without being destroyed
 - Power = voltage * current or $P = V \cdot I$ (watts)
 - Joule = power/time or 1 Joule = 1 watt/second
- Joule ratings are misleading since there are many variables that define the Joule rating (type of test pulse, time duration, peak current, clamp voltage, non-linearity of components, etc.)
- There is no industry standard for determining/calculating a Joule rating.
- Joule rating is not a criteria defined by ANSI/IEEE as criteria deemed essential for a surge suppressor.

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listings and recognitions for the component, it should not be inferred that a specific SPD could be installed in every piece of electrical distribution equipment or end-use equipment.

13.5 Joule ratings

The joule rating should not be a method for specifying SPDs. Published joule ratings on SPD components are likely not comparable because some manufacturers of SPDs publish data based on waveforms that are not standardized. In addition, a higher joule rating associated with a specific SPD does not correlate with the performance of the device. The opposite can be true. For example, a component with a high joule rating could provide a high let-through voltage. Generally, this characteristic for SPDs is undesirable. A voltage limiting component rated for a lower operating voltage (maximum continuous operating voltage) would have less joules but be a more effective unit. It is also impossible to compare joule ratings for voltage limiting components with joule ratings for voltage switching components. For these reasons, joule ratings are not accepted as a method for comparing SPDs.