

## Secondary Protection

Secondary protectors (stand alone units or integrated into strip protectors and UPSs) are adjunct devices used to enhance the protection level of customer premise equipment (CPE). Due to the inadequate level of protection designed into CPE, secondary protectors often are required to prevent premature failure of equipment exposed to environmental hazards (Figure 3.53).

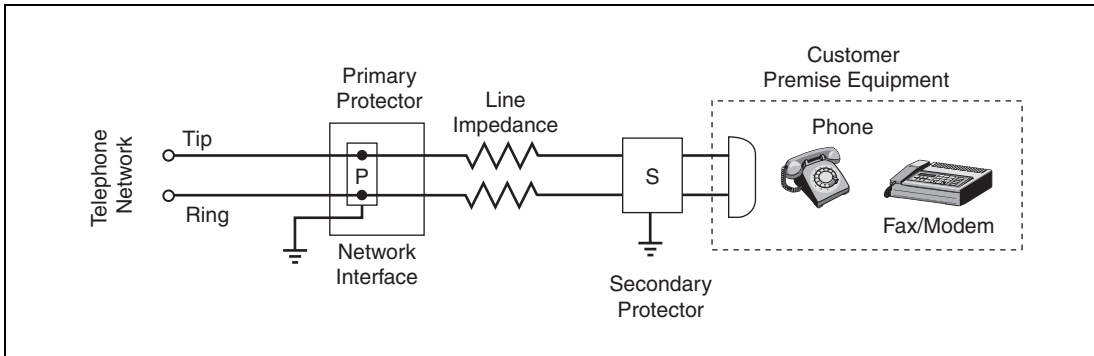


Figure 3.53 CPE Secondary Protection

### Protection Requirements

Secondary protectors should be able to withstand overvoltages that can exceed 800 V and surge currents up to 100 A. Figure 3.54 illustrates a *SIDACtor* device selected because the associated peak pulse current ( $I_{PP}$ ) is sufficient to withstand the lightning immunity tests of TIA-968-A (formerly known as FCC Part 68) without the additional use of series line impedance. Likewise, Figure 3.54 illustrates a fuse selected because the amps<sup>2</sup>time ( $I^2t$ ) rating is sufficient to withstand the lightning immunity tests of TIA-968-A, but low enough to pass UL power cross conditions.

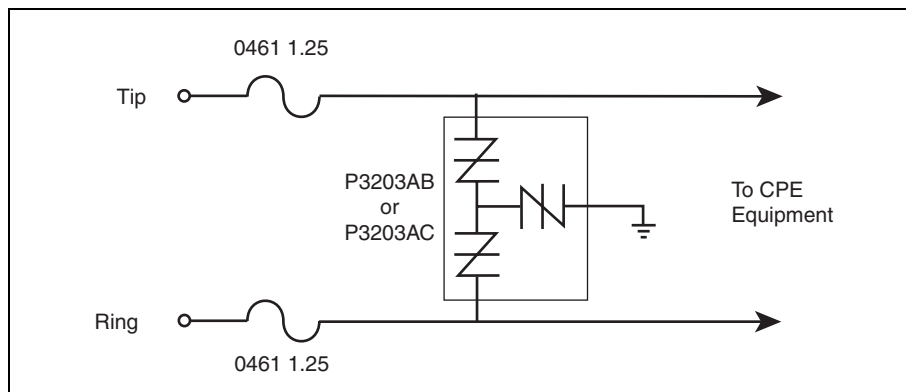


Figure 3.54 CPE Protection

### Secondary Protection Reference Circuit

Figure 3.53 also shows an example of an interface design for a secondary protector. The P3203AB *SIDACtor* device is used because the peak off-state voltage ( $V_{\text{DRM}}$ ) is greater than the potential of a Type B ringer signal superimposed on the POTS (plain old telephone service) battery.

$$150 V_{\text{RMS}} \sqrt{2} + 56.6 V_{\text{PK}} = 268.8 V_{\text{PK}}$$

Coordination between the station protector and the secondary protector occurs due to the line impedance between the two devices. The line impedance helps ensure that the primary protector will begin to conduct while the secondary protector limits any of the let-through voltage to within the  $V_{\text{S}}$  rating of the *SIDACtor* device.