

CATV Equipment

As cable providers enter the local exchange market, protection of CATV (Community Antenna TV) equipment becomes even more critical in order to ensure reliable operation of equipment and uninterrupted service.

Protection Requirements

CATV line equipment should be able to withstand overvoltages that exceed 6000 V and surge currents up to 5000 A. CATV station protectors should be able to withstand overvoltages that exceed 5000 V and surge currents up to 1000 A. The *SIDACtor* devices illustrated in Figure 3.47 through Figure 3.50 meet these requirements.

The following regulatory requirements may apply:

- UL 497C
- SCTE IPS-SP-204
- SCTE Practices
- NEC Article 830

Power Inserter and Line Amplifier Reference Circuit

Figure 3.47 and Figure 3.48 show how the P1900ME *SIDACtor* device is used to protect line amplifiers and power supplies versus using two SCRs and one *SIDACtor* device (Figure 3.49). The P1900ME is used because the peak off-state voltage (V_{DRM}) is well above the peak voltage of the CATV power supply ($90 V_{RMS} \sqrt{2}$), and the peak pulse current rating (I_{PP}) is 3000 A.

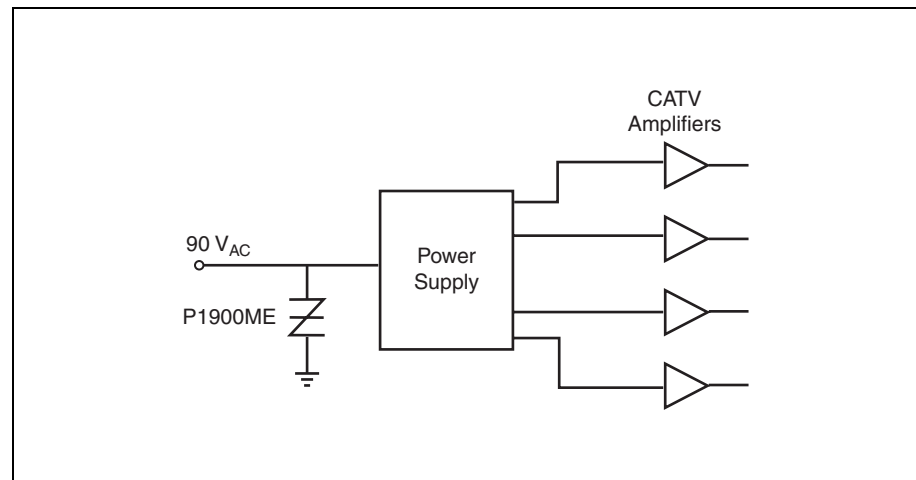


Figure 3.47 CATV Amplifier Diagram

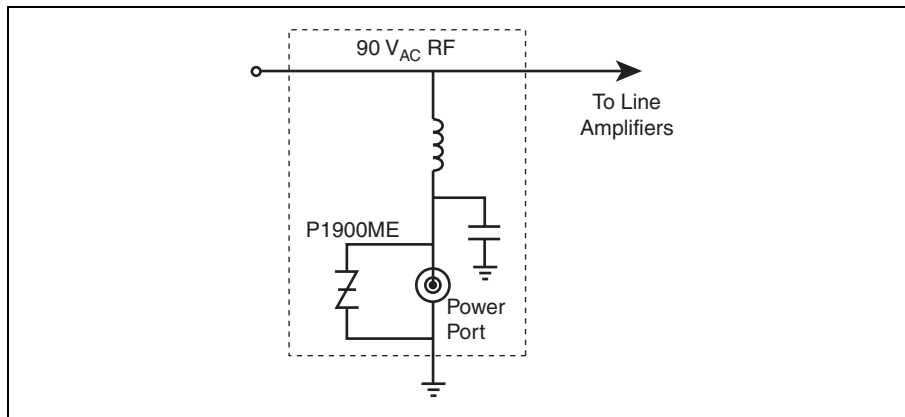


Figure 3.48 CATV Amplifier Protection (incorporated into a power inserter module)

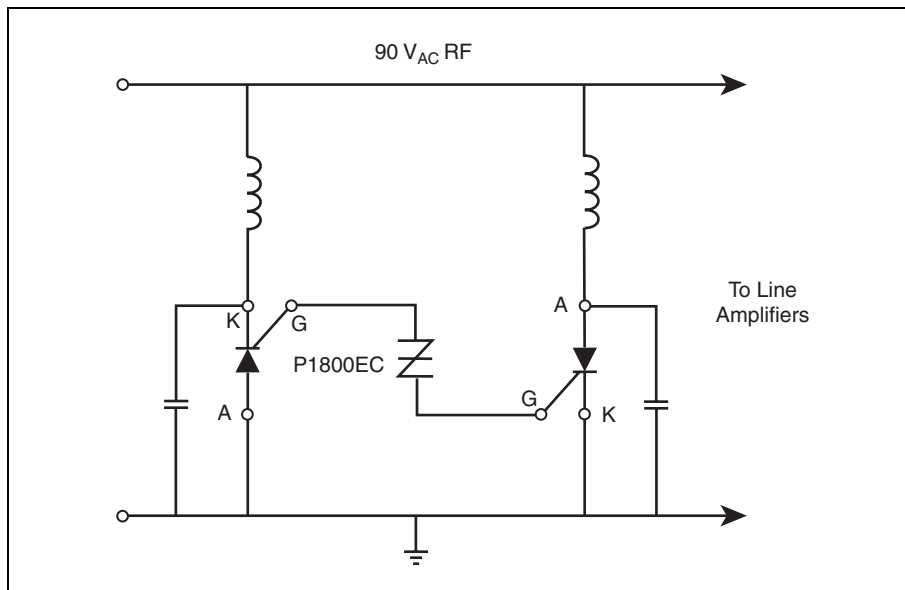


Figure 3.49 CATV Amplifier Protection

Station Protection Reference Circuit

Figure 3.50 shows a P1400AD *SIDACtor* device used in a CATV station protection application. Note that a compensation inductor may be required to meet insertion and reflection loss requirements for CATV networks. If so, the inductor should be designed to saturate quickly and withstand surges up to 200 V and 1000 A. An inductor with a core permeability of approximately 900 Wb/A·m and wound with 24-gauge wire to an inductance

of 20 μH to 30 μH is an example of a suitable starting point, but the actual value depends on the design and must be verified through laboratory testing.

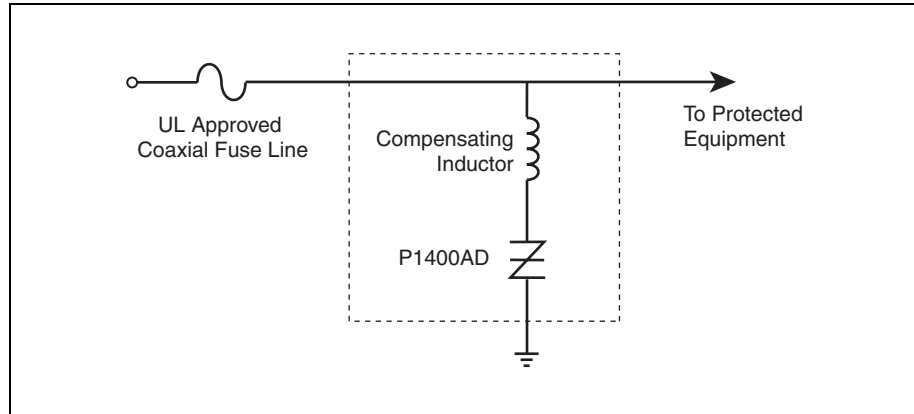


Figure 3.50 CATV Station Protection

Reference Designs