

# Wireless Network Base Station AC and DC Power Line Circuit Protection

## Littelfuse High Power TVS Diode Series (AK, LTKAK, SMTOAK2, and SMTAK3)



## Base Station power line protection devices help prevent service disruptions to customers, improve system reliability, and lower maintenance costs.

Wireless network base stations need protection from overvoltage and overcurrents. These conditions are due to lightning strikes, power line accidents, and other disturbances. Most base stations are in remote, lightning-prone areas, where quick access and efficient repair is difficult and expensive. Using appropriate protective circuits and devices helps lower damage risks.

## Power Input Line Risks and Protection

The primary sources of danger to wireless network base stations are lightning and power faults. A strike directly to or nearby the tower can produce high voltages and cause considerable currents to flow through the power input lines. Short circuits can produce similar surges to higher-voltage transmission lines and switching transients. The resulting damage will incur repair time, service downtime, and customer disruptions., service downtime and and disruptions to customers. The most appropriate protection for these power input lines is a combination of fuses and high-power TVS diodes installed in the AC power distribution box. Diodes installed in the AC power distribution box.

Field service call



Strike at base station tower



## Using appropriate protective devices improves reliability and minimizes field service calls.

The Littelfuse high-power TVS Diode Series, including the AK, LTKAK, SMTOAK2, and SMTAK3, are specifically designed for applications that require high energy transient voltage protection.

### Littelfuse TVS Diode Series: AK, LTKAK, SMTOAK2, and SMTAK3

Littelfuse High Power TVS Diode Series, including the AK, LTKAK, SMTOAK2, and SMTAK3, offers superior clamping performance over standard Silicon Avalanche Diode (SAD) technologies.

They offer unique characteristics that provide a clamping voltage lower than the avalanche voltage and above the rated working voltage. Any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level.

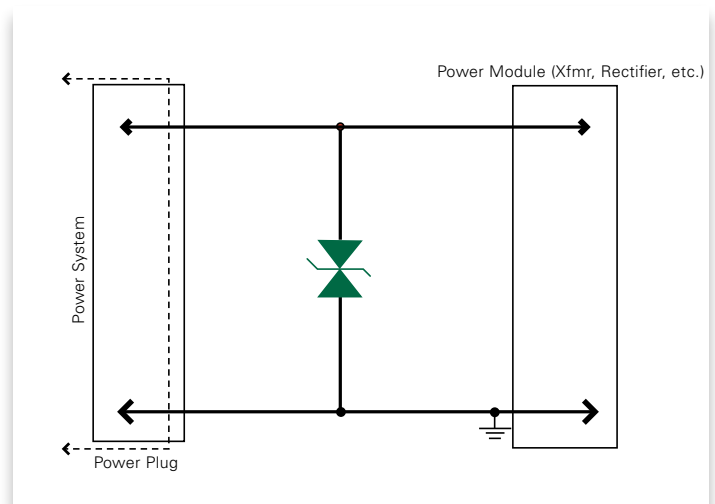
Connect the Littelfuse TVS Diode Series (AK, LTKAK, SMTOAK2, and SMTAK3) in either series or parallel to create high-capacity protection solutions.

High Power TVS Diodes offer a better solution than more conventional overvoltage protection methods, while the surface-mounted LTKAK, SMTOAK2, and SMTAK3 Series are ideal solutions for low profile compact space requirements.

### Compared to conventional technologies, High Power TVS Diode Series offers the following benefits:

- Precise clamping voltage
- No wear-out mechanism
- Lower leakage
- Faster response
- Compact design (LTKAK, SMTOAK2, and SMTAK3 series)
- SMD package compatible with automated PCB assembly process (LTKAK and SMTOAK2 series)
- Improved lead inductance enabling lower clamping voltages
- Improved heat sink capability
- High power density, rated 2 kA 8/20  $\mu$ s in a small footprint 10 mm x 15 mm x 5 mm (SMTOAK2 series)

### High Energy TVS for power supply protection



Using high-power TVS Diodes in a power supply configuration offer advantages over conventional methods, including no wear-out mechanism, faster response, and compact design.