REPSUN

Technology Creates Dreams,Safety Achieves Future.

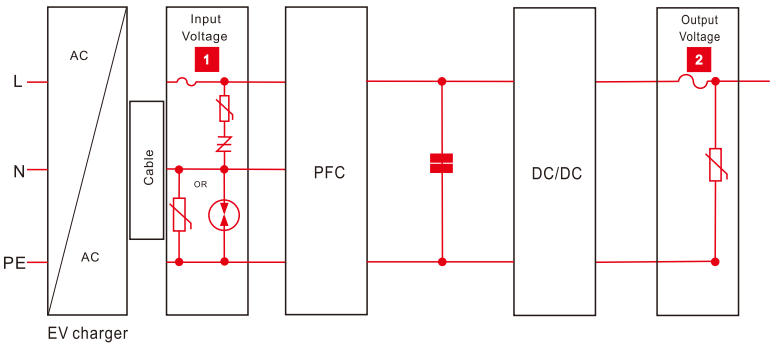
Lightning Surge Protection for EV Charging

IEC 60364-7-722 requires that Electric Vehicle(EV) Charging Systems and Electric Vehicle Supply Equipment (EVSE) installed in locations accessible to the public be protected against transient overvoltages,surge current and indirect lightning strikes.Surge protective devices or PCB mounted thermal MOVs (PCB-TMOV) are necessary to be installed in indoor EVSE,outdoor EVSE and On-board chargers which are more susceptible to surge and lightning strikes.
REPSUN provides the perfect solutions of surge protection for EV chargers and EVSE.

The on-board charger (OBC) is a power electronics device built in electric vehicles that converts AC power from external sources, such as residential outlets, to DC power to charge the vehicle power battery pack.

The off-board charger is connected with the AC power grid to convert the AC power into a controllable DC power supply to charge the vehicle power battery pack. It is generally installed in the DC charging station, also known as the DC charger.

EV Chargers surge protection circuit diagram



For 800-Volt fast charging systems

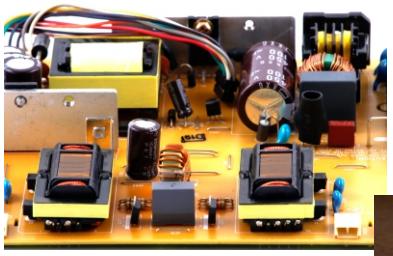
REP-TMOV40-AC320S
Uc: 320Vac
In: 20kA
Imax: 40kA
Up: 1.4kV
TUV mark

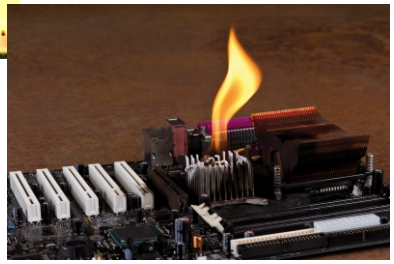
REP-TMOV20-DC1000S
Uc: 1000Vdc
In: 10kA
Imax: 20kA
Up: 2.7kV
Size:14*26*35mm

Advantages of PCB-TMOV vs. MOV

PCB-TMOV	MOV
Offer greater thermal protection with mechanical disconnector and avoid resulting in overheating and fire;	Without mechanical disconnector, MOV in PCB may be burned by the fire caused by thermal runaway due to MOV degradation failure or TOV destroy;
With failure indication, ageing indication and optional remote alarm contact;	Without any alarm function,MOV in the PCB at risk from potential fire hazard;
Module production approach to improve efficiency of PCBA;	Conventional production approach;
Improve the safety of OBC built in EV and ensure the service life of EV chargers and EVSE.	The cost to repair or replace the damaged charging equipment is higher caused by MOV failure.

Potential fire hazard in PCB due to MOV failure





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