

Metal Oxide Varistor : Application Note



Application Note

■ Equipment Protection against Line Transient Damage

The varistors have many advantages which make it ideal for use as a suppressor on AC or DC power line.

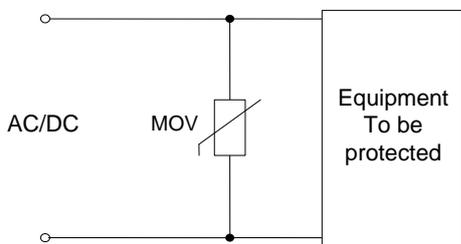


Fig.4
Absorption of line-line
surge in single-phase system

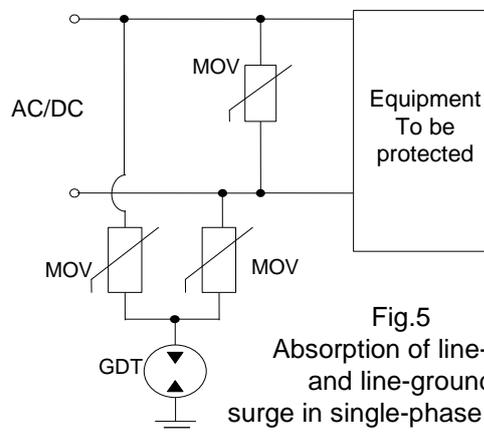


Fig.5
Absorption of line-line
and line-ground
surge in single-phase system

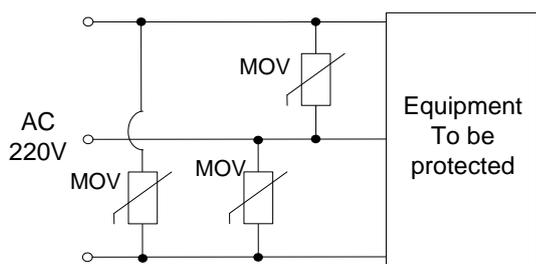


Fig.6
Absorption of line-line
surge in three-phase system

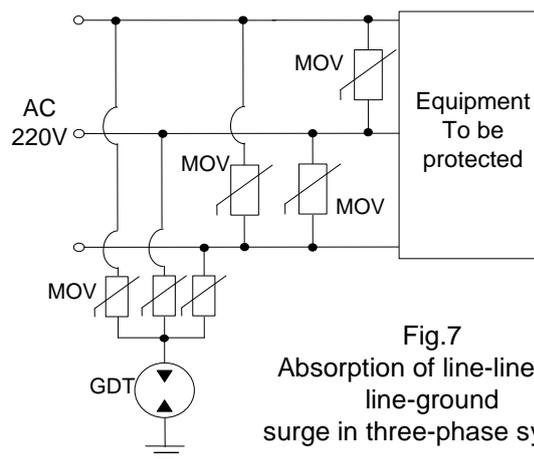


Fig.7
Absorption of line-line
and line-ground
surge in three-phase system

■ Protection of Components Switching Inductive Load

The transistor in Fig.8 is to operate a solenoid, inductive load. The energy stored in inductor is dissipated in the reverse bias conduction of the transistor and might cause transistor breakdown. A varistor can be connected to dissipate the stored energy in the forward bias state without damaging the transistor.

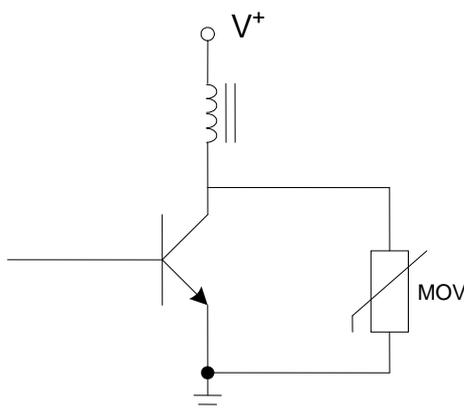


Fig.8
Solenoid circuit with
varistor protection

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■ Transient Protection of Solid State Circuit

Modern electronic equipments and appliances contain solid state circuits, and the circuits are susceptible to be malfunctioned or damaged by transient voltage spikes.

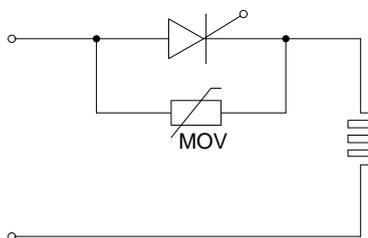


Fig.9
Semiconductor protection

■ Extend the Life of Relay Contacts

When the current in inductive load is interrupted by mechanical contacts, the voltage across the contacts builds up and causes arcing which is destructive to the contacts. Varistors can be applied to prevent initiation of the arc.

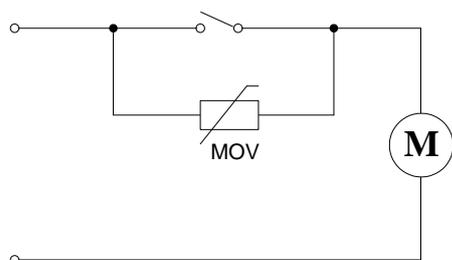


Fig.10
Contact protection

■ LED Driver Surge Protection & LED ESD Protection

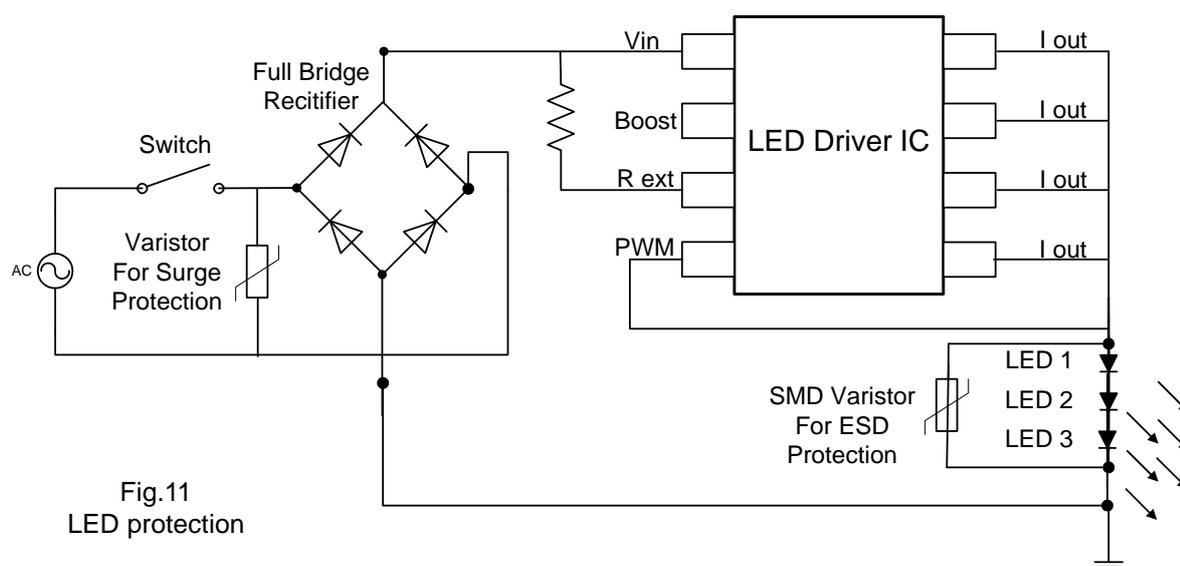


Fig.11
LED protection

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■ Thermally Protected Varistor Application Circuit

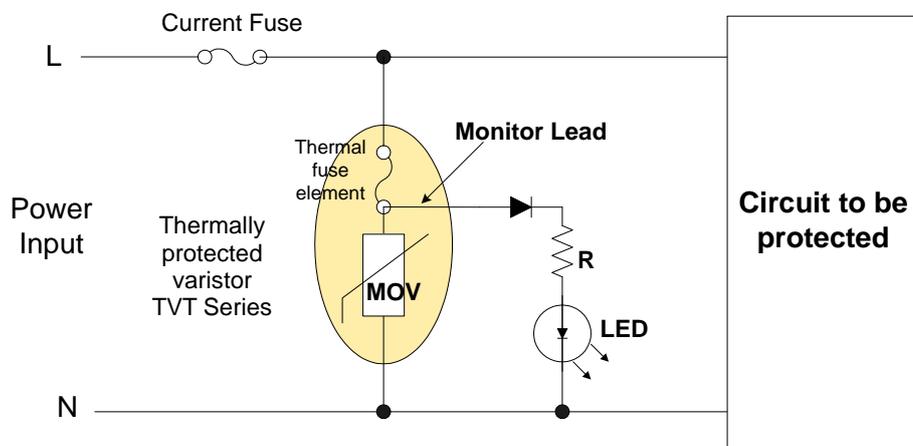


Fig.12
Thermally protected
varistor for power
protection

■ IC Protection against Electro-Static Discharge (SMD Varistor Application)

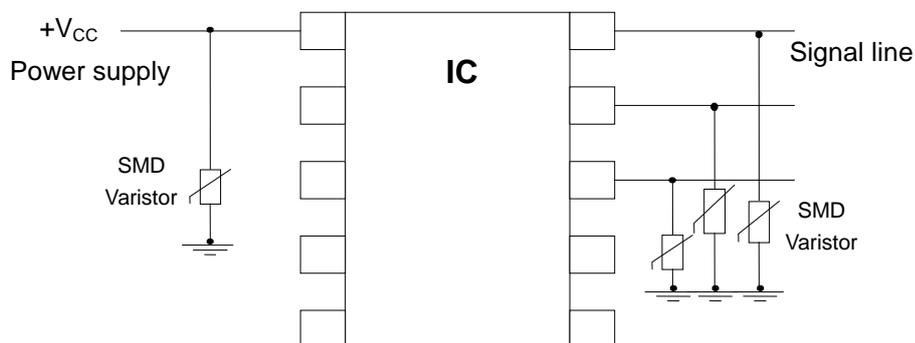


Fig.13
IC protection

■ Noise Suppression (SMD Varistor Application)

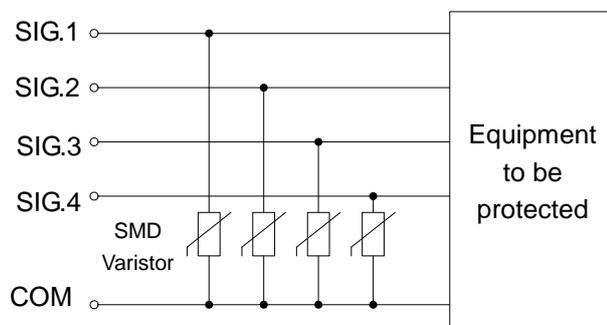


Fig.14
Protection of signal
equipment

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■ USB Protection (SMD Varistor Application)

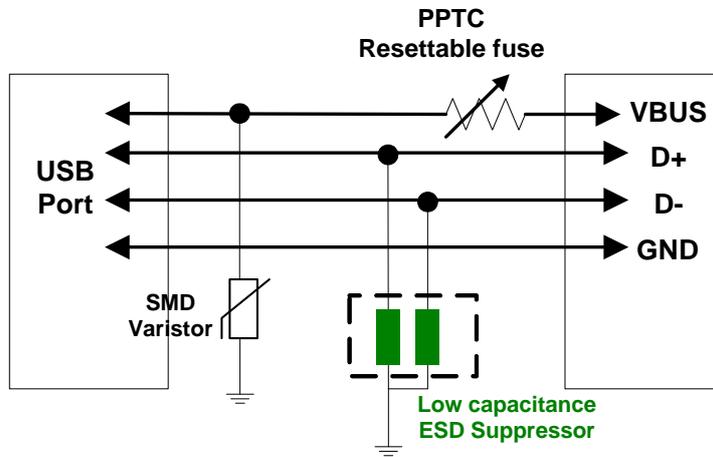


Fig. 15
USB
protection