

# Metal Oxide Varistor : Application Note

## ■ Equipments 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.

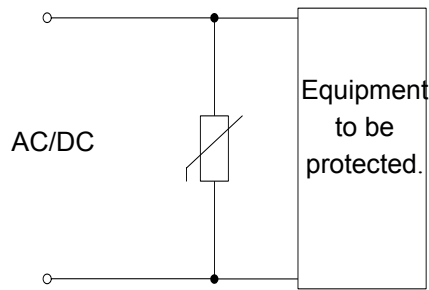


Fig.3  
Absorption of Line-Line  
Surge in Single-phase System

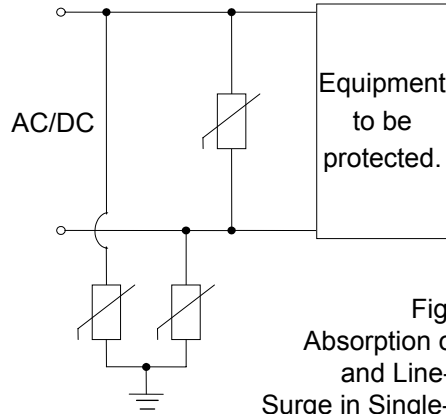


Fig.4  
Absorption of Line-Line  
and Line-Ground  
Surge in Single-phase System

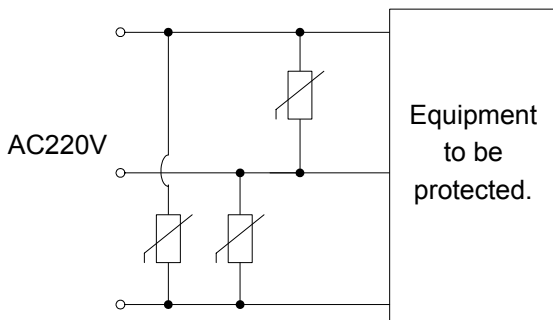


Fig.5  
Absorption of Line-Line  
Surge in Three-phase System

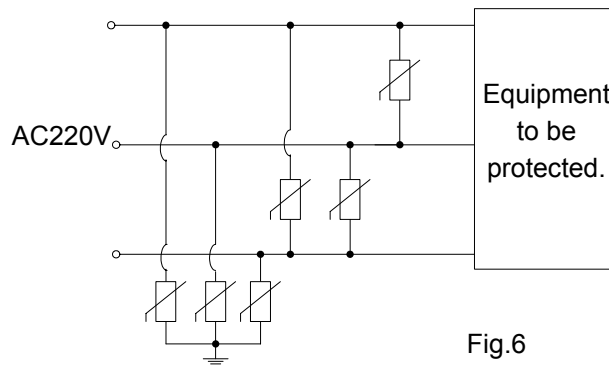


Fig.6  
Absorption of Line-Line  
and Line-Ground  
Surge in Three-phase System

## ■ Protection of components switching inductive load

The transistor in Fig.7 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, collector-to-base, to dissipate the stored energy in the forward bias state without damaging the transistor.

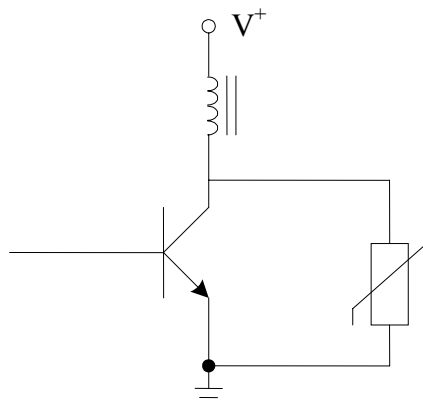


Fig.7  
Solenoid Circuit with  
Varistor Protection.

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## ■ Transient protection of solid state circuit

Modern electronic equipments and appliances contain solid state circuits that are susceptible to malfunction or damage caused by transient voltage spikes.

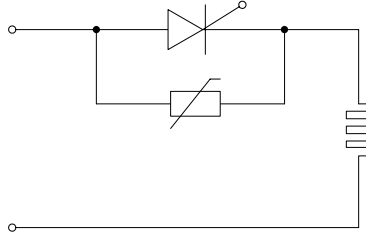


Fig.8  
Semiconductor Protection

## ■ 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 cause arcing which is destructive to the contacts. Varistors can be applied to prevent initiation of the arc.

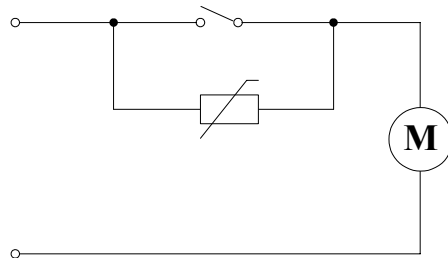


Fig.9  
Contact Protection

## ■ IC protection against electro-static discharge(ESD)

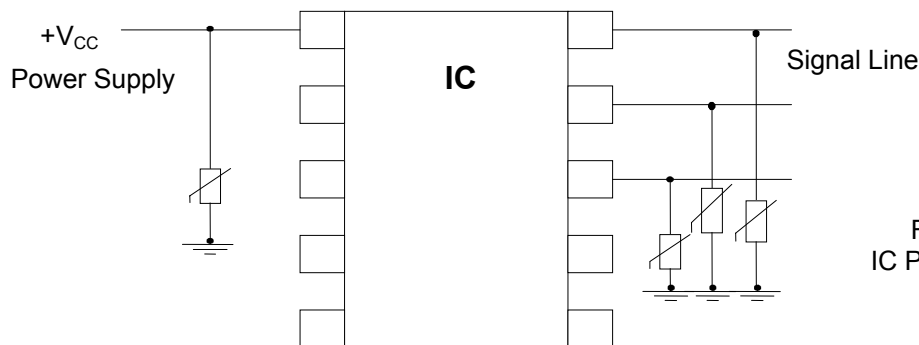


Fig.10  
IC Protection

## ■ Noise Suppression

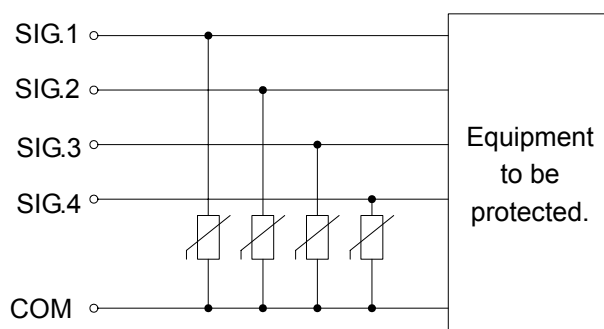


Fig.11  
Protection of Signal  
Equipment