Bourns® GMOV™ Hybrid Overvoltage Protection Component

Product Introduction Training Module

2019

BOURNS®

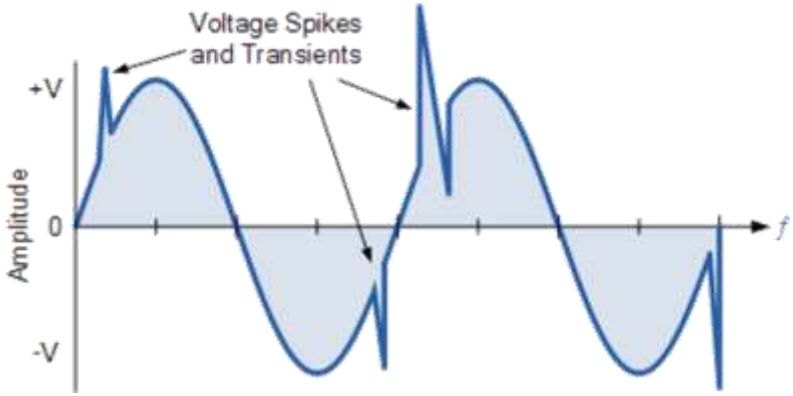
Introduction

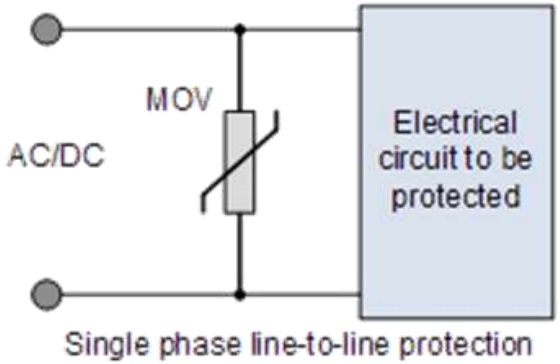
- Introducing Bourns' innovative GMOV™ Hybrid Overvoltage Protection Component
- Bourns® GMOV™ is the first single-component solution to combine the technology of a MOV and GDT
- This presentation will provide weaknesses of MOV components and information on how the GMOV™ is constructed, its operational characteristics, target applications and why it is a superior solution

Transient Protection

Solutions:

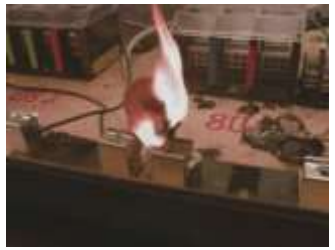
- AC circuits: across mains supply
- DC circuits: between conductors





Single phase line-to-line protection

Issues with MOV components



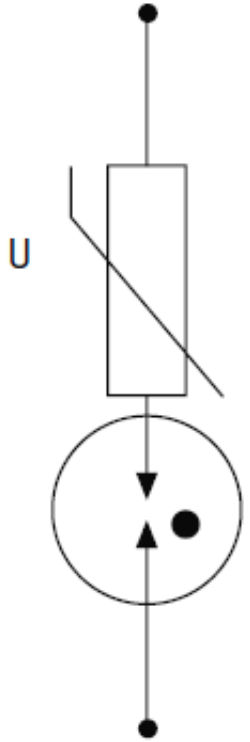
MOV degradation and failure:

- Constant AC/DC line voltage stresses
- Lightning
- Switching transients
- Temporary overvoltage (TOV)
- Increasing leakage current with surge history, time & temperature
- Leakage-caused watt-loss heating that can eventually kill the MOV

What is a GMOV

- Bourns has developed a breakthrough hybrid protection component that solves many of the issues related to using a discrete MOV alone. The Bourns GMOV device combines Bourns' patented, space-saving FLAT GDT and a MOV that extends the operational life of the MOV by isolating it from line voltage.

Animation to show the two combining



GMOV™ Component Features and Benefits

FEATURES

- Hybrid design
- 14 mm and 20 mm sizes
- Voltage ratings from 45 Vrms to 320 Vrms
- Engineered MOV & GDT pairings
- UL 1449, Issue 4, type 5 recognized component
- RoHS compliant*

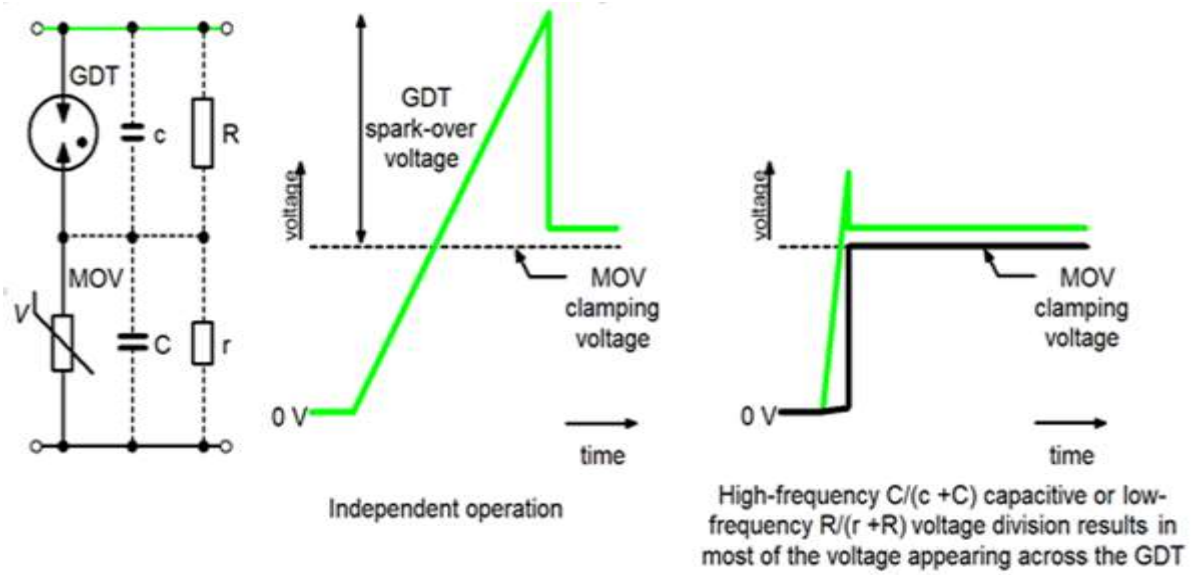
BENEFITS

- Drop-in compatible to standard MOV
- Compact size
- No current leakage
- Max. current ratings of 6 kA/10 kA
- Extends operational life of the MOV by isolating it from line voltage
- Reduced risk of thermal runaway
- Low capacitance (4 pF)
- Predictable failure mode
- Temperature tolerant

**RoHS Directive 2015/863, Mar 31, 2015 and Annex.*

gMOV™

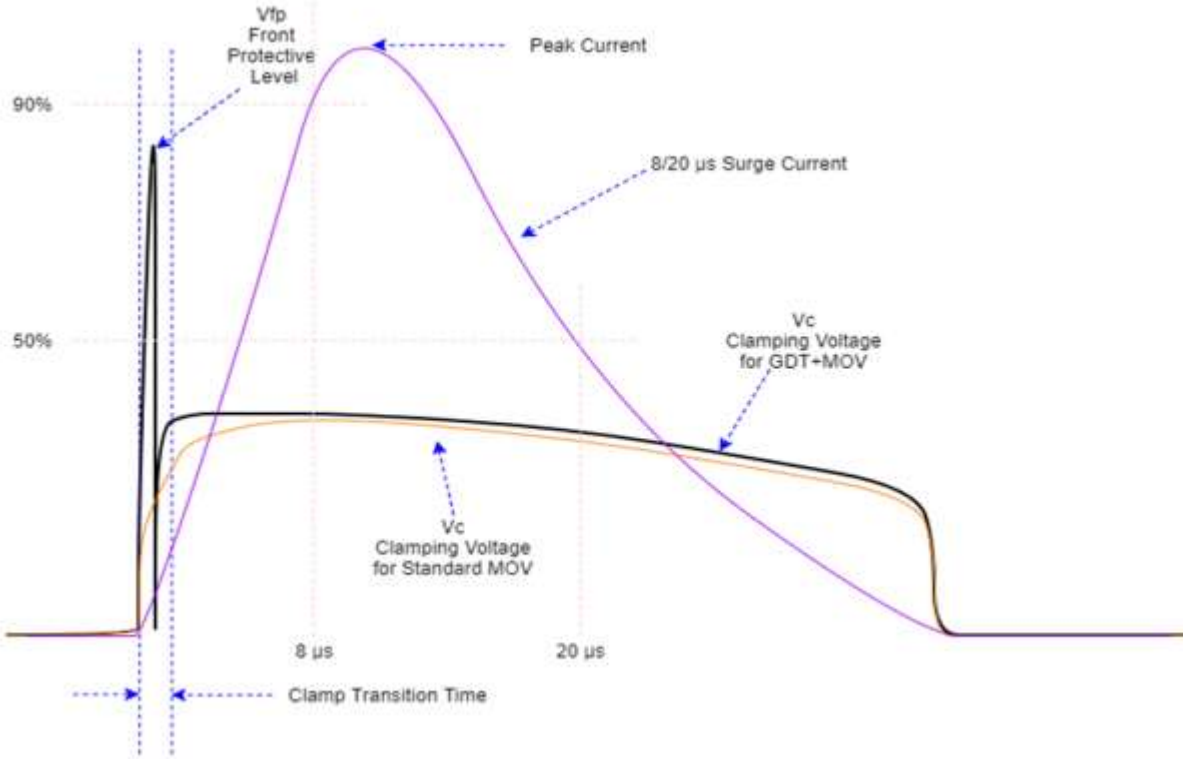
How does a GMOV™ Component Protect?



- The GDT reacts first as a result of capacitive or resistive voltage division
- With the GDT fully turned-on, the voltage across the MOV increases and it will begin to clamp
- With both devices in the on-state, the GMOV™ device achieves its fully protective mode of operation
- Reset of the GMOV™ device occurs when the resistance of the MOV limits the follow-on current allowing the GDT to switch-off

GMOV™ Component Clamping Waveform

The GMOV™ component is defined by the combination of GDT and MOV operating characteristics of Front Protection Level and Clamping Voltage.



Vfp-Front Protection Level

- Temporary and very short duration voltage that appears across the device prior to GDT turn-on

Vc-Clamping voltage

- Total of the MOV clamping voltage + the arc voltage of the GDT

Target applications

- Power supplies
- Traffic control equipment
- Solar inverters
- Surge Protective Devices
- Appliances requiring Energy Star® ratings
- Power line communications

GMOV™ Summary

GMOV™ Hybrid Overvoltage Components should be used where a higher level of performance and reliability is needed to protect AC and DC power circuits.

- Performance and reliability
- Flexible, adaptable protection
- Advantage through lower leakage current and reduced capacitance

Thank you!

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