

# NEW PRODUCT BRIEF



## Bourns® Fully Integrated IsoMOV™ Hybrid Protector

### INTRODUCTION

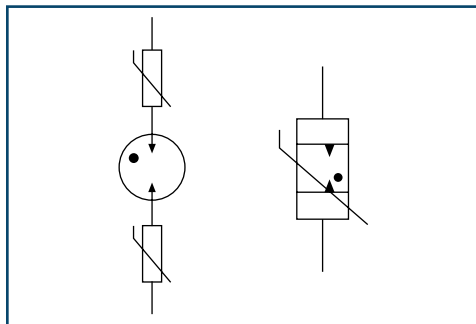
Bourns is pleased to announce its groundbreaking lineup of IsoMOV™ hybrid protection components. By combining the best features of the breakthrough surge performance EdgMOV™ technology with an integrated Gas Discharge Tube (GDT) isolation structure, the IsoMOV™ protector offers high reliability and long life including in certain harsh environments.

The IsoMOV™ Hybrid Protector Series is an upgrade to nearly any MOV power application where premium performance and/or space savings are valued. The extended temperature range, low leakage and superb energy handling density are especially advantageous to industrial and other applications exposed to high surges.

The IsoMOV™ device's unique and graceful end-of-life failure mode quickly and cleanly blows the line fuse, never leaving equipment unprotected and eliminating the need for any indicator circuitry.

The IsoMOV™ protector family of products includes three unique series of devices; Model IsoM3, IsoM5 and IsoM8. With nominal surge ratings of 3 kA, 5 kA and 8 kA, these revolutionary new protectors offer performance usually found in larger traditional MOV devices.

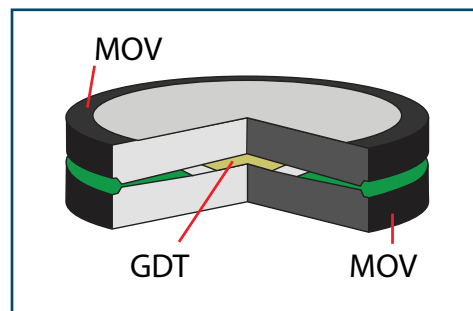
### CIRCUIT DIAGRAM & SCHEMATIC SYMBOL



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

### UNIQUE CONSTRUCTION

The IsoMOV™ protector fully integrates the classic GDT and MOV in a symbiotic relationship, enhancing reliability and performance. In this configuration, the GDT blocks leakage currents through the MOV that would otherwise lead to premature failure of the MOV device, while the MOV prevents the follow-on current (after a surge) that might damage the GDT.



Using proprietary computer-aided design techniques to model performance, Bourns engineers created the equivalent function of a discrete MOV and GDT in series. After assembly of the core, leads are attached, and the unit is epoxy coated. The result is a familiar radial disc MOV package that is only slightly thicker and of substantially smaller diameter than similarly rated conventional devices.

### ISO MOV™ PROTECTOR vs BENCHMARK MOV (Nominal Surge Rating)

| Product                   | 10 mm | 14 mm | 20 mm |
|---------------------------|-------|-------|-------|
| Best-in-Class MOV         | 2000  | 3000  | 5000  |
| IsoMOV™ Hybrid Protectors | 3000  | 5000  | 8000  |

In fact, the surge ratings of IsoMOV™ protectors are comparable to the surge ratings of the next larger size of conventional MOV devices. This offers designers the flexibility of choosing an IsoMOV™ protector that is smaller than the MOV option or choosing an IsoMOV™ protector of the same size as the MOV option and enhancing the surge capability of their protection scheme.

### FEATURES

- AC voltage ratings: 175 V - 555 V
- Nominal surge ratings: 3 kA - 5 kA - 8 kA
- -40 °C to +125 °C operation
- Low leakage current
- Low capacitance
- Stable performance over life
- UL 1449 Type 4 CA listed
- IEC 61051-2/IEC 61051-1 Certified (TÜV Rheinland)
- RoHS compliant\*

### BENEFITS

- Enhanced reliability
- Long service life
- Improved surge ratings
- Suitable for exposed circuits
- Increased voltage protection
- Ring wave tolerant
- Reduced down time/service costs

### APPLICATIONS

- Critical AC power applications
- White goods
- Motor drives
- AC inverters
- LED lighting & signage
- Surge Protective Devices (SPDs)

### HOW TO ORDER

Model Designator **IsoM 8 - 320 - B - L2**  
IsoM = IsoMOV™ Hybrid Protection Component  
Component I<sub>nom</sub> Rating  
3 = 3 kA  
5 = 5 kA  
8 = 8 kA  
RMS Voltage  
See Electrical Characteristics Table  
Packaging  
B = Bulk (Standard)  
R = Reel Pack\*\*  
Lead Style\*\*\*  
L2 = In-Line Leads (Standard)

\*\*Reel Pack option not available for IsoM8 models.

\*\*\*L1 and L5 lead styles available upon request.

## Bourns® Fully Integrated IsoMOV™ Hybrid Protector

ELECTRICAL CHARACTERISTICS<sup>(1)</sup> (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

| Bourns<br>Part No.        | Operating                                      |                 |                                          |                        | Protection                          |               |                                 |                                  |                          |                |
|---------------------------|------------------------------------------------|-----------------|------------------------------------------|------------------------|-------------------------------------|---------------|---------------------------------|----------------------------------|--------------------------|----------------|
|                           | Max. Continuous<br>Operating Voltage<br>(MCOV) |                 | Max.<br>Leakage<br>@ MCOV <sup>(2)</sup> | Nominal<br>Capacitance | I <sub>nom</sub> <sup>(3) (4)</sup> |               | I <sub>max</sub> <sup>(4)</sup> | Ring Wave<br>Surge<br>IEEE 62.41 | Max.<br>Clamping Voltage |                |
|                           | V <sub>rms</sub>                               | V <sub>dc</sub> | A <sub>dc</sub>                          | 20 kHz                 | 15 Operations                       | 10 Operations | 1 Operation                     | 200 A                            | V <sub>c</sub>           | I <sub>c</sub> |
|                           | V                                              | V               | μA                                       | pF                     | A                                   | A             | A                               | Operations                       | V                        | A              |
| <a href="#">IsoM3-175</a> | 175                                            | 225             | < 10                                     | 30                     | 3,000                               |               | 6,000                           | ± 250                            | 470                      | 50             |
| <a href="#">IsoM3-230</a> | 230                                            | 300             | < 10                                     | 30                     | 3,000                               |               | 6,000                           | ± 250                            | 620                      | 50             |
| <a href="#">IsoM3-250</a> | 250                                            | 320             | < 10                                     | 30                     | 3,000                               |               | 6,000                           | ± 250                            | 675                      | 50             |
| <a href="#">IsoM3-275</a> | 275                                            | 350             | < 10                                     | 30                     | 3,000                               |               | 6,000                           | ± 250                            | 730                      | 50             |
| <a href="#">IsoM3-300</a> | 300                                            | 385             | < 10                                     | 30                     | 3,000                               |               | 6,000                           | ± 250                            | 800                      | 50             |
| <a href="#">IsoM3-320</a> | 320                                            | 415             | < 10                                     | 30                     | 3,000                               |               | 6,000                           | ± 250                            | 875                      | 50             |
| <a href="#">IsoM5-175</a> | 175                                            | 225             | < 10                                     | 40                     | 5,000                               |               | 10,000                          | ± 250                            | 470                      | 100            |
| <a href="#">IsoM5-230</a> | 230                                            | 300             | < 10                                     | 40                     | 5,000                               |               | 10,000                          | ± 250                            | 620                      | 100            |
| <a href="#">IsoM5-250</a> | 250                                            | 320             | < 10                                     | 40                     | 5,000                               |               | 10,000                          | ± 250                            | 675                      | 100            |
| <a href="#">IsoM5-275</a> | 275                                            | 350             | < 10                                     | 40                     | 5,000                               |               | 10,000                          | ± 250                            | 730                      | 100            |
| <a href="#">IsoM5-300</a> | 300                                            | 385             | < 10                                     | 40                     | 5,000                               |               | 10,000                          | ± 250                            | 800                      | 100            |
| <a href="#">IsoM5-320</a> | 320                                            | 415             | < 10                                     | 40                     | 5,000                               |               | 10,000                          | ± 250                            | 875                      | 100            |
| <a href="#">IsoM5-380</a> | 385                                            | 505             | < 10                                     | 40                     | 5,000                               |               | 10,000                          | ± 250                            | 1000                     | 100            |
| <a href="#">IsoM5-420</a> | 420                                            | 560             | < 10                                     | 40                     | 5,000                               |               | 10,000                          | ± 250                            | 1100                     | 100            |
| <a href="#">IsoM5-510</a> | 510                                            | 670             | < 10                                     | 40                     | 5,000                               |               | 10,000                          | ± 250                            | 1300                     | 100            |
| <a href="#">IsoM5-555</a> | 555                                            | 745             | < 10                                     | 40                     | 5,000                               |               | 10,000                          | ± 250                            | 1400                     | 100            |
| <a href="#">IsoM8-250</a> | 250                                            | 320             | < 10                                     | 50                     |                                     | 8,000         | 15,000                          | ± 250                            | 675                      | 200            |
| <a href="#">IsoM8-275</a> | 275                                            | 350             | < 10                                     | 50                     |                                     | 8,000         | 15,000                          | ± 250                            | 730                      | 200            |
| <a href="#">IsoM8-300</a> | 300                                            | 385             | < 10                                     | 50                     |                                     | 8,000         | 15,000                          | ± 250                            | 800                      | 200            |
| <a href="#">IsoM8-320</a> | 320                                            | 415             | < 10                                     | 50                     |                                     | 8,000         | 15,000                          | ± 250                            | 875                      | 200            |
| <a href="#">IsoM8-380</a> | 385                                            | 505             | < 10                                     | 50                     |                                     | 8,000         | 15,000                          | ± 250                            | 1000                     | 200            |
| <a href="#">IsoM8-420</a> | 420                                            | 560             | < 10                                     | 50                     |                                     | 8,000         | 15,000                          | ± 250                            | 1100                     | 200            |
| <a href="#">IsoM8-510</a> | 510                                            | 670             | < 10                                     | 50                     |                                     | 8,000         | 15,000                          | ± 250                            | 1300                     | 200            |
| <a href="#">IsoM8-555</a> | 555                                            | 745             | < 10                                     | 50                     |                                     | 8,000         | 15,000                          | ± 250                            | 1400                     | 200            |

<sup>(1)</sup> At delivery AQL 0.65 Level II, DIN ISO 2859.<sup>(2)</sup> Max. leakage limits after life ratings may exceed 10 μA, but will continue to protect at MCOV.<sup>(3)</sup> I<sub>nom</sub> service life specified at 3-minute time intervals between surges with rated MCOV applied during the entire resting period and 15 minutes after the last surge.<sup>(4)</sup> Surge profile 8/20 μs per IEC 61000-4-5.

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