Bourns® MSP® Multi-Stage Protector Series is a new generation of telecommunications protector designed to be the best all-around protection choice on both today and tomorrow's copper pair based communications circuits. It combines the strengths of gas tube and solid-state protectors while eliminating their weaknesses. Bourns® MSP® Multi-Stage Protector series is the synergistic integration of three advanced protection technologies; sixth generation gas tube, precision matched MOVs, and switch-grade fail-short. Working together, these three technologies meet the challenges of the evolving high-speed network.

Bourns® MSP® Series can be used universally on POTS, ISDN, ADSL, SDSL, HDSL, RADS, VDSL, 10BaseT, and T1 carrier. Bourns® MSP® Series is the most economical, reliable, and best performing choice for all paired copper communications circuits.

### Characteristics

Test Methods per ITU-T K.12, IEEE C62.31 and IEC 61643-311 GDT standards.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Model No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Breakdown @ 100-2000 V/s</td>
<td>2026-33-CxM143</td>
</tr>
<tr>
<td>AC Breakdown @ 60 Hz</td>
<td>300 to 400 V</td>
</tr>
<tr>
<td>Impulse Breakdown (1)</td>
<td></td>
</tr>
<tr>
<td>100 V/µs</td>
<td>600 V</td>
</tr>
<tr>
<td>1000 V/µs</td>
<td>650 V</td>
</tr>
</tbody>
</table>

(1) Impulse Sparkover voltage is defined as typical values of distribution.

- Insulation Resistance ......................... 100 Vdc
- Insertion Loss...................................... 10 MHz
- Capacitance Line to Line..................... 1 MHz
- Capacitance Line to Ground................. 1 MHz
- Impulse Reset (DC Extinguishing)... 52 V, 260 mA
- AC Life Characteristics .......... 135 V, 200 mA
- Impulse Life Characteristics ............
  - 100 A, 10/1000 µs > 3000 operations (3)
  - 300 A, 10/1000 µs > 1000 operations (3)
  - 500 A, 10/1000 µs > 1000 operations (4)
  - 2000 A, 10/250 µs > 100 operations (3)
  - 5000 A, 20/100 µs > 10 operations (3)
  - 5000 A, 10/350 µs 1 operation (5)
  - 20000 A, 8/20 µs > 10 operations (3, 5)
- AC Life Characteristics ............... 0.5 A rms continuous
- Life Test Criteria.............................
  - Insulation Resistance Throughout the Life Test 100 MΩ
  - Life Test Failures 0.0 %
  - Failures During Environmental Cycling w/Surges 0.0 %
  - AC Life Characteristics ............... 65 A rms, 11 cycles
  - AC Life Characteristics ............... 120 A rms, 0.1 second
- Fail-Short (vented or non-vented gas tube) ....................... > 30 A rms, simultaneously
- Operation and Storage Temperature......................... -55 to +85 °C
- Climatic Category (IEC 60068-1) ......................... 40/90/21

### Notes:

- UL, cUL Listed. File E153537
- Line to Line voltage is approximately 1.8 to 2 times the stated Line to Ground breakdown voltage.
- At delivery AQL 0.65 Level II, DIN ISO 2859.
- Surpasses Telcordia GR 974 (network applied).
- Exceeds Telcordia GR 1361.
- RUS (REA) PE-80.
- Total current equally divided between each line to ground.


Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.
MSP® Series - Multi-Stage Protector Sub-Assembly

How to Order / Product Dimensions

2026-33-C2M143

15.5 (.610)

7.4 (.291)

Contact factory for custom configurations.

2026-33-C16M143

14.2 (.559)

7.4 (.291)

DIA. 4.3 (.169)

2026-33-C4M143

8.0 DIA. (.315)

1.0 x .04 (.039 x .002)

6.35 (.250)

6.35 (.250)

DIMENSIONS: MM (INCHES)

REV. 10/19

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Users should verify actual device performance in their specific applications.
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C1753 05/17/18R