

# ANTREX Electronics

Electronic Components Sourcing Information

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## Product Reference Information

**Part Number:** GMOV-20D171K  
**Manufacturer:** Bourns Inc.  
**Package:** Disc 20mm  
**Availability:** Please confirm with sales

**Product Page:**

<https://antrexco.com/product/details/bourns-inc/gmov-20d171k.html>

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[Submit RFQ for this part](#)



Scan for product page

## Contact Information

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New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

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**Note:**

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

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## Features

- Hybrid design
- Low leakage
- Bidirectional protection
- Low capacitance
- UL Type 5 Recognized 
- RoHS compliant\*



## GMOV™ Series - 14 & 20 mm Hybrid Protection Component

### General Information

Bourns combines its patented GDT with FLAT® technology and a Metal Oxide Varistor (MOV) to create a new and innovative GMOV™ Series Hybrid Protection Component. By combining the best features of both MOV and GDT technologies, the GMOV™ Series achieves high performance as a long life protector with low capacitance and, most importantly, very low leakage. The GMOV™ Series is ideally suited for any number of AC and DC power applications where a high level of performance is required over time.

### Industry Standard Compliance

| Standard    | UL 1449 4th Edition |
|-------------|---------------------|
| File Number | E313168             |

### Environmental Specifications

Moisture Sensitivity Level ..... 1  
ESD Classification (HBM)..... N/A

### Absolute Maximum Ratings (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

| Parameter             | Symbol           | Min. | Typ. | Max. | Unit |
|-----------------------|------------------|------|------|------|------|
| Operating Temperature | T <sub>OPR</sub> | -40  | 25   | +85  | °C   |
| Storage Temperature   | T <sub>STG</sub> | -40  | 25   | +105 | °C   |

### Electrical Characteristics (@ 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 | Max.<br>Capacitance | I <sub>nom</sub><br>UL 1449/4th. | I <sub>max</sub> | Ring Wave<br>Surge<br>IEEE 62.41 | Protection<br>Level Current<br>Class (1)<br>IEC 61051-1 |                | Clamp<br>Transition<br>Time | Energy  |
|                    | V <sub>rms</sub>                               | V <sub>dc</sub> | A <sub>rms</sub>          | 1 MHz               | 15 Ops.                          | 1 Op.            | 200 A                            | Max.                                                    | Typ.           |                             | 8/20 μs |
|                    | V                                              | V               | μA                        | pF                  | A                                | A                | Ops.                             | V <sub>fp</sub>                                         | V <sub>C</sub> | μs                          | J       |
| GMOV-14D450K       | 45                                             | 56              | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 900                                                     | 150            | 0.3                         | 24      |
| GMOV-14D500K       | 50                                             | 65              | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 800                                                     | 150            | 0.3                         | 27      |
| GMOV-14D650K       | 65                                             | 85              | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 800                                                     | 185            | 0.3                         | 33      |
| GMOV-14D950K       | 95                                             | 125             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 800                                                     | 270            | 0.3                         | 53      |
| GMOV-14D111K       | 115                                            | 150             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 800                                                     | 320            | 0.3                         | 60      |
| GMOV-14D131K       | 130                                            | 170             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 800                                                     | 360            | 0.3                         | 70      |
| GMOV-14D141K       | 140                                            | 180             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 950                                                     | 380            | 0.3                         | 78      |
| GMOV-14D151K       | 150                                            | 200             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 950                                                     | 420            | 0.3                         | 84      |
| GMOV-14D171K       | 175                                            | 225             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 950                                                     | 470            | 0.3                         | 99      |
| GMOV-14D231K       | 230                                            | 300             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 1,300                                                   | 620            | 0.3                         | 130     |
| GMOV-14D251K       | 250                                            | 320             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 1,300                                                   | 675            | 0.3                         | 140     |
| GMOV-14D271K       | 275                                            | 350             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 1,300                                                   | 730            | 0.3                         | 155     |
| GMOV-14D301K       | 300                                            | 385             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 1,300                                                   | 800            | 0.3                         | 175     |
| GMOV-14D321K       | 320                                            | 415             | < 1                       | 4                   | 3,000                            | 6,000            | ± 250                            | 1,300                                                   | 875            | 0.3                         | 180     |
| GMOV-20D450K       | 45                                             | 56              | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 950                                                     | 150            | 0.3                         | 49      |
| GMOV-20D500K       | 50                                             | 65              | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 900                                                     | 150            | 0.3                         | 56      |
| GMOV-20D650K       | 65                                             | 85              | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 900                                                     | 185            | 0.3                         | 70      |
| GMOV-20D950K       | 95                                             | 125             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 900                                                     | 270            | 0.3                         | 106     |
| GMOV-20D111K       | 115                                            | 150             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 950                                                     | 320            | 0.3                         | 130     |
| GMOV-20D131K       | 130                                            | 170             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 950                                                     | 360            | 0.3                         | 140     |
| GMOV-20D141K       | 140                                            | 180             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 950                                                     | 380            | 0.3                         | 155     |
| GMOV-20D151K       | 150                                            | 200             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 950                                                     | 420            | 0.3                         | 168     |
| GMOV-20D171K       | 175                                            | 225             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 950                                                     | 470            | 0.3                         | 190     |
| GMOV-20D231K       | 230                                            | 300             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 1,300                                                   | 620            | 0.3                         | 255     |
| GMOV-20D251K       | 250                                            | 320             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 1,300                                                   | 675            | 0.3                         | 275     |
| GMOV-20D271K       | 275                                            | 350             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 1,300                                                   | 730            | 0.3                         | 305     |
| GMOV-20D301K       | 300                                            | 385             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 1,300                                                   | 800            | 0.3                         | 350     |
| GMOV-20D321K       | 320                                            | 415             | < 1                       | 4                   | 5,000                            | 10,000           | ± 250                            | 1,300                                                   | 875            | 0.3                         | 360     |

(1) Front Level Protection (V<sub>fp</sub>) defined as measured with 10 % of peak current in accordance with IEC 61051-1.



**WARNING Cancer and Reproductive Harm**  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

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

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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## Applications

### AC Line Protection

- White goods
- Power line communications
- Smoke alarm systems
- High value consumer goods
- UL1449 SPD

### DC Line Protection

- Solar inverters
- Power supplies
- Distribution systems



## GMOV™ Series - 14 & 20 mm Hybrid Protection Component

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### Product Dimensions

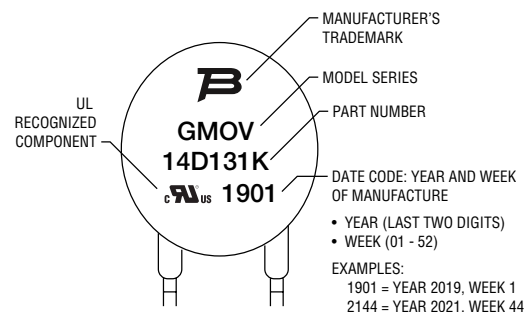


| Dimension | GMOV-14DxxxK                          | GMOV-20DxxxK                           |
|-----------|---------------------------------------|----------------------------------------|
| D (Max.)  | $\frac{16.5}{(.649)}$                 | $\frac{23.0}{(.906)}$                  |
| H (Max.)  | $\frac{20.0}{(.787)}$                 | $\frac{26.0}{(1.024)}$                 |
| T1 (Max.) | $\frac{5.0}{(.197)}$                  | $\frac{6.0}{(.236)}$                   |
| T2 (Max.) | $\frac{8.0}{(.315)}$                  | $\frac{9.0}{(.354)}$                   |
| d         | $\frac{0.8 \pm 0.1}{(.031 \pm .004)}$ | $\frac{1.0 \pm 0.1}{(.039 \pm .004)}$  |
| E         | $\frac{7.5 \pm 1.0}{(.295 \pm .039)}$ | $\frac{10.0 \pm 1.0}{(.394 \pm .039)}$ |

### Typical Part Marking

| Bourns Part Number | Bourns Part Marking |
|--------------------|---------------------|
| GMOV-14D450K       | 14D450K             |
| GMOV-14D500K       | 14D500K             |
| GMOV-14D650K       | 14D650K             |
| GMOV-14D950K       | 14D950K             |
| GMOV-14D111K       | 14D111K             |
| GMOV-14D131K       | 14D131K             |
| GMOV-14D141K       | 14D141K             |
| GMOV-14D151K       | 14D151K             |
| GMOV-14D171K       | 14D171K             |
| GMOV-14D231K       | 14D231K             |
| GMOV-14D251K       | 14D251K             |
| GMOV-14D271K       | 14D271K             |
| GMOV-14D301K       | 14D301K             |
| GMOV-14D321K       | 14D321K             |

|              |         |
|--------------|---------|
| GMOV-20D450K | 20D450K |
| GMOV-20D500K | 20D500K |
| GMOV-20D650K | 20D650K |
| GMOV-20D950K | 20D950K |
| GMOV-20D111K | 20D111K |
| GMOV-20D131K | 20D131K |
| GMOV-20D141K | 20D141K |
| GMOV-20D151K | 20D151K |
| GMOV-20D171K | 20D171K |
| GMOV-20D231K | 20D231K |
| GMOV-20D251K | 20D251K |
| GMOV-20D271K | 20D271K |
| GMOV-20D301K | 20D301K |
| GMOV-20D321K | 20D321K |



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# GMOV™ Series - 14 & 20 mm Hybrid Protection Component

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## Solder Profile

Users should ensure that they do not exceed the scope of IPC/JEDEC J-STD-020 (Pb-Free) during solder assembly.

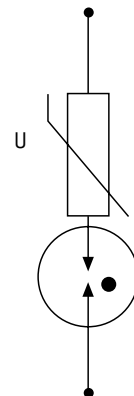


| Profile Feature                                | Profile Limits     |
|------------------------------------------------|--------------------|
| Preheat temperature min. ( $T_{smin}$ )        | 150 °C             |
| Preheat temperature max. ( $T_{smax}$ )        | 200 °C             |
| Ramp time ( $T_{smax} - T_{smin}$ )            | 60 – 120 seconds   |
| Ramp-up rate ( $T_L$ to $T_p$ )                | 3 °C / second max. |
| Liquidus temperature ( $T_L$ )                 | 217 °C             |
| Time maintained above $T_L$                    | 60 – 150 seconds   |
| Peak package body temperature                  | 260 °C             |
| Time within 5 °C of peak temperature ( $T_p$ ) | 30 seconds max.    |
| Ramp-down rate ( $T_p$ to $T_L$ )              | 6 °C / second max. |
| Time from 25 °C to peak temperature            | 8 minutes max.     |

## Construction



## Circuit Diagram



## How to Order

GMOV - nnD nn (n) K -

Model Designator \_\_\_\_\_  
GMOV™ = GDT/MOV Hybrid Protection Component

Disc Diameter \_\_\_\_\_  
14D = 14 mm  
20D = 20 mm

RMS Voltage \_\_\_\_\_  
See Electrical Characteristics Table

Multiplier of Voltage Digits \_\_\_\_\_  
0 = No multiplier  
1 = nn times  $10^1$

MOV Disc Voltage Tolerance \_\_\_\_\_  
K = 10 %

Packaging \_\_\_\_\_  
Blank = Bulk

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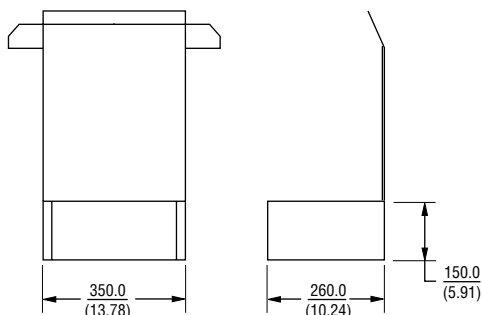
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# GMOV™ Series - 14 & 20 mm Hybrid Protection Component

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## Packaging Information - 14 mm Disc

### BULK



GMOV-14DxxxK: 1600 pcs. per carton

- 200 pcs. per bag;
- 2 bags per inner box;
- 4 inner boxes per carton

DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$

## Packaging Information - 20 mm Disc

### BULK



GMOV-20DxxxK: 1000 pcs. per carton

- 250 pcs. per bag;
- 1 bag per inner box;
- 4 inner boxes per carton

DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$

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