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_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Temperature	T_{OPR}	-40	25	+85	°C
Storage Temperature	T_{STG}	-40	25	+105	°C

Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Bourns Part No.	Operating				Protection						
	Max. Continuous Operating Voltage (MCOV)		Max. Leakage @ MCOV	Max. Capacitance	I_{nom} UL 1449/4th.	I_{max}	Ring Wave Surge IEEE 62.41	Protection Level Current Class (1) IEC 61051-1		Clamp Transition Time	Energy
	V_{rms}	V_{dc}	A_{rms}	1 MHz	15 Ops.	1 Op.	200 A	Max.	Typ.		8/20 µs
	V	V	µA	pF	A	A	Ops.	V_{fp}	V_C	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_{fp}) defined as measured with 10 % of peak current in accordance with IEC 61051-1.

WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
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Users should verify actual device performance in their specific applications.
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Applications

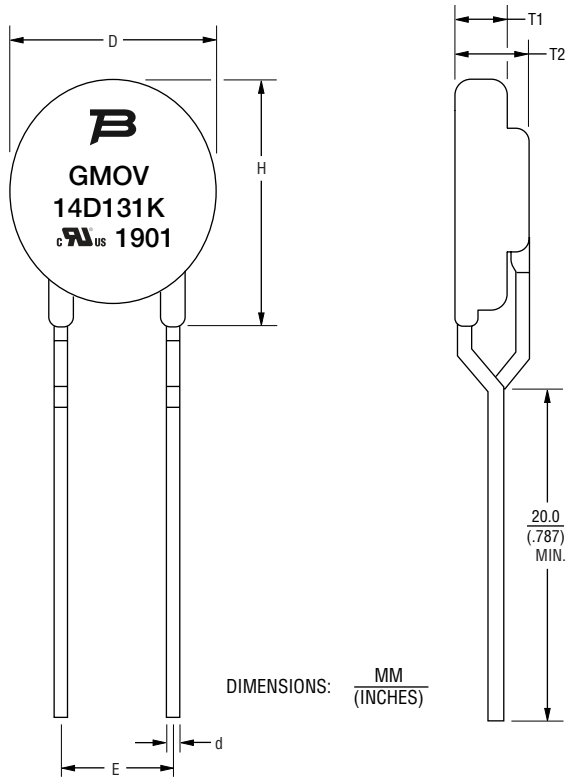
AC Line Protection
- White goods
- Power line communications
- Smoke alarm systems
- High value consumer goods
- UL1449 SPD

DC Line Protection
- Solar inverters
- Power supplies
- Distribution systems

GMOV™ Series - 14 & 20 mm Hybrid Protection Component

BOURNS®

Product Dimensions

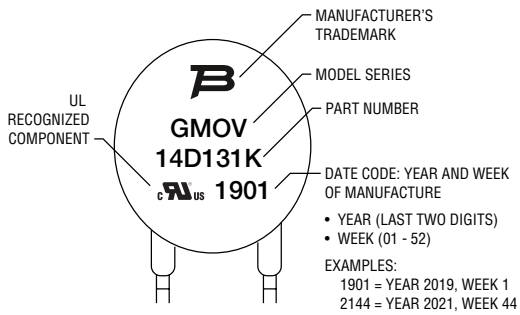


Dimension	GMOV-14DxxxK	GMOV-20DxxxK
D (Max.)	16.5 (.649)	23.0 (.906)
H (Max.)	20.0 (.787)	26.0 (1.024)
T1 (Max.)	5.0 (.197)	6.0 (.236)
T2 (Max.)	8.0 (.315)	9.0 (.354)
d	0.8 ± 0.1 (.031 ± .004)	1.0 ± 0.1 (.039 ± .004)
E	7.5 ± 1.0 (.295 ± .039)	10.0 ± 1.0 (.394 ± .039)

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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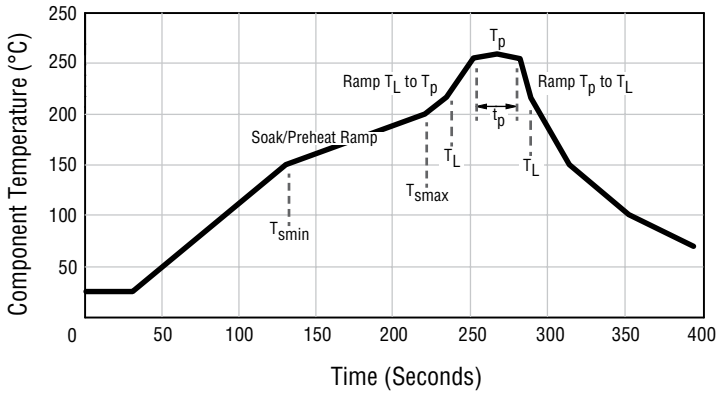
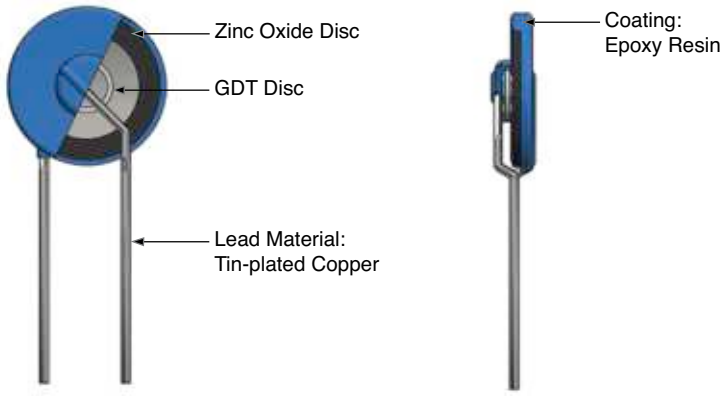
Solder Profile

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

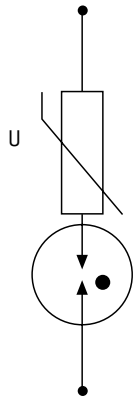


Profile Feature	Profile Limits
Preheat temperature min. (T_{smin}) Preheat temperature max. (T_{smax}) Ramp time (T_{smax} – T_{smin})	150 °C 200 °C 60 – 120 seconds
Ramp-up rate (T_L to T_p)	3 °C / second max.
Liquidus temperature (T_L) Time maintained above T_L	217 °C 60 – 150 seconds
Peak package 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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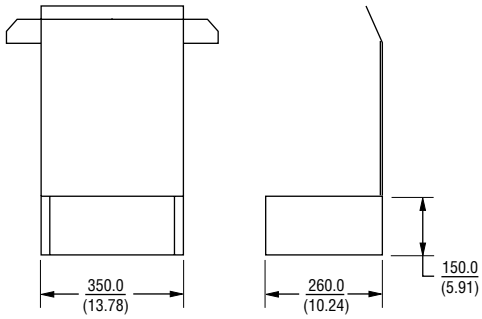
Packaging Information - 14 mm Disc

BULK

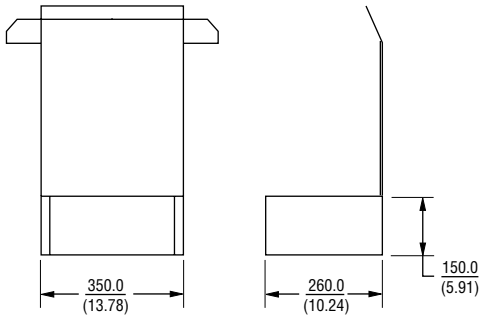


GMOV-14DxxxK: 1600 pcs. per carton
- 200 pcs. per bag;
- 2 bags per inner box;
- 4 inner boxes per carton

DIMENSIONS: MM / (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: MM / (INCHES)

BOURNS®

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