Revision History

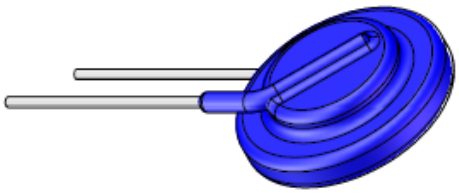
Version	Revision Description	Department	Owner	Date
A0	First edition	R&D	Ran xian fa	2021-11-15
A1	Add Recommended mcov voltage ,Add capacitance reference value and Modify package quantity.	R&D	Ran xian fa	2022-2-9
A2	Adjust the dynamic error coefficient and increase the error ± sign.	R&D	Ran xian fa	2022-2-21

Issued by		**Checked by**	*RD*		**Approval**	
			QA			
			MD			

Features

- Wide Maximum Allowable Voltage from(Recommended MCOV) 55V to 560V
- Fast responding to transient over-voltage
- Large absorbing transient energy capability
- Low clamping ratio and no follow-on current
- Moisture sensitivity level：Level 1
- Operating Temperature:-40℃~+105℃
- Storage Temperature:-40℃~+105℃

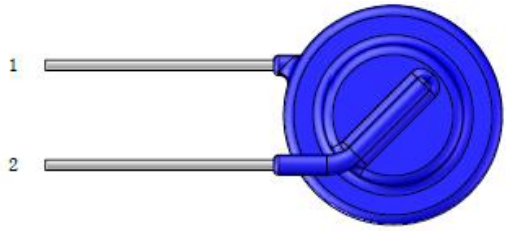
Exterior



Application information

- AC Power
- Surge protection in consumer electronics
- Surge protection in industrial electronics
- Surge protection in electronic home appliances, gas and petroleum appliances
- Relay and electromagnetic valve surge absorption

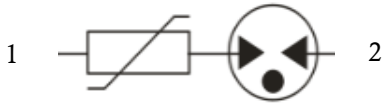
Package (Top View)



Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003
Pb	Mean lead free
UL	Compliance with UL1449, Certificated E337906

Schematic Symbol



Electrical Characteristics

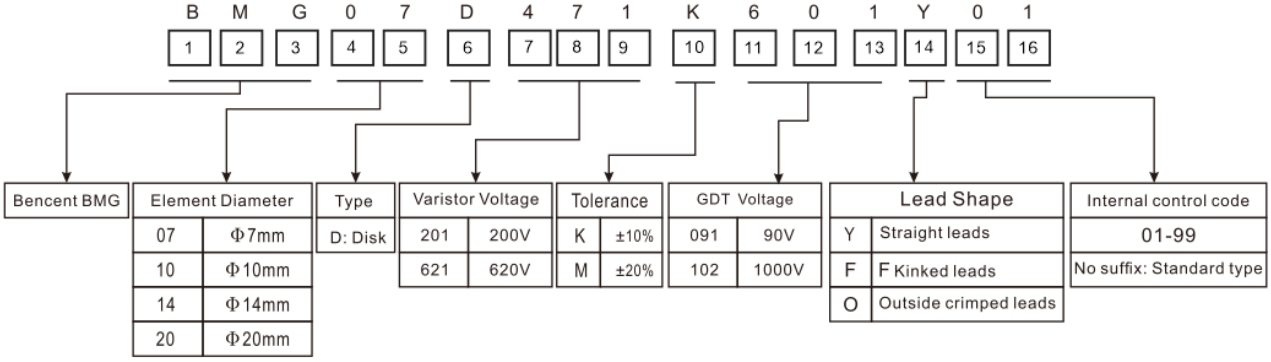
Part No	UL VOLTS	Recommended MCOV	UL MCOV	Split Components Parameters		Platform voltage	Peak voltage	Withstanding Surge Current	Maximum Energy	Typical Capacitance (Reference)
				MOV Voltage	GDT Voltage					
	V_{AC} (V)	V_{AC} (V)	V_{AC} (V)	V_{1mA} (V)	$V_{100V/S}$ (V)	$V_{1000V/us}$ (V)	$V_{1000V/us}$ (V)	1.2/50-8/20μs 2kV-1kA (Time)	10/1000μs (J)	@1KHz (pf)
BMG07D820K091Y	52	55	70	82(74~90)	90(72~108)	≤150	≤710	40	10.0	5
BMG07D820K351Y	52	60	70	82(74~90)	350(280~420)	≤150	≤1020	40	10.0	5
BMG07D101K091Y	65	70	85	100(90~110)	90(72~108)	≤180	≤710	40	12.5	5
BMG07D101K351Y	65	75	85	100(90~110)	350(280~420)	≤180	≤1020	40	12.5	5
BMG07D121K091Y	75	80	100	120(108~132)	90(72~108)	≤210	≤710	40	13.0	5
BMG07D121K351Y	75	90	100	120(108~132)	350(280~420)	≤210	≤1020	40	13.0	5
BMG07D151K091Y	95	100	120	150(135~165)	90(72~108)	≤270	≤708	40	15.0	5
BMG07D151K351Y	95	115	120	150(135~165)	350(280~420)	≤270	≤1020	40	15.0	5
BMG07D181K091Y	115	120	150	180(162~198)	90(72~108)	≤320	≤710	40	16.0	5
BMG07D181K351Y	115	135	150	180(162~198)	350(280~420)	≤320	≤1020	40	16.0	5

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications

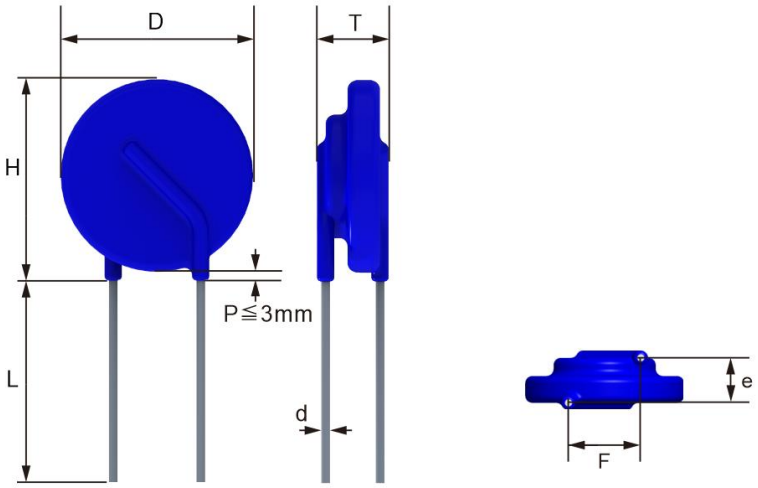
Part No	UL VOLTS	Recommended MCOV	UL MCOV	Split Components Parameters		Platform voltage	Peak voltage	Withstanding Surge Current	Maximum Energy	Typical Capacitance (Reference)
				MOV Voltage	GDT Voltage					
	V_{AC} （V）	V_{AC} （V）	V_{AC} （V）	V_{1mA} （V）	$V_{100V/S}$ （V）	$V_{1000V/us}$ （V）	$V_{1000V/us}$ （V）	1.2/50-8/20μs 2kV-1kA （Time）	10/1000μs （J）	@1KHz (pf)
BMG07D201K091Y	130	140	170	200(180~220)	90(72~108)	≤350	≤710	40	17.0	5
BMG07D201K351Y	130	145	170	200(180~220)	350(280~420)	≤350	≤1020	40	17.0	5
BMG07D221K351Y	140	150	185	220(198~242)	350(280~420)	≤390	≤1020	40	19.0	5
BMG07D221K601Y	140	170	185	220(198~242)	600(480~720)	≤390	≤1320	40	19.0	5
BMG07D241K351Y	150	160	200	240(216~264)	350(280~420)	≤430	≤1020	40	21.0	5
BMG07D241K601Y	150	180	200	240(216~264)	600(480~720)	≤430	≤1320	40	21.0	5
BMG07D271K351Y	175	190	230	270(243~297)	350(280~420)	≤480	≤1020	40	24.0	5
BMG07D271K601Y	175	210	230	270(243~297)	600(480~720)	≤480	≤1320	40	24.0	5
BMG07D301K351Y	190	200	250	300(270~330)	350(280~420)	≤530	≤1020	40	26.0	5
BMG07D301K601Y	190	230	250	300(270~330)	600(480~720)	≤530	≤1320	40	26.0	5
BMG07D331K351Y	210	220	280	330(297~363)	350(280~420)	≤580	≤1020	40	28.0	5
BMG07D331K601Y	210	250	280	330(297~363)	600(480~720)	≤580	≤1320	40	28.0	5
BMG07D361K351Y	230	240	300	360(324~396)	350(280~420)	≤640	≤1020	40	32.0	5
BMG07D361K601Y	230	270	300	360(324~396)	600(480~720)	≤640	≤1320	40	32.0	5
BMG07D391K351Y	250	260	330	390(351~429)	350(280~420)	≤690	≤1020	40	35.0	5
BMG07D391K102Y	250	310	330	390(351~429)	1000(800~1200)	≤690	≤1800	40	35.0	5
BMG07D431K601Y	275	300	360	430(387~473)	600(480~720)	≤760	≤1320	40	40.0	5
BMG07D431K102Y	275	330	360	430(387~473)	1000(800~1200)	≤760	≤1800	40	40.0	5
BMG07D471K601Y	300	320	390	470(423~517)	600(480~720)	≤830	≤1320	40	42.0	5
BMG07D471K102Y	300	360	390	470(423~517)	1000(800~1200)	≤830	≤1800	40	42.0	5
BMG07D511K601Y	320	340	420	510(459~561)	600(480~720)	≤986	≤1320	40	45.0	5
BMG07D511K102Y	320	390	420	510(459~561)	1000(800~1200)	≤900	≤1800	40	45.0	5
BMG07D561K601Y	350	370	460	560(504~616)	600(480~720)	≤986	≤1320	40	49.0	5
BMG07D561K102Y	350	420	460	560(504~616)	1000(800~1200)	≤990	≤1800	40	49.0	5
BMG07D621K601Y	385	400	510	620(558~682)	600(480~720)	≤1100	≤1320	40	55.0	5
BMG07D621K102Y	385	460	510	620(558~682)	1000(800~1200)	≤1100	≤1800	40	55.0	5
BMG07D681K601Y	420	440	550	680(612~748)	600(480~720)	≤1200	≤1320	40	60.0	5
BMG07D681K102Y	420	520	550	680(612~748)	1000(800~1200)	≤1200	≤1800	40	60.0	5
BMG07D751K601Y	460	480	600	750(675~825)	600(480~720)	≤1320	≤1320	40	64.0	5
BMG07D751K102Y	460	560	600	750(675~825)	1000(800~1200)	≤1320	≤1800	40	64.0	5

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications

Part Numbering System



Dimensions



Notes:The foot shape can be customized according to customer needs.

Unit: mm

Table 1

Symbol	Dimension
H(max)	10
L(min)	20
D(max)	9
F	5±1
T	Table 2
e(±1. 0)	Table 2
d(±0. 05)	0.6

Unit: mm

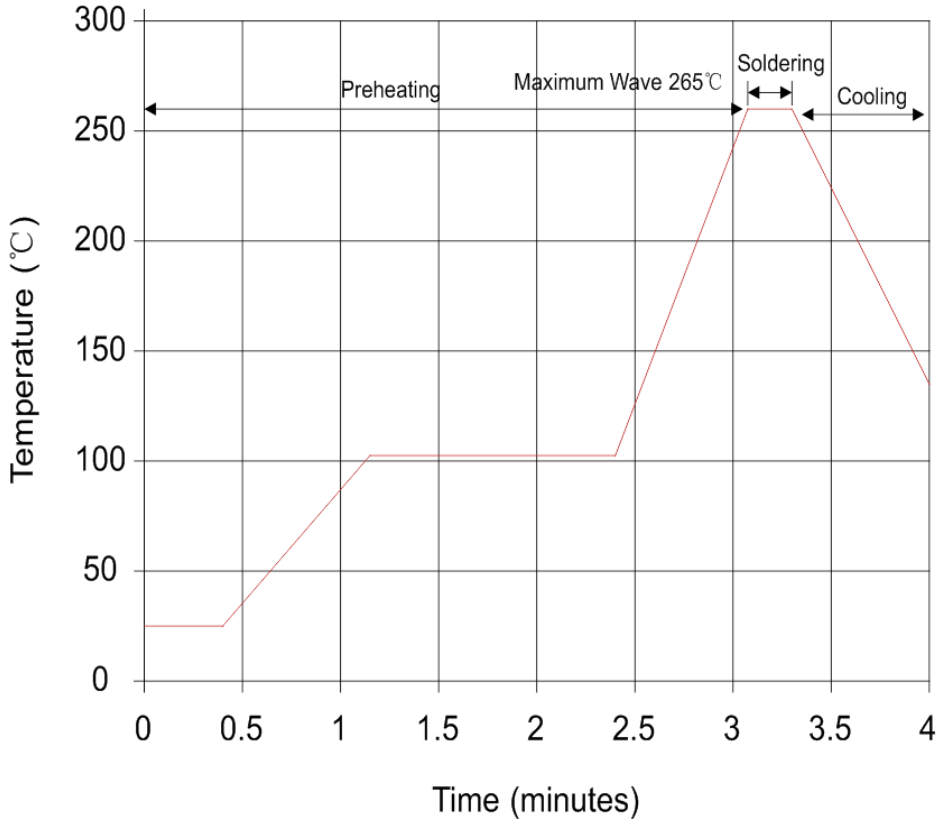
Table 2

Model	T(Max)	e	Model	T(Max)	e
820K	7.50	3.93	331K	8.50	4.83
101K	7.50	4.14	361K	8.50	5.00
121K	7.50	4.36	391K	9.00	5.17
151K	8.00	4.70	431K	9.00	5.39
181K	8.00	4.00	471K	9.00	5.61
201K	8.00	4.11	511K	9.00	5.83
221K	8.00	4.22	561K	9.00	6.11
241K	8.00	4.33	621K	10.00	6.44
271K	8.00	4.50	681K	10.00	6.78
301K	8.50	4.67	751K	10.00	7.17

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications

Soldering Recommendation

Lead-free Wave Soldering Recommendation



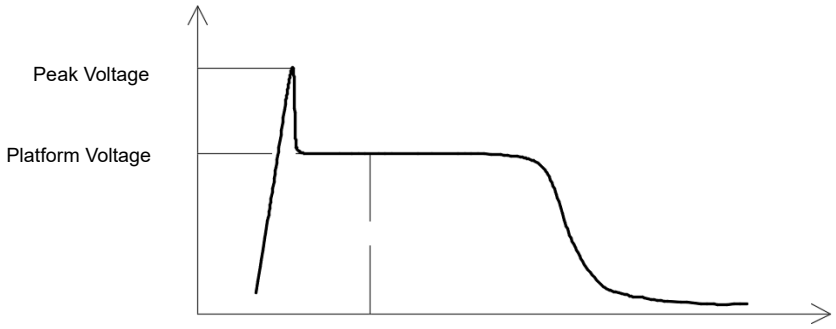
Item	Conditions
Peak Temperature	265℃
Dipping Time	10 seconds (max)
Soldering	1 time

Recommendation Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360℃
Soldering Time	3 seconds (max)
Distance from Varistor	2mm (min)

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications

Mechanical Characteristics

<table>
<tr><th>Items</th><th>Test conditions / Methods</th><th>Specifications</th></tr>
<tr><td>1000V/us
Wave chart</td><td> 
</td><td>Impulse Voltage Wave</td></tr>
<tr><td>Tensile
Strength
of Terminals</td><td>Gradually applying the force specified and keeping the unit fixed for 10±1 sec
<table>
<tr><th>Terminal diameter (mm)</th><th>Force (kg)</th></tr>
<tr><td>0.5＜d≤0.8</td><td>1.0</td></tr>
<tr><td>0.8＜d≤1.25</td><td>2.0</td></tr>
<tr><td>1.25＜d</td><td>4.0</td></tr>
</table></td><td>No visible damage
Peak voltage
|△V1000V/us/V1000V/us |≤±20%
Platform voltage
|△V1000V/us/V1000V/us |≤±10%</td></tr>
<tr><td>Bending
Strength
of Terminals</td><td>Hold specimen and apply the force specified below to each lead. Bend the specimen to 90°, then return to the original position. Repeat the procedure in the opposite direction.
<table>
<tr><th>Terminal diameter (mm)</th><th>Force (kg)</th></tr>
<tr><td>0.5＜d≤0.8</td><td>0.5</td></tr>
<tr><td>0.8＜d≤1.25</td><td>1.0</td></tr>
<tr><td>1.25＜d</td><td>2.0</td></tr>
</table></td><td>No visible damage
Peak voltage
|△V1000V/us/V1000V/us |≤±20%
Platform voltage
|△V1000V/us/V1000V/us |≤±10%</td></tr>
<tr><td>Vibration</td><td>Frequency range: 10~55 Hz
Amplitude: 0.75mm or 98m/s^2
Direction: 3 mutually perpendicular directions, 2hrs each.</td><td>No visible damage
Peak voltage
|△V1000V/us/V1000V/us |≤±20%
Platform voltage
|△V1000V/us/V1000V/us |≤±10%</td></tr>
<tr><td>Solder ability</td><td>Solder Temp: 245±5˚C
Dipping Time: 2±0.5 sec</td><td>Atleast 95% of terminal electrode is covered by new solder</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>Solder Temp: 260±5˚C
Dipping Time: 10±1 sec</td><td>No visible damage
Peak voltage
|△V1000V/us/V1000V/us |≤±20%
Platform voltage
|△V1000V/us/V1000V/us |≤±10%</td></tr>
</table>

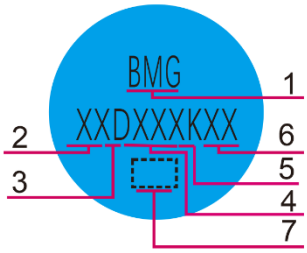
Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications

Reliability

<table>
<tr><th>Items</th><th>Test conditions / Methods</th><th>Specifications</th></tr>
<tr><td>High Temperature Storage</td><td>Ambient Temp: 105±2˚C
Duration: 1000hrs</td><td>No visible damage
Peak voltage
|△V1000V/us/V1000V/us |≤±20%
Platform voltage
|△V1000V/us/V1000V/us |≤±10%</td></tr>
<tr><td>Low Temperature Storage</td><td>Ambient Temp: -40±2˚C
Duration: 1000hrs</td><td>No visible damage
Peak voltage
|△V1000V/us/V1000V/us |≤±20%
Platform voltage
|△V1000V/us/V1000V/us |≤±10%</td></tr>
<tr><td>Humidity</td><td>Ambient Temp: 40±2˚C, 90~95% R.H.
Duration: 1000hrs</td><td>No visible damage
Peak voltage
|△V1000V/us/V1000V/us |≤±20%
Platform voltage
|△V1000V/us/V1000V/us |≤±10%</td></tr>
<tr><td>Temperature Cycle</td><td>The conditions shown below shall be repeated 5 cycles
<table>
<tr><th>Step</th><th>Temperature (˚C)</th><th>Period (minutes)</th></tr>
<tr><td>1</td><td>-40±3</td><td>30±3</td></tr>
<tr><td>2</td><td>Room temperature</td><td>15±3</td></tr>
<tr><td>3</td><td>105±3</td><td>30±3</td></tr>
<tr><td>4</td><td>Room temperature</td><td>15±3</td></tr>
</table></td><td>No visible damage
Peak voltage
|△V1000V/us/V1000V/us |≤±20%
Platform voltage
|△V1000V/us/V1000V/us |≤±10%</td></tr>
<tr><td>High Temperature Load</td><td>Ambient Temp: 105±2˚C Duration: 1000hrs
Load: Max. Allowable Voltage In AC eara.</td><td>No visible damage
Peak voltage
|△V1000V/us/V1000V/us |≤±20%
Platform voltage
|△V1000V/us/V1000V/us |≤±10%</td></tr>
<tr><td>Damp Heat Load</td><td>Ambient Temp: 40±2˚C, 90~95% R.H.
Duration: 1000hrs Load: Max. Allowable Voltage</td><td>No visible damage
Peak voltage
|△V1000V/us/V1000V/us |≤±20%
Platform voltage
|△V1000V/us/V1000V/us |≤±10%</td></tr>
<tr><td>Voltage Proof</td><td>Metal balls method,
1000Vac 1 min.(820K~331K), 1500Vac 1 min.(361K~751K)</td><td>No visible damage</td></tr>
</table>

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications

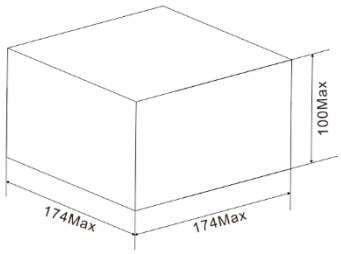
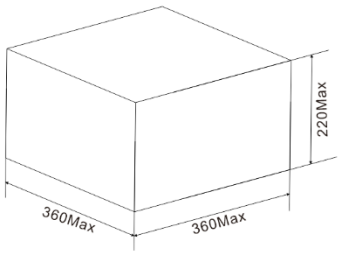
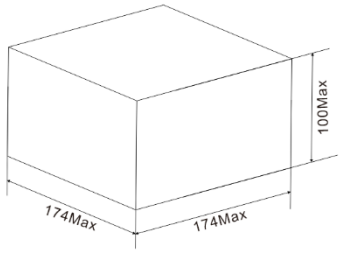
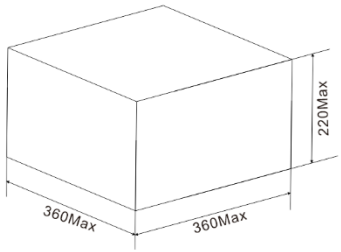
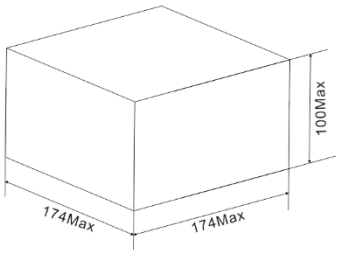
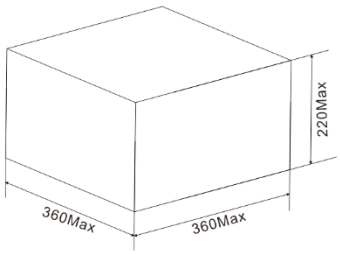
Marking Code



1. BMG:Bencent MOV+GDT
2. XX:Disk size 07、10、14、20
3. D: Disk
4. XXX: Varistor Voltage
5. K：Tolerance， k=±10
6. XX:Special Code
7. UL Mark

Quantity

Packaging Dimensions (Unit: mm)

Inner box size	Outer box size	Quantity
Bulk 		800pcs/bag 2bags/box 8Inner Box/Per Carton (820K~331K)
Bulk 		600pcs/bag 2bags/box 8Inner Box/Per Carton (361K~621K)
Bulk 		500pcs/bag 2bags/box 8Inner Box/Per Carton (681K~751K)

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications