



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.

Additional Information

Click these links for more information:



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				Component Parameters		Protection						
	Max. Continuous Operating Voltage (MCOV)		Max. Leakage @ MCOV	Max. Capacitance	MOV Voltage (±10 %)	GDT DCBD Voltage	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	V _{1mA}	V _{100V/s}	15 Ops.	1 Op.	200 A	Max.	Typ.	μs	8/20 μs
	V	V	μA	pF	V	V	A	A	Ops.	V _{fp}	V _c	μs	J
GMOV-14D450K	45	56	< 1	4	82	90 (72~108)	3,000	6,000	± 250	900	150	0.3	24
GMOV-14D500K	50	65			82	230 (184~276)				800	150		27
GMOV-14D650K	65	85			100	230 (184~276)				800	185		33
GMOV-14D950K	95	125			150	230 (184~276)				800	270		53
GMOV-14D111K	115	150			180	230 (184~276)				800	320		60
GMOV-14D131K	130	170			200	350 (280~420)				800	360		70
GMOV-14D141K	140	180			220	350 (280~420)				950	380		78
GMOV-14D151K	150	200			240	350 (280~420)				950	420		84
GMOV-14D171K	175	225			270	350 (280~420)				950	470		99
GMOV-14D231K	230	300			360	500 (400~600)				1,300	620		130
GMOV-14D251K	250	320			390	500 (400~600)				1,300	675		140
GMOV-14D271K	275	350			430	500 (400~600)				1,300	730		155
GMOV-14D301K	300	385			470	500 (475~650)				1,300	800		175
GMOV-14D321K	320	415			510	500 (475~650)				1,300	875		180
GMOV-20D450K	45	56	< 1	4	82	90 (72~108)	5,000	10,000	± 250	950	150	0.3	49
GMOV-20D500K	50	65			82	230 (184~276)				900	150		56
GMOV-20D650K	65	85			100	230 (184~276)				900	185		70
GMOV-20D950K	95	125			150	230 (184~276)				900	270		106
GMOV-20D111K	115	150			180	230 (184~276)				950	320		130
GMOV-20D131K	130	170			200	350 (280~420)				950	360		140
GMOV-20D141K	140	180			220	350 (280~420)				950	380		155
GMOV-20D151K	150	200			240	350 (280~420)				950	420		168
GMOV-20D171K	175	225			270	350 (280~420)				950	470		190
GMOV-20D231K	230	300			360	500 (400~600)				1,300	620		255
GMOV-20D251K	250	320			390	500 (400~600)				1,300	675		275
GMOV-20D271K	275	350			430	500 (400~600)				1,300	730		305
GMOV-20D301K	300	385			470	500 (475~650)				1,300	800		350
GMOV-20D321K	320	415			510	500 (475~650)				1,300	875		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.

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

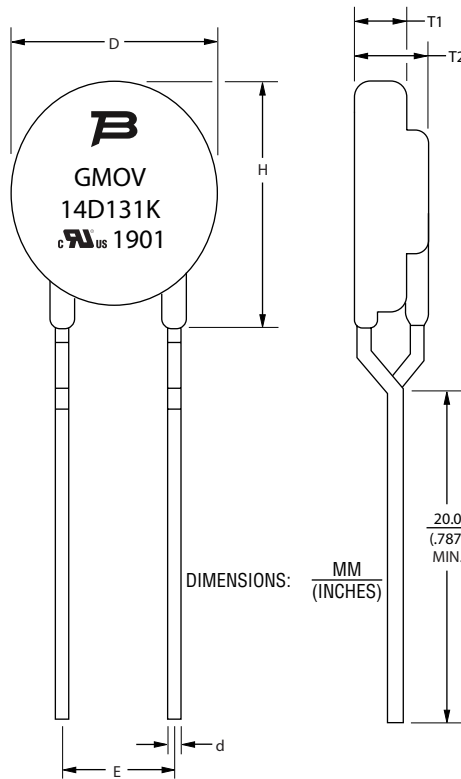
- Solar inverters
- Power supplies
- Distribution systems



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	$\frac{7.5 \pm 1.0}{(.295 \pm .039)}$	$\frac{10.0 \pm 1.0}{(.394 \pm .039)}$

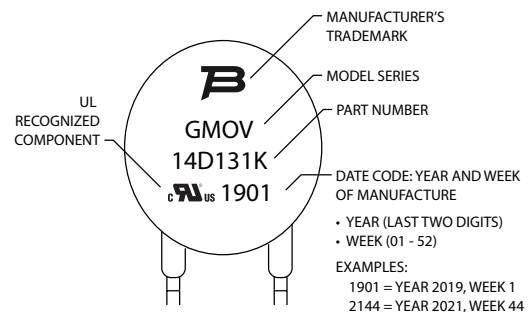
Industry Standard Compliance

Standard	UL 1449 4th Edition
File Number	E313168

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



Environmental Specifications

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

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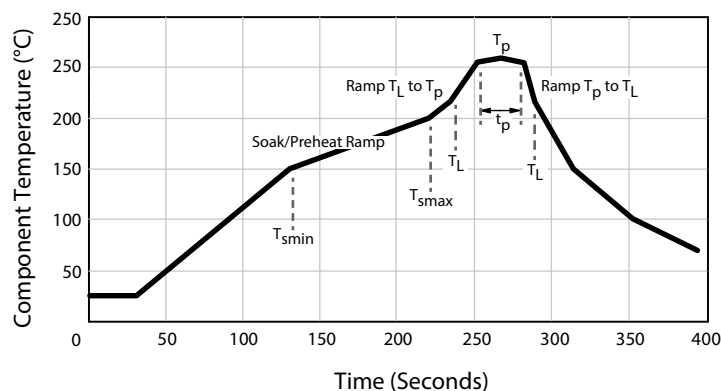
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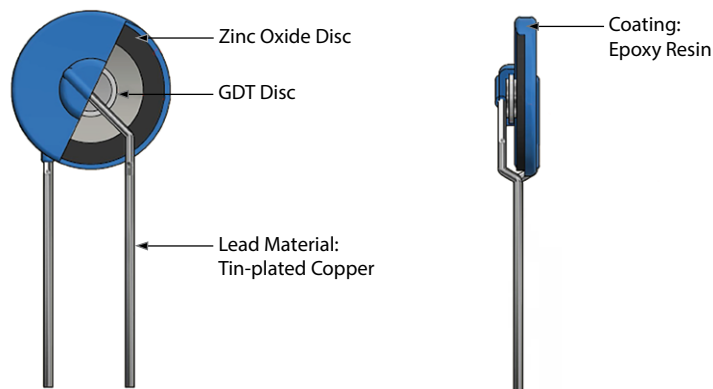
Solder Profile

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

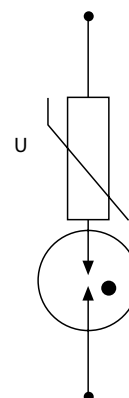


Profile Feature	Profile Limits
Preheat temperature min. (T_{smmin})	150 °C
Preheat temperature max. (T_{smmax})	200 °C
Ramp time ($T_{smmax} - T_{smmin}$)	60 – 120 seconds
Ramp-up rate (T_L to T_p)	3 °C / second max.
Liquidus temperature (T_L)	217 °C
Time maintained above T_L	60 – 150 seconds
Peak package 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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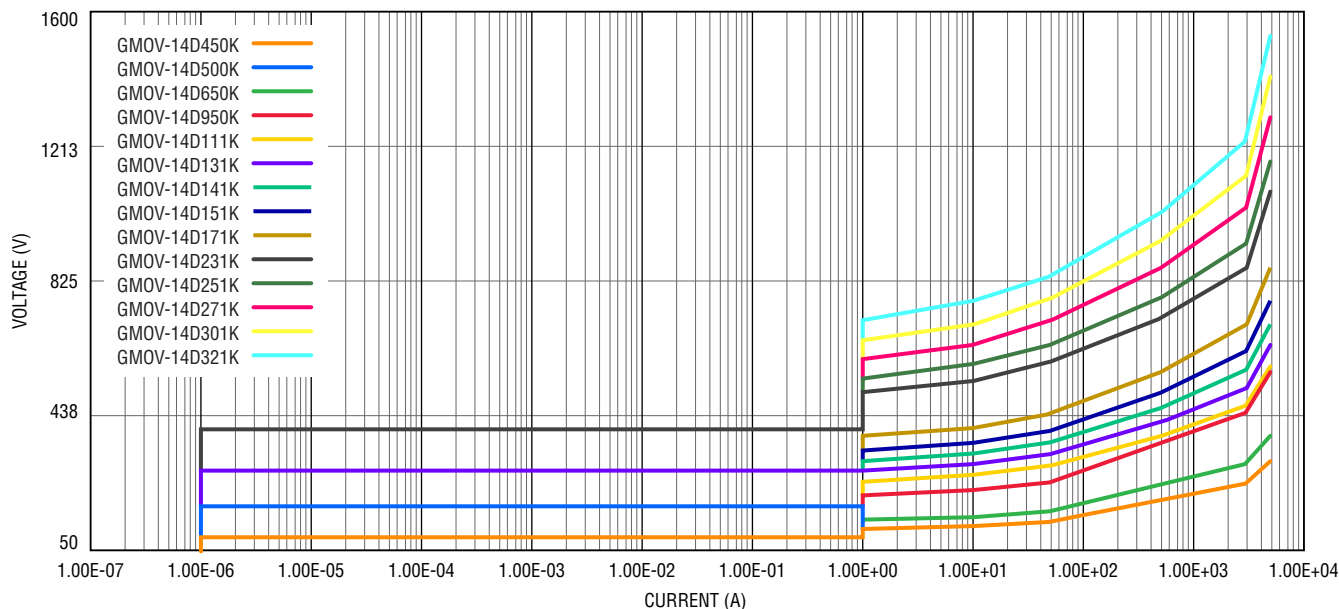
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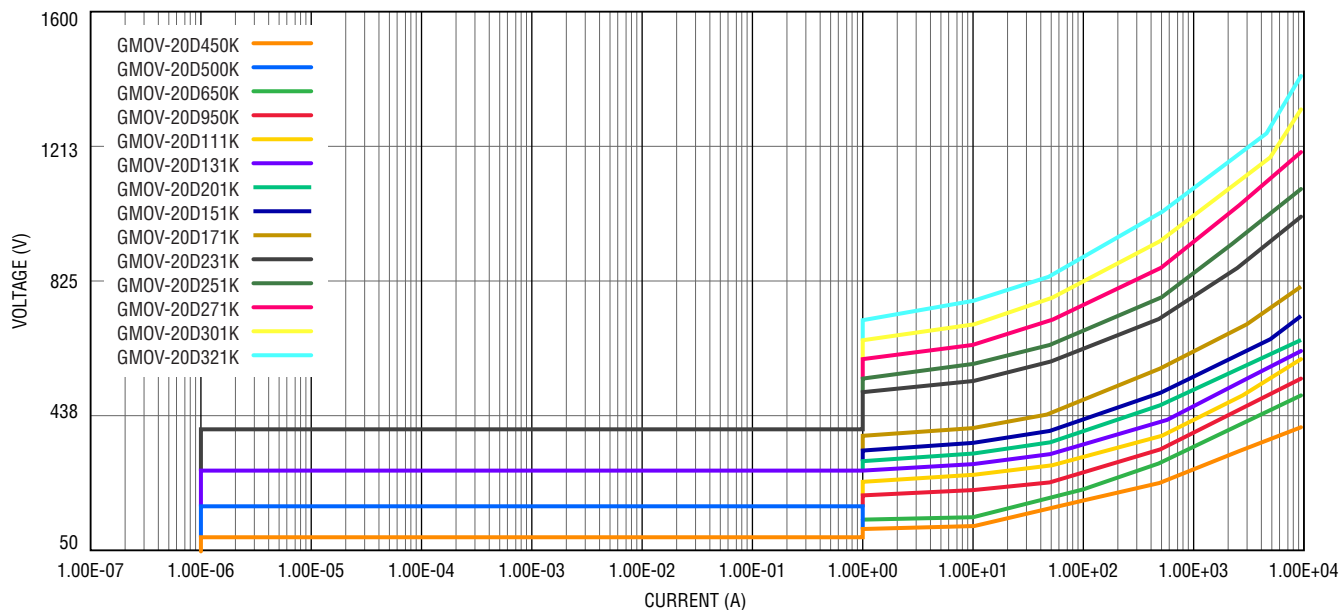
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V-I Characteristics

GMOV-14D



GMOV-20D



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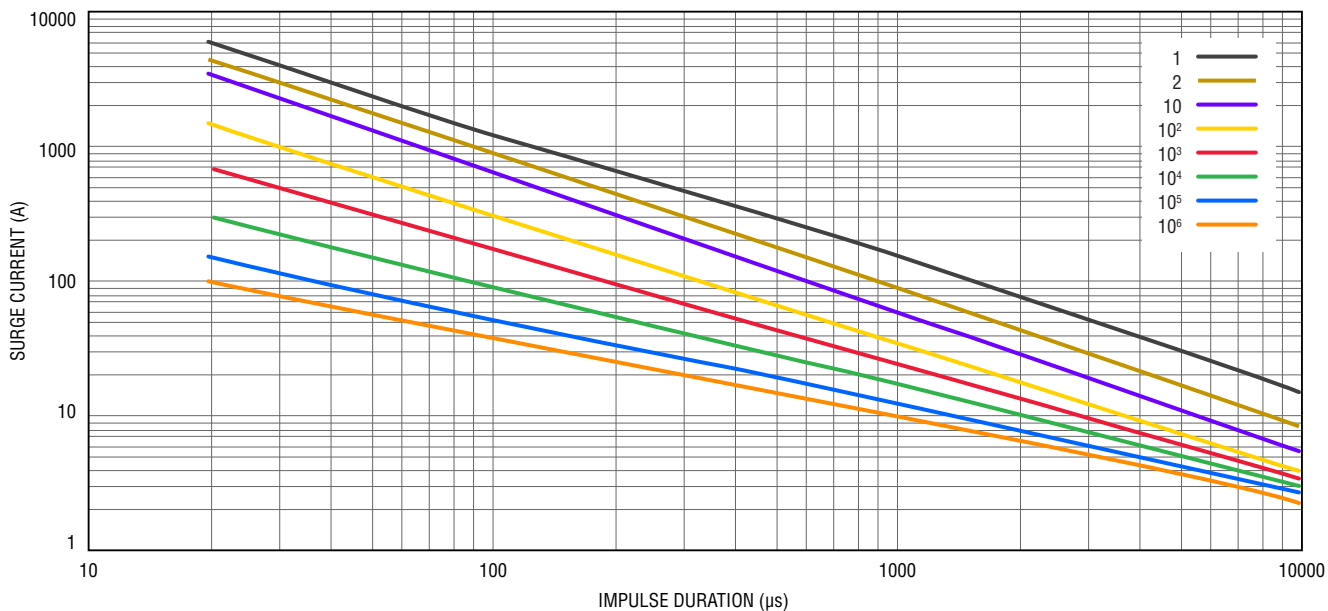
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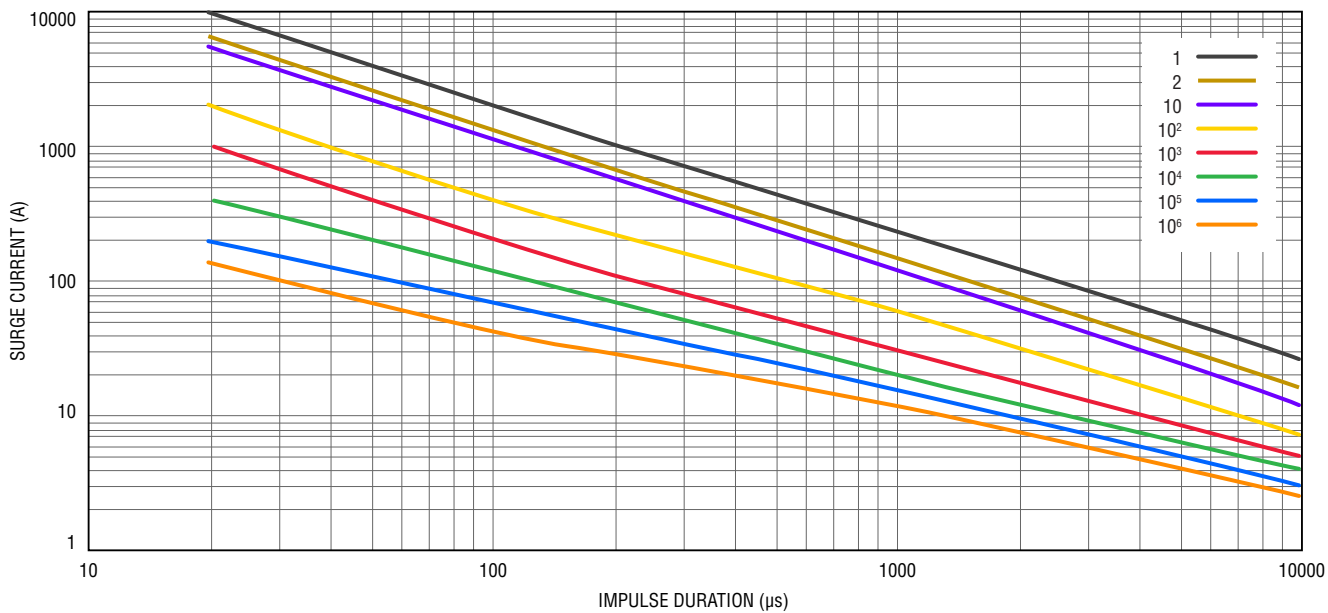
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Pulse Rating Curves

GMOV-14D



GMOV-20D



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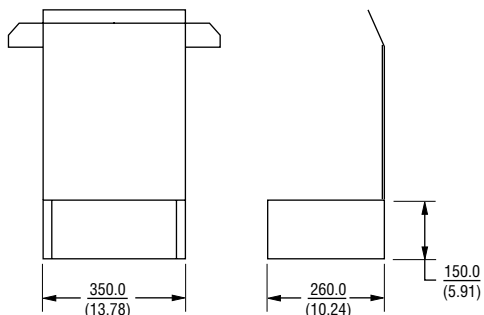
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GMOV™ Series – 14 & 20 mm Hybrid Protection Component

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Packaging Information - 14 mm Disc

BULK



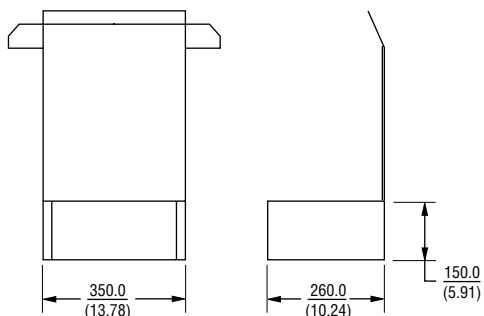
GMOV-14DxxxK: 1600 pcs. per carton

- 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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