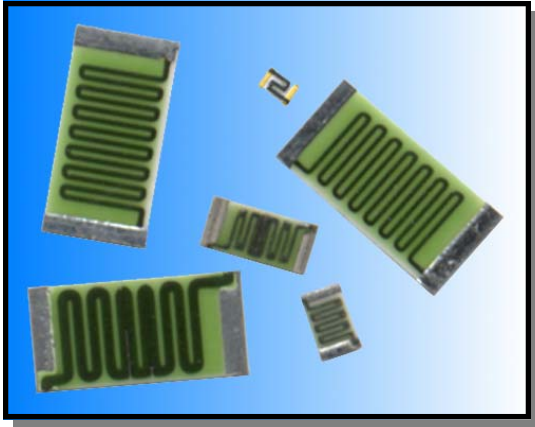


SM Series Chip Resistors



Ohmcraft's fine line, thick film patterning technology provides high level of performance and stability in surface mount chip resistors.



- ◆ Ultra High Stability
- ◆ Resistance Values to 2,000 Gigohms
- ◆ Tight Tolerances (to 0.1%)
- ◆ Low TCR (to 10 ppm/°C)
- ◆ Low VCR (to 1 ppm/V)
- ◆ Very Low noise
- ◆ Custom Configurations

The usual technologies for manufacturing resistors depend upon composite materials that have limitations. Traditional thick-film process methods limit performance characteristics and thin-film methods are limited in attainable ohmic values. **Ohmcraft's** fine line patterning offers the best characteristics of both methods, plus adds many unique features. **Ohmcraft** resistors feature a longer, high-aspect ratio trace of lower resistivity film. The combination of long line, high-aspect ratio, and higher conductivity film, give **Ohmcraft** resistors

unmatched design efficiency, versatility, linearity, stability and low noise. The **Ohmcraft** fine line patterning methods allow control of process parameters to very tight tolerances. The result is chip resistors with outstanding stability and high voltage ratings.

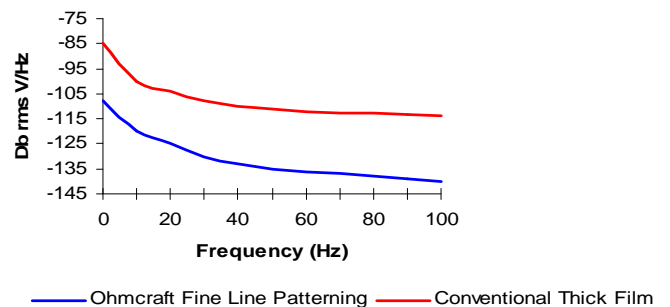
Leaded resistors, dividers and networks are manufactured using the same fine line patterning technologies. For additional information on those products, please refer to the appropriate data sheets.

High Value Resistors:

Ohmcraft's resistors exceed resistance values available from conventional technology due to the increased length available with **Ohmcraft's** fine line patterning technologies.

Low Noise:

Ohmcraft resistors exhibit exceptional noise characteristics. The graph on the right demonstrates the comparison of a resistor written by **Ohmcraft** fine line patterning methods and an equivalent resistor printed using a standard thick-film process. The longer serpentine path which uses lower resistivity inks, and the smoother edges created by "writing" rather than "screening" combine to make one of the lowest noise generating resistors in the market.



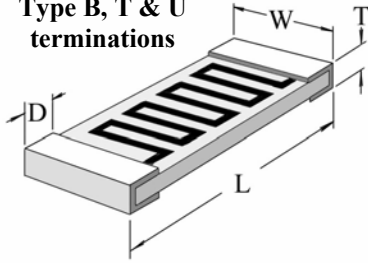
Ratings	Case Size ¹					
	0402	0603	0805	1206	2010	2512
Max. Power (W)	0.040	0.060	0.200	0.330	1.000	2.000
Max. Voltage ² (V)	50	100	125	200	300	350
Resistance Range (ohms)	1K-20G	1K-300G	1K-350G	1K-500G	10K-1T	10K-2.0T

Note 1: Other standard & custom case sizes are available.

Note 2: The continuous maximum voltage applied cannot exceed the maximum power rating.

Dimensions

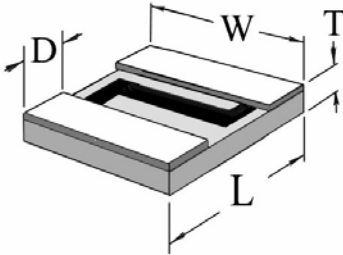
Wrap-around
Type B, T & U
terminations



L = Length
W = Width
T = Thickness
D = Pad dimension

Case Size ▼	Length (L) (mils)	Width (W) (mils)	Thickness (T) Max. (mils)	Pad (D) (mils)
0402	40 ± 5	20 ± 3	20	10 (± 5)
0603	63 (+10,-5)	31 ± 5	20	10 (+10,-5)
0805	79 (+10,-5)	50 ± 5	25	10 (+10,-5)
1206	126 ± 10	61 ± 7	30	15 (+10,-5)
2010	200 (+10,-5)	100 ± 5	30	20 (+10,-5)
2512	250 (+10,-5)	125 (+ 5,-10)	30	20 (+10,-5)

Bondable
Type G, Z & S
terminations



How to build a part number....

Type	Case size	TCR ¹	Value ²	Tolerance ³	Termination
SM					
High Performance Chip	See dimension table above	E = ± 25ppm/°C H = ± 50ppm/°C K = ± 100ppm/°C L = ± 200ppm/°C	Resistance value expressed as a four digit number where the first three numbers are the significant value, and the fourth number is the number of zeros.	B = ± 0.1 % C = ± 0.25 % D = ± 0.5 % F = ± 1.0 % G = ± 2.0 % J = ± 5.0 % K = ± 10 % L = ± 20 %	T = Solderable wrap-around matte Tin Z = Solderable single surface matte Tin B = Solderable wrap-around (Sn63Pb37 solder over nickel barrier) S = Solderable single surface (flip-chip) G = Wire Bondable (gold)

Note 1: TCR measured from 25°C to 75°C.

Note 2: Value is dependent on case size.

Note 3: Tolerance is measured at 100VDC and dependent on case size & value.

Example: For a 125 Megohm chip resistor with case size of 0805, a TCR of ± 50 ppm/°C, a ± 1% tolerance, and wrap-around solderable terminations - the part number would be:

SM0805H1256FB



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