ohmcraft APPLICATION NOTE

Contact us: sales@ohmcraft.com 585-624-2610

MicroPenned Resistor Advantages

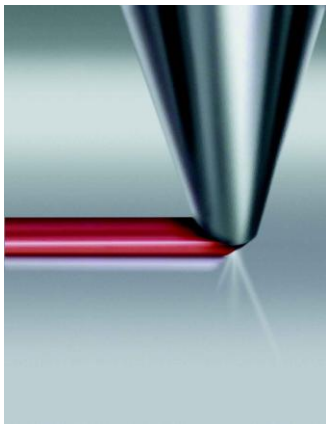
A NEW LEVEL OF PERFORMANCE AND QUALITY

FINEFILM™ PRECISION HIGH-VALUE RESISTORS
AND
HIGH VOLTAGE RESISTORS

A Uniquely Superior Process

FineFilm™ A Better Resistor Technology

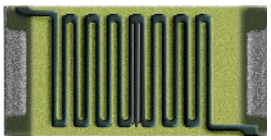
Based on the use of a unique high-speed fine-line thick film dispensing system OhmCraft has developed a series of resistor products that offer exceptional performance characteristics, especially in elements of smaller size and higher resistance values.



The technology allows deposition of thick film resistor inks in line/spacing widths effectively an order of magnitude smaller than conventional techniques. This allows the use of corresponding lower-value inks to reach a given resistance value in a given area resulting in significantly enhanced characteristics. The longer length of the conducting trace also results in a substantially reduced internal electric field, providing improved current/voltage linearity and much higher voltage ratings in both the steady state and pulsed mode. These advantages are most significant in higher values. Conversely, this technology allows the fabrication of resistors of a given performance level in smaller sizes than by conventional techniques.

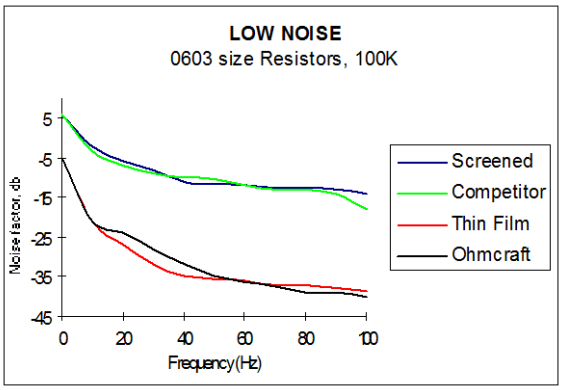
The FineFilm™ Equation

Long, high-aspect ratio trace +
Lower-conductivity film
Equals
Unmatched design, versatility, and performance



1206 Chip Size

OhmCraft resistors combine the close tracking, low current noise, current-voltage linearity, low TCR, and close resistance tolerance of thin film together with the high durability, wide resistance range, and low cost of thick film. As the chart below shows, the current noise of Ohmcraft resistors is similar to that of thin film resistors.

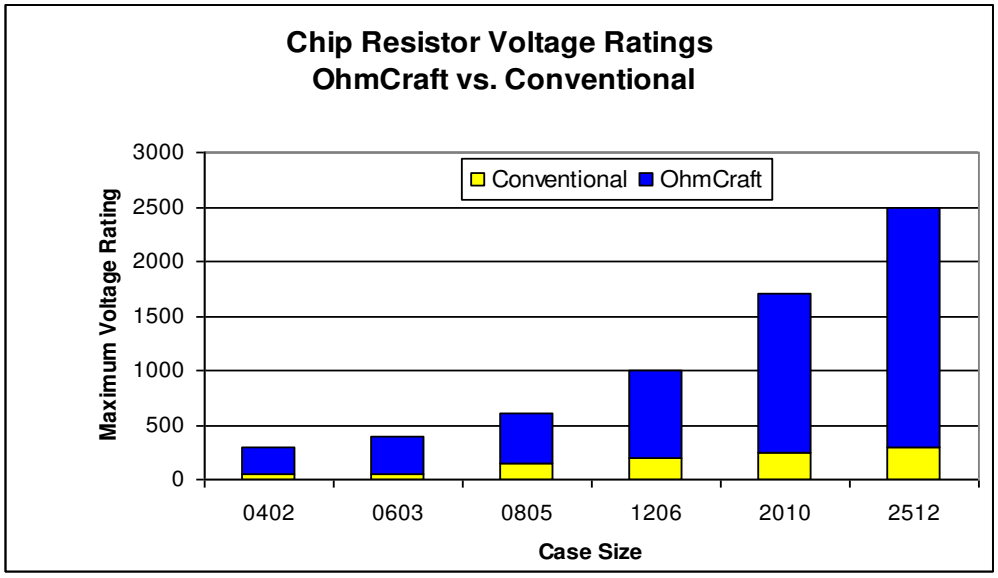


Measurably Superior Performance

High Value Values available VS case size

0402	200 GΩ	**0603**	300 GΩ	**0805**	1,000 GΩ
1206	2,000 GΩ	**2010**	3,000 GΩ	**2512**	5,000 GΩ

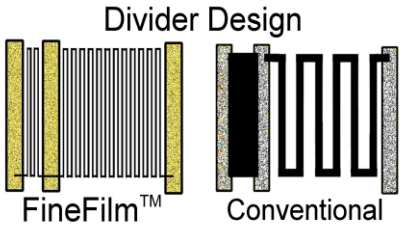
Our Fine Line Patterning Technology enables OhmCraft to design longer resistor patterns allowing for much higher ohmic values in a given case size. The technology also results in greater dimensional stability, which leads to as manufactured tolerances that competitive products are unable to achieve.



Higher Operating Voltages

Ohmcraft chip resistors offer voltage ratings at least an order of magnitude higher than conventional resistors of the same size.

Outstanding Tracking

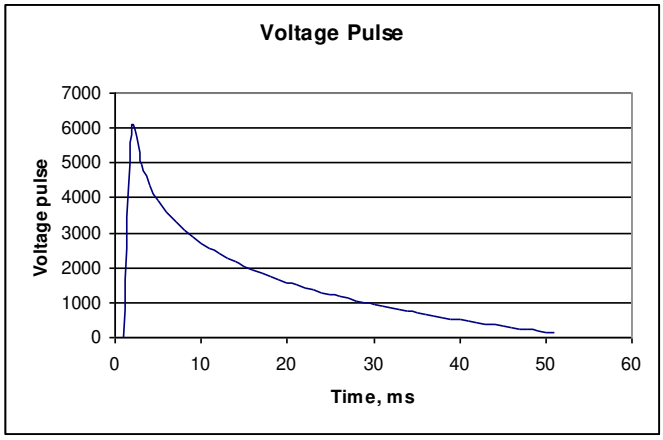


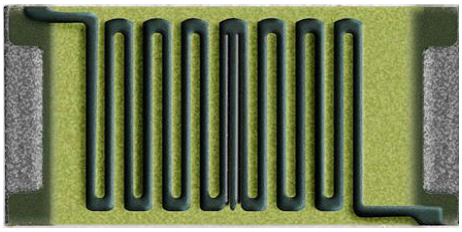
The long serpentine pattern used in manufacturing Fine Film Dividers (HVD's), coupled with the use of low Ohms/square thick film inks, makes it possible to create virtually any divider ratio with exceptional tracking. For example, OhmCraft has produced 800 Meg-Ohm dividers with a 20,000:1 ratio. Low noise, low TCR, low VCR, and many other features add up to the finest leaded divider in the industry today.

OhmCraft – Your Best Source for High-performance Chip and Leaded Resistor Products

Unequaled Peak Pulse Tolerance

The longer trace in an OhmCraft resistor leads to greatly reduced internal voltage gradients, which allow it to handle intermittent voltage spikes and ESD much better than conventional designs.





These components have been designed and tested especially to withstand and dissipate very high peak voltage energy pulses and transient overloads using FineFilm™ thick film technology. They are especially effective by comparison with conventional designs in higher values. In order to maximize these advantages they are usually designed without close tolerance features such as trim areas.

Case Size	2512	1206	0805
Ohms	1K – 1M	1K – 1M	1K – 1M
Continuous Power	2W	1W	0.2W
Continuous Voltage	2500 V	1000 V	600 V
Peak Power in Joules	2 J	0.5 J	0.3 J

Close Resistance Tolerance

The long-path configuration of FineFilm™ resistors permits trimming of such features as ladders, loops, or top hats which provide separate regions of high and low trim sensitivity – unlike conventional thick-film trimming, which is limited to destabilizing and damage-prone single notch or plunge cuts.

Exceptional Stability

Designed and produced with low-resistivity compositions, the stability of OhmCraft resistors/dividers are significantly better than conventional designs, one measure of which is their virtually flat voltage coefficient of resistivity across a wide range of values. The technology also results in greater dimensional stability, which leads to as manufactured tolerances that competitive products are unable to achieve.

Unmatched Quality and Service

The Shortcomings of Traditional Resistors

When it comes to making resistors, traditional hybrid technologies have their limitations.

Screen-formed thick-film resistors can be made in a wide range of values but the short current path and material constraints severely compromise performance characteristics.

Thin-film resistors, while capable of high precision, are expensive to design and manufacture and are severely limited in attainable value.

Older technologies are burdened by extensive tooling requirements, so prototyping and pilot runs incur high per-part costs.

Our Quality Commitment to You

Since OhmCraft's founding in 1982, OhmCraft has realized steady growth as more and more companies have discovered the unique advantages of our FineFilm™ resistors.

Our customers have discovered something else; everyone at OhmCraft is committed to matching the excellence of our products with equally excellent customer service. This quality orientation is something we emphasize and insist on from the front office to the factory floor to our field sales offices.

How Can We Help?

To learn more about how our products can help provide high quality, cost-effective solutions for your products contact us at 585.624.2610 or visit our web site at www.ohmcraft.com.

Contact your local OhmCraft representative for samples, product data sheets, and technical articles on the Fine Film™ process.