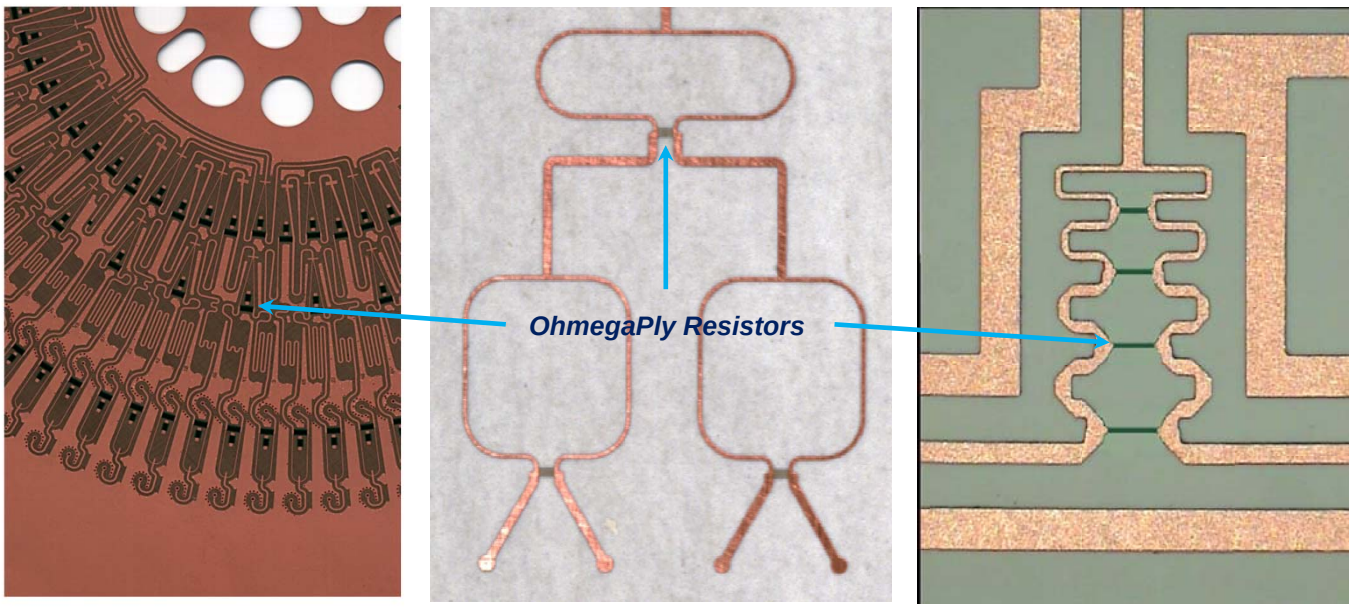
Ohmega
Ohmega Technologies, Inc.

OhmegaPly® *RF*

OhmegaPly® NiP thin-film resistive material is extensively used in microwave and RF circuit applications. Its integration into microwave circuits has substantial benefits including greater packaging densities, more functionality such as signal division and/or distribution, reduced signal adaptation issues, elimination of resistor assembly, weight savings and reduction in the parasitic inductances and capacitances associated with discrete chip resistors.

The product is non-magnetic, has very low inductance, a low insertion loss with excellent thermal and vibrational stability and is in compliance with the RoHSDirectives and the REACH Regulations including the SVHC.

OhmegaPly® is available directly from Ohmega Technologies, Inc. as a resistive foil (OhmegaPly RCM®) and on low dielectric constant/low loss materials. It can be purchased laminated to a variety of microwave substrates directly from other sources including Arlon, Rogers and Taconic.



▲ *OhmegaPly® power dividers in Globalstar antenna*

▲ *16-way power divider with 50 Ω/sq OhmegaPly® resistors*

▲ *Power divider with 25 Ω/sq OhmegaPly®*

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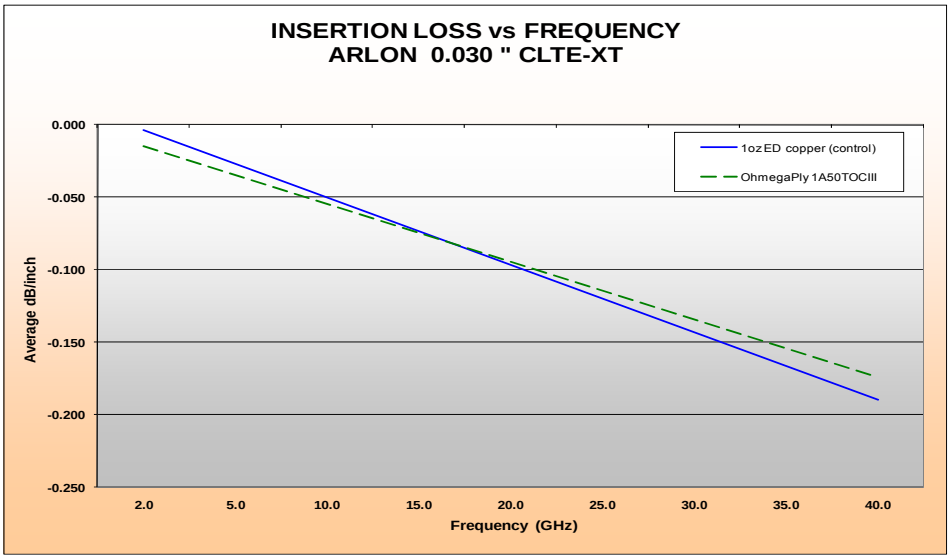

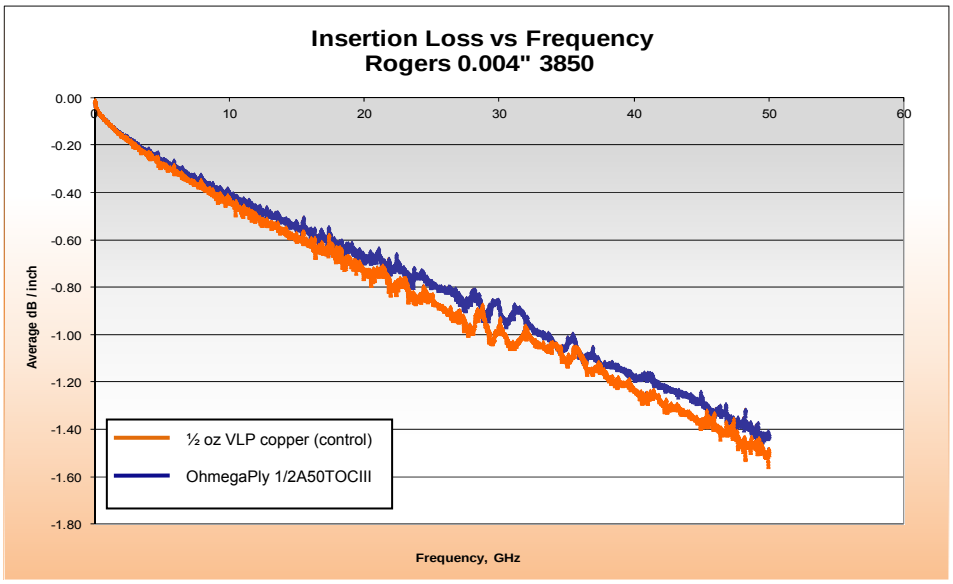

Reliability Data

Dassault Electronique engaged in a 2 year study of OhmegaPly® for an active phased array antenna (X-band). The purpose of the study was to compare the performance of OhmegaPly® to chip resistors and screen printed polymer inks. The resistors were used in a stripline configuration on a PTFE substrate (Rogers RT Duroid® 6002 and fusion bonded inside a multilayer package). OhmegaPly® proved to be the best product and was selected for use due to superior tolerance and stability (compared to printed polymer inks) and space saving, parasitic reduction, and solder joint removal (compared to chip resistors). The test results were:

Etching Tolerance	Minimum Resistor Width	Tolerance After Fusion Bonding	Influence of Ohmega-Ply Foil Layer on Microwave Properties	Shift of Resistor Values After 500 Thermal Cyles (-55° C,+125° C)	Thermal Coefficient of Resistance Within the Range (-55°C, +125°C)	Power Handling	No shift in microwave performance of two ports power divider, when OhmegaPly was tested under the following conditions:
5%	200 μ m	7%	NO	Microstrip: +2% Stripline: +3%	Microstrip: ± 6% Stripline: ± 7%	300 mW	• 500 thermal cycles (- 55° C, +125° C) • 500 hours at 125° C • 40 days 40° C, 95% RH • 48 hours salt spray