



We make amazing things happen.™

NATEL EMS offers ECP (Etch Conductor Photolithography) Thick Film Systems

Natel also provide next generation Etch Conductor Photolithography (ECP) Thick Film Substrates suitable for microwave and high-resolution lines and space applications. The Thick Film conductor material is fired in a dense film over a large area of the substrate. The high resolution lines are then defines using photoresist and etch techniques commonly associated with thin film to achieve line widths and spaces as low as .001" (.0762mm).

The ECP process is based around standard Thick Film Au and Ag that is already qualified by many OEM's, thus avoiding long qualification cycles and bringing customers to market quickly. ECP technology allows designers to combine RF and digital functions on substrates, and offers options for integrating passive capacitors, resistors, inductors, couplers, and filters. Capacitor and resistors can be laser trimmed to obtain +/-3% and +/- .5% tolerances respectively.

- High Frequency applications through 100 GHz
 - T/R Modules
 - Power Amplifiers/Drivers
 - Switches
 - Couplers
 - Control & Guidance Modules
 - MUX-DEMUX
 - Interposers
 - Wave Guides
- Etched conductors (.001",.0254mm) lines and spaces
- Specialty Materials / Processing (DuPont Photoimageable dielectrics and diffusion patterning)
- Precision layer to layer alignment (+/-12.5 micron)
- High Interconnect Density
- Microwave Transitions (low insertion loss)
- High Power Dissipation (18-285 W/mK ceramics)

About NATEL

NATEL is a major independent manufacturer of a wide variety of microelectronic products, providing low to high volume production for its customers. As the largest and oldest privately held EMS company in the U.S., Natel is known for high-reliability, high-quality manufacturing that delivers solutions to customers. NATEL is favorably positioned among mid-tier EMS manufacturers to "make amazing things happen." NATEL holds and maintains industry specific certifications that include ISO 9001:2000, ISO 13485, and AS9100. Its MIL-PRF-38534 (DSCC) Class H and K certifications certify Natel's expertise in designing and manufacturing microelectronic assemblies for space and mission-critical defense programs placing it in an elite group of aerospace industry manufacturers. NATEL, headquartered in Chatsworth, CA, has manufacturing locations in California, Nevada, Ohio, Mexico and Colorado. To learn more, visit www.NatelEMS.com or on Twitter, @Natel.