

Embedded Passives High-K Capacitor Dielectric Pastes and Tapes

Extending the size, cost, and performance advantage of LTCC, **Scrantom, Inc.** announces the availability of high-K capacitor dielectric pastes and tapes compatible with Dupont 951 and Ferro A6M tape systems.

Dielectric Capacitor paste system

Current use of embedded multilayer capacitors is minimal in LTCC based RF circuits due to the lack of suitable materials compatible with popular tape systems. Scrantom, Inc. has developed a series of dielectric pastes that can be used with both Dupont 951 and Ferro A6M tape systems allowing embedded multilayer capacitor stacks. Dielectric constant values up to 500 are achievable with this system. As a preliminary design reference, the following table shows achievable plate geometries and corresponding capacitance values.

Plate Size	0.05" X 0.05"	0.1" X 0.1"	0.15" X 0.15"
C (pf)	3	11	25
K	5.3	5.1	5.1
C (pf)	15	65	149
K	22.1	23.3	23.6
C (pf)	66	275	642
K	94	98	101.7
C (pf)	198	769	1763
K	282	274	279
C (pf)	200	1358	3077
K	470	482	487

TCC characteristics tighter than X7R
(-55°C to +125°C), $\Delta C \pm 15\%$

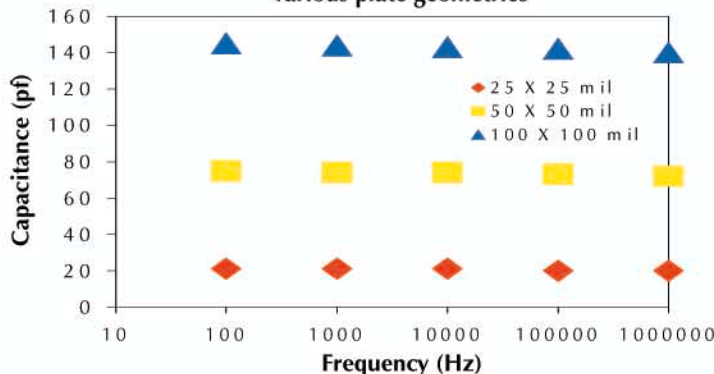


NATEL Engineering and Scrantom, Inc. offer extensive design and manufacturing experience utilizing printed and photo defined thick film resin and solder mounted bare die, wire bonded or flip-chip attached surface mount assemblies on ceramic or organic interconnect, and LTCC (Low Temperature Co-fired Ceramic) based modules. These capabilities and services are offered for both build-to-print programs as well as full internal design supported products. These capabilities are supported with extensive electronic and environmental testing on site.

Dielectric Capacitor tape system

Fully compatible capacitor dielectric tape systems with K values up to 100 are available for applications the require symmetric or asymmetric stacks with Dupont 951 or Ferro A6M systems.

Capacitance versus frequency for various plate geometries



NATEL Engineering Co. offers over 27 years of microelectronics experience with advanced capabilities for a wide range of products and industries, including fully automated assembly of modules, hybrids, MCM, and chip-on-board products. NATEL holds and maintains industry specific certifications such as ISO-9001 and MIL-PRF-38534 (DSCC) and operates in manufacturing facilities that include 30,000 square feet of advanced clean room area.