

Technical Data Sheet

Low Temperature Co-Fired Ceramic Systems A6M-E High Frequency LTCC Tape System

Application

Ferro's A6M-E LTCC Tape system combines stable dielectric constant and unique low loss over a wide frequency range making it ideal for Hi-reliability packaging applications.

A6M-E tape is an enhanced version of A6M with improved handling, lamination and green cutting properties while maintaining the same properties and performance of A6M.

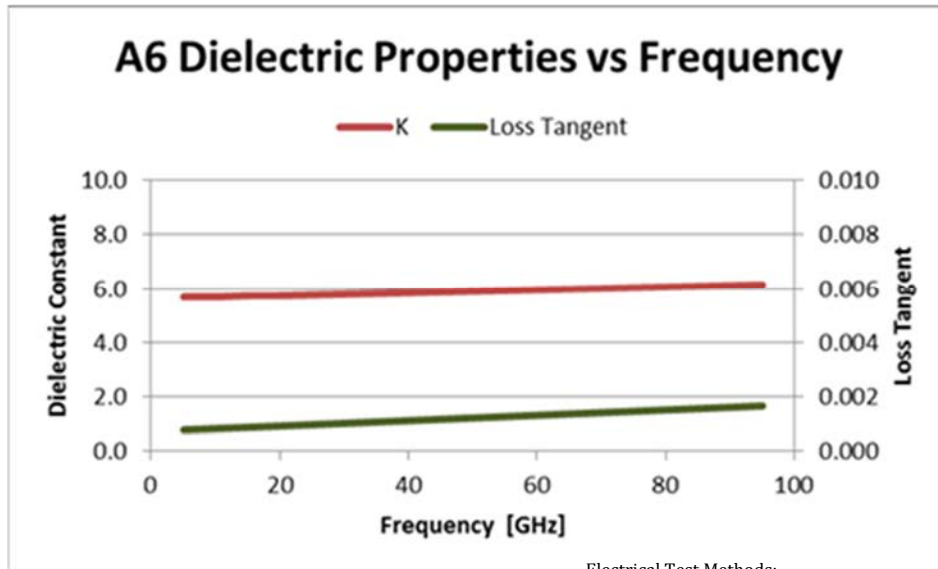
A6M-E is available in standard tape thicknesses of 2, 5, and 10 mil and in roll and blank forms.

A complete set of highly engineered Gold based conductors make A6 the material system of choice for high frequency modules and components up to 110GHz.

A6M-E and their associated metallizations are formulated and processed to be RoHS compliant.

Typical Fired Properties

Product	A6M-E
Thermal Coefficient of Expansion	7ppm°C
Tape Shrinkage % X,Y	15.6 ± 0.3
Tape Shrinkage % Z	28 ± 3
Fired Density	>2.45 gm/cc
Flexural Strength	170 MPa
Thermal Conductivity	2W/mK
Dielectric Constant @10GHz	5.7±0.2
Loss Tangent @10GHz	<0.1
Insulation resistance	>10 ¹⁰
Breakdown Voltage	>750V/mil



Electrical Test Methods:

- Split-Post Resonator (1-10 GHz)
- Split-Cylinder Resonator (5-30 GHz)
- Fabry-Perot Resonator (30-100 GHz)

Complies with EU RoHS Directive 2011/65/EU



Technical Data Sheet



Low Temperature Co-fired Ceramic Systems Au Conductor System for A6M, A6M-E, and L8 Tape System

Typical Process Parameters¹

Metallization:

- Au-based System
 - FX30-025H Au Inner Conductor
 - CN30-078 Au Via Fill
 - CN30-080M Au Surface Wire-bondable
 - CN36-020 AuPtPd Surface Solderable
 - FX87 Series Resistors
- Mixed-Metal Based System
 - CN33-398 Ag Inner Conductor
 - CN33-407 Ag Via Fill
 - CN39-005 Transition Via Fill
 - CN30-080M Au Surface Wire-bondable
 - CN36-020 AuPtPd Surface Solderable
 - FX87 Series Resistors
- Post Fireable System
 - FX30-025JH Brazeable Base Layer
 - C4007 Brazeable Top Layer
 - CN31-014/17 Solderable AuPt Conductor
 - 3066 Wirebondable Au Conductor

Lamination: Iso-static 3000 psi (21Mpa) @ 70°C for 10 minutes

Setters: Fused quartz for typical applications; Zirconia felt for hi-metallization parts

Binder Burn-out: Room temperature to 450°C @ $\leq 2^\circ\text{C}/\text{min}$, with 2 hour hold at peak in box (preferred) or belt furnace with 100 SCFH air-flow.

Firing: 450 to 850°C @ $6-8^\circ\text{C}/\text{min}$, with 10-15 minute hold at peak in box (preferred) or belt furnace with controlled with 100 SCFH air-flow.

¹ Refer to Ferro's LTCC Design Guide for specific process parameters and specifications

Limitation of Warranty and Liability

Ferro believes that the information contained in this document is accurate at the time of its publication. Ferro makes no warranty with respect to the information contained in this document. The information in this document is not a product specification, either in whole or in part. Your use of the information contained in this document and your purchase and use of this Ferro product are at your sole discretion. Downstream users are responsible for determination of the suitability of this product and for testing in specific applications. Nothing in this document shall be construed as a license for use that infringes upon any property rights of any third party. Please refer to the Safety Data Sheet (SDS) for safe use, handling and disposal information. All sales by Ferro to you are subject to Ferro's Terms and Conditions of Sale, as amended from time to time and available at www.ferro.com. In the event this document conflicts with Ferro's Terms and Conditions of Sale, Ferro's Terms and Conditions of Sale shall control.