

A6M-E
High Frequency, High Reliability
LTCC Tape System

APPLICATION

A6M-E is an improved version of Ferro's A6M LTCC tape which combines industry leading high frequency performance with "enhanced" green tape handling properties:

- Higher Green Strength and Toughness
- Higher Laminated Density
- Can be Green Cut with good edge quality
- Compatible with existing Paste Systems

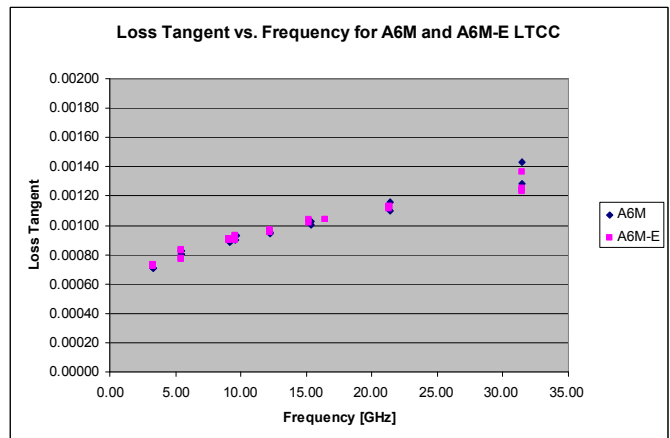
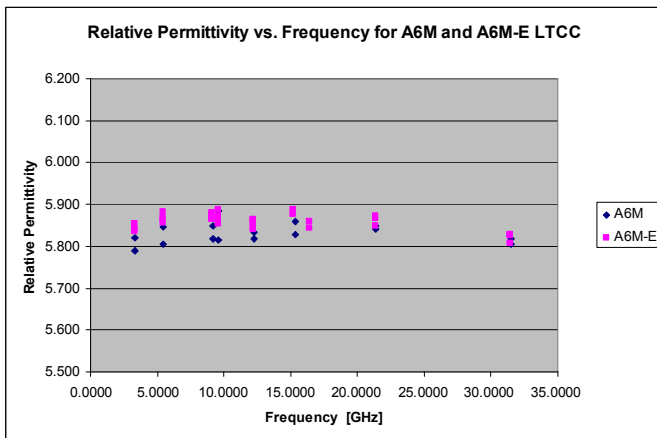
Ferro A6M-E's stable low dielectric constant and unique low loss over a large frequency range, makes it the material of choice in a myriad of advanced packaging applications up to 110 GHz.

This tape is available in standard thickness of 5 mil (127 μm) and 10 mil (254 μm) with useable width of 14 inches (35cm) as well as pre-cut blanks. Ferro A6 LTCC tape is also available in custom widths and thicknesses to accommodate special processing and RF requirements.

The A6M-E system is Pb and Cd free and co-fireable in air with an all Au metallization system.

TYPICAL FIRED PROPERTIES

Thermal Coefficient of Expansion:	7 ppm/°C
Tape Shrinkage:	
X,Y	15.4 ± 0.3 %
Z (Green Sheet to fired)	24 ± 0.3 %
Fired Density:	> 2.45 g/cm ³
Flexural Strength (3 pt bend):	170 MPa
Young's Modulus:	92 GPa
Shear Modulus:	32 GPa
Thermal Conductivity:	2 W/mK
Dielectric Constant (1-100GHz)*:	5.9 ± 0.2
Dissipation Factor (1-100GHz)*:	< 0.2 %
Bulk Resistivity:	> 10 ¹² Ω/cm
Breakdown Voltage:	> 5000 V/layer
Electrolytic Leakage Current:	< 1μA/c



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A6M-E

High Frequency, High Reliability LTCC Tape System

ALL GOLD BASED SYSTEM

Inner Conductor: CN30-025JH, Co-Fire

Via Fill: CN30-078, Co-Fire

Surface Conductors:

Wire Bondable: CN30-080, Co-Fire

Solderable: CN36-020, Co-Fire

Solderable: FX31-014/FX31-017, Post-Fire

Aluminum Wire Bondable: 3068, Post-Fire

Brazeable High Temp:

Adhesion Layer: CN30-025JH, Co-Fire

Au/Ge Solder: 4007, Post-Fire

Brazeable Low Temp:

Adhesion Layer: CN30-065, Post-Fire

Bi/Sn Solder: CN30-079, Post-Fire

Resistor: FX87 series, Co-Fire

TYPICAL PROCESSING GUIDELINES

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

Burnout: 450°C for 2hrs \leq 2°C/min, ramp to 450°C

Firing: 850°C peak for 10 mins, Ramp to peak temperature 6-8°C/min

Setters: Fused quartz; Bare alumina setters should not be used

Storage: Sealed bags 20 – 25 °C) @ 40 – 50% RH in clean room environments with relative humidity ~40%.

Shelf-life: 1 year under recommended storage conditions

*Electrical Test Methods:

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

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