Application

Ferro’s L8 LTCC Tape system features a stable dielectric constant up to 40GHz and exhibits one of the lowest dissipation factors in a glass-ceramic formulation.

L8’s stable dielectric constant and low loss make it ideal for producing components and modules with applications up to 40 GHz.

L8 is available in standard tape thicknesses of 2, 5, and 10 mil and in roll and blank forms.

The L8 tape system is offered with a complete set of highly engineered Silver and Mixed-metal based conductor materials. The L8 tape system is also compatible with Ferro’s A6M LTCC Au conductor series.

L8 and its associated metallization’s are formulated and processed to be RoHS compliant.

Typical Fired Properties

- Thermal Coefficient of Expansion: 6.0 ppm/°C
- Tape Shrinkage: 13.2 ± 0.3 % X,Y 30.0 % Z
- Fired Density: > 3.1 gm/cc
- Flexural Strength: 275 MPa
- Young’s Modulus: 92 Gpa
- Thermal Conductivity: 2 W/mK
- Dielectric Constant: 7.2 ± 0.2 @10 GHz
- Loss Tangent: < 0.1 @10 GHz
- Insulation resistance: > 10¹⁰ Ω
- Breakdown Voltage: > 900 V/mil
- Electrolytic Leakage Current: < 1 µA/cm²

L8 Dielectric Properties vs Frequency

![Graph showing dielectric constant and loss tangent vs frequency](image_url)

< 10 GHz Split Post Resonator
> 10 GHz Split Cylinder

RoHS Directive 2011/65/EU
Low Temperature Co-Fired Ceramic Systems
L8 LTCC Tape System

Typical Process Parameters

Metallization:
- **Au-based System**
  - CN30-025H Au Inner Conductor
  - CN30-078 Au Via Fill
  - CN30-080M Au Surface Wirebondable
  - CN36-020 AuPtPd Surface Solderable
  - RE89 Series Resistors

- **Ag-based System**
  - CN33-498 Ag Inner Conductor
  - CN33-493 Ag Via Fill
  - CN33-495 Ag Surface Plateable
  - CN39-001 Surface Solderable

- **Mixed-Metal Based System**
  - CN33-498 Ag Inner Conductor
  - CN33-493 Ag Via Fill
  - CN39-005 AuPtAg Transition Via Fill
  - CN30-025JH Au Surface Wirebondable
  - CN36-020 AuPtPd Surface Solderable

- **Resistors**
  - RE89 Series Resistors

- **Dielectric**
  - DL10-108 Solder dam

- **Post Fireable System**
  - CN4007 Au Brazeable Top Layer
  - CN31-014/17 Solderable AuPt Conductor
  - CN3066 Wirebondable Au Conductor
  - CN3309 Solderable Ag Conductor

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2 Refer to Ferro’s LTCC Design Guide for specific process parameters and specifications

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