

Technical Data Sheet

Low Temperature Co-Fired Ceramic Systems L8 LTCC Tape System

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 Pb-Free 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.

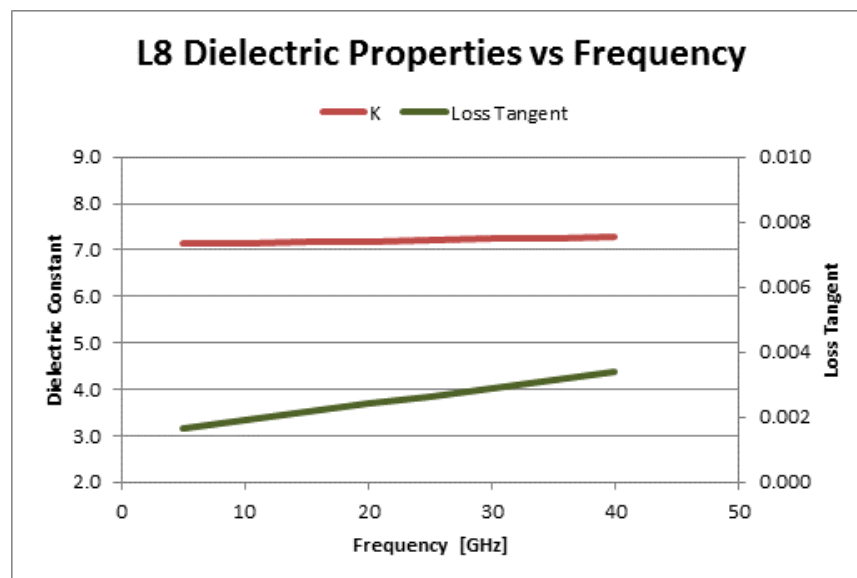
L8 is available in standard tape thicknesses of 2, 5, and 10 mil and in roll and blank forms.

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 and REACH compliant.

Typical Fired Properties

Thermal Coefficient of Expansion	6.0	ppm/°C
Tape Shrinkage	13.3 ± 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	7.4 ± 0.2	@10 GHz
Loss Tangent	< 0.0025	@10 GHz
Insulation resistance	> 10 ¹⁰	Ω
Breakdown Voltage	> 900	V/mil
Electrolytic Leakage Current	< 1	µA/cm ²



Gardner

< 10 GHz Split Post Resonator
> 10 GHz Split Cylinder

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Typical Process Parameters¹

Metallization:

- Au-based System
 - FX30-025JH Au Inner Conductor
 - CN30-078 Au Via Fill
 - CN30-080M Au Surface Wirebondable
 - CN36-020 AuPtPd Surface Solderable
- 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
 - CN30-080M Au Surface Wirebondable
 - CN36-020 AuPtPd Surface Solderable
- Resistors
 - RE89 Series Resistors
- Dielectric
 - DL10-108 Solder Dam
- Post Fireable System
 - 4007 Au Brazeable Top Layer
 - CN31-014/17 Solderable AuPt Conductor
 - 3066 Wirebondable Au Conductor (Au)
 - 3068N Wirebondable Au Conductor (Al)
 - 3309 Solderable Ag Conductor

Lamination: Iso-static 3000 psi (21Mpa) @ 70°C for 10 minutes and target repeatable lamination density.

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

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

Firing: 450 to 825°C @ 6-8°C/min, with 30 minute hold at peak in box or belt furnace with controlled with 100 SCFH air-flow.

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

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