

Technical Data Sheet

Ceramic Powders and Formulations for Passive Components High Frequency Dielectric Powders

Application

Ferro manufactures a variety of dielectric products that can be used in the manufacture of RF devices that can include resonators, filters and antennas.

The following data outlines the basic high frequency response properties of dielectrics that have been fabricated into a non-metallized sintered disc and then tested using microwave cavity test fixtures. This methodology enables to comparison

of various materials without noise-effects due to specific component fabrication and design.

Many of these products are Pb-free and all are formulated and processed to be RoHS compliant.

Please refer to individual product data sheets for additional information.

High Frequency Characteristics of Various Ferro Class I Dielectric Products

Product Code	ULF100	ULF140	ULF280	ULF800	COG630L	COG900L	COG600H
Dielectric Type	M7H	COG	COG	COG	COG	COG	COG
Composition	CaMgZr Silicate	BaCaMgZr Silicate	Barium Titanate	Rare Earth Titanate	Rare Earth Titanate	Rare Earth Titanate	Rare Earth Titanate
PbO Content (%)	0	0	0	0	< 5	< 5	0
Peak Firing Temperature (°C)	940	900	960	860	1130	1120	1260
Quality Factor (1MHz) ⁽¹⁾	1067	1713	1548	909	700	841	1075
ε' ⁽¹⁾	10	14	32	80	60	90	60
ε' ⁽²⁾	8	13	25	87	59	86	56
Q factor (1/Tan δ) ⁽²⁾	1000	1700	1500	900	700	800	1100
Resonant Frequency (GHz) ⁽²⁾	10.9	5.3	6.3	2.6	2.6	3.1	3.2
Q*F Product ⁽²⁾	11,500	10,500	9,500	2,500	2,500	2,500	3,500
Tf (ppm/°C) ⁽³⁾	-	-13	-	5	-15	7	-5

¹ As measured by MLCC device at 1 MHz.

² As measured by Kent Resonant Mode Dielectrometer.

³ As measured by Thermotron chamber.



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