



Air Fire COG Dielectrics

MRA offers an extensive line of Class I COG dielectrics for a wide variety of applications where the linear dielectrics with the “temperature-compensating” stable dielectric properties are required. MRA’s air fire dielectrics are user and environmentally friendly, easy to process, and offer exceptional reliability for your demanding applications.

	VLF-220Aq3	VLF-220Aq4	VLF-440	LF-085	VLF-101	VLF-101M
Dielectric Type	COG	COG	COG	COG	COG	COG
Dielectric Properties						
Dielectric Constant	23 ±2	23 ±2	40 ±5	85 ±10	100 ±5	100 ±5
Dissipation Factor, % @1MHz, 1Vrms, 20µm AD thickness	≤ 0.08	≤ 0.08	≤ 0.10	≤ 0.10	≤ 0.08	≤ 0.08
Insulation Resistance, GΩ @25°C @125°C	>1,000 >100	>1,000 >100	> 1,000 >100	> 1,000 > 100	> 1,000 >100	> 1,000 >100
Dielectric Breakdown Strength, Vdc/µm	≥ 60	≥ 60	≥ 60	≥ 60	≥ 60	≥ 100
Powder Properties						
Particle Size Distribution, µm						
D ₉₀	≤1.500	≤1.900	≤3.000	≤4.000	≤1.500	≤1.500
D ₅₀	0.575 ±0.125	0.675 ±0.175	0.600 ±0.150	0.700 ±0.250	0.500 ±0.100	0.500 ±0.100
D ₁₀	0.375 ±0.125	0.375 ±0.125	0.375 ±0.125	0.350 ±0.100	0.300 ±0.100	0.300 ±0.100
Surface Area, m²/g	4.10 ±0.60	4.00 ±1.00	3.75 ±0.75	2.40 ±1.00	6.00 ±1.00	6.00 ±1.00
Powder Density, g/cm³	≥4.10	≥4.00	≥4.50	≥5.25	≥5.40	≥5.40
L.O.I, % @650°C	≤ 1.00	≤ 1.00	≤ 1.00	≤ 0.70	≤ 1.00	≤ 1.00
Slurry Compatibility	Solvent- and aqueous-base systems	Solvent- and aqueous-base systems	Solvent- and aqueous-base systems	Solvent- and aqueous-base systems	Solvent- and aqueous-base systems	Solvent- and aqueous-base systems
Recommended Firing Conditions	975°C ±10°C for 5 hours in air	940°C ±10°C for 5 hours in air	985°C ±10°C for 5 hours in air	1100°C ±20°C for 3 hours in air	970°C ±10°C for 5 hours in air	950°C ±10°C for 5 hours in air
Setters Recommendations	Open Al ₂ O ₃ setters or crucibles	Open Al ₂ O ₃ setters or crucibles	Open ZrO ₂ setters	Open ZrO ₂ setters	Open ZrO ₂ setters	Open ZrO ₂ setters
Electrode Metal Compatibility	Up to 95% Ag/ 5%Pd	Up to 100% Ag	Up to 95% Ag/ 5%Pd	Up to 75% Ag/ 25%Pd	Up to 95% Ag/ 5%Pd	Up to 90% Ag/ 10%Pd
Electrode Paste	MRA EI-9505-Low-K-COG	MRA EI-9505-Low-K-COG	MRA EI-9010-Low-K-COG	MRA EI-7030-High-K-COG	MRA EI-9505-High-K-COG	MRA EI-9010-High-K-COG
RoHS Compatibility	RoHS Compliant	RoHS Compliant	RoHS Compliant	RoHS Compliant	RoHS Compliant	RoHS Compliant

The data presented is based on our research and is considered to be fair representation of this product. MRA makes no warranties, expressed or implied, as to its accuracy and assumes no liability out of its use by others.

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