

Technical Data Sheet

Electronic Component Materials Pastes for Piezoelectric Ceramic Devices

Application

Ferro offers a broad selection of conductor pastes suitable for many applications in multilayer and ceramic chip components. Ferro's in-house metal and glass formulation and R&D enables

us to tailor products to meet specific needs, including working closely with customers to develop the optimum processing methods such as screen printing, dipping, drying and firing.

Thick Film Conductors for PZT Piezoelectric Devices

Product Code	61220004	61300023	61340001	61340004	61340026
Typical Applications	PZT & Alumina	PZT Stacks	Base Metallization for PZT Stacks	PZT Components	PZT Components
Metal Composition	100% Ag	100% Ag	100% Ag	100% Ag	100% Ag
Application Methods	Dipping, Spraying, Brushing	Screen Printing	Screen Printing	Screen Printing	Screen Printing
Solderability	Good	Excellent	Limited	Limited	Excellent
RoHS Compliant	Yes	Yes	Yes	Yes	Yes
Typical Formulation Properties					
Viscosity in Pa-s at 25°C	57.0 - 69.0	15.9 - 25.0	11.0 - 15.0	17.8 - 23.5	18.5 - 25.3
Weight-% Solids Content	66.2	83.0	73.4	75.4	68.4
Weight-% Ag Content	62.0	81.0	68.4	68.4	60.4
Typical Processing Parameters					
Solvent Loss Replacement Additive	68100223	68100063	68100063	68100063	68100063
Printing Screen Mesh	n/a	200 - 325	200 - 325	200 - 325	200 - 325
Drying (Peak Temp / Time)	150°C/10 min	150°C/10 min	150°C/10 min	150°C/10 min	150°C/10 min
Firing (Peak Temp / Time)	730-830°C/8-10 min	560-600°C/45-60 min	650-750°C/8-10 min	690-750°C/8-10 min	700-800°C/8-10 min

Inner Electrodes for PZT Piezoelectric Devices (1000 - 1140°C)

Product Code	EL44-001	EL44-024	EL44-040
Typical Applications	Ultra-low fire COG MLCC, Lead Relaxor and PZT	Low fire MLCC, Lead Relaxor and PZT	Low fire COG MLCC, Lead Relaxor and PZT
Metal Composition	80Ag/20Pd	75Ag/25Pd	70Ag/30Pd
Application Methods	Screen Printing	Screen Printing	Screen Printing
RoHS Compliant	Yes	Yes	Yes
Typical Formulation Properties			
Viscosity in Pa-s at 20°C	25 - 35	32 - 42	25 - 35
Paste Wt-% Metal Content	48.0	50.0	52.0
Sintering Inhibitor	ZrO ₂	BaTiO ₃ / ZrO ₂	ZrO ₂
Typical Processing Parameters			
Solvent Loss Replacement Additive	M1178	M1178	M1149
Printing Screen Mesh	325 - 400	325 - 400	325 - 400
Drying (Peak Temp / Time)	90°C / 10 min	90°C / 10 min	90°C / 10 min
Firing (Peak Temp Range)	1000 - 1060°C	1020 - 1100°C	1050 - 1140°C



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