ESL ELECTROSCIENCE
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CERMET SILVER CONDUCTOR 9912-A

Lead and Cadmium-free*

ESL 9912-A is a mixed-bonded silver conductor particularly developed for a wide range of applications, for example chip resistors, consumer hybrids, potentiometers and heater elements. Due to the wide firing temperature range, this conductor may be processed on a variety of substrates including glass, Porcelain Enamelled Steel (PES), alumina and beryllia. 9912-A is suitable for terminating resistors used in potentiometers and heaters. This conductor may be protected with ESL 4904 overglaze to prevent electrolytic silver migration.

PASTE DATA

Rheology:	Thixotropic, screen-printable paste
Viscosity: (Brookfield RVT, 10rpm, ABZ Spindle, 25.5 ± 0.5 °C)	150 ± 25 Pa.s
Bonding Mechanism:	Mixed-bonded
Shelf Life (20 - 25 °C):	6 months

PROCESSING

Screen Mesh, Emulsion:		325 S/S, 25 µm
Levelling Time (at 20 °C):		5 - 10 min
Drying Time (at 125 °C):		10 - 15 min
Firing Temperature Range:	Alumina	850 - 930 °C in air
	Beryllia	850 - 930 °C in air
	PES (Porcelain Enamelled Steel):	625 °C in air
	Optimum (Alumina):	850 °C
	Optimum (Beryllia):	930 °C
	Time at peak:	10 min
Total Firing Cycle:		1 hour
Substrate for Calibration:		96% alumina
Thinner:		ESL 401
Lead Content:		<1000 ppm

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TYPICAL PROPERTIES

Fired Thickness: (measured on a 2 mm x 2 mm pad on 96% alumina)	9 - 14 µm
Approximate Coverage:	100 - 125 cm^2 / g
Resistivity: (measured on a 100 mm x 0.25 mm conductor track)	< 2.0 mΩ/□
Printing Resolution: (line/space)	0.200 mm / 0.200 mm
Solder Wettability: (RMA Flux, 5 sec. dip) 62Sn/36Pb/2Ag (220 ± 5 °C)	100 %
Solder Leach: (No. of 10 second dips to double minimum resistance of 100 mm x 0.25 mm conductor, 62Sn/36Pb/2Ag, 220 °C)	>5 dips
Adhesion: (90° pull, 2 mm x 2 mm pads, 62Sn/36Pb/2Ag)	
Initial pull strength:	>6.4 kg
Aged 48 hours at 150 °C:	>6.4 kg