



ESL ELECTROSCIENCE

CERAMIC TAPES &
THICK-FILM MATERIALS

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CERMET SILVER CONDUCTOR

9912

ESL 9912 is a mixed-bonded silver conductor developed for a wide range of applications for the consumer market. Due to the wide firing temperature range, this conductor may be processed on a variety of substrates including Porcelain Enamelled Steel (PES), alumina and beryllia. This conductor exhibits excellent adhesion and aged bond retention as well as excellent solderability and solder leach resistance.

PASTE DATA

Rheology: Thixotropic, screen-printable paste

Viscosity:
(Brookfield RVT, 10rpm,
ABZ Spindle, 25.5 ± 0.5 °C) 200 ± 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

Rate of Ascent/Descent: 50 - 60°C / min

Substrate for Calibration: 96% alumina

Thinner: ESL 401

ESL Europe 9912 0308-C

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See Caution and Disclaimer on other side.

TYPICAL PROPERTIES

Fired Thickness: (measured on a 2 mm x 2 mm pad on 96% alumina)	10 - 15 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)	0.125 mm / 0.125 mm
Solder Wettability: (RMA Flux, 5 sec. dip, 62Sn/36Pb/2Ag, 220°C)	100%
Solder Leach: (No. of 10 second dips to double lowest 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: > 3.2 kg

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CAUTION: Proper industrial safety precautions should be exercised in using these products. Use with adequate ventilation. Avoid prolonged contact with skin or inhalation of any vapours emitted during use or heating of these compositions. The use of safety eye goggles, gloves or hand protection creams is recommended. Wash hands or skin thoroughly with soap and water after using these products. Do not eat or smoke in areas where these materials are used. Refer to appropriate MSDS sheet.

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