



ESL ELECTROSCIENCE

CERAMIC TAPES &
THICK-FILM MATERIALS

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CERMET GOLD CONDUCTOR

8880 8880-H

Fritless Gold Conductor for High Reliability Applications And with High Reliability Wire Bondability

ESL 8880 and 8880-H (MICRO-LOK[®]) gold conductors have been developed to give the best adhesion properties possible when printed and fired on a range of ceramic substrate materials. This is achieved by a reactive bonding mechanism that does not require glass frit. Both these conductors have high conductivity and excellent wire bondability properties due to the absence of glass in the bonding mechanism. A version of 8880-H for aluminium large diameter wire bonding is available upon request.

The 8880-H conductor is a higher solids version of 8880 and has been successfully used on 99.5% alumina and Ferrite substrates for thick film microwave applications. These golds may be etched using KI/I₂ solutions for fine line definition to give lowest attenuation in microwave circuits using frequencies up to 20 GHz. Note that even small amounts (<10 ppm) of halogenated hydrocarbons in the furnace atmosphere will severely degrade the adhesion of these products.

PASTE DATA

Rheology:	Thixotropic, screen-printable paste
Viscosity: (Brookfield RVT, 10rpm, ABZ spindle, 25.5 ± 0.5 °C)	400 ± 30 Pa.s
Bonding Mechanism:	Fritless, MICRO-LOK [®]
Shelf Life (20 - 25 °C):	6 months

PROCESSING

Screen Mesh, Emulsion:	325 S/S, 20 µm
Levelling Time (20°C):	5 - 10 min
Drying at 125°C:	10 -15 min
Firing Temperature Range:	930 - 1000°C in air
	Optimum: 980 °C
	Time at peak: 10 min
Total Firing Cycle:	1 hour
Substrate for Calibration:	96% alumina
Thinner:	ESL 401

ESL Europe 8880, 8880-H 0609-H

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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)		12.5 ± 2.5 µm
Approximate Coverage:		65 - 85 cm ² /g
Resistivity: (measured on a 100 mm x 0.25 mm conductor track)		< 3.0 mΩ/□
Printing Resolution: (line/space)	8880 8880-H	0.125 mm / 0.125 mm 0.075 mm / 0.075 mm
Adhesion: (90° pull, 2 mm x 2 mm pads, 80 Au/20Sn and 62Sn/36Pb/2Ag)	Initial pull strength: Aged 48 hours at 150°C:	> 6.0 kg > 4.0 kg
Thermosonic Au Wire Bond: (50 µm wire; bond length 1 mm)		> 30 g average
Ultrasonic Al Wire Bond:	8880 (25 µm wire; bond length 1 mm) 8880-H (32 µm wire; bond length 1 mm)	> 8 g > 15 g
Aged Al Wire Bond:	8880 (48 hours at 150 °C) 8880-H (168 hours at 150 °C)	> 5 g > 8 g
Large Diameter Wire Bonding: (380 µm wire; bond length 5 mm)	8880-H Initial pull strength: Aged 40 hours at 200°C:	> 1000 g > 900 g

ESL Europe 8880, 8880-H 0609-H

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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