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CERMET SILVER/PALLADIUM CONDUCTOR 9695

Cadmium Free

ESL 9695 is a low-cost, high-conductivity silver/palladium conductor for use on alumina. It is also used as a termination for 29XXX series resistors over 4924 dielectric in **Heaters on Steel® (HOS)**. It has a wide-firing temperature range and can also be used on Porcelain Enamelled Steel (PES). This conductor exhibits excellent solderability and adhesion and may be used as a termination for all ESL 850°C-firing resistor systems, as well as many other commercially available systems.

9695 is commonly used for ground plane and buried conductor layers in multilayer hybrid circuits as a substitute for higher palladium content conductors to improve conductivity and lower cost. A typical system consists of 9695, 4905-CH dielectric and 9633-B as the top conductor for excellent solder leach resistance. A potentiometer grade, 9695-P is also available.

PASTE DATA

Rheology:	Thixotropic, screen-printable paste
Viscosity: (Brookfield RVT, 10rpm, ABZ Spindle, 25.5 ± 0.5 °C)	225 ± 25 Pa.s
Bonding Mechanism:	Mixed-bonded
Shelf Life (20 - 25 °C):	6 months

PROCESSING

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

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TYPICAL PROPERTIES

Fired Thickness: (measured on a 2 mm x 2 mm pad on 96% alumina)	12.5 ± 2.5 µm
Approximate Coverage:	90 - 100 cm²/g
Resistivity: (measured on a 100 mm x 0.25 mm conductor track at 12.5 µm fired thickness)	3 - 6 mΩ/□
Printing Resolution: (line/space)	0.125 mm / 0.125 mm
Solder Wettability: (RMA flux, 5 sec. dip, 62Sn/36Pb/2Ag at 220°C)	95 - 100%
Solderability after overglaze: (500°C, 5 min., 62Sn/36Pb/2Ag)	90 - 100%
Solder Leach: (No. of 10 sec. dips to double lowest resistance of 100 mm x 0.25 mm conductor, 62Sn/36Pb/2Ag at 220°C)	≥ 3 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:	≥ 4.0 kg