



## ESL ELECTROSCIENCE

CERAMIC TAPES &  
THICK-FILM MATERIALS

416 EAST CHURCH ROAD  
KING OF PRUSSIA, PA 19406-2625, U.S.A

T: 610-272-8000  
F: 610-272-6759

[www.electroscience.com](http://www.electroscience.com)

# CERMET SILVER CONDUCTOR

# 9912-THP

ESL 9912-THP is a mixed bonded silver paste especially developed for through-hole printing. The recommended firing temperature on 96% alumina is 850°C. This material also exhibits excellent solderability and solder leach resistance with 62 Sn/36 Pb/2 Ag solder on alumina.

## PASTE DATA

<b>Rheology:</b>	Thixotropic screen-printable paste
<b>Viscosity:</b> (Brookfield RVT, 10rpm, ABZ Spindle, 25.5 ± 0.5 °C)	44 - 55 Pa.s
<b>Bonding Mechanism:</b>	Mixed-bonded
<b>Shelf Life (20 - 25 °C):</b>	6 months

## PROCESSING

<b>Screen Mesh, Emulsion:</b>	325 S/S, 25 µm
<b>Levelling Time (at 20 °C):</b>	5 - 10 min
<b>Drying Time (at 125 °C):</b>	10 - 15 min
<b>Firing Temperature:</b>	Optimum: 850 °C Time at peak: 10 - 12 min
<b>Rate of Ascent/Descent:</b>	60 - 100°C / min
<b>Substrate for Calibration:</b>	ESL 41010
<b>Thinner:</b>	ESL 401

ESL Europe (KOP) 9912-THP 9702-B

### ESL Affiliates

ESL Europe (Agmet Ltd) • 8 Commercial Road • Reading • Berkshire • England • RG2 0QZ • Tel: +44 (0) 118 918 2400 • Fax: +44 (0) 118 986 7331 • Sales@ESLEurope.co.uk

ESL Nippon • Sukegawa Bldg. • 6<sup>th</sup> floor • 3-4 Yanagibashi 1-chome • Taito-ku • Tokyo 111, Japan • Tel: +81-3-3864-8521 • Fax: +81-3-3864-9270 • Sales@ESL-Nippon.co.jp

ESL China • Room #1707, Tower A, City Center of Shanghai • 100 Zunyi Road • Shanghai, China 200051 • Tel: +86-21-6237-0336 and 0337 • Fax: +86-21-6237-0338  
ESLChina@eslshanghai.net

See Caution and Disclaimer on page 2.

## TYPICAL PROPERTIES

<b>Fired Thickness:</b>	8 - 12 $\mu\text{m}$
<b>Approximate Coverage:</b>	75 - 100 $\text{cm}^2/\text{g}$
<b>Resistivity:</b>	1 - 3 $\text{m}\Omega/\text{sq.}$
<b>Printing Resolution:</b> (line/space)	0.250 mm / 0.250 mm
<b>Solder Wettability:</b> (RMA Flux, 5 sec. dip 62Sn/36Pb/2Ag, 220°C)	Good - Very good
<b>Solder Leach:</b> (No. of 10 sec. dips to double lowest resistance of 100 mm x 0.25 mm conductor, 62Sn/36Pb/2Ag, 220°C)	5 - 8 dips
<b>Adhesion:</b> (90° pull, 2 mm x 2 mm pads, 62Sn/36Pb/2Ag, 220°C)	
	Initial pull strength: 6 - 9 kg
	Aged 48 hours at 150°C: 6 - 8 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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