



# Electro-Science Laboratories, Inc.

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## PALLADIUM SILVER CONDUCTOR

## 9633-G

### CADMIUM-FREE, LEAD-FREE, AND NICKEL-FREE, PALLADIUM SILVER CONDUCTOR

ESL 9633-G is a palladium silver conductor for mixed multilayers. It is formulated for use on 96% alumina substrates in hybrid circuits where good conductivity and solderability are desired. ESL 9633-G is well suited for use on top of ESL dielectric 4913-A. When used in conjunction with gold conductors, 8843 is recommended. 8843 should be fired on top of the 9633-G.

#### PASTE DATA

<b>RHEOLOGY:</b>	Thixotropic, screen printable paste
<b>VISCOSITY:</b> (Brookfield RVT, ABZ Spindle, 10 rpm, 25.5°C±0.5°C)	275±75 Pa·s
<b>BONDING MECHANISM:</b>	Mixed
<b>SHELF LIFE:</b> (at 25°C)	6 months

#### PROCESSING

<b>SCREEN MESH/EMULSION:</b>	325/12.5 µm
<b>LEVELING TIME:</b> (25°C)	5-10 minutes
<b>DRYING AT 125°C:</b>	10-15 minutes
<b>FIRING RANGE:</b>	850°C-980°C
<b>OPTIMUM:</b>	850°C
<b>TIME AT PEAK:</b>	10-12 minutes
<b>SUBSTRATE OF CALIBRATION:</b>	96% alumina
<b>THINNER:</b>	ESL 413

9633-G 9910-E

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See Caution and Disclaimer on other side.

## TYPICAL PROPERTIES

<b>FIRED THICKNESS:</b>	10-15 $\mu\text{m}$
<b>RESISTIVITY:</b>	23-28 $\text{m}\Omega/\text{sq.}$
<b>PRINTING RESOLUTION:</b> (Line/Space)	100 $\mu\text{m}$ x 100 $\mu\text{m}$
<b>SOLDER WETTABILITY:</b> (RMA flux, 5 sec. dip, 62 Sn/36 Pb/2 Ag, 220°C $\pm$ 5°C)	> 95%
<b>SOLDER LEACH:</b> (No. of 10 sec. dips to double resistance of 0.25 wide x 100 mm long conductor)	
<b>62 Sn/36 Pb/2 Ag, 220°C<math>\pm</math>5°C:</b>	4 dips
<b>ADHESION:</b> (90° pull, 2.0 mm x 2.0 mm pads, 62 Sn/36 Pb/2 Ag, 220°C $\pm$ 5°C)	
<b>Initial pull strength:</b>	> 65 N
<b>Aged 48 hours at 150°C:</b>	> 50 N

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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 vapors 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.

**DISCLAIMER:** The product information and recommendations contained herein are based on data obtained by tests we believe to be accurate, but the accuracy and completeness thereof is not guaranteed. No warranty is expressed or implied regarding the accuracy of these data, the results obtained from the use hereof, or that any such use will not infringe any patent. Electro-Science assumes no liability for any injury, loss, or damage, direct or consequential arising out of its use by others. This information is furnished upon the condition that the person receiving it shall make their own tests to determine the suitability thereof for their particular use, before using it. User assumes all risk and liability whatsoever in connection with their intended use. Electro-Science's only obligation shall be to replace such quantity of the product proved defective.

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