



## ESL ELECTROSCIENCE

CERAMIC TAPES &  
THICK-FILM MATERIALS

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# CERMET SILVER CONDUCTOR

# 599-E

## Low Temperature Firing Conductor

ESL 599-E conductive paste offers versatility and superior performance in many applications. It exhibits excellent adhesion and high conductivity. ESL 599-E may be processed at temperatures as low as 400°C.

Suitable substrates include aluminium, various ceramics, porcelain enameled steel, soda-lime and other glass substrates. This conductive coating is compatible with various dielectrics.

### PASTE DATA

<b>Rheology:</b>	Thixotropic, screen-printable paste
<b>Viscosity:</b> (Brookfield RVT, 10 rpm, ABZ spindle, 25.5 ± 0.5 °C)	200 ± 25 Pa.s
<b>Bonding Mechanism:</b>	Fritted
<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 Range:</b>	400 - 550°C
	Optimum: 450°C
	Time at peak: 10 - 15 min
<b>Rate of Ascent/Descent:</b>	60 - 100°C / min
<b>Substrate for Calibration:</b>	Glass
<b>Thinner:</b>	ESL 401

ESL Europe 599-E 0211-A

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See Caution and Disclaimer on page 2.

## TYPICAL PROPERTIES

**Fired Thickness:**  $12 \pm 2.5 \mu\text{m}$

**Resistivity:** 3 - 6 m $\Omega$ /square

**Printing Resolution:**  
(line/space) 0.125 mm / 0.125 mm

**Solder Wettability:**  
(RIVIA Flux, 2 sec. dip)  
62Sn/36Pb/2Ag (220°C) Excellent

**Adhesion:**  
(90° pull, 2 mm x 2 mm pads,  
62Sn/36Pb/2Ag)  
Initial pull strength: > 10 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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