CERMET RESISTOR

29XXX Series

HOS Heaters on Steel® • COS Circuits on Steel® • TFOS Thick Film on Steel®

Cadmium, Lead and Nickel-free*

ESL 29XXX Series are low value resistors designed for use as heating elements on stainless steel substrates in combination with ESL’s insulating dielectrics. They are available in a range of resistivities and temperature coefficients of resistance (TCR) - see Table 1. Intermediate resistivities may be obtained by blending the two members of a TCR group.

PASTE DATA

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

PROCESSING

Screen Mesh, Emulsion: 250 S/S, 5 µm
Levelling Time (at 20°C): 10 - 15 min
Drying Time (at 125°C): 15 min
Firing Temperature Range: 850°C in air Optimum: 850°C
Time at peak: 10 min
Total Firing Cycle: 1 hour
Substrate for Calibration: ESL 4924 on 96% alumina
Thinner: ESL 401

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See Caution and Disclaimer on other side.
**TYPICAL PROPERTIES**

**Dried Thickness:**
(427 mm x 2.4 mm resistor track with 9695 terminations over 4924 dielectric) 21 ± 1 µm

**Approximate Coverage:** 80 cm² / g

**Resistivity & TCR:**

<table>
<thead>
<tr>
<th>Table 1: Resistor Properties</th>
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<tbody>
<tr>
<td>Product Number</td>
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<tr>
<td>Resistivity (mΩ/sq) ± 10%</td>
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<tr>
<td>Average TCR (ppm/°C) ± 50</td>
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</table>

*None of the six substances referred to in the RoHS Directive (2002/95/EC) are used in the formulation of this product.*

**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.

**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 thereof, or that any such use will not infringe any patent. ElectroScience 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 his own tests to determine the suitability thereof for his particular use, before using it. User assumes all risk and liability whatsoever in connection with his intended use. ElectroScience’s only obligation shall be to replace such quantity of the product proved defective.