



## ESL ELECTROSCIENCE

CERAMIC TAPES &  
THICK-FILM MATERIALS

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## CERMET RESISTOR

## 3414 Series

### High Gauge Factor

ESL 3414 Series high gauge factor resistor pastes are specifically designed for piezo-resistive applications on alumina or other ceramic membranes or substrates.

### PASTE DATA

**Rheology:**

Thixotropic, screen-printable paste

**Viscosity:**

(Brookfield RVT, 10 rpm,  
ABZ spindle,  $25.5 \pm 0.5$  °C)

$225 \pm 25$  Pa.s

**Shelf Life (20 - 25°C):**

6 months

### PROCESSING

**Screen Mesh, Emulsion:**

200 S/S, 12.5  $\mu$ m

**Levelling Time (at 20°C):**

5 - 10 min

**Drying Time (at 125°C):**

10 - 12 min

**Firing Temperature:**

850°C (in air)

Time at peak:

10- 12 min

**Total Firing Cycle:**

1 hour

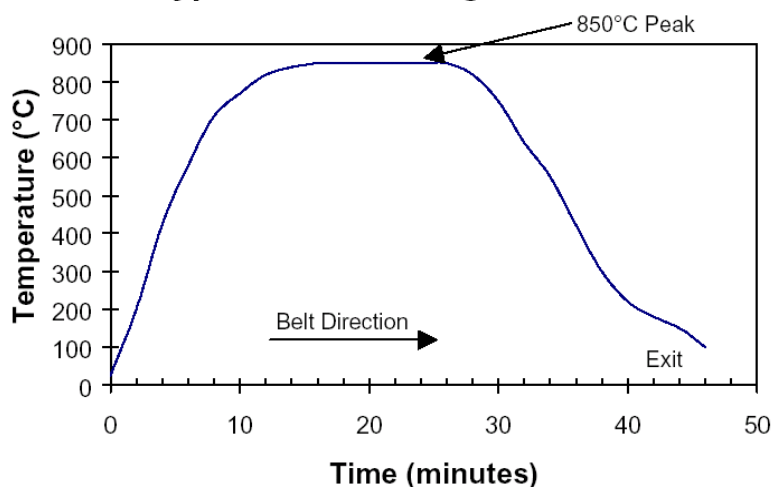
**Substrate for Calibration:**

9635-A on 96% alumina

**Thinner:**

ESL 401

### Typical 850°C Firing Profile



ESL Europe 3414 Series 0012-F

#### ESL Affiliates

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See Caution and Disclaimer on other side.

## TYPICAL PROPERTIES:

<b>Fired Resistor Thickness:</b>	11±1 µm
<b>Resistor Terminations:</b> (Pre-fired)	ESL 8836

	<b>3414-B-LBM</b>	<b>3414-B-HBM</b>	<b>3414-A</b>	<b>3414-B</b>
<b>Sheet Resistivity:</b> <sup>1</sup> (kΩ/sq.)	1.0 - 1.5	2.5 - 3.0	7.2 - 8.8	3.6 - 4.4
<b>TCR:</b> (in ppm/°C)	±150	±150	±100	±100
<b>Noise Index:</b> <sup>1</sup>	0 dB	3 dB	1 dB	6 dB
<b>Typical Gauge Factor:</b> <sup>2</sup>				
Longitudinal:	15 - 16	17 - 18	14 - 15	18 - 19
Transverse:	8 - 9	10 - 11	8 - 10	10 - 12
Nonlinearity:	1%	1%	1%	3%
Hysteresis:	1%	1%	1%	3%

### NOTES:

1. 1.25 mm x 1.25 mm geometry
2. 1.00 mm x 1.00 mm geometry
3. Designing resistors with an active length greater than 1.25 mm may minimize the ESD sensitivity.