

# Micromax™ 00L3L

## Electronic Inks and Pastes

### 00LXL Series Resistor Compositionn 20mΩ/SQ. Resistors

Designed to give high productivity and high quality, Micromax™ 00LXL low ohm resistor series has been specifically developed for Chip Resistor Applications. It meets the market needs for low cost of manufacturing.

### Product benefits

- Balanced cost vs. TCR performance
- Tight distribution of resistances
- High productivity and manufacturing yields
- Cadmium, Nickel and Phthalate free\*

\*Cadmium, Nickel and Phthalate 'free' as used herein means that cadmium, nickel and phthalate are not intentional ingredients in and are not intentionally added to the referenced product. Trace amount however may be present.

### Processing features

- Excellent printability
- Insensitive to firing profile / chip size
- Linear blend behavior
- Compatible with Micromax™ 5426, 5421E, 5418 Ag/Pd terminations and 5463 Ag termination.

### Product information

Solvent or thinner	Micromax™ 8250
Blend member or series	00LXLsrs

### Rheological properties

Viscosity	120 - 240 <sup>[1]</sup> Pa.s
[1]: Brookfield HAT, UC&S, @10rpm	

### Application technique

Drying time	5 - 10 min
Drying temperature	150 °C
Leveling time	5 - 10 min

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### Electrical properties

Surface resistivity	15 - 25 <sup>[2]</sup> mOhm per square
Hot Temperature Coefficient Resistance	≤600 <sup>[3]</sup> ppm/K
Cold Temperature Coefficient Resistance	≤600 <sup>[4]</sup> ppm/K

[2]: Unless otherwise noted, Micromax™ 00LXL resistors were printed on Micromax™ 5426 terminations at 18-22µm dried thickness, then fired in 30 minutes cycle with 850 °C peak for 10 minutes. Resistor geometry is 500sq.

[3]: Temperature Coefficient of Resistance from +25 to +125 °C for Hot TCR.

[4]: Temperature Coefficient of Resistance from +25 to -55 °C for Cold TCR.

### Storage and stability

Shelf life	6 <sup>[5]</sup> months
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[5]: in unopened containers, from date of shipment, at room temperature

### Additional information

How to use

### Processing

#### • Terminations

- Micromax™ 00LXL resistors were designed for use with high silver-containing terminations like Micromax™ 5421E Ag/Pd conductor. Reported properties were obtained using Micromax™ 5426 Ag/Pd termination. Use of different terminations may cause a shift of resistance and TCR values.

#### • Blendability

- Adjacent members among Micromax™ 00LXL series are totally blendable. As blend members of Micromax™ 00LXL series, 0001L(1Ω/sq.) is blendable with Micromax™ 00L1L.

#### • Substrates

- Reported properties are based on tests with 96% alumina substrates. Substrates of other composition may yield variation in performance properties.

#### • Printing

- The composition should be thoroughly mixed before use. This is best achieved by slow, gently, hand stirring with a clean burr-free spatula (flexible plastic or stainless steel) for 1-2 minutes. Care must be taken to avoid air entrapment. Printing should be performed in a clean and well ventilated area.
- Note: optimum printing characteristics are generally achieved in the room temperature range of 20 °C - 23 °C. It is therefore important that the material, in its container, is at this temperature prior to commencement of printing.

#### • Thinning

- Micromax™ 00LXL resistors have been optimized for screen

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printing and thinning is not normally required or recommended. Micromax™ 8250 thinner may be added sparingly to compensate for evaporative losses.

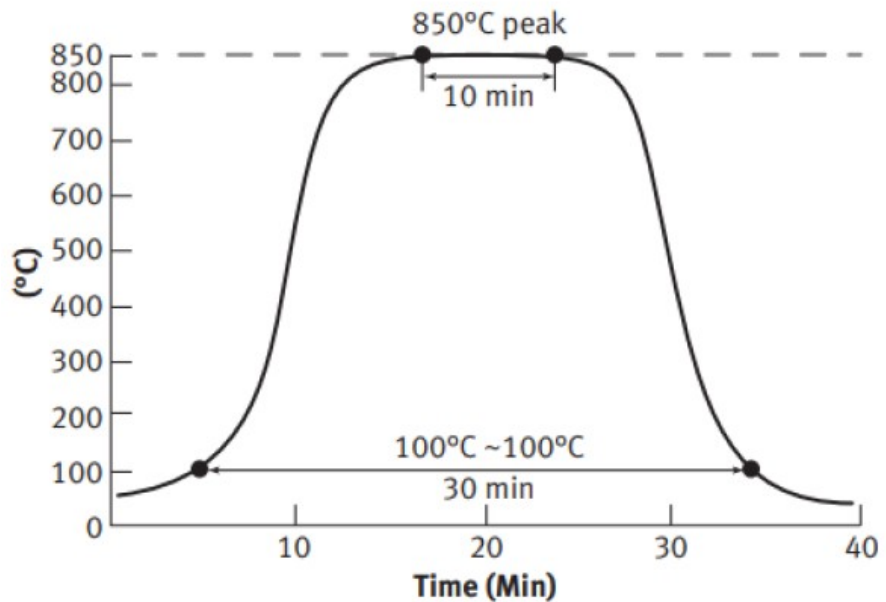
- **Drying**

- Parts should be allowed to level at room temperature and then dried.

- **Firing**

- Properties are based on a 30 minutes firing cycle (100 °C - 100 °C) with 10 minutes at a peak temperature of 850 °C Micromax™ standard profile.

Micromax™ Standard QA Firing Profile (850°C 10 min)



### Storage and shelf life

Containers should be stored, tightly sealed, in a clean, stable environment at room temperature. Shelf life of material in unopened containers is six months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use.

### Safety and handling

For safety and handling information pertaining to this product, read Safety Data Sheet (SDS).