

# Micromax™ 0033Z

## Electronic Inks & Pastes

### PRODUCT DESCRIPTION

#### 00X1Z Series Resistor Composition Negative TCR Position\* 1KΩ/sq

\*Options with different TCR positions are available for 10Ω, 100Ω, 1KΩ, 10KΩ

Designed to give an ideal balance of properties, Micromax™ 00X1Z series has been specifically developed for Chip Resistor Applications. It meets the market needs for smaller sized resistors and lower cost of manufacturing.

#### Product benefits

- Excellent power handling stability
- Exceptional ESD stability
- Excellent performance with thinner thickness and smaller chip size
- High speed laser trimmable
- Good blendability with lower and higher ohm Micromax™ 00X1 resistor members through 70mΩ to 10MΩ
- Low noise (MIL-STD-202)

#### Processing features

- Fast firing - 850°C/30min profile
- Insensitive to firing profile / chip size
- Linear blend behavior
- Compatible with 5421E Ag/Pd termination

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

### PRODUCT INFORMATION

|                        |                   |
|------------------------|-------------------|
| Application            | Chip resistor     |
| Solvent or thinner     | Micromax™ 8250(T) |
| Blend member or series | 00X1Zsrs          |

**TECHNICAL DATA**

| <b>Rheological Properties</b>                        | <b>Value</b> | <b>Unit</b>     |
|------------------------------------------------------|--------------|-----------------|
| Viscosity <sup>1</sup>                               | 110 to 200   | Pa.s            |
| <b>Application Technique</b>                         | <b>Value</b> | <b>Unit</b>     |
| Mask mesh                                            | 250 to 325   |                 |
| Mask emulsion                                        | 10 to 15     | µm              |
| Drying time                                          | 10 to 15     | min             |
| Drying temperature                                   | 150          | °C              |
| Recommended film thickness                           | 14 to 16     | µm              |
| Leveling time                                        | 5 to 10      | min             |
| <b>Electrical Properties</b>                         | <b>Value</b> | <b>Unit</b>     |
| Resistivity <sup>2</sup>                             | 1.4 to 2.2   | kOhm per square |
| Hot Temperature Coefficient Resistance <sup>3</sup>  | -140 to -90  | ppm/°C          |
| Cold Temperature Coefficient Resistance <sup>4</sup> | -230 to -180 | ppm/°C          |
| <b>Storage and Stability</b>                         | <b>Value</b> | <b>Unit</b>     |
| Shelf life <sup>5</sup>                              | 6            | months          |

<sup>1</sup>Brookfield HAT, SC4-14/6R, @10rpm

<sup>2</sup>Unless otherwise noted, Micromax™ 00X1Z resistors were printed on Micromax™ 5426 terminations at 14-16µm dried thickness, then fired in 30 minutes cycle with 850°C peak for 10 minutes. Resistor geometry is 0.5mm x 0.5mm.

<sup>3</sup>Temperature Coefficient of Resistance from +25 to +125°C for Hot TCR.

<sup>4</sup>Temperature Coefficient of Resistance from +25 to -55°C for Cold TCR.

<sup>5</sup>in unopened containers, from date of shipment, stable environment at room temperature between 5°C - 30°C

**PROCESSING GUIDELINES**
**Terminations**

Micromax™ 00X1Z 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 of Micromax™ 00X1Z series are totally blendable. It is also blendable with lower and higher ohm Micromax™ 00X1 resistor members like 0001(1Ω/sq.) and 0061(1MΩ/sq.) in good linearity through 70mΩ/sq.(00L2C) and 10MΩ/sq.(0071)

### Substrates

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

### Printing

Properties of Micromax™ 00X1Z series are based on resistors printed to 14~16µm dried thickness and 0.5mmsq. (10Ω ~ 100KΩ) 250 - 325 mesh screens with 10-15µm emulsion is recommended.

### Thinning

Micromax™ 00X1Z resistors have been optimized for screen printing and thinning is not normally required or recommended. Micromax™ 8250 thinner may be added sparingly to compensate for evaporative losses.

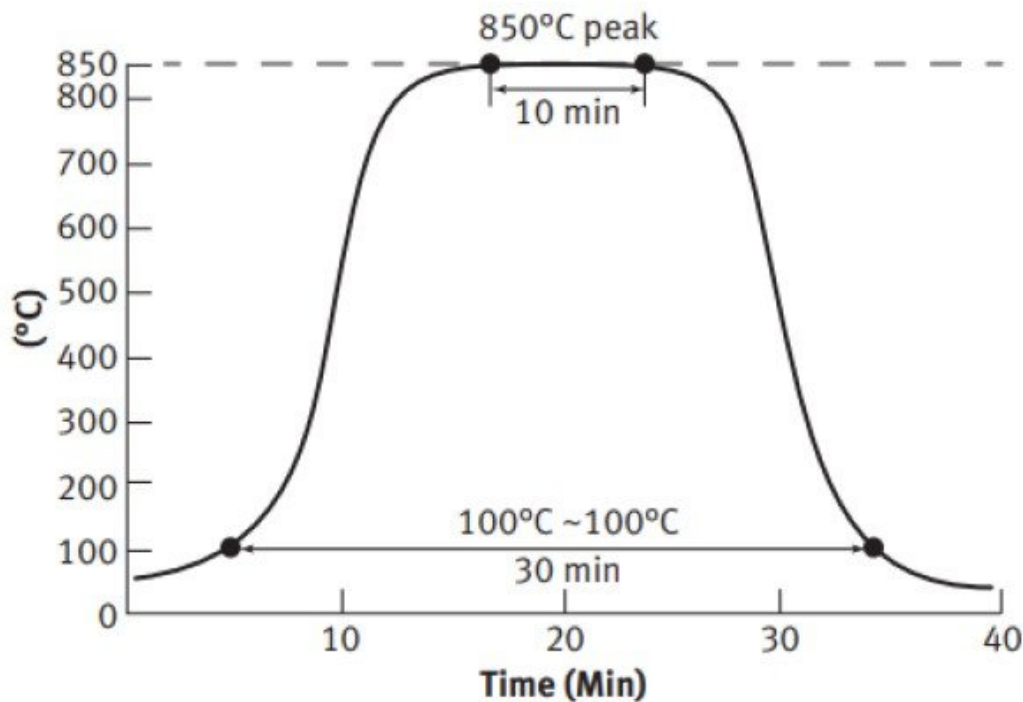
### Drying

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 between 5°C - 30°C. Shelf life of material in unopened containers is 6 months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use.

Storage conditions on the product data sheets are intended to represent long-term material storage recommendations and not a shipping or temperature-at-receipt requirement.

Transportation: Under normal shipping conditions, without temperature control, Micromax™ products are not expected to exhibit a change in quality or fitness for use. Should extraordinary events result in extended transportation periods, Micromax™ recommends customers confirm products remain suitable for the intended application.

### Safety and handling

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

## SAFETY & WARNING

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use.

**Safety Data Sheets are available.**

## WASTE TREATMENT

Prior to using any recommendations or suggestions for waste treatment, the user is required to know the appropriate local/state/federal regulations for on-site or off-site treatment which may require permits. If there is any conflict regarding our recommendations, local/state/federal regulations take precedence.

## CONTACT INFORMATION

[www.macdermidalpha.com](http://www.macdermidalpha.com)

| North America                                             | Europe                                                                                                                | Asia                                                                    |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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