

Micromax™ OF39E

Electronic Inks & Pastes

PRODUCT DESCRIPTION

Lead Free Resistor Composition

Designed to give an ideal balance of properties, Micromax™ OFXXEseries has been specifically developed for Chip Resistor Applications. It meets the market needs for smaller sized resistors and greener products.

Product benefits

- TCR variants to Micromax™ OFXXE series which serves broader market needs
- Lead, Cadmium, Nickel and Phthalate free*
- Excellent performance for smaller chip sizes with thinner printed thickness
- Good power handling stability
- Excellent ESD stability
- High speed laser trimmable
- Narrow TCR gap

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

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

PRODUCT INFORMATION

Application	Chip resistor
Solvent or thinner	Micromax™ 8250(T)
Blend member or series	OFXXEsrs

TECHNICAL DATA

Rheological Properties	Value	Unit
Viscosity ¹	120 to 220	Pa.s
Application Technique	Value	Unit
Mask mesh	200 to 325	
Mask emulsion	5 to 25	µm
Drying time	10 to 15	min
Drying temperature	150	°C
Recommended film thickness	11 to 13	µm
Leveling time	5 to 10	min
Electrical Properties	Value	Unit
Resistivity ²	1.05 to 1.75	kOhm per square
Hot Temperature Coefficient Resistance ³	-100 to -20	ppm/°C
Cold Temperature Coefficient Resistance ⁴	-100 to -20	ppm/°C
Storage and Stability	Value	Unit
Shelf life ⁵	6	months

¹Brookfield HAT, SC4-14/6R, @10 rpm

²Resistors are printed with dried thickness 11-13µm. Printed on Micromax™ 5421E termination (12-14µm dried thickness). Fired in Micromax™ standard QA firing profile with 850°C peak for 10 minutes. Resistor geometry is 0.5mm x 0.5mm except Micromax™ 0F01E (8sq).

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

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

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

PROCESSING GUIDELINES
Terminations

Micromax™ 0FXXE resistors were designed for use with high silver- containing terminations like Micromax™ 5421E Ag/Pd conductor. Reported properties were obtained using Micromax™ 5421E Ag/Pd termination. Use of different terminations may cause a shift of resistance and TCR values.

Blendability

Adjacent members of each blending group are blendable. Micromax™ 0FXXE resistors have cross-blendability with Micromax™ 0FXXA series and are also blendable with Micromax™ 00LXX

lead free low ohm resistor members in good linearity.

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™ 0FXXE series are based on resistors printed to 11~13µm dried thickness. 200~325 mesh screen with 5-25µm emulsion is recommended.

Thinning

Micromax™ 0FXXE 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.

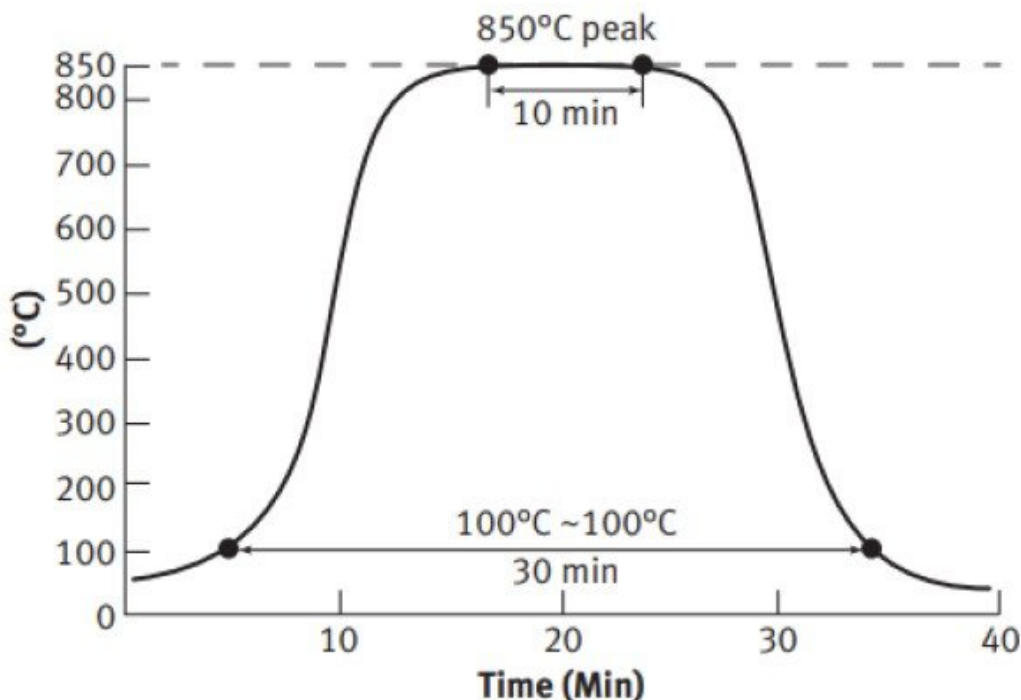
Drying

Parts should be allowed to level at room temperature for 5-10 minutes and then dried for 10-15 minutes at 150°C.

Firing

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

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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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