R253-5 Solder Paste
No-Clean, Lead-Free

Product Description

R253-5 is an air or nitrogen processable no-clean, lead-free solder paste formula specifically designed to minimize residues. Residues which remain on the surfaces after soldering are easily probed. R253-5 maintains highest possible activity for a no-clean formula and provides robust printing characteristics for up to 12 hours. Formula R253-5 is classified as Type ROL1 flux under IPC ANSI/J-STD-005 Joint Industry Standard.

Performance Characteristics:
- Stencil Life: 12 hours (process dependent)
- Excellent printing characteristics to 16 mil pitch
- Leaves bright/shiny solder joints after reflow
- Scrap is reduced due to less paste dry out

Standard Applications:
90% Metal – Stencil Printing

RoHS Compliance

This product meets the requirements of the Restriction of Hazardous Substances (RoHS) Directive, 2015/863 for the stated banned substances.

Physical Properties

Viscosity: 1350-1850
Sn95Sb05 T5 88% T5

Viscosity: 1150-1650
Sn96Ag4 T3 88% T3

Reliability Properties

Copper Mirror Corrosion: Low
Tested to J-STD-004, IPC-TM-650, Method 2.3.32

Corrosion Test: Low
Tested to J-STD-004, IPC-TM-650, Method 2.6.15

Surface Insulation Resistivity (SIR),
typical: Pass
Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

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<thead>
<tr>
<th></th>
<th>Blank</th>
<th>R253-5</th>
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<tbody>
<tr>
<td>24 hours</td>
<td>3.33*10^9 Ω</td>
<td>2.17*10^9 Ω</td>
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<tr>
<td>96 hours</td>
<td>4.40*10^9 Ω</td>
<td>8.60*10^8 Ω</td>
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<tr>
<td>168 hours</td>
<td>3.91*10^9 Ω</td>
<td>1.4*10^8 Ω</td>
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R253-5 is commonly available in SnAg and SnSb alloys. Type 3 powder mesh is recommended, but different powder particle size distributions are available for standard and fine pitch applications. For specific packaging information see Kester’s Solder Paste Packaging Chart for available sizes. The appropriate combination depends on process variables and the specific application.

**Printing Parameters**

- **Squeegee Blade**: 80-90 durometer stainless steel or polyurethane
- **Squeegee Speed**: Capable to a maximum speed of 25-150 mm/sec (1-6 in/sec)
- **Stencil Material**: Stainless Steel, Molybdenum, Nickel Plated or Brass
- **Temperature/Humidity**: Optimal ranges are 21-25°C (70-77°F) and 35-65% RH

**Recommended Reflow Profile**

Convection and Infra-Red reflow methods are most commonly used to reflow the R253-5 formula. Full Convection, Vapor Phase, and Soft Beam Laser methods can also be used. The recommended IR or Convection reflow profile for the R253-5 formula made with SAC alloys is shown here.

**Cleaning**

R253-5 is a no-clean formula. The residues do not need to be removed for typical applications. Although R253-5 is designed for no-clean applications, its residues can be easily removed using automated cleaning equipment (in-line or batch) with the aid of Kester 5768 Cleaner in a 10-12% concentration in de-ionized water at approximately 140°F (60°C).

**Storage and Shelf Life**

R253-5 should be kept at standard refrigeration temperatures and humidity conditions, 0-10°C (32-50°F) and 35-55%RH respectively. Shelf life is 4 months from date of manufacture when held at 0-10°C (32-50°F).

**Health and Safety**

This product, during handling or use, may be hazardous to your health or the environment. Read the Safety Data Sheet (SDS) and warning label before using this product.