

# ALPHA<sup>®</sup> OM-338L2

No-Clean, Zero-Halogen, Lead-Free Solder Paste

## DESCRIPTION

**ALPHA OM-338L2** is a lead-free, zero halogen, NWO (Non-Wet Open) resistant, no-clean solder paste designed for minimizing BGA non-wet and head in pillow defects.

**ALPHA OM-338L2** is also designed to enable high first pass yield on ICT pin testing. The product also provides consistent fine pitch printing capability. Additionally, **ALPHA OM-338L2** achieves IPC7095 Class III voiding performance.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

## FEATURES & BENEFITS

- Residue: Able to achieve very high first pass yield on ICT Pin Testing
- High resistance to NWO and HIP defects
- Long Stencil Life: consistent performance for at least 8 hours of continuous printing
- Long, High Tack Force Life: ensures high pick-and-place yields, good self-alignment
- Reflow Profile Window: Nitrogen or air reflow
- Excellent Coalescence and Wetting Performance: coalesced 170µm circle deposit in Nitrogen reflow process
- Excellent Solder Joint and Flux Residue Cosmetics: After reflow soldering, no charring or burnt residue appearance
- Excellent Voiding Performance: Meets IPC7095 Class III Requirement
- Halogen Content: Halogen free
- Safe and Environmentally Friendly: Materials comply with ROHS and Zero Halogen requirements (see table below) as well as TSCA

**PRODUCT INFORMATION**

<u>Alloys:</u>	SAC305 (96.5%Sn/3.0%Ag/0.5%Cu)
<u>Powder Size:</u>	Type 4, (20 to 38µm per IPC J-STD-005)
<u>Packaging Sizes:</u>	500 gram jars
<u>Lead Free:</u>	RoHS Directive EU/2015/863; amending Annex II of 2011/65/EU

**APPLICATION GUIDELINES**

**Printing:** Formulated for both standard and fine pitch stencil printing, at print speeds of between 25mm/sec (1in/s) and 150mm/sec (6in/s), with stencil thickness of 100µm (4 mil) to 150µm (6 mil), particularly when used with ALPHA Stencils. Blade pressures should be 0.18 to 0.27 kg/cm of blade (1.0 to 1.5 lbs/inch), depending upon the print speed. The higher the print speed employed, the higher the blade pressure that is required.

**HALOGEN STATUS**

ALPHA OM-338L2 is a halogen free product and passes the standards listed in the Table below:

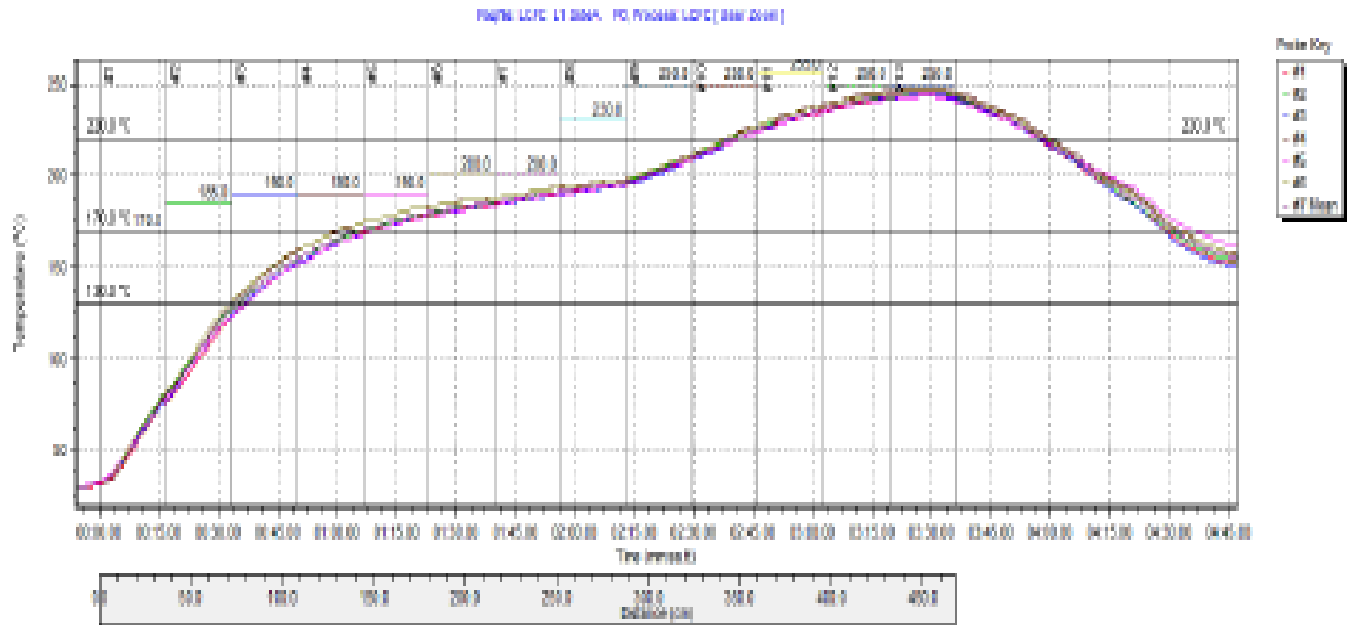
Halogen Standards			
Standard	Requirement	Test Method	Status
<b>JEITA ET-7304</b> Definition of Halogen Free Soldering Materials	< 1000 ppm Br, Cl, F in solder material solids	<b>TM EN 14582</b>	Pass
<b>IEC 612249-2-21</b>	Post Soldering Residues contain < 900 ppm each or total of < 1500 ppm Br or Cl from flame retardant source		Pass
<b>JEDEC</b> A Guideline for Defining "Low Halogen" Electronics	Post soldering residues contain < 1000 ppm Br or Cl from flame retardant source		Pass
<b>Zero Halogen:</b> No halogenated compounds have been intentionally added to this product			

**TECHNICAL DATA**

Category	Results	Procedures/Remarks
<b>Chemical Properties</b>		
Activity Level	ROL0	IPC J-STD-004B
Halide Content	Halide free (by titration)	IPC J-STD-004B
Halogen Test	Pass, Zero Halogen	By formulation
Fluoride Spot Test	TBD	JIS Z 3197:1999 8.1.4.2.4
Copper Mirror Test	Pass	IPC J-STD-004B
	Pass	JIS Z 3197:1999 8.4.2
Copper Corrosion Test	Pass	IPC J-STD-004B
	TBD	JIS Z 3197:1999 8.4.1
Electromigration	TBD	JIS Z 3197:1999 8.5.4
	Pass	IPC SIR (2.6.3.7)
<b>Physical Properties</b>		
Color	Clear, Colourless Flux Residue	
Tack Force	Pass, change of < 1 g/mm <sup>2</sup> over 24 hours at 50% RH	IPC J-STD-005
Viscosity	89% metal load, Type 4 designated M10 for printing Viscosity (Typical) 1000 poise at 10 rpm Malcom	Malcom Spiral Viscometer; J-STD-005
Coalescence Test	Able to reflow at 170µm circle size in Nitrogen process	Internal coalescence test
Solder Ball	Preferred	IPC J-STD-005B TM-650 2.4.43
Spread	TBD	JIS Z 3284:1994 Annex 7

REFLOW PROFILES

Suggested Typical Profile for ALPHA OM-338L2 SAC305



- Normal Process window when there is no BGA frame warping:**

  - Peak temperatures: from 235 to 245 °C
  - From 40 to 220 °C: about 2mn30 to 3mn30
  - From 170 to 220 °C: About 45 to 90s
  - From 130 to 220 °C: about 1mn30 to 2mn15
- In case of BGA frame warping: HIP or NWO issues**

  - Peak temperatures: from 235 to 245 °C
  - From 40 to 220 °C: about 2mn30 to 3mn
  - From 170 to 220 °C: About 45 to 70s
  - From 130 to 220 °C: about 1mn40 to 2mn
  - Times above liquidus: 30 to 90s

**RECYCLING SERVICES**

We provide safe and efficient recycling services to help companies meet their environmental and legislative requirements and at the same time, maximize the value of their waste streams. Our service collects solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area or [link here](#).



**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 at [MacdermidAlpha.com/assembly-solutions/knowledge-base](http://MacdermidAlpha.com/assembly-solutions/knowledge-base).**

**STORAGE**

ALPHA OM-338L2 should be stored in a refrigerator upon receipt at 0 to 10 °C (32 to 50 °F). It should be permitted to reach room temperature before unsealing its package prior to use. Recommended working temperature and humidity shall be 23 to 25 °C and 40 to 60% respectively.

**CONTACT INFORMATION**

**To confirm this document is the most recent version, please contact [Assembly@MacDermidAlpha.com](mailto:Assembly@MacDermidAlpha.com)**

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

<p><b>North America</b> 109 Corporate Blvd. South Plainfield, NJ 07080, USA 1.800.367.5460</p>	<p><b>Europe</b> Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400</p>	<p><b>Asia</b> 8/F., Paul Y. Centre 51 Hung To Road Kwun Tong, Kowloon, Hong Kong 852.3190.3100</p>
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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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