TECHNICAL BULLETIN

alpha ASSEMBLY SOLUTIONS™

ALPHA® OM-5002

HIGH SPEED, PIN TESTABLE SOLDER PASTE

DESCRIPTION

ALPHA OM-5002 is a no-clean solder paste formulated for optimum performance in a wide variety of applications. The semi-soft, highly reliable residues provide a very low incidence of first probe false readings. **ALPHA OM-5002** can be squeegee or pump printed at high speeds.

FEATURES & BENEFITS

- **ALPHA OM-5002** prints at squeegee speeds up to 200mm/sec with consistent print volumes and definition after pauses up to 7 hours.
- Excellent resistance to hot and cold slump for (Contour stability) minimizing bridge formation.
- Excellent wetting characteristics and cosmetics on all types of pad finishes (incl. OSP) even after multiple reflow excursions.
- Penetrable post reflow flux residues to maximize pin testability (ICT).
- **ALPHA OM-5002** exhibits long stencil and tack life > 8 hours (25-75% RH).

AVAILABILITY

Alloy:	63Sn/37Pb, 62Sn/36Pb/2Ag
Powder Size:	Type 3 (25-45µm), Type 4 3 (20-38µm)
Packaging Sizes:	500 gram jars, 6” and 12” cartridges and DEK ProFlo® cassettes.

Note 1: For other alloys, powder size and packaging sizes, contact you local Alpha Sales office.

APPLICATION

Formulated for standard and fine pitch printing through stencil apertures as small as 0.007 inches (0.2 mm). Suitable for use across a wide variety of process settings. **OM-5002** is especially suitable for printing on assemblies that will receive in-circuit test probing.

TECHNICAL DATA

CATEGORY	RESULTS	PROCEDURES/REMARKS
CHEMICAL PROPERTIES		
Activity Level	ROL-0 = J-STD Classification	IPC J-STD-004
Halide Content	Halide-Free (by titration); passed Ag Chromate test	IPC J-STD-004

TECHNICAL BULLETIN

alpha ASSEMBLY SOLUTIONS™

ALPHA® OM-5002

HIGH SPEED, PIN TESTABLE SOLDER PASTE

CATEGORY	RESULTS	PROCEDURES/REMARKS
ELECTRICAL PROPERTIES		
SIR (IPC 7 days @ 85° C/85% RH)	**1.7E + 10 ohms**	Pass, IPC J-STD-004 {Pass = 1 x 108 ohm min}
SIR (Bellcore 96 hours @ 35°C/85% RH)	**4.3E x 12 ohms**	Pass, Bellcore GR78-CORE {Pass = 1 x 1011 ohm min}
Electromigration (Bellcore 500 hours @ 65°C/85° RH)	**Pass**	Pass, Bellcore GR78-CORE 62Sn/36Pb/2Ag {Pass= final> initial/10}
PHYSICAL PROPERTIES (Typical for 90% Metal, Type #3 Powder)		
Color	Clear, Colorless Flux Residue	
Tack Force vs. Humidity (4 hours)	>1.5 grams/mm^2	IPC J-STD-005
Viscosity	90% metal load, Type 3 and Type 4 powder with typical viscosity of 1300 Poise at 10 rpm	Malcom Spiral Viscometer; J-STD-005
Solderball	Pass	IPC J-STD-005; DIN Standard 32 513
Stencil Life	> 8 hours	@ 50%RH, 74°F (23^{o}C)
Hot Slump	Pass (25 mil is maximum bridge allowed for pass)	IPC J-STD-005

SAFETY

While the **ALPHA OM-5002** flux system is not considered toxic, its use in typical reflow will generate a small amount of reaction and decomposition vapors. These vapors should be adequately exhausted from the work area. Consult the SDS for all safety information. The most recent version of the SDS is available from AlphaAssembly.com.

STORAGE

ALPHA OM-5002 should be stored in a refrigerator upon receipt at 0 to 10°C (32-50°F). **ALPHA OM-5002** should be permitted to reach room temperature before unsealing its package prior to use (see handling procedures on Page 3). This will prevent condensation build-up of moisture on the solder paste.

TECHNICAL BULLETIN

alpha ASSEMBLY SOLUTIONS™

ALPHA® OM-5002

HIGH SPEED, PIN TESTABLE SOLDER PASTE

PROCESSING GUIDELINES

PROCESSING GUIDELINES			
STORAGE-HANDLING	**PRINTING**	**REFLOW**	**CLEANING**
•Refrigerate to guarantee stability @(1-10)°C, (34-50)°F. When stored under ther conditions, the shelf life of **ALPHA OM-5002** is 6 months from the manufacturing date. •Paste can be stored for 2 weeks at room temperatures up to 25ºC (77°F) prior to use. •Working range is 20ºC to 34°C on the stencil. •When refrigerated, warm-up of paste container to room temperature for up to 4 hours. Paste must be ≥19ºC (66ºF) before processing. Verify paste temperature with a thermometer to ensure paste is at 19ºC (66ºF) or greater before setup of printer. •Do not remove worked paste from stencil and mix with unused paste in jar. This will alter rheology of unused paste. •These are starting recommendations and all process settings should be reviewed independently.	**STENCIL:** Recommend **ALPHA CUT** or **ALPHA FORM** stencils @ 0.125 or 0.150 mm (5 or 6mil) thick for 0.016 or 0.020 mil pitch **SQUEEGEE:** Recommend metal or 90 durometer polyurethane. **PRESSURE:** within 0.5 – 0.7 kg/inch of blade length **SPEED:** : 1 to 6 inches per second (25-150 mm/sec) **PASTE ROLL:** 0.5-2.0 cm diameter and make additions when roll reaches 1 cm diameter. Maximum roll size will depend upon blade type **STENCIL RELEASE SPEED:** 1- 5 mm/s to determine under microscope LIFT **HEIGHT/DWELL HEIGHT:** 10-14 mm	**ATMOSPHERE:** Clean-dry air or nitrogen atmosphere. Reflow to Figure 1 & 2 for typical reflow profiles. NOTE2: The processing guidelines recommended and typical reflow profiles presented were tested in the lab with acceptable performance.	**ALPHA OM-5002** residue is designed to remain on the board after reflow. If reflowed residue cleaning is required, a defluxing cleaning step is required: - Manual: **ALPHA SM-110, ALPHA SM-110E** - Automatic: Dipping, Smooth Spray with **ALPHA Autoclean 40**. Misprints and stencil cleaning may be with **ALPHA SM-110, ALPHA SM-110E, ALPHA BC-2200**.

ALPHA® OM-5002

HIGH SPEED, PIN TESTABLE SOLDER PASTE

Figure 1: Typical Soak Reflow Profile

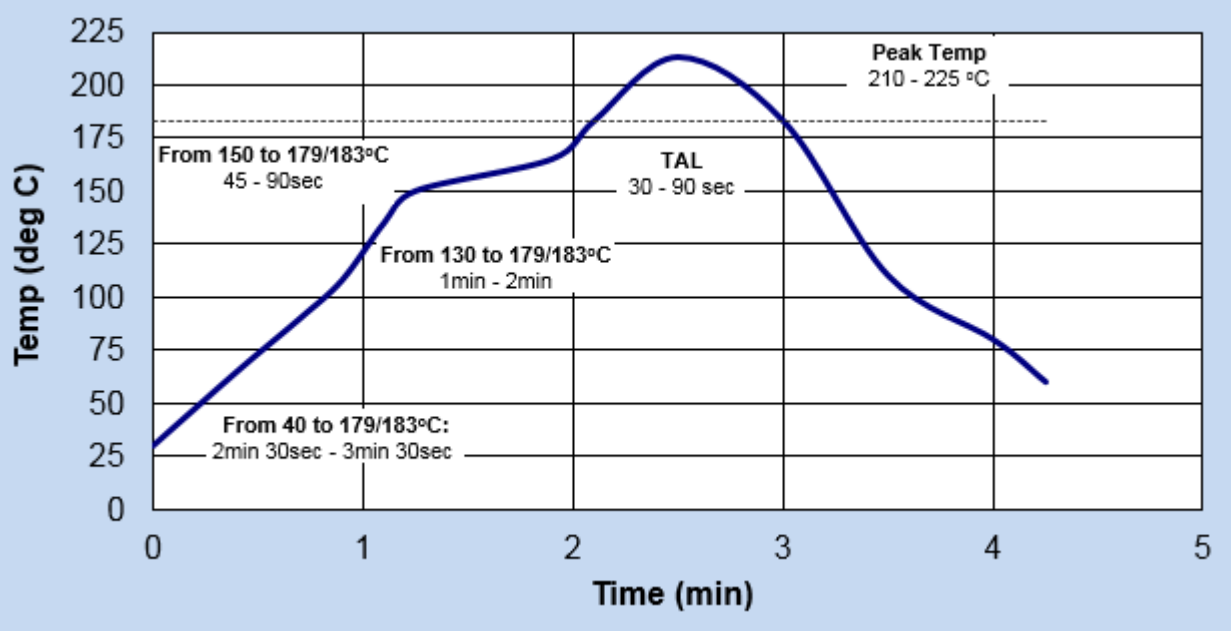
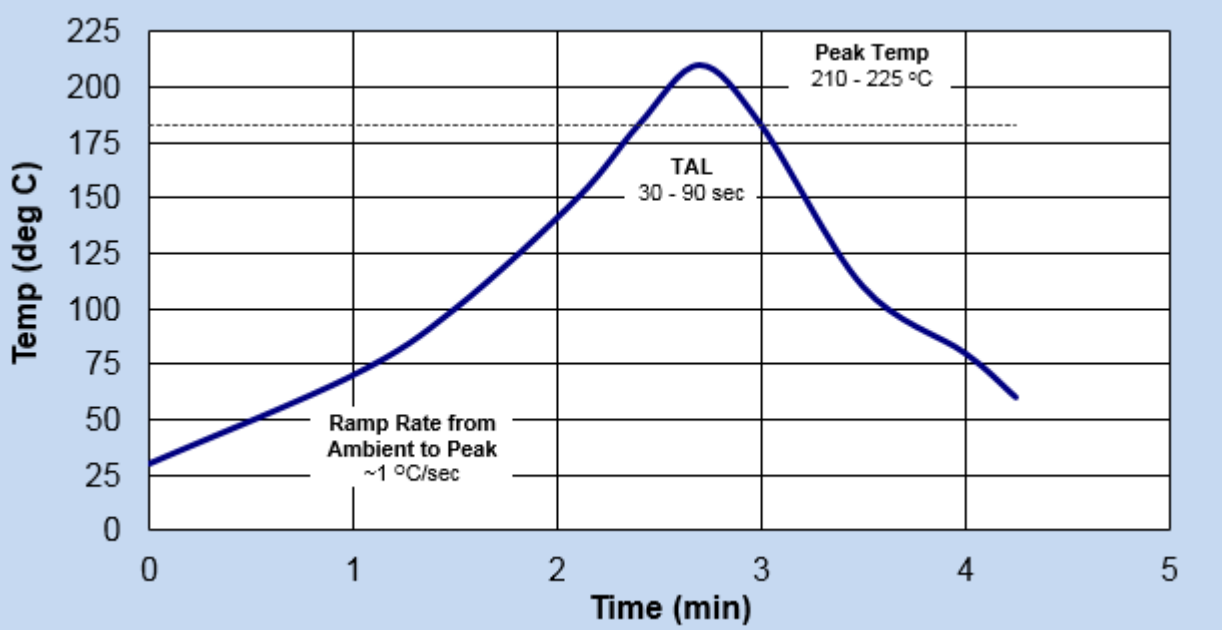


Figure 2: Typical Ramp Reflow Profile



TECHNICAL BULLETIN

alpha ASSEMBLY SOLUTIONS™

ALPHA® OM-5002

HIGH SPEED, PIN TESTABLE SOLDER PASTE

CONTACT INFORMATION

To confirm this is the most recent issue, please contact Alpha Assembly Solutions
AlphaAssembly.com

North America	Europe	Asia
300 Atrium Drive Somerset, NJ 08873, USA 800.367.5460	Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 01483.758400	8/F., Paul Y. Centre 51 Hung To Road Kwun Tong, Kowloon, Hong Kong 852.3190.3100

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 directory assistance Chemtrec 1 - 800 - 424 - 9300.