DATE : 2005. 03. 21.

NO.   :

RoHS Compliants & Reflow Profile

Vendor	DRAWN BY	CHECKED BY	APPROVED BY

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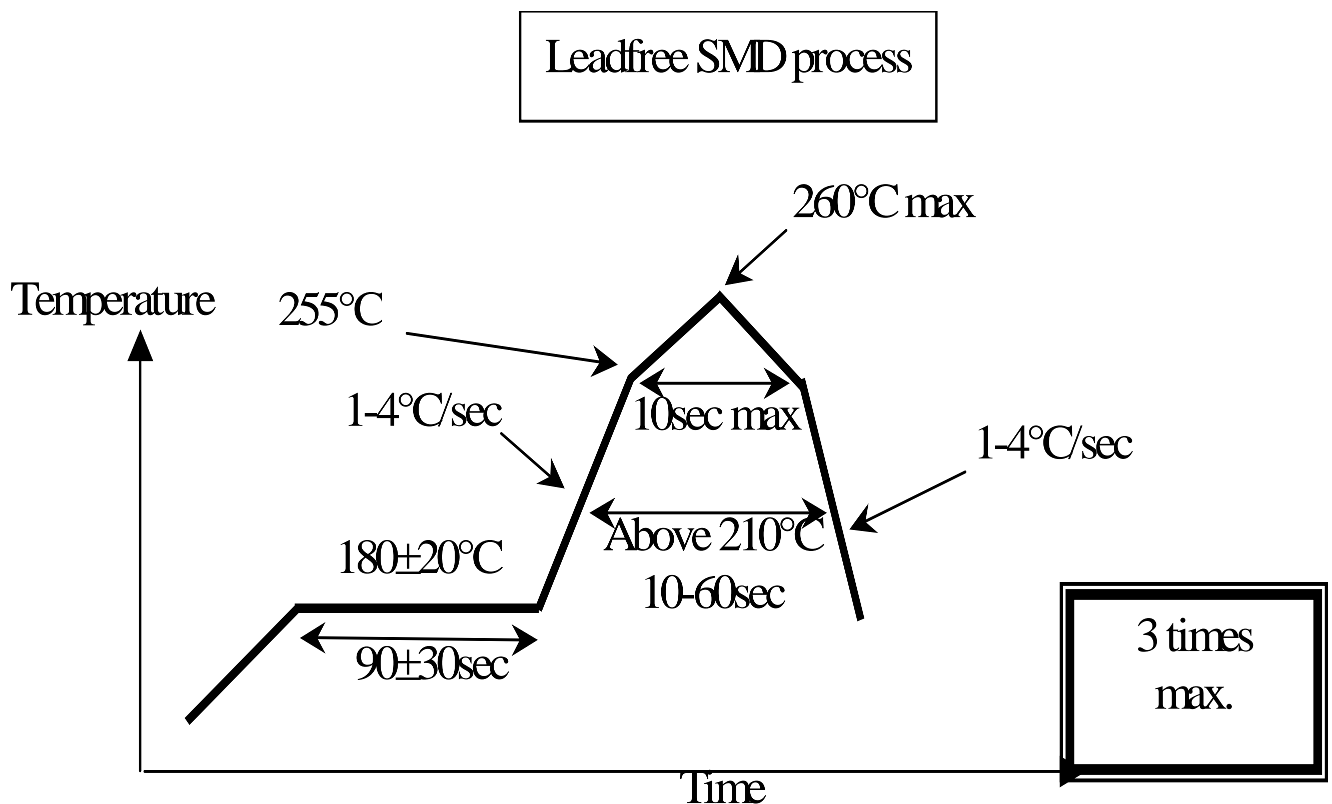
1. RoHS(Pb Free solution)

1) **Material Compositions**
   Sn, Ag
2) **Soldering Material composition(SMD Process)**
   Sn(96.5%), Ag(3.5%)

2. Profile for Reflow Oven

- The filter assembly without damage with a classical SMD process (SnPb or SnPbAg solder) and is compatible with the following leadfree SMD process (ex SnAg or SnAgCu solder).



3. Solder Paste Technical Data

* This information is only for reference guide.

* Soler Paste: Ultraprint 78

CATEGORY	RESULTS	PROCEDURES/REMARKS
FLUXING ABILITY	Reflowed Solder Paste, Hot Solder Dip, Tin Plate, Tin Hot Dip, Silver Plate, Copper, Gold, Ag/Pd Plate, Cu Protective Coatings	Fluxing ability on tarnished surfaces
CHEMICAL PROPERTIES		
Corrosivity	Copper Mirror Test (L)	IPC J-STD-004
Halide Content	Silver Chromate Paper Test (pass)	CLASSIFICATION: REL-1
ELECTRICAL PROPERTIES		
SIR(IPC J-STD-004)	All Readings> 1.0 × 10E09 ohms	Pass, 7 days, uncleaned
SIR (Bellcore TR-NWT-000078)	All Readings> 1.0 × 10E13 ohms	Pass, 4 days, uncleaned
Electromigration (500 hour Bellcore)	1.3 x 10E9 ohms, initial, 6.5 x 10E9 ohms, 500hr	Passes visual and electrical
PHYSICAL PROPERTIES		Using (90% Metal, Type#3 Powder)
Color and Specific Gravity	Clear, Colorless; 4.9g/cc	
Reflowed Residue	˜ 5.5% ww, tack free after reflow	
Tack Force	>2.4g/mm2 @ 6 hours (72%RH, 25℃)	J-STD-005, See figure #2
Viscosity	Designated M-13. Viscosity is suitable for all typical stencil printing applications.	Malcom Spiral Viscometer : IPC-029
Stencil Life	> 6 hours	50%RH, 25℃
Slump	Suitable for fine pitch printing	IPC-TM-650
ATE Compatibility (Pin Testability)	24 grams(<1.0 ounce) on 11.5 mil thick flux deposit	Force to Contact Test (30°spear geometry)

4. Solder Paste Processing Guidelines

STORAGE-HANDLING	☐Refrigerate to guarantee stability @ 34-45°F(1-7℃) ☐Shelf life of refrigerated paste is six months. ☐Warm-up of 500g jar to room temperature should be >6 hours. Set up printer with room temperature paste, Check paste temperature with a thermometer. ☐Do not remove worked paste from stencil and mix with unused paste in jar. This will alter rheology unused paste.
PRINTING	STENCIL : Recommend Alpha laser cut stencil @ 0.006 inch thick for 0.020 inch pitch. (.008 inch thick for 0.025 inch pitch) or Alpha manufactured chemically etched stencil. SQUEEZE : Recommend metal. Ni formed gives best performance. 90 durometer polyurethane is also used. PRESSURE : 1-2.5 pounds per linear inch of print pattern. DOWN STOP : -0.075inch STENCIL SEPARATION : 0.002inch/sec SQUEEZE SPEED : 0.5-2.0inch(15-50mm)/sec PASTE ROLL : 0.4-0.6inches(1-1.5cm) diameter and make additions when roll reaches 0.2 inch(0.5cm) diameter.
REFLOW	☐Use convection, IR, or combination ovens, belt, hotplate, vapor phase. ☐Clean-dry air or nitrogen atmosphere. PROFILE : 96.5Sn/3.5Ag Type - Ramp(Curing) @ 120-160℃/min - Ramp(Preheat) @ 160-180℃ for 1.5-2min. - Ramp(Reflow) @ 240-260℃ for 25-45sec. (Time over 221℃ for 30-60seconds) - Ramp down to R.T. @ 90-120℃/min. - Ensure solder is forzen at exit of last heated zone to avoid disturbed joint defects.
CLEANING (If desired)	☐Although designed as a no-clean flux system, the residue may be cleaned with : - BIOACT EC-ULTRA™ - BIOACT EC7-R™ - 10% Alpha 2110 saponifier with water. - Water washing will not turn residues cloudy. ☐Clean stencils with Alpha SC-10 stencil cleaner.