Date: 1st November, 2005

TO: MYDATA automation AB

SPECIFICATION

NAME : **almit SRC Solder Paste**

LFM-48U MDA-5

Product No.	Kind
K-038-0146	LFM-48U MDA-5 Flux Content 15.0% Solder Powder Size: 10 – 28 (μm)

NIHON ALMIT CO., LTD

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1. Product Number & Name :

K-038-0146 almit SRC Solder Paste LFM-48U MDA-5

2. Scope :

This spec. is specified for almit solder paste LFM-48U MDA-5 delivered by Nihon Almit Co., Ltd. to Messrs. MYDATA automation AB .

3. Net weight & Allowances: (g)

Weight	250	100
Allowance	-0, +10	-0, +10

4. Chemical Composition : (wt%)

Chemical Element	Main Constituents		
	Sn	Ag	Cu
Standard	Bal	3.0±0.2	0.5±0.1

Chemical Element	Impurities							
	Pb	Sb	Bi	Zn	Fe	Al	As	Cd
Standard	<0.05	≦0.10	≦0.05	≦0.001	≦0.02	≦0.001	≦0.03	≦0.002

5. Solder Powder Size & Distribution (J-STD-005 3.3.4.1)

% of Sample by Weight – Nominal Size

Type	None Larger Than	Less Than 1% Larger than	90% Minimum Between	10% Maximum Less Than
Type5	30 Microns	25 Microns	25-15 Microns	15 Microns

6. Quality characteristics :

Test items	Standard	Test Methods
Metal Percent (wt%)	85.0±1.0	IPC-TM-650 2.2.20
Silver Cromate	Pass	IPC-TM-650 2.3.33
Copper Mirror Test	Pass	IPC-TM-650 2.3.32
SIR (85℃, 85%, 168 hr, measured out of chamber) (Ω)	$\geqq 1\times10^{8}$	IPC-TM-650 2.6.3.3
Corrosion Test	Pass	IPC-TM-650 2.6.15
Flux materials composition	RO	J-STD-004 1.2
Quantitative Halide	L1<0.5%	IPC-TM-650 2.3.35
Fluorides By Spot Test	Pass	IPC-TM-650 2.6.35.1

7. Physical Properties:

Metal Name	Solidus (℃)	Liquidus (℃)	Specific Gravity
LFM-48	217	220	7.4

8. Lot Size :

A single lot is consisted of, and may vary between 10 - 100kg, depends upon the production plan.

9. Product inspection:

Inspection items are applied to each lot as follows:

Item No.	Inspection Item	Contents	Standard	
1	Appearance	Color	Comparison with Limit Specimen	
2	Weight	Net Weight	-0, +10	(g)
3	Solder Powder Size	10/28 (U)	90≦	(wt%)
4	Metal Composition	Sn	Balance	(wt%)
		Ag	3.0±0.2	(wt%)
		Cu	0.5±0.1	(wt%)
5	Characteristics	Flux Content	15.0±0.5	(wt%)
6		Solder Balling Test (*Almit Method)	Comparison with Limit specimen	
7		Viscosity (Spiral type, 10rpm, 25℃) (IPC-650-2.4.34.3)	100±30 100000±30000	(Pa・s) (cps)
8		Solderability on Cu Plate	Comparison with Limit Specimen	
9		Dryness	Chalk powder should be easily removed from each test specimen.	

*Straight lines of solder paste are printed on to a JIS-2 type substrate then reflowed.
The reflowed solder is examined with a stereo microscope at 30X magnification.
No more than 2 solder balls larger than one fifth the size of the pattern gap is allowed per gap.

10. Packing :

Individual Packaging		Outer Packaging	
Unit	Packaging	Unit	Packaging
100 g 250 g	Polyethylene cartridge	————	Cardboard box

11. Identification :

	Polyethylene Cartridge	Cardboard Box
Name	almit SRC Solder Paste LFM-48U MDA-5	Same as the left
Lot No.	(Ex.) 051101-1	Ditto
Solder Powder Size	10-28 μ m	Ditto
Use before.	(Ex.) 06-01-31 (Indicate in the Christian era)	Ditto
Net weight	(Ex.) 100 g	Ditto
Company Name	NIHON ALMIT CO., LTD.	Ditto

12. Maker Address :

Nihon Almit Co., Ltd.

Almit Bldg., 2-14-2 Yayoicho, Nakano-ku, Tokyo, Japan

13. In case of changing this spec., it should be accepted by MYDATA automation AB .

≪HOW TO HANDLE LFM-48U MDA-5≫

1. Storage:
   - Hold in a refrigerator. (0-10℃)
   - It is recommended to use within 3 months from manufacturing date.
   - The solder paste should be used as quickly as possible once lid has been opened.
   - Unused solder paste in the jar should be refrigerated after re-applying the inner and outer lids.

2. How to Use:
   - Prior to usage, solder paste should be removed from refrigeration for over 2 hours until it reaches room temperature.
   - We recommend to stir the solder paste by mixing machine before use it. When stir by a spatula, open the jar after the solder paste is warmed up to room temperature and stir slowly to make the paste homogeneous. Caution must be taken not to mix in air.
   - After shooting the solder paste, mount components immediately and let it pass through reflow furnace.
   - Slowly heat the reflow furnace at 1.0 to 2.5℃/second till reaching 120 to 170℃. Set peak temperature at 170 to 190℃ during pre-heating and 230 to 245℃ during reflow. (Refer to next page.)
   - This solder paste corresponds to No-Clean process, however confirmation may be required whether No-Clean process is applicable under user's expectancy.
   - White residue (insulator) may appear after cleaning.
   - Solder paste must be wiped off from spatula by applying solvent such as alcohol immediately after use.

3. Caution:
   - The solder paste is not edible.
   - The solder paste is for the industrial use only.
   - Avoid contact with eyes and skin.
   - Avoid inhalation of gases emitted by solder paste during use.
   - Provide proper ventilation.

4. Notice:
   - If contact with skin, wiped off with like alcohol and wash with soap and water, immediately.
   - Use rubber gloves and protective glasses, if necessary.

5. Delivery:
   - Usually 2 weeks from acceptance of order.

Approved	Prepared
Junichi Okano	Hideto Takayama

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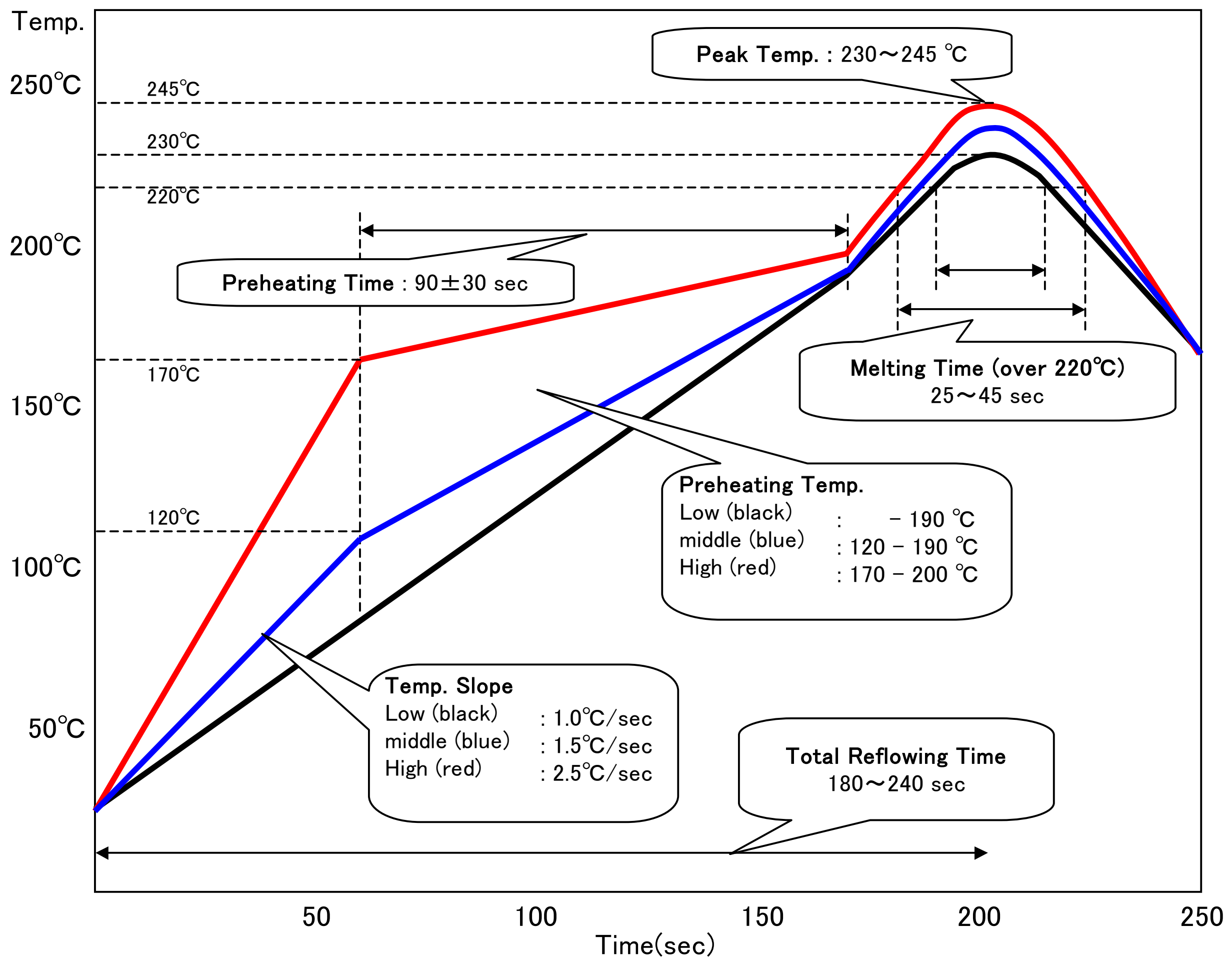
Sn-Ag-Cu alloy Solder Paste Recommended Reflow Profile



Feature of recommended reflow profile

1. The chip side balls can be decreased.
   The flux slumping and the solderballs generating can be controlled by heating slowly the temperature area of 50-100℃ that flow-ability of the paste increasing.
2. The wettability improves.
   The oxidations of lands, paste and parts at preheating are improved by heating it close to the triangular profile and the wettability also can be improved.
3. The chip standing up and the dispersion of flux is decreased.
   The temperature slope to the peak is reduced by setting the last temperature of preheating to high.
   →As a result, the control of chip standing and dispersion flux is possible.

Notes

1. LFM-48 (solid-phase temp.:217 ℃ ,liquid-phase temp.:220 ℃)
2. Please decide setting temperature in consideration of the heat resistance of parts,substrate size,etc.
3. Please suppress the oxidization by a nitrogen furnace,set up reflow time for a long time and low temperature.
   (The total time for 4 to 5 minutes is recommended at a nitrogen furnace,
   for 3 to 4 minutes is recommended at an air furnace.)
4. Please attach sensor in the part which temperature cannot go up most easily,
   and carry out temperature measurement.
5. On an experiment level, LFM-48 is possible to solder at 230 ℃.
6. The above-mentioned number (temperature, time) is a reference value.