Lyontek Inc.
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MSL & Mounting Conditions

Date: 2017.01.20

The following information is used for the reflow conditions of Lyontek Products, and please follows the package type to choose the suitable conditions. All the conditions are compliant with JEDEC J-STD-020 and IPC-1066.

1. SRAM

Package Type	SOP/SOJ		PDIP 300 mil(28P)/ 600 mil		TSOP I		TSOP II			sTSOP		BGA		
Pin Count	28	32	28	32	32	48	32	44	54	28	32	36	48	90
MSL*1	3	3	1	1	3	3	3	3	3	3	3	3	3	3
2nd Level Interconnect*2	e3	e3	e3	e3	e3	e3	e3	e3	e3	e3	e3	e1	e1	e1
Peak Temp. (℃)	250	245	245	245	260	260	260	260	260	260	260	260	260	260

※1. MSL: Moisture Sensitivity Level.

2. IPC-1066 item 5.1 Solder Finish Categories, e1 – 96.5Sn3.0Ag0.5Cu & e3-100% Sn

2. Audio

Package Type	DFN / MSOP	SOP		TSSOP			QFN		WCSP		LQFP
Pin Count	8	8	16	16	20	28	16	16	9	18	48
MSL*1	3	3	3	3	3	3	3	3	3	3	3
2nd Level Interconnect*2	e3	e3	e3	e3	e3	e3	e3	e3	e1	e1	e3
Peak Temp. (℃)	260	260	260	260	260	260	260	260	260	260	260

※1. MSL: Moisture Sensitivity Level.

2. IPC-1066 item 5.1 Solder Finish Categories, e1 – 96.5Sn3.0Ag0.5Cu & e3-100% Sn

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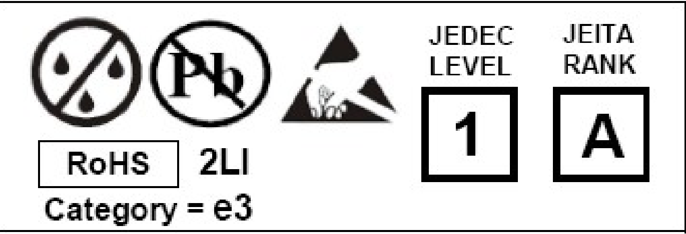
3. Moisture-Sensitive Caution and RoHS Compliance Label:

Attached on the Moisture Barrier Bag of the delivery products.

(1) Type 1 for PDIP (MSL: 1)



※ IPC-1066 item 5.1 Solder Finish Categories, **e3 – Sn**

(2) Type 2 for BGA/WCSP (MSL: 3)

1. Calculated shelf life in sealed bag : 12 months at < 40°C and < 90% relative humidity (RH)
2. Peak package body temperature : 260 +0°C/-5°C
3. After bag is opened, devices that will be subjected to solder reflow or other high temperature process must :
   a) Mounted within 168 hours of factory conditions ≦ 30°C/60%RH, or
   b) Stored per J-STD-033
4. Devices require bake, before mounting, if :
   a) Humidity Indicator Card change color on 30% position, when read at 23°C ± 5°C, or
   b) 3a or 3b not met
5. If baking is required, devices may be baked for 24 hours at 125°C ± 5°C. Refer J-STD-033 for shorter time durations, if applicable

Note : If device containers cannot be subjected to high temperature or shorter bake times are desired, reference IPC/JEDEC J-STD-033 for bake reference

Bag Seal Date : ____________________

(If blank, see adjacent label)

Note : Level and body temperature defined by IPC/JEDEC J-STD-020 for JEDEC and EIAJ-ED 4701/300 for JEITA

※ IPC-1066 item 5.1 Solder Finish Categories, **e1 – SnAgCu**

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(3) Type 3 for SOP / SOJ / STSOP / TSOP-I / TSOP-II / MSOP / DFN / QFN / TSSOP / QFP (MSL: 3)

RoHS 2LI
Category = e3

CAUTION
This bag contains
MOISTURE-SENSITIVE DEVICES
ELECTROSTATIC SENSITIVE DEVICES

JEDEC LEVEL: 3
JEITA RANK: E

1. Calculated shelf life in sealed bag : 12 months at < 40°C and < 90% relative humidity (RH)
2. Peak package body temperature : 260 +0°C/-5°C
3. After bag is opened, devices that will be subjected to solder reflow or other high temperature process must :
   a) Mounted within 168 hours of factory conditions ≤ 30°C/60%RH, or
   b) Stored per J-STD-033
4. Devices require bake, before mounting, if :
   a) Humidity Indicator Card change color on 30% position, when read at 23°C ± 5°C, or
   b) 3a or 3b not met
5. If baking is required, devices may be baked for 24 hours at 125°C ± 5°C. Refer J-STD-033 for shorter time durations, if applicable

Note : If device containers cannot be subjected to high temperature or shorter bake times are desired, reference IPC/JEDEC J-STD-033 for bake reference

Bag Seal Date : ____________________
(If blank, see adjacent label)

Note : Level and body temperature defined by IPC/JEDEC J-STD-020 for JEDEC and EIAJ-ED 4701/300 for JEITA

※ IPC-1066 item 5.1 Solder Finish Categories, **e3 – Sn**

4. Reflow Temperature Profile

(1) For Infrared Reflow

Far/Medium IR (longer wave length) conditions are recommended for solder mounting by infrared reflow, Because Near infrared (shorter wave length) radiant heat applied to the mold resin is high and it heat the surface as well as inside of package at the same time. This type of stress is often associated with adversely affecting the quality of the products.

Top and bottom heating method for far/medium infrared is recommended (See Fig. 1).

Fig. 1

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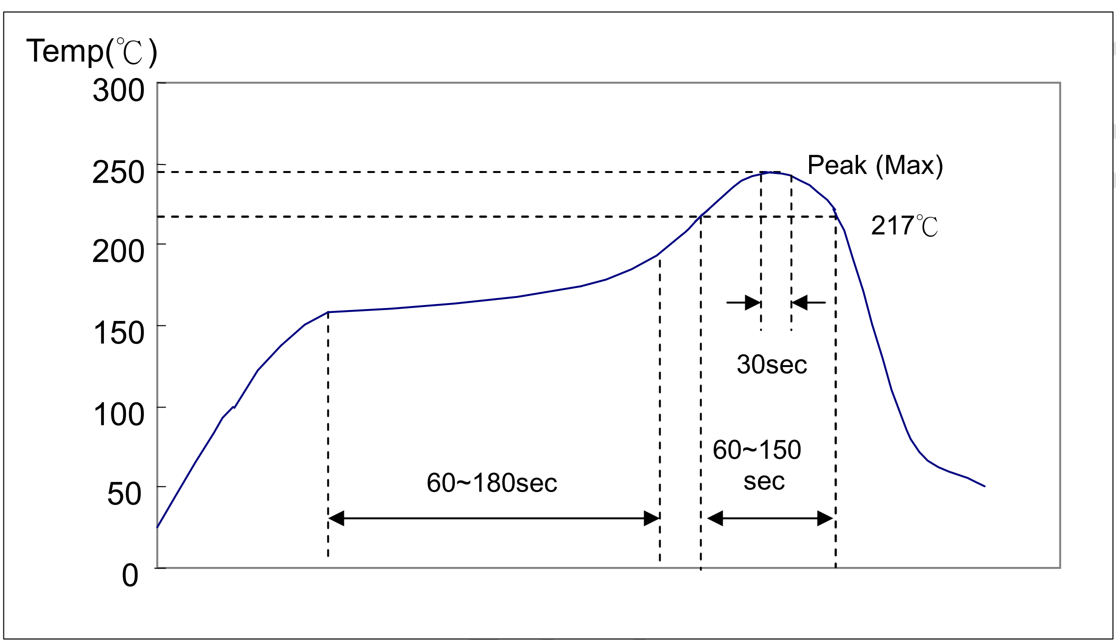
Temperature of package and PCB surface should be below Peak Temperature and time within 5 °C of actual Peak Temperature should be 30 seconds, and reflow must be performed at 217℃ 60~150 seconds. The number of reflow is 3 cycles at most.
An example of recommended reflow temperature profile is shown in Fig. 2.



Time (sec)

Fig. 2

Guide Lines

A. Preheat:

If the rate exceeds 1~3°C, thermal shock or cracking of component is risked. Over-baking the paste and exceed the glass transition temperature of the epoxy should be avoided.

B. Heating:

Extended duration above the solder melting point may damage the board and sensitive components. This value should be minimized but should also be chosen to allow for good solder joint.

C. Peak Temperature:

Exposure time to peak temperature should be minimized.

D. Cooling:

Faster cooling rates induce small grain size of the solder, and higher fatigue resistance.

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(2) For Hot Air Reflow and Wave Soldering

It is the same as that of far-infrared reflow method.

Temperature of package and PCB surface should be below Peak Temperature and time within 5 °C of actual Peak Temperature should be 30 seconds, and reflow must be performed at 217℃ 60~150 seconds. The number of reflow is 3 cycles at most.

Recommended temperature profile is the same as Fig. 2.

(3) For Manual Soldering/ Repairing

When using soldering iron, the time should be limited to ≦ 10 seconds and the temperature should not exceed 300℃; or ≦ 3 seconds in the temperature 350℃. If a heat gun is used, the time should be limited to less than 10 seconds and the temperature should not exceed 290℃.

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