LED Heat Dissipation Substrate Approval Specification Sheet for TA-I 004 Series

TA-I Technology Part Number: LHA01APTAI004 Series

Customer Approval:

Valid Date	Release Date	Version
Aug 22 , 2012	Aug 22 , 2012	TAI004 Series
Approved by	**Checked by**	**Produced by**

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1. Specification：

1.1 Substrate Dimension as shown in Table 1.

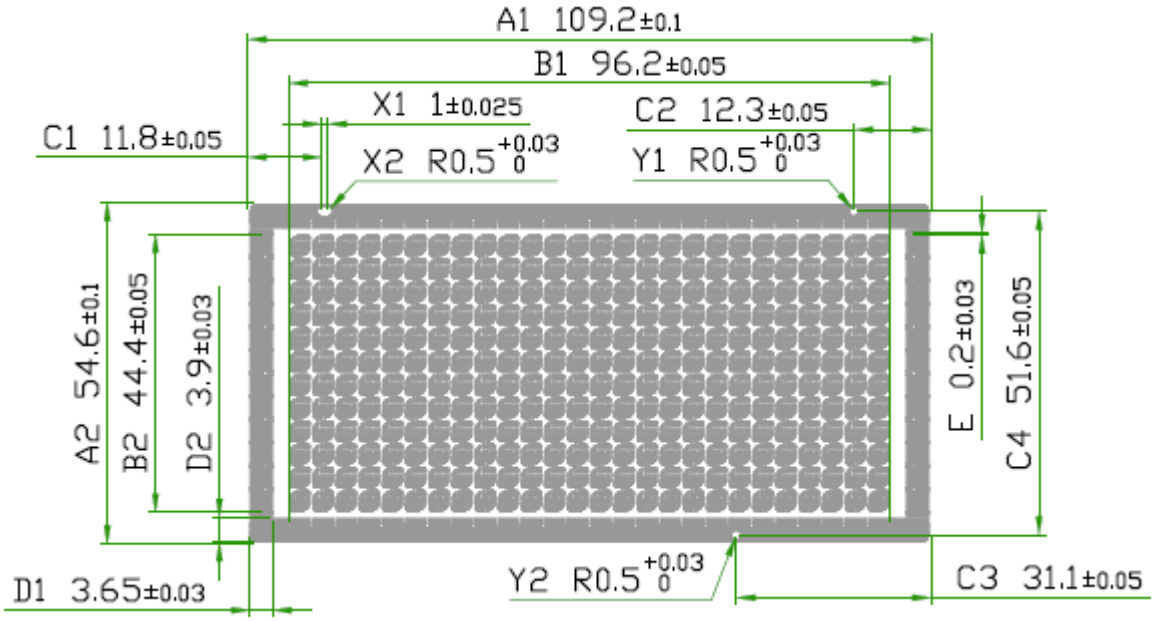
1.2 Per panel up to 312 pieces.

Table 1: The spec of Panel and Single Unit

Item		Spec
Panel	Length	109.2±0.1
	Width	54.6±0.1
	Thickness of substrate	0.38±0.04
	The total thickness	0.53±0.025
Single Unit	Length	3.5±0.02
	Width	3.5±0.02

Unit: mm

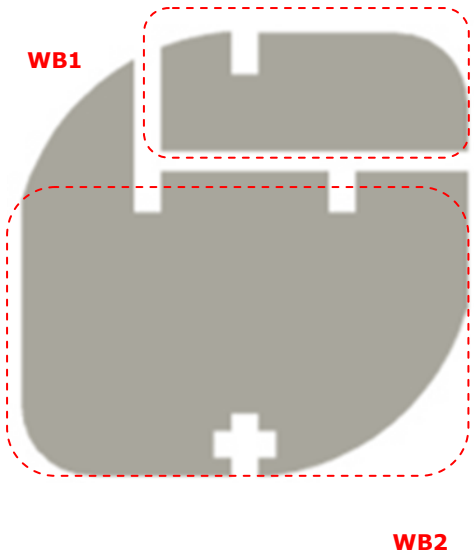
1.3 Specification of Panel:



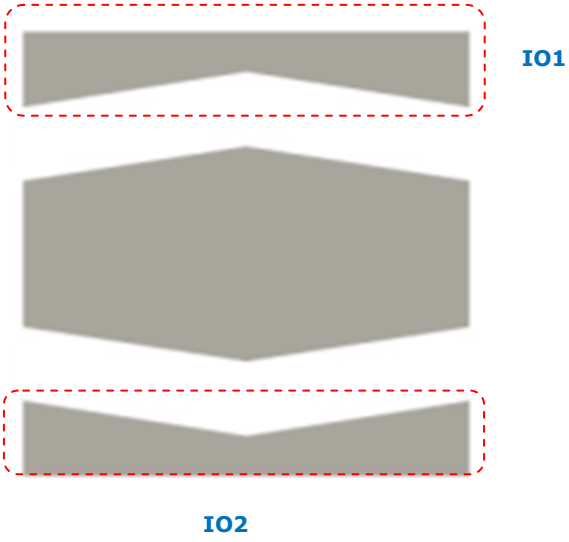
2. Electrical Continuity Test:

2.1 Test point: As shown in below diagram.

2.2 Method: Use flying probe attach separately to IO1 / IO2 of front side and WB1/WB2 of back side, result shall as shown as Table 1 and all via holes plugged. Electrodes of IO1/WB1 and IO2/WB2 shall be isolated from each other.



Front Side – Bondpad Area



Back Side – Non-Critical Area

2.3 Table of electrical function:

Measurement area	IO1-WB1	IO2-WB2	WB1-WB2	IO1-IO2
Function of electrical	○	○	╳	╳

○: Closed, ╳: Opened

3. Criteria of Visual Inspection:

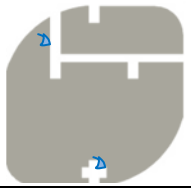
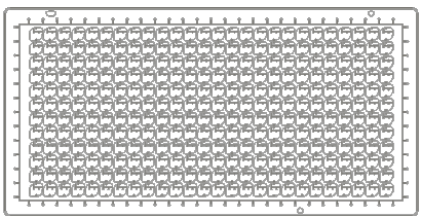
3.1 Visual inspection

3.2 Test items are shown as below table.

3.3 Tool: CCD OM 15X

3.4 Panel defective control: Accept if defective </= 10%

3.5 Definition of test areas:

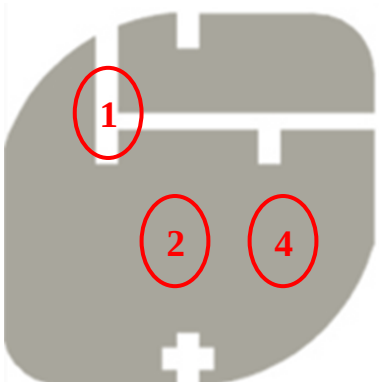
No.	Item	Examine area	Specification	Schematic diagram
1	a)Depression b)Silver Point c)Protrusion d)Foreign Materials e)Contaminants f)Crack g)Peeling (Electroless & Electro Plating)	Single unit of front and back side	NG if >/= 0.8mm	 **Front Side** **Back Side**
2	Pattern Inspection	Pattern of front and back side	The finish pattern shall per original drawing (above 95%).	
3	Plating Layer / Photoresist	Gap edge of bondpad area	No metal / photoresist in indicated area.	
4	Over Plating / Partial Plating	Panel	Filling holes ratio > 99%	
5	Over Plating	Tooling hole	No metal inside of the tooling hole.	

4. Coating thickness test specification:

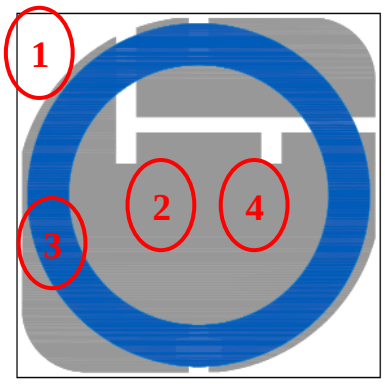
4.1 Using tools：
Substrate thickness : Micrometer
Cu thickness : 3 axis microscope
Cavity thickness : Micrometer
Final finish thickness : X-ray thickness meter

4.2 Measurement position:
Substrate thickness : Position 1
Cu thickness : Position 2
Cavity thickness : Position 3
Final finish thickness : Position 4

4.3 Inspect spec: (Tree times average of measurement)
Substrate thickness : 0.38±0.04mm
Cu thickness : 65±10 um
Final finish thickness :
TAI004B : Ag:0.5 (0.4~1.2)um (electroless)
TAI004C : Ni: 5 (2~8) um
Pd: 0.1 (0.05~0.25) um
Au: 0.1 (0.05~0.25) um (electroless)
TAI004D : Ag:0.5 (0.4~1.2)um (electroless)
TAI004E : Ni: 5 (2~10) um
Ag: 3 (1.5~7) um (electroplate)
TAI004F: Ni: 5 (2~8) um
Au: 0.3 (0.2~0.8) um (electroplate)
TAI004G: Ni: 5 (2~8) um
Pd: 0.1 (0.05~0.25) um
Au: 0.1 (0.05~0.25) um (electroless)
Cavity thickness(Dry-film):0.1±0.02mm



TAI004B、C、D、E、F



TAI004G

5. Reliability test

No.	Item	Parameter	Specification
1	**Adhesion test**	1. Temp. : RT 2. Tool : 3M-600 3. Time : adhesive 30 seconds 4. Angle : 180°	● The exterior must be no separate
2	**Solderability**	1. Temp.：245±5℃ 2. Time：5±1sec 3. solder bath composition：(Ag/Sn/Cu=3/96.5/ 0.5%)	● Coverage＞90%
3	**Reflow**	1. Temp.：280℃ 2. Times：3 cycles	● The exterior must be no separate, crack and warpage ● Maintain the electrical function.

6. Notices

(1)When inspection, packaging and handling:

Must wear gloves and masks when inspect products.

Must wear latex gloves before unpacking products

Must avoid vibration, shock and stress etc. when carry products.

(2) Storage conditions:

Store under 25℃±5℃ 、50%±10RH when sealed.

The expiration date is less than 3 months when sealed.

Store under 25℃±5℃ 、50%±10RH when unsealed.

Please store unsealed package in airtight containers and used up within 3 days.

(3)Before wire bonding：

Please clean and preheat before wire bonding.