

Revisions

The SMD3 Part Data Generation Manual (REF-SMD3PD-1.1E) has been revised as follows.

As of March 11, 1999

Part	Chapter	Summary
1. BGA Components	2. Inspection of Relevant Devices	Addition of the PD entry notes for IP-3 camera type 12, and QP-242 camera type 7

Note:

Please note that the pages made available on Fuji's website are the pages which have been revised for this edition of the manual. Users should download the new pages and replace the equivalent existing pages in their manual. If the design of any parts of the machine have been changed, former and current design information is given with the machine type indicated. For a copy of the whole manual, contact your nearest Fuji sales representative or send a request via e-mail to the following address.

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SMD3 Part Data Generation Manual

– BGA and Connector –

REF-SMD3PD-1.1E

FUJI Machine Mfg.Co.,Ltd.

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Chapter 1 Inspection of Relevant Devices

1.1 Part Data Related Inspection

1.1.1 Vision Type Introduction

The following Vision Types are available in the BGA algorithm; 230, 231, 233, 235, 236, and 238.

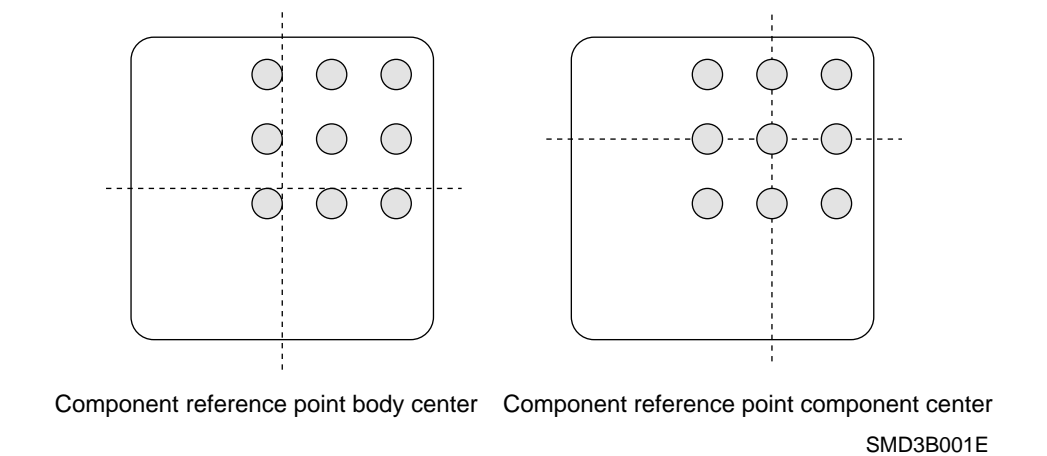
If the outer dimensions of the body exceed 21 mm and the body color is black, set the Vision Type item in the part data to 230 or 235.

If the outer dimensions of the body exceed 21 mm and the body color is white, set the Vision Type item in the part data to 231 or 236.

If the outer dimensions of the body do not exceed 21 mm and the body color is black, set the Vision Type item in the part data to 233 or 238.

This algorithm uses front lighting to detect the leads and determine the position of the component. The component reference point is the body center for Vision Type 230, 231, and 233. For Vision Type 235, 236, and 238 the reference point is the center of the component.

Note: Processing is possible whether the background of the component is white or black. On the IP-III(E) the background is white. For the QP-242E, the background is black on the module #604 and it is white on all other modules.

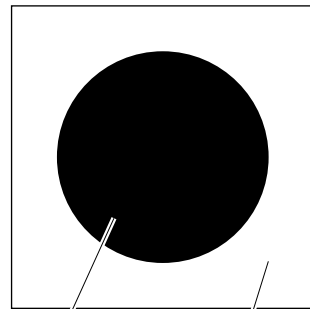


1.1.2 P Pattern

For a white BGA use “1” for the P Pattern.

For a black BGA use “2” for the P Pattern

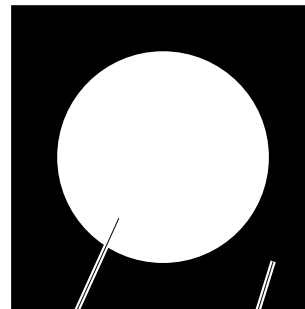
White BGA



Bump

Body

Black BGA



Bump

Body

Projected image of the bump

SMD3B002E

1.1.3 Procedure for Using the Direction Check

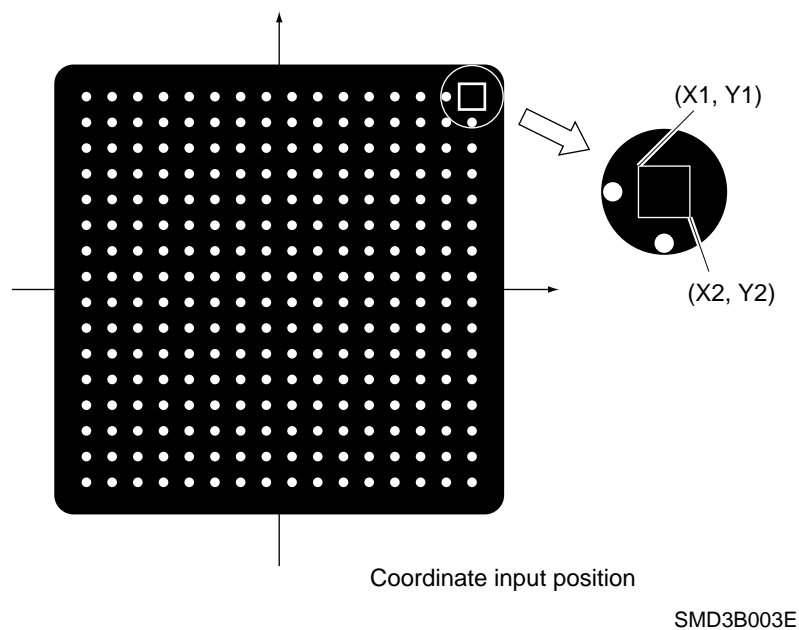
The direction check function can be used with Vision Types 230, 231, 233, 235, 236, and 238. This function uses whether or not a lead exists in the area specified to determine the direction of the part.

Input the data as shown below under the Fst_pin_check_data. The coordinate origin point is the body center just as it is in part data.

Fst_pin_check_data

- | | |
|--------------------------|--|
| 1. Fst_pin_check | Select CUT. |
| 2. Fst_pin_level | Do not use. |
| 3. Fst_pin_check_area_x1 | Input the upper left X coordinate. |
| 4. Fst_pin_check_area_y1 | Input the upper left Y coordinate. |
| 5. Fst_pin_check_area_x2 | Input the lower right X coordinate. |
| 6. Fst_pin_check_area_y2 | Input the lower right Y coordinate. |
| 7. Body_color | Select the body color of the part. |
| | 0: Black body |
| | 1: White body |
| 8. Algorithm | Specify the detection method. |
| | 1: Specify an area in which there are no bumps. |
| | If a bump exists a direction check error will result. |
| | 2: Specify an area in which bumps exist. |
| | If no bump exists a direction check error will result. |

Note: The components reference point means the component point that corresponds with the placing coordinate. The amount of deviation for the component is calculated from the component reference point and nozzle center of rotation in vision processing.



1.1.4 Result

Use either “1” or “9” (1+8=9) for the Result item.

Content	Value
Vision processing not carried out	0
Vision processing carried out	1
No lead length inspection	4
No lead width inspection	8
Left side surplus lead inspection	16
Right side surplus lead inspection	32
Virtual lead inspection	2
Second line of matrix-type	128

SMD3B004E

1.1.5 Check Limit

It is not possible for 100% of the bumps to be recognized. It is necessary to set the Check Limit item between 90 and 95%.

Note: A 100% setting is possible with an IP-3 camera type12 and a QP-242 camera type 7

1.1.6 BGA Algorithm

Relevant components

Components with a rectangular body on which circular bumps exist.

The body must be either completely black or white.

The outermost bumps on the top, bottom, left and right sides of the component must be parallel with the body outline and at least three bumps must be included in each outermost row.

Position determining method

The outermost row of bumps on the top, bottom, left and right sides of the component are detected and the center of the outline of the detected bumps becomes the center of the component. The center of the body is used as the component reference point.

Bump detection

If the Result item of the first element described in EL_data is either “1” or “9” then detection of all of the bumps is carried out.

If “1” is specified then the W_tol item in EL_data is referenced and a bump dimension check is carried out after the bumps are detected.

If “9” is specified then the internal parameters in the algorithm are used to carry out the bump dimension check.

A bump found to be outside of the designated dimensions will be treated as not being detected, causing the data to be annulled.

Component inspection procedure

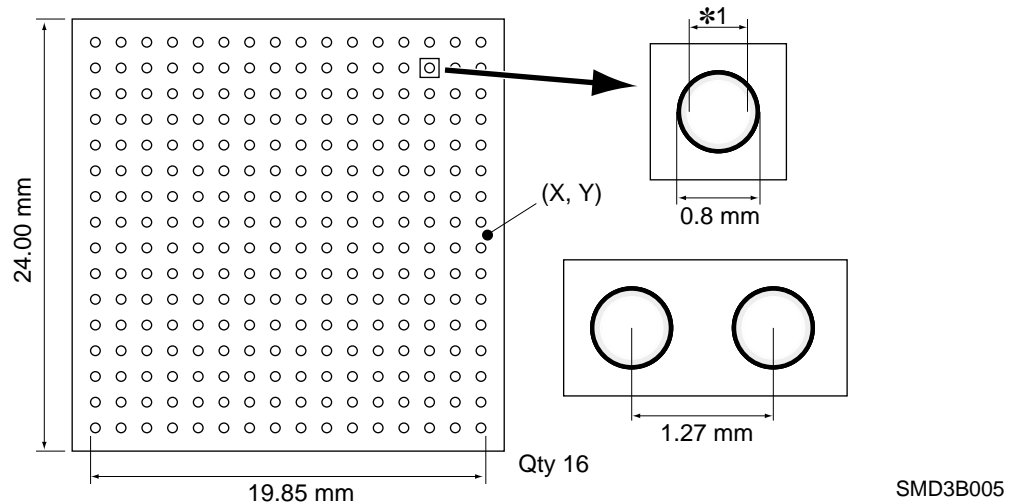
Since the BGA algorithm is intended only for determining the position of the component, there is no inspection function.

1.2 PD Generation Procedure

1.2.1 Component Measurement

Measurement of the following parts of a BGA component is necessary.

<Example 1>

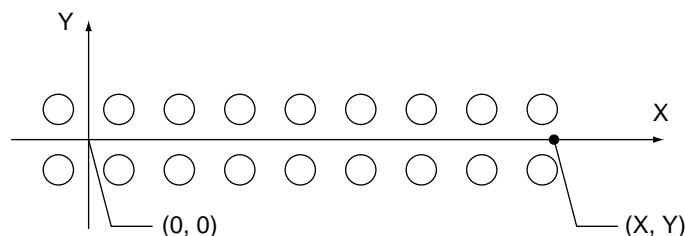


<Pitch>

$$(19.85 - 0.8) \div 5 = 1.27$$

<Position X, Position Y>

Position X and Y are derived from the Pitch value. The procedure for obtaining X and Y in the above figure is shown below.



$$X = 19.85 \div 2 = 9.925$$

$$Y = 0.00$$

$$\therefore (X, Y) = (9.93, 0.00)$$

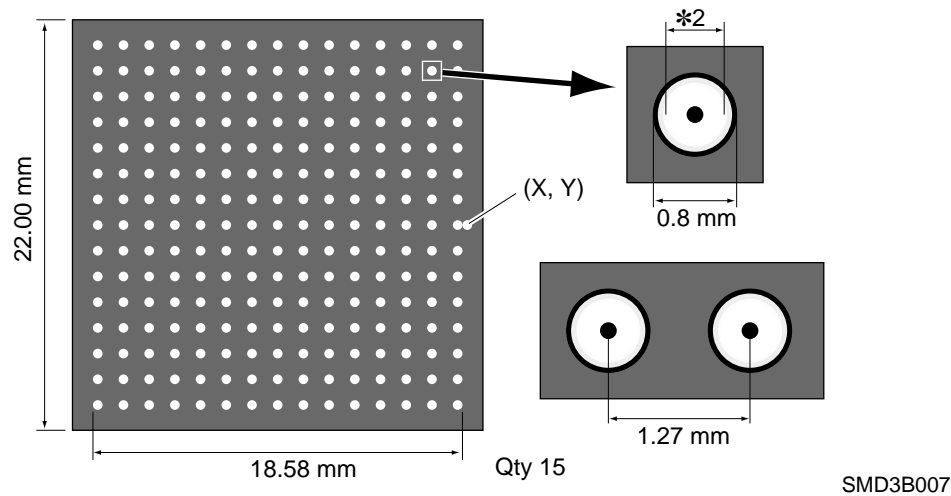
SMD3B006

***1:** When the standard front light system is used on the IP-III(E) or QP-242E, the bump detected may be smaller than the actual bump. If the bump recognition rate is low even when the part data is correct, multiply the actual dimension by 0.6 ~ 0.8 and input this value to the Lead Width in EL_Data.

Notes: When using IP-3 camera type 12 or QP-242 camera type 7, enter the actual dimension to the Lead Width in EL_Data. At the "Lead Width Tolerance" item, enter a value equal to or greater than the Lead Width multiplied by 0.3.

Moreover, when using the above camera types for parts being processed by the standard IP-3 or QP-242 front light system, the Position X, Y values must also be changed together with the EL_data Lead Width.

<Example 2>

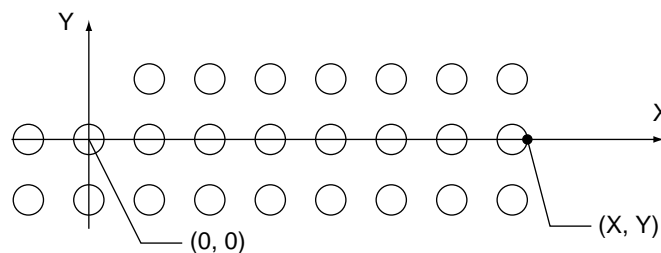


<Pitch>

$$(18.58 - 0.8) \div 14 = 1.27$$

<Position X, Position Y>

Position X, and Y are derived from the Pitch value. The procedure for obtaining X and Y in the above figure is shown below.



$$X = 18.58 \div 2 = 9.29$$

$$Y = 0.00$$

$$\therefore (X, Y) = (9.29, 0.00)$$

SMD3B008

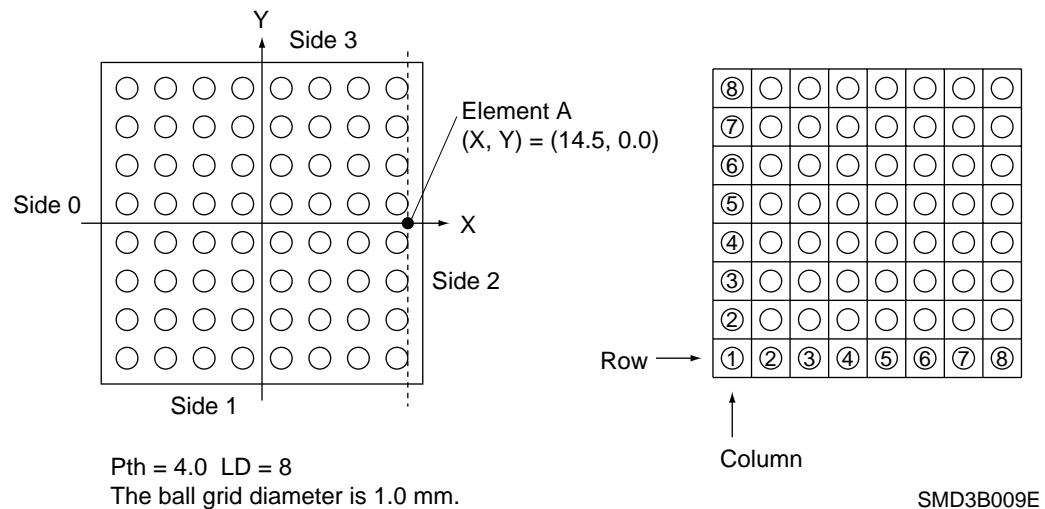
*2: When the standard front light system is used on the IP-III(E) or QP-242E, the bump detected may be smaller than the actual bump. If the bump recognition rate is low even when the part data is correct, multiply the actual dimension by 0.6 ~ 0.8 and input this value to the Lead Width in EL_Data.

Notes: When using IP-3 camera type 12 or QP-242 camera type 7, enter the actual dimension to the Lead Width in EL_Data. At the "Lead Width Tolerance" item, enter a value equal to or greater than the Lead Width multiplied by 0.3.

Moreover, when using the above camera types for parts being processed by the standard IP-3 or QP-242 front light system, the Position X, Y values must also be changed together with the EL_data Lead Width.

1.2.2 Element Data Input Procedure

An explanation is provided here of the input procedure for the ball grid coordinates. The ball grid coordinates are input using the matrix input.



Input example assuming Side 0 as the reference side.

On the first line input the following data for the Element A that is the farthest from Side 0; Element A coordinates, Pitch, Width, Quantity, and tolerance values (Lead Width Tolerance, Lead Length Center Tolerance). On the second line input the Pitch and Quantity of the same element as Element A in the direction toward the Side 0. When vision type 230, 231, 235, or 236 is used and the Result item is specified as "9", the Lead Width Tolerance and Lead Length Center Tolerance do not have to be input. If the tolerance is input, it will be ignored.

When the matrix input is carried out, two Element Data are combined and used. The first line defines there are eight columns (rows) and the second line defines there are eight rows (columns). In addition input "128" for the Result item on the second line to indicate that it is the matrix input.

* One row (column) of bumps is defined as one element.

Element #: 1 Side #: 0
 Position X: 14.50 [mm] Lead Quantity: 8 Lead Length: 0.00 [mm]
 Position Y: 0.00 [mm] Lead Pitch: 4.00 [mm] Lead Length Tolerance: 0.00 [mm]
 Result: 9 Lead Width: 1.00 [mm] Lead Length Center Tolerance: 0.00 [mm]
 P Pattern#: 1 Lead Width Tolerance: 0.00 [mm]

Element #: 2 Side #: 0
 Position X: 0.00 [mm] Lead Quantity: 8 Lead Length: 0.00 [mm]
 Position Y: 0.00 [mm] Lead Pitch: 4.00 [mm] Lead Length Tolerance: 0.00 [mm]
 Result: 128 Lead Width: 0.00 [mm] Lead Length Center Tolerance: 0.00 [mm]
 P Pattern# 0 Lead Width Tolerance: 0.00 [mm]

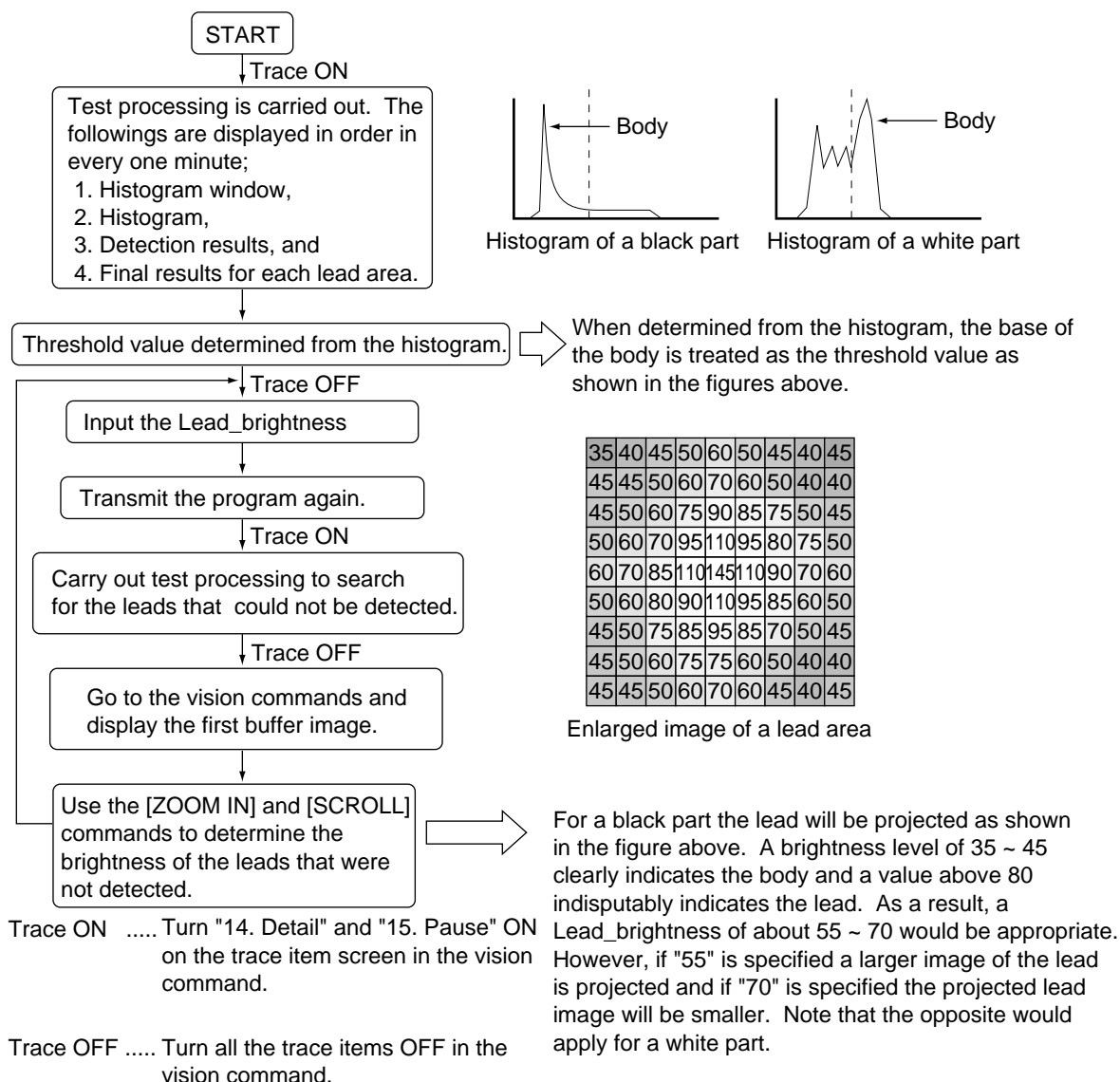
SMD3B034

1.2.3 Restriction for the Number of Input Lines of Element Data

Up to 16 lines of element data can be input. Note that the data will not be transmitted even if more than 16 lines are input.

1.2.4 Lead_brightness

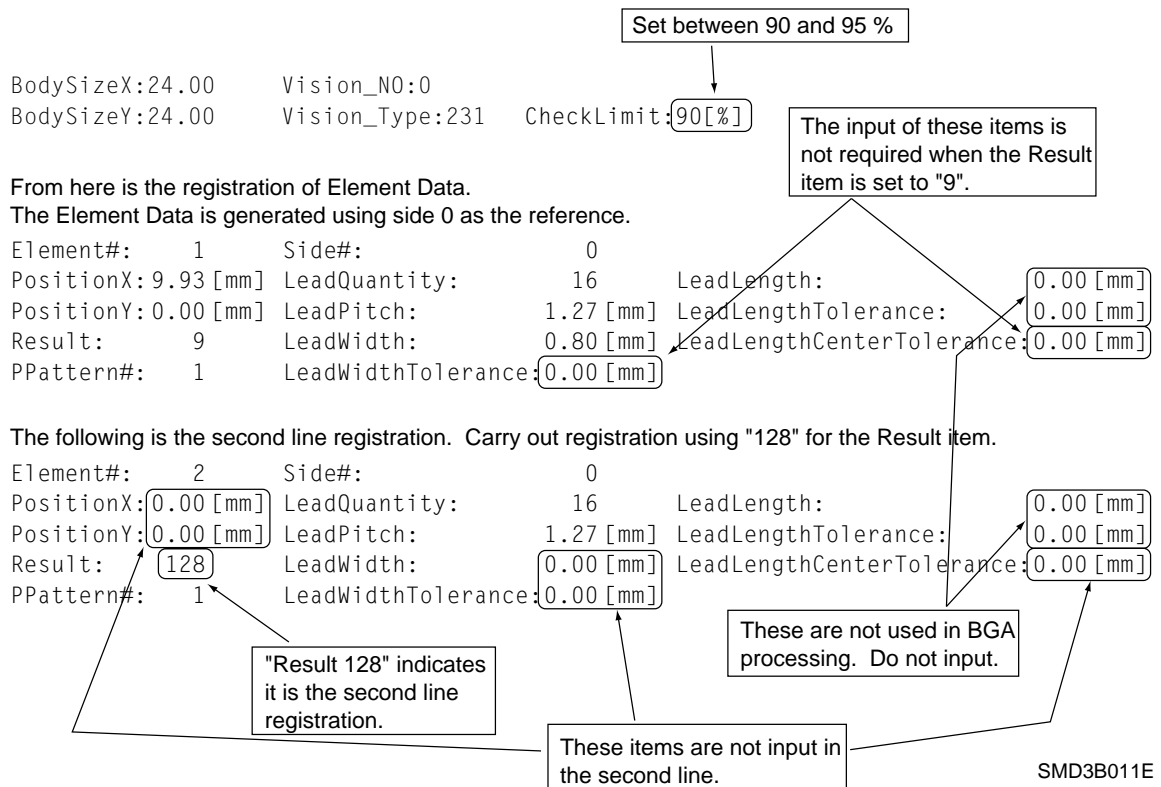
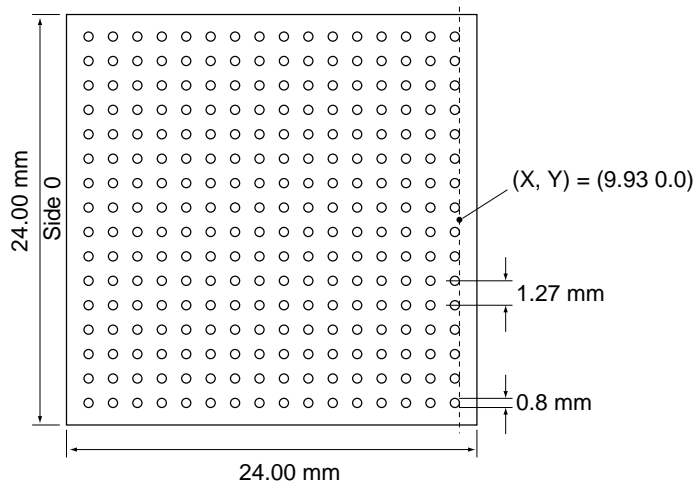
This is used in BGA processing. Input the threshold value between the body and the leads. Input this when the lead detection rate needs to be increased. The input procedure is explained below.

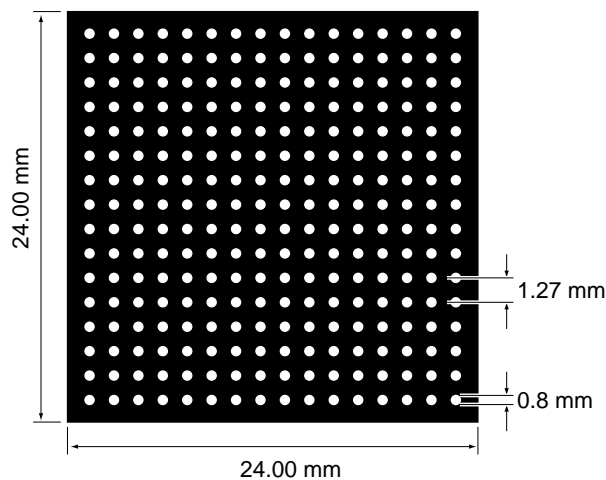


SMD3B010E

1.2.5 PD Generation Examples

The input example shows only the data required in SMD3 vision processing. In regard to other input items such as the nozzle sizes and package data, input is required for each machine type.

BGA (White Body) (1)

BGA (Black Body) (2)

BodySizeX:24.00 Vision_NO :0
 BodySizeY:24.00 Vision_Type:230 CheckLimit:90[%]

From here is the registration of Element Data.

Element#:	1	Side#:	0	
PositionX:	9.93 [mm]	LeadQuantity:	16	LeadLength: 0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance: 0.00 [mm]
Result:	1	LeadWidth:	0.80 [mm]	LeadLengthCenterTolerance:0.00 [mm]
PPattern#:	2	LeadWidthTolerance:	0.30 [mm]	

The following is the second line registration. Carry out registration using "128" for the Result item.

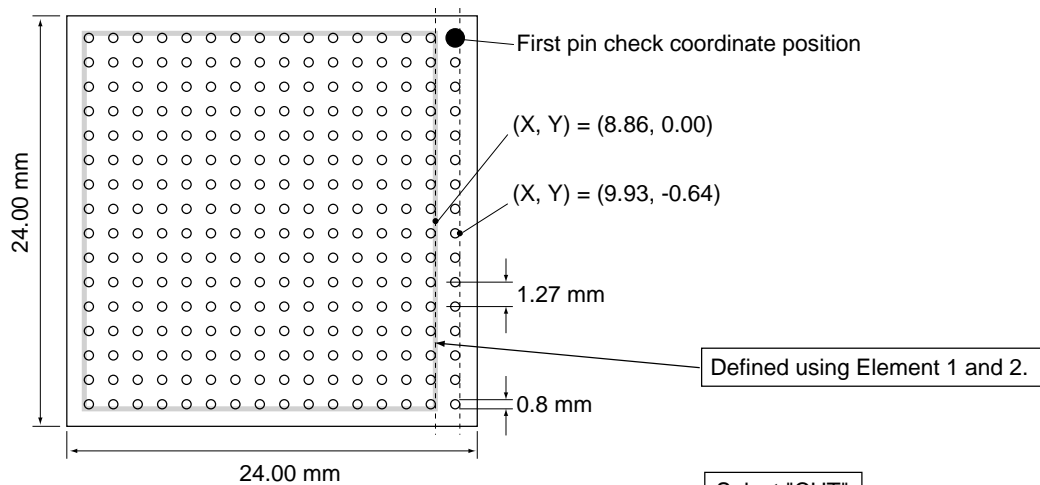
Element#:	2	Side#:	0	
PositionX:	0.00 [mm]	LeadQuantity:	16	LeadLength: 0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance: 0.00 [mm]
Result:	128	LeadWidth:	0.00 [mm]	LeadLengthCenterTolerance:0.00 [mm]
PPattern#:	0	LeadWidthTolerance:	0.00 [mm]	

The P Pattern is "2" for black BGAs.

This value is used when the Result is set to "1".

SMD3B012E

BGA (White Body) (3)



BodySizeX:24.00 Vision_NO :0
 BodySizeY:24.00 Vision_Type:231 CheckLimit:90[%]

Below is the first pin check data.

CheckMode: 3 CheckAreaX2:10.7 [mm]
 CheckAreaX1: 9.10 [mm] CheckAreaY2: 9.1 [mm] Algorithm:1.00
 CheckAreaY1:10.70 [mm] BodyColor: 1.00

From here is Element Data registration.

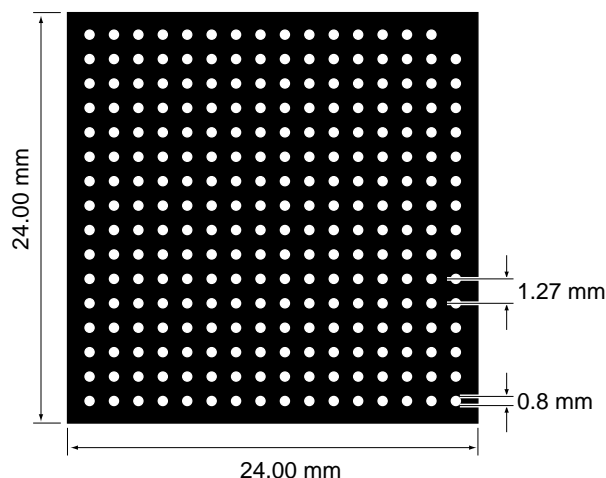
Element#:	1	Side#:	0
PositionX:	8.66 [mm]	LeadQuantity:	16
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]
Result:	9	LeadWidth:	0.80 [mm]
PPattern#:	1	LeadWidthTolerance:	0.00 [mm]

Element#:	2	Side#:	0
PositionX:	0.00 [mm]	LeadQuantity:	15
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]
Result:	128	LeadWidth:	0.00 [mm]
PPattern#:	0	LeadWidthTolerance:	0.00 [mm]

Element#:	3	Side#:	0
PositionX:	9.93 [mm]	LeadQuantity:	15
PositionY:	-0.64 [mm]	LeadPitch:	1.27 [mm]
Result:	9	LeadWidth:	0.80 [mm]
PPattern#:	1	LeadWidthTolerance:	0.00 [mm]

When the second line is defined, the Lead Quantity item can be omitted if it is set to "1".

SMD3B013E

BGA (Black Body) (4)

BodySizeX:24.00 Vision_NO :0
 BodySizeY:24.00 Vision_Type :230 CheckLimit:90[%]

Below is the first pin check data.

CheckMode: 3 CheckAreaX2:10.7 [mm]
 CheckAreaX1: 9.10 [mm] CheckAreaY2: 9.1 [mm] Algorithm:1.00
 CheckAreaY1:10.70 [mm] BodyColor: 1.00

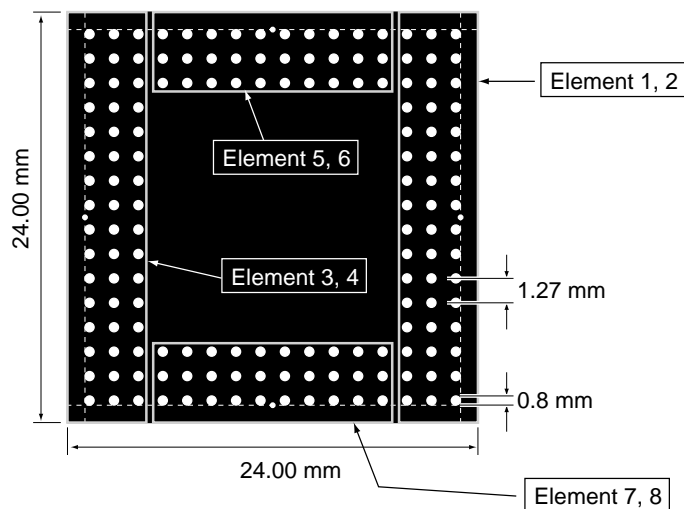
From here is Element Data registration.

Element#: 1 Side#: 0
 PositionX: 9.93 [mm] LeadQuantity: 16 LeadLength: 0.00 [mm]
 PositionY: 0.00 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
 Result: 9 LeadWidth: 0.80 [mm] LeadLengthCenterTolerance:0.00 [mm]
 PPattern#: 1 LeadWidthTolerance:0.00 [mm]

Element#: 2 Side#: 0
 PositionX: 0.00 [mm] LeadQuantity: 15 LeadLength: 0.00 [mm]
 PositionY: 0.00 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
 Result: 128 LeadWidth: 0.00 [mm] LeadLengthCenterTolerance:0.00 [mm]
 PPattern#: 0 LeadWidthTolerance:0.00 [mm]

Element#: 3 Side#: 0
 PositionX: 9.93 [mm] LeadQuantity: 15 LeadLength: 0.00 [mm]
 PositionY: -0.64 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
 Result: 9 LeadWidth: 0.80 [mm] LeadLengthCenterTolerance:0.00 [mm]
 PPattern#: 2 LeadWidthTolerance:0.00 [mm]

SMD3B014E

BGA (Black Body) (5)

BodySizeX:24.00 Vision_NO :0
 BodySizeY:24.00 Vision_Type:230 CheckLimit:90[%]

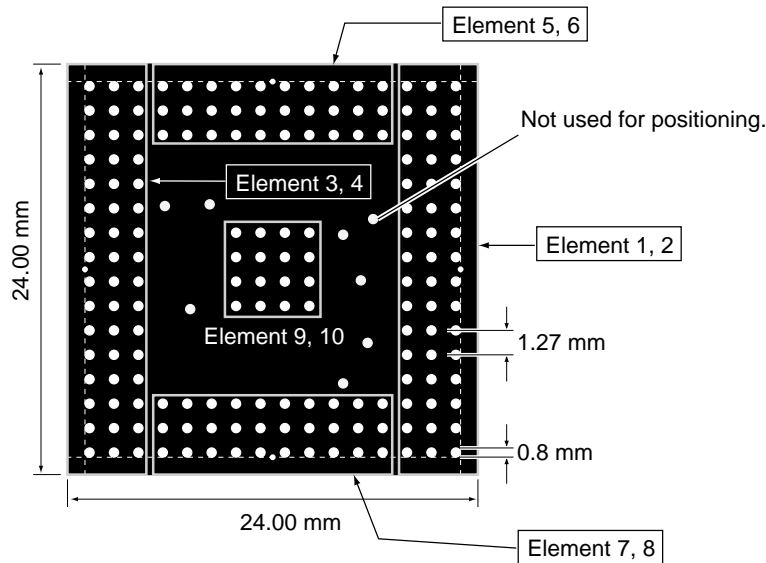
From here is Element Data registration.

Element#:	1	Side#:	0		
PositionX:	9.93 [mm]	LeadQuantity:	16	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	9	LeadWidth:	0.80 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	2	LeadWidthTolerance:	0.00 [mm]		
Element#:	2	Side#:	0		
PositionX:	0.00 [mm]	LeadQuantity:	3	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	128	LeadWidth:	0.00 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	0	LeadWidthTolerance:	0.00 [mm]		
Element#:	3	Side#:	2		
PositionX:	-9.93 [mm]	LeadQuantity:	16	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	9	LeadWidth:	0.80 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	2	LeadWidthTolerance:	0.00 [mm]		
Element#:	4	Side#:	0		
PositionX:	0.00 [mm]	LeadQuantity:	3	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	128	LeadWidth:	0.00 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	0	LeadWidthTolerance:	0.00 [mm]		
Element#:	5	Side#:	1		
PositionX:	0.00 [mm]	LeadQuantity:	10	LeadLength:	0.00 [mm]
PositionY:	9.93 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	9	LeadWidth:	0.80 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	2	LeadWidthTolerance:	0.00 [mm]		
Element#:	6	Side#:	0		
PositionX:	0.00 [mm]	LeadQuantity:	3	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	128	LeadWidth:	0.00 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	0	LeadWidthTolerance:	0.00 [mm]		

Element#: 7 Side#: 3
PositionX: 0.00 [mm] LeadQuantity: 10 LeadLength: 0.00 [mm]
PositionY: -9.93 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
Result: 9 LeadWidth: 0.80 [mm] LeadLengthCenterTolerance: 0.00 [mm]
PPattern#: 2 LeadWidthTolerance: 0.00 [mm]

Element#: 8 Side#: 0
PositionX: 0.00 [mm] LeadQuantity: 3 LeadLength: 0.00 [mm]
PositionY: 0.00 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
Result: 128 LeadWidth: 0.00 [mm] LeadLengthCenterTolerance: 0.00 [mm]
PPattern#: 0 LeadWidthTolerance: 0.00 [mm]

SMD3B015E

BGA (Black Body) (6)

For a BGA component such as the one shown above, it is not possible to define all of the blobs. This is because 18 lines of Element Data would be required to define all of the blobs.

BodySizeX:24.00 Vision_N0 :0
BodySizeY:24.00 Vision_Type:230 CheckLimit:90[%]

From here is Element Data registration.

Element#:	1	Side#:	0		
PositionX:	9.93 [mm]	LeadQuantity:	16	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	9	LeadWidth:	0.80 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	2	LeadWidthTolerance:	0.00 [mm]		
Element#:	2	Side#:	0		
PositionX:	0.00 [mm]	LeadQuantity:	3	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	128	LeadWidth:	0.00 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	0	LeadWidthTolerance:	0.00 [mm]		
Element#:	3	Side#:	2		
PositionX:	-9.93 [mm]	LeadQuantity:	16	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	9	LeadWidth:	0.80 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	2	LeadWidthTolerance:	0.00 [mm]		

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Element#: 4 Side#: 0
 PositionX: 0.00 [mm] LeadQuantity: 3 LeadLength: 0.00 [mm]
 PositionY: 0.00 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
 Result: 128 LeadWidth: 0.00 [mm] LeadLengthCenterTolerance: 0.00 [mm]
 PPattern#: 0 LeadWidthTolerance: 0.00 [mm]

Element#: 5 Side#: 1
 PositionX: 0.00 [mm] LeadQuantity: 10 LeadLength: 0.00 [mm]
 PositionY: 9.93 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
 Result: 9 LeadWidth: 0.80 [mm] LeadLengthCenterTolerance: 0.00 [mm]
 PPattern#: 2 LeadWidthTolerance: 0.00 [mm]

Element#: 6 Side#: 0
 PositionX: 0.00 [mm] LeadQuantity: 3 LeadLength: 0.00 [mm]
 PositionY: 0.00 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
 Result: 128 LeadWidth: 0.00 [mm] LeadLengthCenterTolerance: 0.00 [mm]
 PPattern#: 0 LeadWidthTolerance: 0.00 [mm]

Element#: 7 Side#: 3
 PositionX: 0.00 [mm] LeadQuantity: 10 LeadLength: 0.00 [mm]
 PositionY: -9.93 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
 Result: 9 LeadWidth: 0.80 [mm] LeadLengthCenterTolerance: 0.00 [mm]
 PPattern#: 2 LeadWidthTolerance: 0.00 [mm]

Element#: 8 Side#: 0
 PositionX: 0.00 [mm] LeadQuantity: 3 LeadLength: 0.00 [mm]
 PositionY: 0.00 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
 Result: 128 LeadWidth: 0.00 [mm] LeadLengthCenterTolerance: 0.00 [mm]
 PPattern#: 0 LeadWidthTolerance: 0.00 [mm]

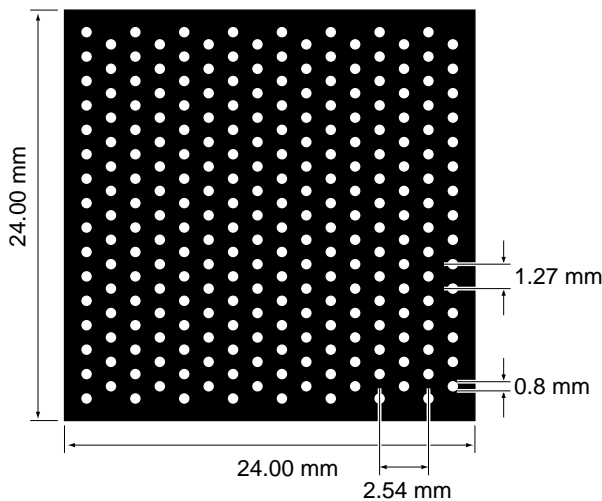
Element#: 9 Side#: 3
 PositionX: 0.00 [mm] LeadQuantity: 4 LeadLength: 0.00 [mm]
 PositionY: 4.05 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
 Result: 9 LeadWidth: 0.80 [mm] LeadLengthCenterTolerance: 0.00 [mm]
 PPattern#: 2 LeadWidthTolerance: 0.00 [mm]

Element#: 10 Side#: 0
 PositionX: 0.00 [mm] LeadQuantity: 4 LeadLength: 0.00 [mm]
 PositionY: 0.00 [mm] LeadPitch: 1.27 [mm] LeadLengthTolerance: 0.00 [mm]
 Result: 128 LeadWidth: 0.00 [mm] LeadLengthCenterTolerance: 0.00 [mm]
 PPattern#: 0 LeadWidthTolerance: 0.00 [mm]

SMD3B016B

Note: There are eight bumps not defined up to this point. However, one line would be needed to define each of these bumps, resulting in a total of 18 lines of Element Data. Therefore, registration cannot be carried out.

BGA (Black Body • Staggered) (7)



BodySizeX:24.00 Vision_NO :0
BodySizeY:24.00 Vision_Type:230 CheckLimit:90[%]

From here is Element Data registration.

Element#:	1	Side#:	0		
PositionX:	9.93 [mm]	LeadQuantity:	16	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	9	LeadWidth:	0.80 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	2	LeadWidthTolerance:	0.00 [mm]		
Element#:	2	Side#:	0		
PositionX:	0.00 [mm]	LeadQuantity:	8	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	2.54 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	128	LeadWidth:	0.00 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	0	LeadWidthTolerance:	0.00 [mm]		
Element#:	3	Side#:	2		
PositionX:	8.66 [mm]	LeadQuantity:	15	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	1.27 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	9	LeadWidth:	0.80 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	2	LeadWidthTolerance:	0.00 [mm]		
Element#:	4	Side#:	0		
PositionX:	0.00 [mm]	LeadQuantity:	8	LeadLength:	0.00 [mm]
PositionY:	0.00 [mm]	LeadPitch:	2.54 [mm]	LeadLengthTolerance:	0.00 [mm]
Result:	128	LeadWidth:	0.00 [mm]	LeadLengthCenterTolerance:	0.00 [mm]
PPattern#:	0	LeadWidthTolerance:	0.00 [mm]		

SMD3B017E

1.2.6 Lighting

When the QP-242E is used, the lighting must be changed according to the color of the component.

<Black BGA>

Use “Front Light B”.

<White BGA>

Use “Front Light AB”.

Note: Additional Part Data input info has been added when using IP-3 camera type 12 or QP-242 camera type 7.

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Any comments or opinions regarding this manual can be sent to **smtdocu@fuji.co.jp**

SMD3 Part Data Generation Manual

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