

JEDEC SOLID STATE
PRODUCT OUTLINE
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THIS **REGISTERED OUTLINE** WAS PREPARED BY THE JEDEC JC-11 COMMITTEE AND REFLECTS A PRODUCT FOR ANTICIPATED USE IN THE ELECTRONICS INDUSTRY. CHANGES ARE LIKELY TO OCCUR. USERS ASSUME ALL RISK AND LIABILITY RESULTING FROM THE USE OF THIS OUTLINE.

TITLE PLASTIC BOTTOM GRID
ARRAY, BALL, 0.35 MM PITCH
RECTANGULAR FAMILY PACKAGE

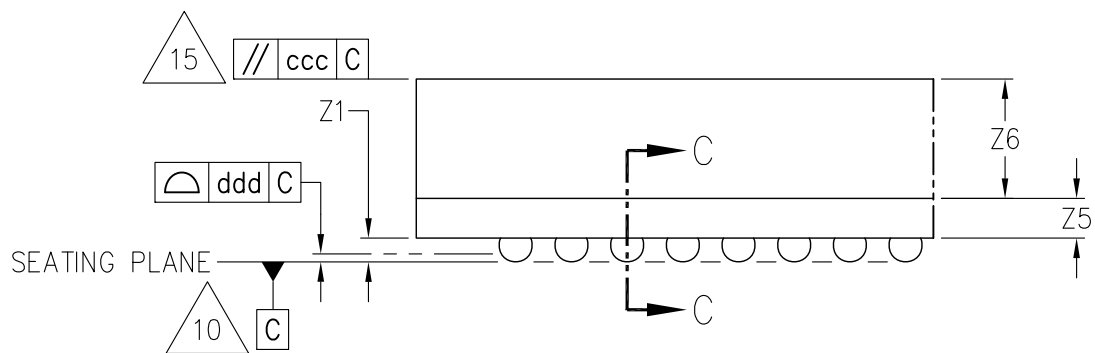
PACKAGE DESIGNATOR
PBGA-B#[#]
_I0p35...

NUMBER
MO-365

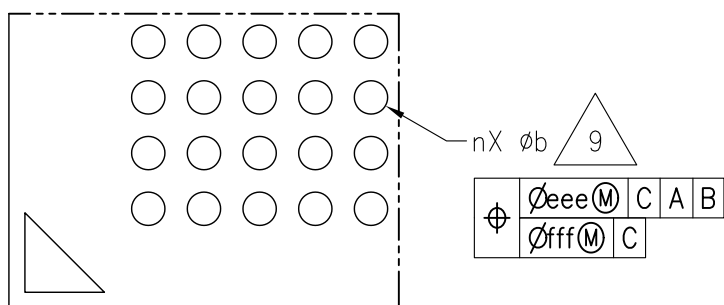
ISSUE
B

DATE
AUG 2025

SHEET
1 OF 10



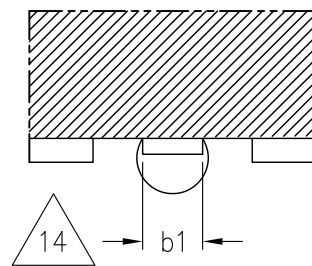
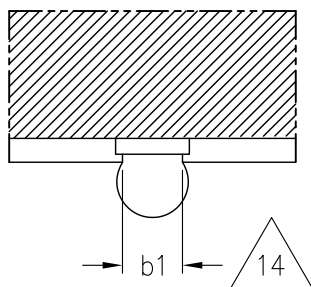
DETAIL A
(ROTATED 90° CW)



DETAIL B

TYPE 1 – SMD
(SOLDER MASK DEFINED)

TYPE 2 – NSMD
(NON SOLDER MASK DEFINED)



SECTION C-C

TABLE 1

COMMON DIMENSIONS		
SYMBOL		
Z		PACKAGE SPECIFIC
Z2	b(NOM) = 0.15	$Z2(MAX) = Z(MAX) - Z1$
	b(NOM) = 0.20	$Z2(MAX) = Z(MAX) - Z1$
Z5		OPTIONAL – PACKAGE SPECIFIC
Z6		OPTIONAL – PACKAGE SPECIFIC
e		0.35 BASIC
NOTES		2, 8
REF		11–1076, 11–1087
ISSUE		B

TABLE 2

COMMON DIMENSIONS										
SYMBOL		(b) SOLDER BALL DIAMETER								
		MIN	NOM	MAX	MIN	NOM	MAX	MIN	NOM	MAX
Z1		PACKAGE SPECIFIC	---	---	PACKAGE SPECIFIC	---	---	---	---	---
b		0.10	0.15	0.20	0.15	0.20	0.25	---	---	---
b1	TYPE1	0.10	---	---	0.14	---	---	---	---	---
	TYPE2	0.10	---	---	0.14	---	---	---	---	---
NOTES		2, 9			2, 9			—		
REF		11–1076			11–1087			—		
ISSUE		A			B			—		

$$b1 = b(NOM) * 0.70$$

TABLE 3

TOLERANCE OF FORM AND POSITION				
SYMBOL	PACKAGE TYPE	VALUE		
		ϕb NOM = 0.15	ϕb NOM = 0.20	---
aaa	---	0.10	0.10	---
ccc	ENCAPSULATED	0.20	0.20	---
ddd	---	0.08	0.08	---
eee	ENCAPSULATED	0.15	0.15	---
fff	---	0.05	0.05	---
NOTES		2	2	—
REF		11–1076	11–1087	—
ISSUE		A	B	—

TABLE 4



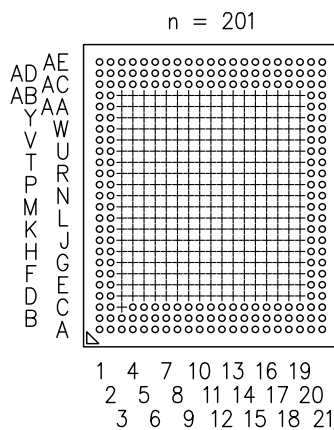
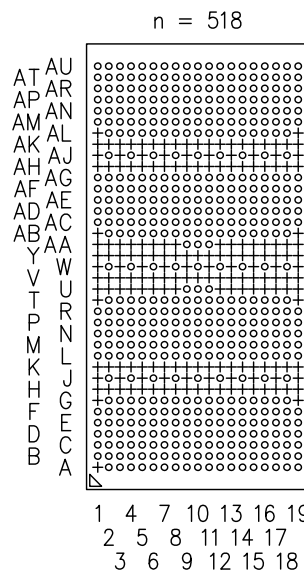
øb = 0.15 NOMINAL														
NEW VARIATION		X BASIC	Y BASIC	X1 BASIC	Y1 BASIC	MX	MY	SX BASIC	SY BASIC	n	N	TERMINAL PATTERN	REF	ISSUE
PBGA – B201[525]_I0p35– R8p0x9p5Z#–C0p15H#		8.00	9.50	7.00	8.40	21	25	0.00	0.00	201	525	A	11–1076	A
NOTES		2	2	2	2	5	5	2, 12	2, 12	6, 13	6	13		

TABLE 5

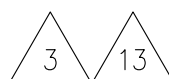
øb = 0.20 NOMINAL													
NEW VARIATION	X BASIC	Y BASIC	X1 BASIC	Y1 BASIC	MX	MY	SX BASIC	SY BASIC	n	N	TERMINAL PATTERN	REF	ISSUE
 PBGA-B518[703]_I0p35- R7p0x14p0Z#-C0p2H#	7.00	14.00	6.30	12.60	19	37	0.00	0.00	518	703	B	11-1087	-
NOTES	2	2	2	2	5	5	2, 12	2, 12	6, 13	6	13		



TERMINAL PATTERN A



TERMINAL PATTERN B



+ = DEPOPULATED TERMINAL POSITIONS

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5–2009.
THIS OUTLINE CONFORMS TO JEP95, SECTION 4.5.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
- 3 SOLDER BALL POSITION DESIGNATION PER JEP95 SECTION 3, SPP–010.
4. e REPRESENTS THE SOLDER BALL GRID PITCH.
5. MX AND MY REPRESENT THE MAXIMUM MATRIX SIZE CORRESPONDING TO THE X AND Y DIRECTIONS, RESPECTIVELY.
6. n REPRESENTS THE ACTUAL NUMBER OF SOLDER BALLS AFTER DEPOPLUATION.
N REPRESENTS THE MAXIMUM NUMBER OF SOLDER BALLS FOR A FULL MATRIX, MD X ME.

7 A FULLY POPULATED 36 X 46 MATRIX SIZE IS SHOWN FOR ILLUSTRATION ONLY.

8 DIMENSION Z INCLUDES STANDOFF HEIGHT Z1, PACKAGE BODY THICKNESS AND LID HEIGHT, BUT DOES NOT INCLUDE ATTACHED FEATURES, e.g. EXTERNAL HEAT SINK. AN INTEGRAL HEAT SLUG IS NOT CONSIDERED AN ATTACHED FEATURE.

9 DIMENSION b IS MEASURED AT THE MAXIMUM SOLDER BALL DIAMETER PARALLEL TO PRIMARY DATUM C.

10 PRIMARY DATUM C (SEATING PLANE) IS DEFINED BY THE PLANE ESTABLISHED BY THE CONTACT POINTS OF THREE OR MORE SOLDER BALLS THAT SUPPORT THE DEVICE WHEN IT IS PLACED ON TOP OF A PLANAR SURFACE.

11 THE A1 TERMINAL CORNER MUST BE IDENTIFIED ON BOTH THE BOTTOM AND TOP SIDES OF THE PACKAGE, THE IDENTIFICATION FEATURE CAN BE MADE USING INK, METALIZED MARKINGS, INDENTATIONS, OR OTHER FEATURES.

12 DIMENSIONS SX AND SY ARE MEASURED WITH RESPECT TO DATUMS A AND B AND DEFINE THE POSITION OF THE CENTER SOLDER BALLS.
WHEN THERE IS AN ODD NUMBER OF SOLDER BALLS, SX OR $SY = 0.00$.
WHEN THERE IS AN EVEN NUMBER OF SOLDER BALLS, $SX = eX/2$ OR $SY = eY/2$.

13 SOLDER BALL DEPOPULATION IS ALLOWED. DEPOPULATION IS THE OMISSION OF SOLDER BALLS FROM A FULL MATRIX (MX X MY).

14 THE SOLDERABLE SURFACE MAY BE DEFINED BY AN OPENING IN THE SOLDER RESIST LAYER (TYPE 1) OR BY THE SIZE OF A METALIZED PAD (TYPE 2). IT MAY BE ELLIPITACL PROVIDED THE RATIO OF THE MAJOR TO MINOR AXIS IS NO GREATER THAN 2/1, AND THE SURFACE AREA IS NO LESS THEN THE MINIMUM FOR A CIRCULAR PAD. FOR TYPE 2 DESIGNS, EXPOSED COPPER TRACES ARE PERMITTED OUTSIDE THE b1 PAD AREA.

JEDEC SOLID STATE PRODUCT OUTLINE <small>Copyright © 2025 JEDEC. All rights reserved. May not be reproduced without permission.</small>	TITLE PLASTIC BOTTOM GRID ARRAY, BALL, 0.35 MM PITCH RECTANGULAR FAMILY PACKAGE	NUMBER MO-365	ISSUE B	DATE AUG 2025	SHEET 9 OF 10
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NOTES CONTINUED:

15 FOR GLOB TOP AND FLIP CHIP CONFIGURATIONS, PARALLELISM (ccc) APPLIES ONLY TO THE SURFACE DIRECTLY ABOVE THE DIE AREA. THE PARALLELISM SPECIFICALLY WILL NOT APPLY TO ANY FILLET OR SLOPED REGION OF THE ENCAPSULANT.

16 SEE JESD30 FOR EXPLANATION OF VARIATION SCHEME.
PACKAGE HEIGHT IS THE MAXIMUM PACKAGE THICKNESS.

17. THE Z1 HEIGHT NEEDS TO BE ACCEPTABLE TO MANUFACTURING STANDARDS.

STP (3D) FILE RECORD

3D FILE NAMES MAY EXCEED LENGTH REQUIREMENTS FOR SOME SOFTWARE TOOLS.

STP FILE NAME	DATE	ITEM NUMBER
MO-365A_PBGA-B201[525]_I0p35-R8p0X9p5Z#-C0p15H#	JAN 2025	11-1076 11-1087
MO-365B_PBGA-B518[703]_I0p35-R7p0X14p0Z#-C0p2H#	AUG 2025	11-1087

TASK GROUP CONTRIBUTORS

MICRON TECHNOLOGY, INC.
SAMSUNG SEMICONDUCTOR

CHANGE RECORD

IF THE CHANGE INVOLVES ANY WORDS ADDED OR DELETED (EXCLUDING DELETION OF ACCIDENTALLY REPEATED WORDS), THE CHANGE IS TO BE INCLUDED BELOW. PUNCTUATION CHANGES MAY OR MAY NOT BE INCLUDED.

INITIAL ISSUE: A	DATE: JANUARY 2025	ITEM NUMBER: 11-1076
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CHANGE RECORD HISTORY:

ISSUE: B	DATE: AUGUST 2025	ITEM NUMBER: 11-1087
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LOCATION:	CHANGED FROM:	CHANGED TO:
SHEETS 2, 3, & 4		ADDED 0.20 NOM BALL
SHEETS 6 & i	...R8p0x9p5Z#-C0p15Z#	...R8p0x9p5Z#-C0p15H#
SHEET 7		ADDED TABLE 5 FOR 0.20 NOM BALL
SHEET 8		ADDED TERMINAL PATTERN B