

**DOCUMENT TYPE:** POD

**DOCUMENT ID #:** 21-0492

**REVISION:** E-000

**DOCUMENT TITLE:** PACKAGE OUTLINE, 144 BALL CTBGA, 10X10X

**EFFECTIVE DATE:** 06/05/2023

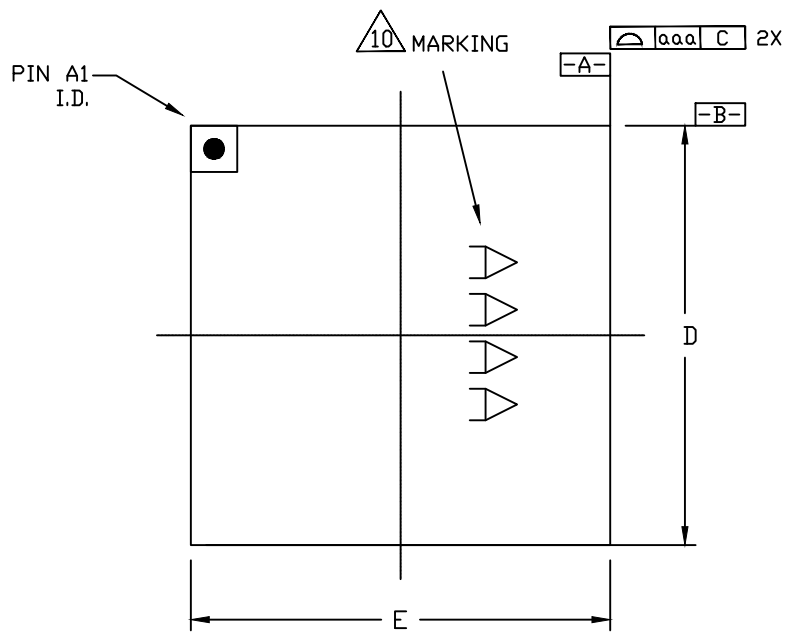
**EXPIRATION DATE:**

**CHANGE NUMBER:** 1188197

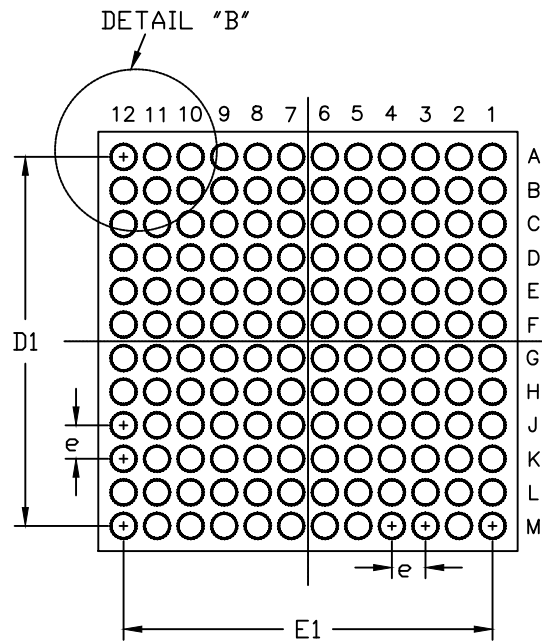
**ORIGINATOR:** Bernard Go

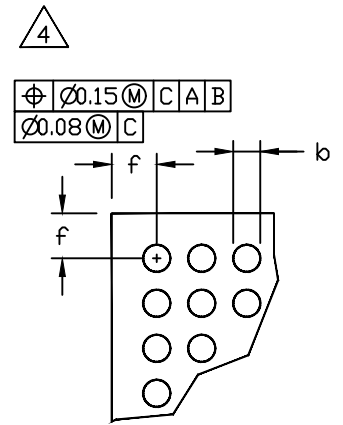
**REASON FOR CHANGE:**  
Add X14400+9C



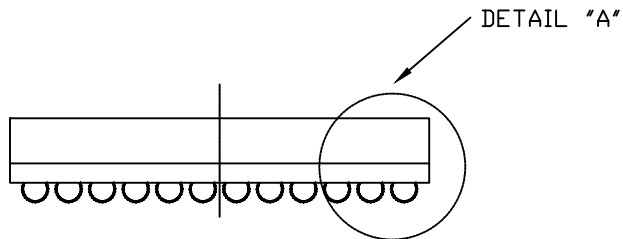
TOP VIEW



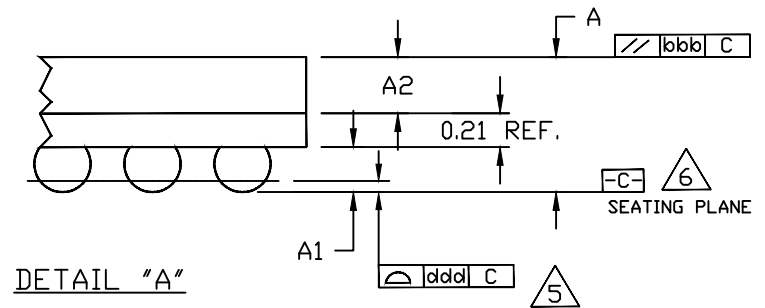
BOTTOM VIEW



DETAIL "B"



SIDE VIEW



DETAIL "A"



TITLE:  
PACKAGE OUTLINE, 144 BALL  
CTBGA, 10x10x1.2mm

APPROVAL  
CHINTANKUMAR PATEL

DOCUMENT CONTROL NO.  
21-0492

REV. 1  
E 2

-DRAWING NOT TO SCALE-

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. 'e' REPRESENTS THE BASIC SOLDER BALL GRID PITCH.
3. 'M' REPRESENTS THE BASIC SOLDER BALL MATRIX SIZE AND SYMBOL 'N' IS THE NUMBER OF BALLS AFTER DEPOPULATING.
4. 'b' IS MEASURABLE AT THE MAXIMUM SOLDER BALL DIAMETER AFTER REFLOW PARALLEL TO PRIMARY DATUM -C-.
5. DIMENSION 'ddd' IS MEASURED PARALLEL TO PRIMARY DATUM -C-.
6. PRIMARY DATUM -C- AND SEATING PLANE ARE DEFINED BY THE SPHERICAL CROWNS OF THE SOLDER BALLS.
7. PACKAGE SURFACE SHALL BE MATTE FINISH.
8. SUBSTRATE MATERIAL BASE IS BT RESIN.
9. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
10. MARKING IS FOR PACKAGE ORIENTATION REFERENCE ONLY.
11. MATERIAL MUST COMPLY WITH BANNED AND RESTRICTED SUBSTANCES SPEC#10-0131.
12. DRAWING CONFORMS TO JEDEC MO-216.
13. ALL DIMENSIONS APPLY TO BOTH LEADED (-) AND PbFree (+) PACKAGE CODES.

DIMENSIONAL REFERENCES			
REF.	MIN.	NOM.	MAX.
A	1.00	1.10	1.20
A1	0.27	0.32	0.37
A2	0.55 REF.		
D	10.00 BSC.		
D1	8.80 BSC		
E	10.00 BSC		
E1	8.80 BSC		
b	0.37	0.40	0.43
aaa	0.15		
bbb	0.20		
ddd	0.12		
e	0.80 BSC		
f	0.50	0.60	0.70
M	12		
N	144		
PKGCODES: X14400M+1 X14400+7C X14400+3 X14400+9C X14400+6C			



TITLE:  
 PACKAGE OUTLINE, 144 BALL  
 CTBGA, 10x10x1.2mm

APPROVAL CHINTANKUMAR PATEL	DOCUMENT CONTROL NO. 21-0492	REV. E	2/2
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-DRAWING NOT TO SCALE-

## REVISION HISTORY

REV	CHANGES MADE	DATE	INIT.
A	ECN# HQ-10-0911. INITIAL RELEASE.	05/11/10	GP
B	ECN# HQ-12-1759. PIN NUMBERING WAS CHANGED IN BOTTOM VIEW DIAGRAM: A THRU M ARE NOW SHOWN ON DIMENSION D SIDE 1 THRU 12 ARE NOW SHOWN ON DIMENSION E SIDE	08/09/12	GP
C	CN# 1001603 ADD NEW PKG. CODE(X14400+6C)	11/05/15	AG
D	CN# 1012430 ADD NEW PKG. CODE(X14400+7C)	03/03/17	BG
E	CN 1188197. ADDED X14400+9C	06/05/23	BG

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**DOCUMENT I.D.**  
21-0492

**REVISION**  
E

**PAGE**  
3

