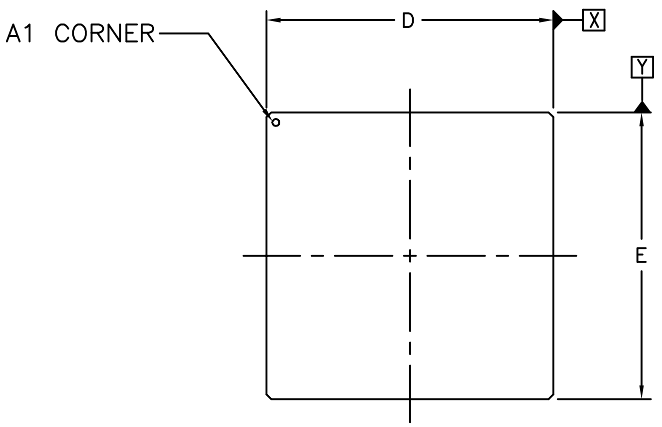
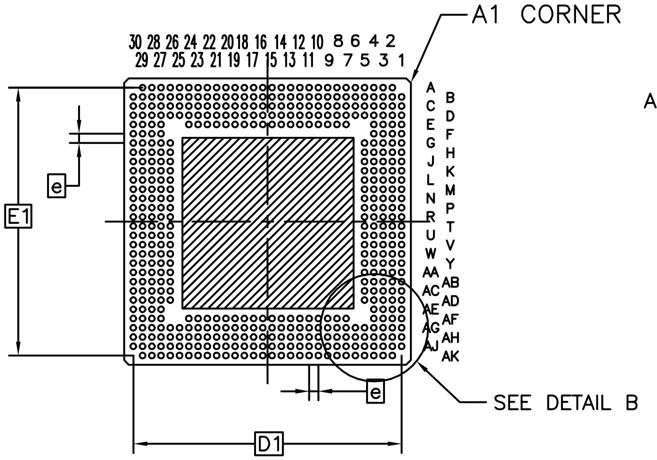
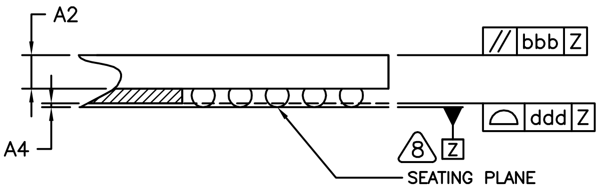


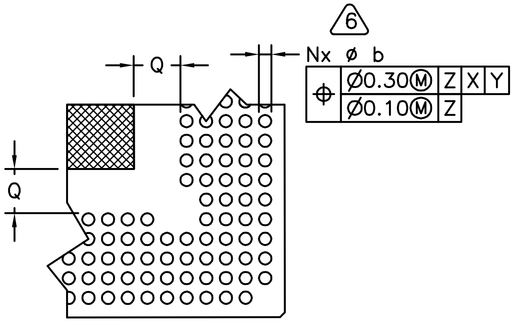
## TOP VIEW



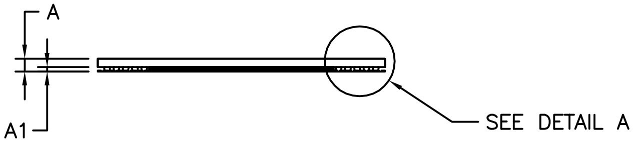
## BOTTOM VIEW



## DETAIL A



## DETAIL B



## SIDE VIEW

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. MATERIAL MUST COMPLY WITH BANNED AND RESTRICTED SUBSTANCES SPEC # 10-0131.
3. DIMENSIONING AND TOLERANCING PER ASME Y14.5M 1994
4. "e" REPRESENT THE BASIC SOLDER BALL GRID PITCH.
5. "M" REPRESENT THE BASIC SOLDER BALL MATRIX SIZE, & SYMBOL "N" IS THE MAXIMUM ALLOWABLE NUMBER OF BALLS AFTER DEPOPULATING.
6. "b" IS MEASURED AT THE MAXIMUM SOLDER BALL DIAMETER AFTER REFLOW PARALLEL TO PRIMARY DATUM Z
7. DIMENSION "ddd" IS MEASURED PARALLEL TO PRIMARY DATUM Z
8. PRIMARY DATUM Z AND SEATING PLANE ARE DEFINED BY THE SPHERICAL CROWNS OF THE SOLDER BALLS.
9. PACKAGE SURFACE SHALL BE BLACK INK.
10. CAVITY DEPTH VARIES WITH DIE THICKNESS.
11. SUBSTRATE MATERIAL BASE IS COPPER.
12. ENCAPSULANT SIZE MAY VARY WITH DIE SIZE.
13. CONFORMS TO JEDEC MO-149F, EXCEPT "b" DIMENSION.
14. ALL DIMENSIONS APPLY TO LEADED (-), LEAD FREE (+) PKG. CODES.
15. PACKAGE CODE: V484T-3
    V484T-5

| DIMENSIONAL REFERENCES | | | | |
|---|---|---|---|---|
| REF. | MIN. | NOM. | MAX. | NOTES |
| A | 1.20 | 1.40 | 1.60 | |
| A1 | 0.40 | 0.50 | 0.60 | |
| A2 | 0.80 | 0.90 | 1.00 | |
| A4 | 0.10 | | | |
| D | 30.80 | 31.00 | 31.20 | |
| D1 | 29.00 BSC. | | | |
| E | 30.80 | 31.00 | 31.20 | |
| E1 | 29.00 BSC. | | | |
| b | 0.50 | 0.63 | 0.75 | 13 |
| M | 30 | | | |
| N | 484 | | | |
| bbb | | | 0.25 | |
| ddd | 0.20 | | | |
| e | 1.00 BSC. | | | |
| Q | 0.25 | | | |

-DRAWING NOT TO SCALE-

TITLE:
PACKAGE OUTLINE, 484 BALLS SBGA, THERMALLY ENHANCED
31.0x31.0x1.40mm, 1.00mm PITCH, 4 LAYER

| APPROVAL | DOCUMENT CONTROL NO. | REV. | |
|---|---|---|---|
| EDEN CHEN<br>09/09/10 | 21-0369 | B | 1/1 |