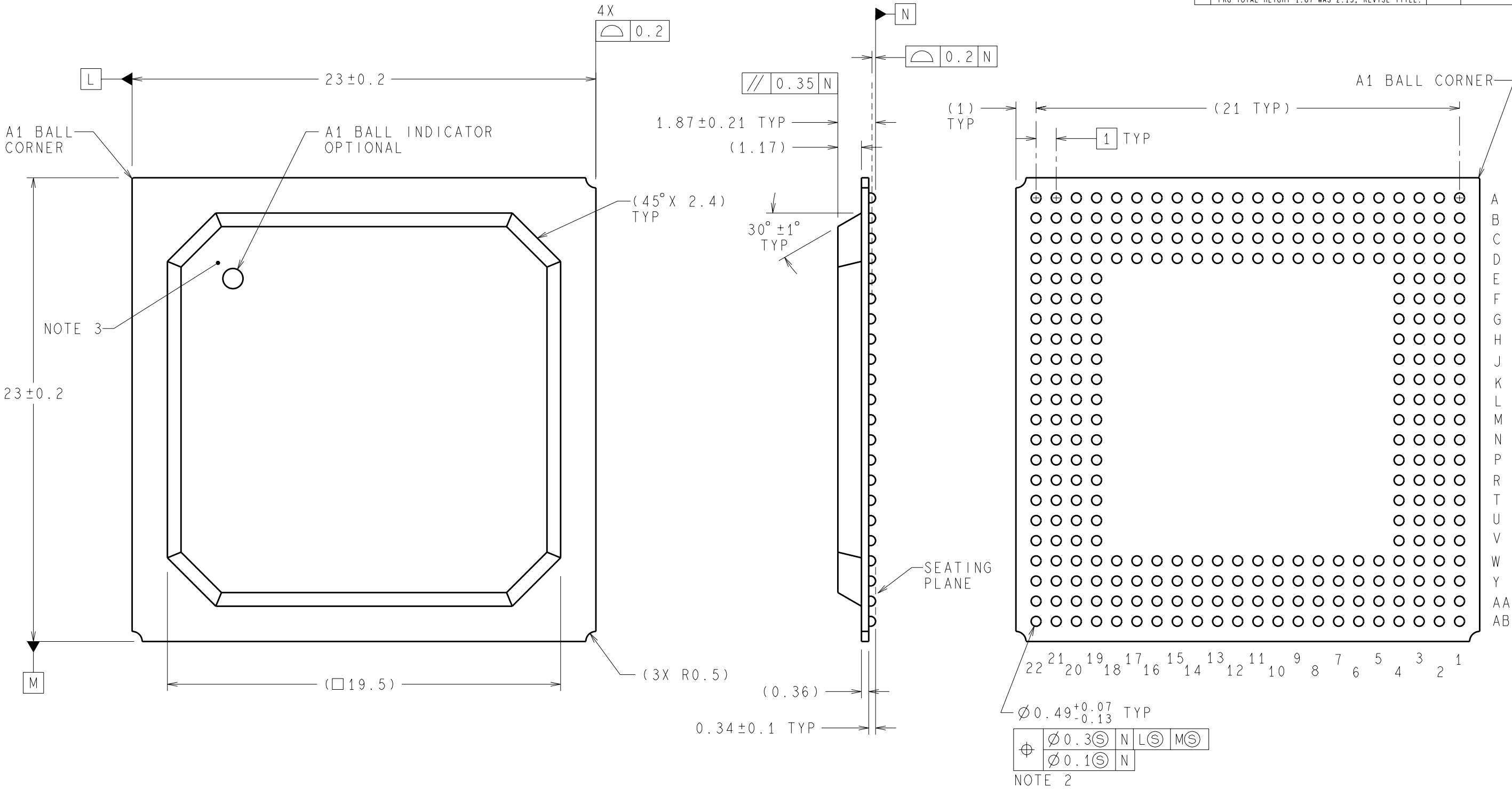


| REVISIONS |                                                                                                 |        |            |          |
|-----------|-------------------------------------------------------------------------------------------------|--------|------------|----------|
| REV       | DESCRIPTION                                                                                     | E.C.N. | DATE       | BY/APP'D |
| A         | RELEASE TO DOCUMENT CONTROL                                                                     | 772    | 08/22/2002 | MS/VG    |
| B         | BALL DIA 0.49 WAS 0.63; BALL HEIGHT 0.34 WAS 0.6; PKG TOTAL HEIGHT 1.87 WAS 2.13; REVISE TITLE. | 873    | 10/17/2002 | MS/VG    |



DIMENSIONS ARE IN MILLIMETERS

NOTES: UNLESS OTHERWISE SPECIFIED

- SOLDER BALL COMPOSITION: Sn 63%, Pb 37%.
- DIMENSION IS MEASURED AT THE MAXIMUM SOLDER BALL DIAMETER, PARALLEL TO PRIMARY DATUM N.
- THE MOLD SURFACE AREA MAY INCLUDE DIMPLE FOR A1 BALL CORNER IDENTIFICATION.
- REFERENCE JEDEC REGISTRATION MS-034, VARIATION AAJ-1.

| APPROVALS     |                       | DATE       | <b>National Semiconductor</b><br>2900 Semiconductor Dr., Santa Clara, CA 95052-8090 |                 |
|---------------|-----------------------|------------|-------------------------------------------------------------------------------------|-----------------|
| DRAWN         | <b>MARTA SUCHY</b>    | 08/22/2002 |                                                                                     |                 |
| DFTG. CHK.    | <b>THANH LEQUANG</b>  | 10/17/2002 |                                                                                     |                 |
| ENGR. CHK.    | <b>VIJAYA GUMASTE</b> | 10/17/2002 |                                                                                     |                 |
|               |                       |            | <b>PBGA,</b><br><b>23 X 23 X 1.87mm,</b><br><b>288 BALL, 1.0mm PITCH</b>            |                 |
| PROJECTION    |                       | SCALE      | SIZE                                                                                | DRAWING NUMBER  |
| <br>MM        |                       | NTS        | B                                                                                   | (SC)MKT-UDF288A |
| FORMERLY: N/A |                       |            | SHEET 1 of 1                                                                        |                 |