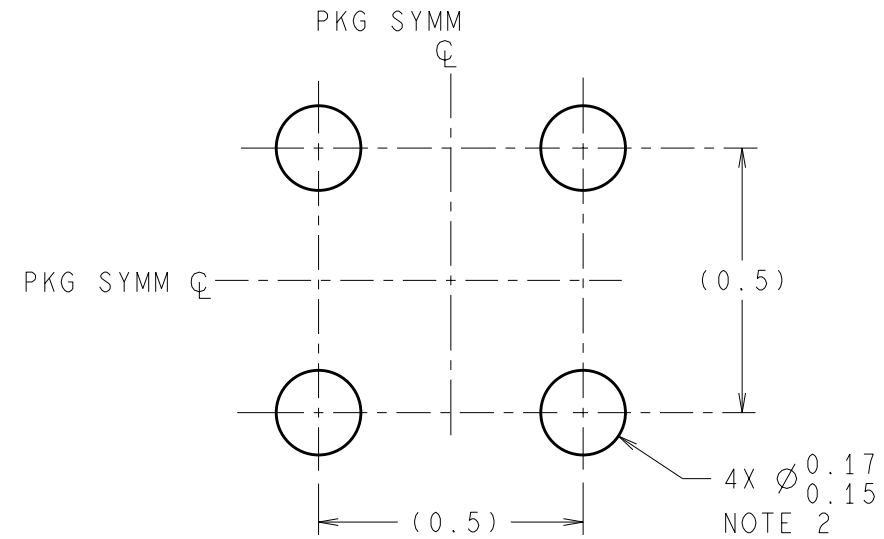
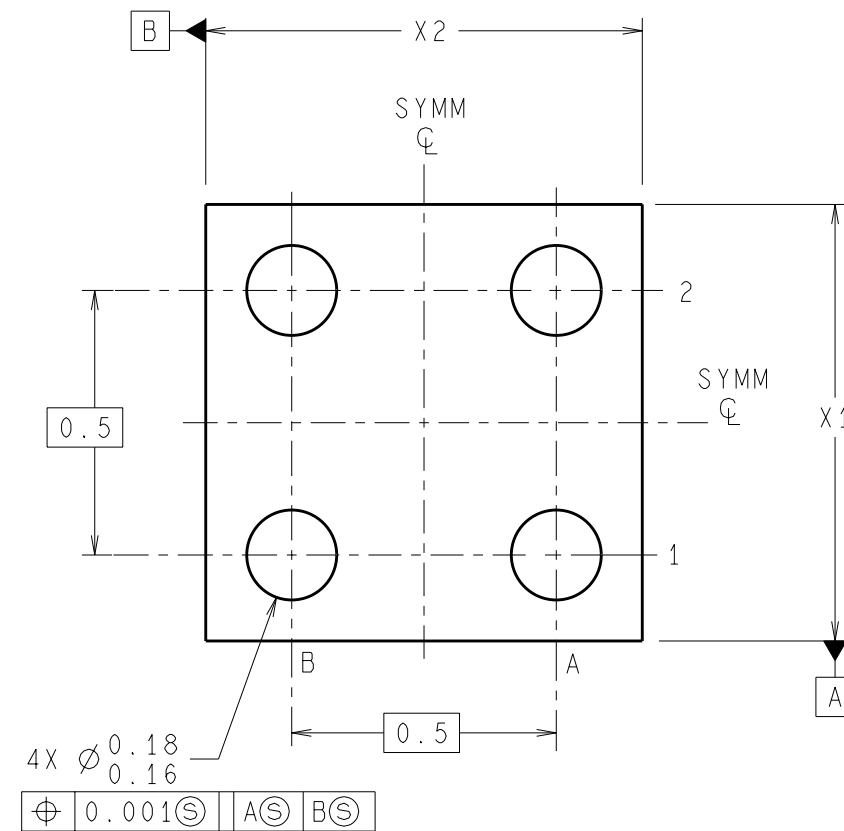
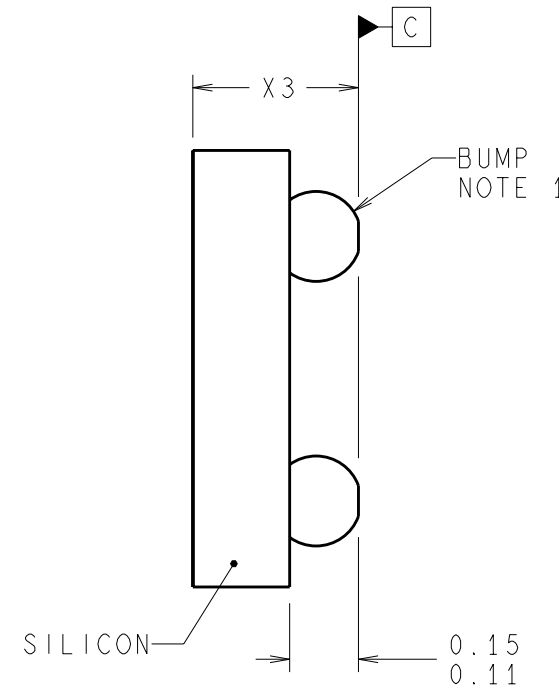
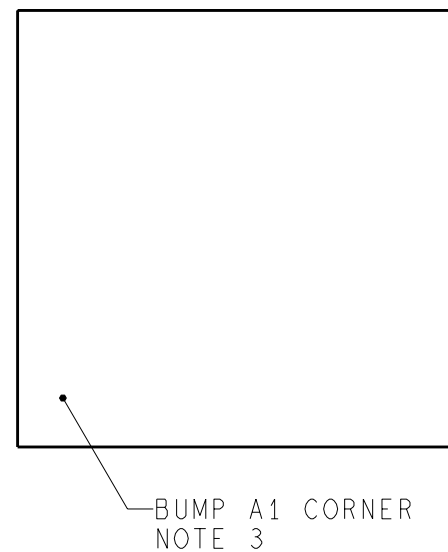


| REVISIONS | | | | |
|-----------|--|--------|------------|----------|
| REV | DESCRIPTION | E.C.N. | DATE | BY/APP'D |
| A | RELEASE TO DOCUMENT CONTROL | 965 | 03/07/2003 | MS/HN |
| B | X3 PKG HEIGHT 350um WAS 400um. | 1002 | 03/26/2003 | MS/HN |
| C | REMOVE TITANIUM COATING, ITS DIM'S & NOTE 1; RENUMBER NOTES; DATUM C WAS AT BOTTOM OF SILICON | 1903 | 08/29/2005 | MS/VP |



DIMENSIONS ARE IN MILLIMETERS
DIMENSIONS IN () FOR REFERENCE ONLY

LAND PATTERN RECOMMENDATION




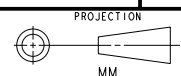
NOTES: UNLESS OTHERWISE SPECIFIED

- FOR SOLDER BUMP COMPOSITION, SEE "SOLDER INFORMATION" IN THE PACKAGING SECTION OF THE NATIONAL SEMICONDUCTOR WEB PAGE (www.national.com).
- RECOMMEND NON-SOLDER MASK DEFINED LANDING PAD.
- PIN A1 IS ESTABLISHED BY LOWER LEFT CORNER WITH RESPECT TO TEXT ORIENTATION.
- XXX IN DRAWING NUMBER REPRESENTS PACKAGE SIZE VARIATION WHERE X1 IS PACKAGE WIDTH, X2 IS PACKAGE LENGTH AND X3 IS PACKAGE HEIGHT (SEE TABLE, SHEET 2).
- REFERENCE JEDEC REGISTRATION MO-211, VARIATION CA.

| | | | | |
|---------------|--------------------|------------|--|--|
| APPROVALS | | DATE | 2900 Semiconductor Dr., Santa Clara, CA 95052-8090 | ULTRA THIN MICRO SMD, 4 BUMP, 0.5mm PITCH |
| DRAWN | MARTA SUCHY | 03/07/2003 | | |
| DFTG. CHK. | THANH LEQUANG | 08/29/2005 | | |
| ENGR. CHK. | VIRAJ PATWARDHAN | 08/29/2005 | | |
| PROJECTION | SCALE | SIZE | DRAWING NUMBER | REV |
| MM | NTS | B | (SC)MKT-UPA04XXX | C |
| FORMERLY: N/A | | | SHEET 1 of 2 | |

| REVISIONS | | | | |
|-------------|-------------|--------|------|----------|
| REV | DESCRIPTION | E.C.N. | DATE | BY/APP'D |
| SEE SHEET 1 | | | | |

| PACKAGE DIMENSIONS | | | | | |
|--------------------|---|---------------|--|---------------|--|
| X1 DESIGNATOR | X1 PACKAGE WIDTH $\pm 30\mu\text{m}$ | X2 DESIGNATOR | X2 PACKAGE LENGTH $\pm 30\mu\text{m}$ | X3 DESIGNATOR | X3 PACKAGE HEIGHT $\pm 45\mu\text{m}$ |
| A | 777 | A | 777 | A | 350 |
| B | 803 | B | 803 | | |
| C | 828 | C | 828 | | |
| D | 853 | D | 853 | | |
| E | 879 | E | 879 | | |
| F | 904 | F | 904 | | |
| G | 930 | G | 930 | | |
| H | 955 | H | 955 | | |
| J | 980 | J | 980 | | |
| K | 1006 | K | 1006 | | |
| L | 1031 | L | 1031 | | |
| M | 1057 | M | 1057 | | |
| N | 1082 | N | 1082 | | |
| P | 1107 | P | 1107 | | |
| Q | 1133 | Q | 1133 | | |
| R | 1158 | R | 1158 | | |
| S | 1184 | S | 1184 | | |
| T | 1209 | T | 1209 | | |
| U | 1234 | U | 1234 | | |
| V | 1260 | V | 1260 | | |
| W | 1285 | W | 1285 | | |
| X | 1311 | X | 1311 | | |
| Y | 1336 | Y | 1336 | | |
| 2 | 1361 | 2 | 1361 | | |
| 3 | 1387 | 3 | 1387 | | |
| 4 | 1412 | 4 | 1412 | | |
| 5 | 1438 | 5 | 1438 | | |
| 6 | 1463 | 6 | 1463 | | |

| | | | | | |
|---|--------------------|--------------|---|--|-----|
| APPROVALS | | DATE |  2900 Semiconductor Dr., Santa Clara, CA 95052-8090 | ULTRA THIN MICRO SMD, 4 BUMP, 0.5mm PITCH | |
| DRAWN | MARTA SUCHY | 03/07/2003 | | | |
| DFTG. CHK. | THANH LEQUANG | 08/29/2005 | | | |
| ENGR. CHK. | VIRAJ PATWARDHAN | 08/29/2005 | | | |
|  PROJECTION MM | | SCALE | SIZE | DRAWING NUMBER | REV |
| | | NTS | B | (SC)MKT-UPA04XXX | C |
| FORMERLY: N/A | | SHEET 2 of 2 | | | |