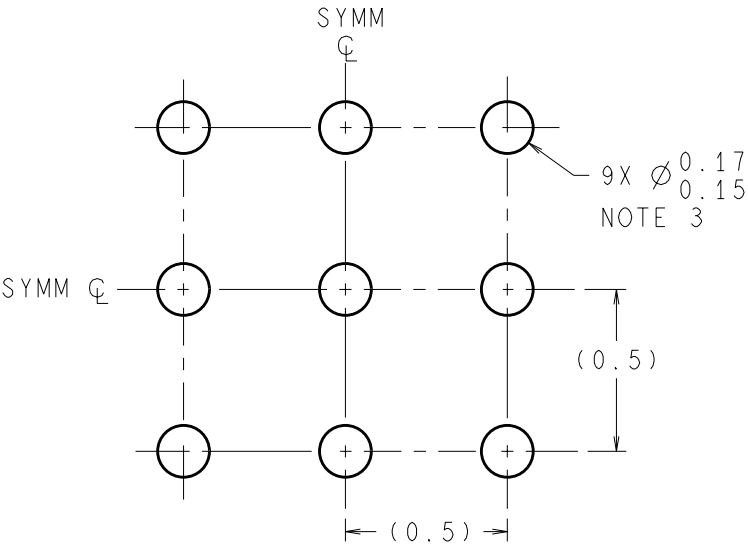
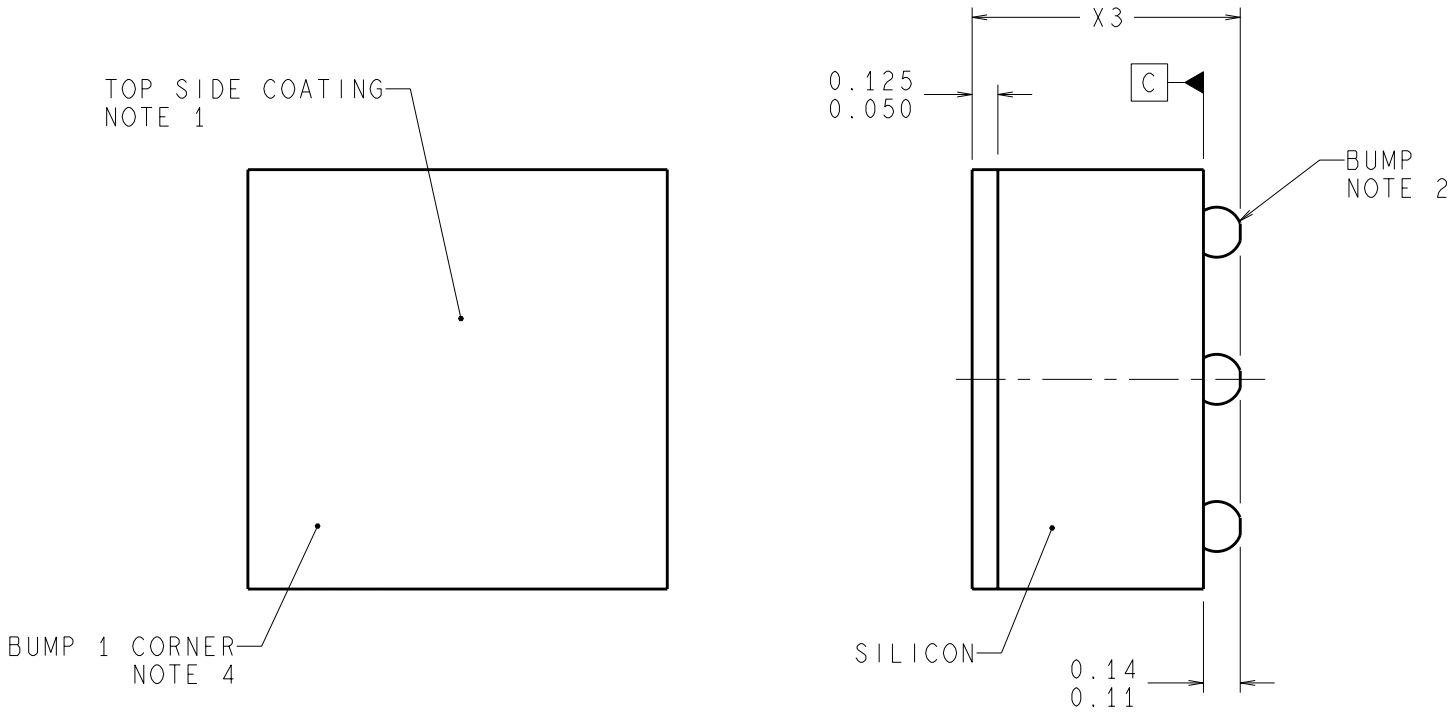
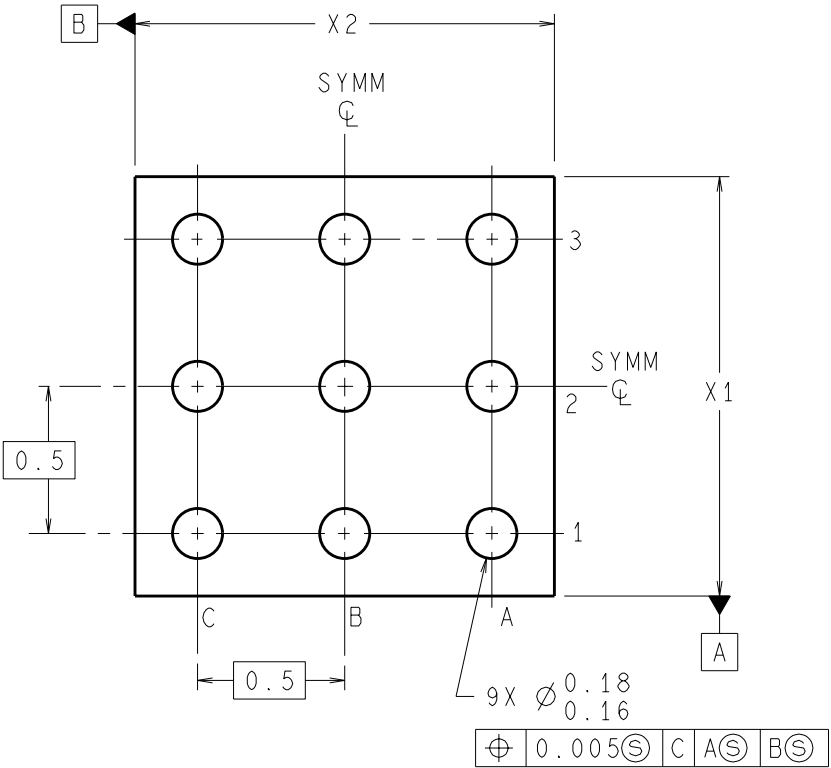




LAND PATTERN RECOMMENDATION



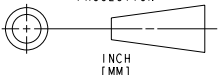
| REVISIONS |                                                                                  |        |            |          |
|-----------|----------------------------------------------------------------------------------|--------|------------|----------|
| LTR       | DESCRIPTION                                                                      | E.C.N. | DATE       | BY/APP'D |
| A         | RELEASE TO DOCUMENT CONTROL                                                      | 120    | 05/31/2000 | MS/VA    |
| B         | DIM 0.125/0.05 WAS 0.06/0.04; FLATTEN BUMP HEIGHT BY 0.005mm; X3 TOL 100 WAS 50. | 175    | 10/04/2000 | MS/VA    |
| C         | CHANGE BUMPS NUMBERING ORDER PER JEDEC.                                          | 525    | 01/22/2002 | MS/VP    |



NOTES: UNLESS OTHERWISE SPECIFIED

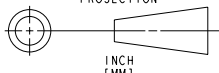
- EPOXY COATING.
- 63 Sn / 37 Pb EUTECTIC BUMP.
- RECOMMEND NON-SOLDER MASK DEFINED LANDING PAD.
- PIN 1 IS ESTABLISHED BY LOWER LEFT CORNER WITH RESPECT TO TEXT ORIENTATION. REMAINING PINS ARE NUMBERED COUNTERCLOCKWISE.
- XXX IN DRAWING NUMBER REPRESENTS PACKAGE SIZE VARIATION WHERE X1 IS PACKAGE WIDTH, X2 IS PACKAGE LENGTH AND X3 IS PACKAGE HEIGHT (SEE TABLE, SHEET 2).  
EXAMPLE: BPA09EFB HAS WIDTH=1387, LENGTH=1412, HEIGHT=850
- REFERENCE JEDEC REGISTRATION MO-211, VARIATION BC.

DIMENSIONS ARE IN MILLIMETERS

| APPROVALS                                                                             |                    | DATE  |            |  <i>National Semiconductor</i><br>2900 Semiconductor Dr., Santa Clara, CA 95052-8090 |     |
|---------------------------------------------------------------------------------------|--------------------|-------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| DRAWN                                                                                 | <b>MARTA SUCHY</b> |       | 05/31/2000 |                                                                                                                                                                           |     |
| DFTG. CHK.                                                                            | THANH LEQUANG      |       | 01/22/2002 | <b>MICRO SMD, 9 BUMP,<br/>0.5mm PITCH</b>                                                                                                                                 |     |
| ENGR. CHK.                                                                            | VIRAJ PATWARDHAN   |       | 01/22/2002 |                                                                                                                                                                           |     |
|  |                    | SCALE | SIZE       | DRAWING NUMBER                                                                                                                                                            | REV |
|                                                                                       |                    | N/A   | C          | (SC)MKT-BPA09XXX                                                                                                                                                          | C   |
| DO NOT SCALE DRAWING                                                                  |                    |       |            | SHEET 1 of 2                                                                                                                                                              |     |

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

| PACKAGE DIMENSIONS |                                             |               |                                              |               |                                               |
|--------------------|---------------------------------------------|---------------|----------------------------------------------|---------------|-----------------------------------------------|
| X1 DESIGNATOR      | X1 PACKAGE WIDTH<br>( $\pm 30\mu\text{m}$ ) | X2 DESIGNATOR | X2 PACKAGE LENGTH<br>( $\pm 30\mu\text{m}$ ) | X3 DESIGNATOR | X3 PACKAGE HEIGHT<br>( $\pm 100\mu\text{m}$ ) |
| A                  | 1285                                        | A             | 1285                                         | A             | 700                                           |
| B                  | 1311                                        | B             | 1311                                         | B             | 850                                           |
| C                  | 1336                                        | C             | 1336                                         | C             | 900                                           |
| D                  | 1361                                        | D             | 1361                                         |               |                                               |
| E                  | 1387                                        | E             | 1387                                         |               |                                               |
| F                  | 1412                                        | F             | 1412                                         |               |                                               |
| G                  | 1438                                        | G             | 1438                                         |               |                                               |
| H                  | 1463                                        | H             | 1463                                         |               |                                               |
| J                  | 1488                                        | J             | 1488                                         |               |                                               |
| K                  | 1514                                        | K             | 1514                                         |               |                                               |
| L                  | 1539                                        | L             | 1539                                         |               |                                               |
| M                  | 1565                                        | M             | 1565                                         |               |                                               |
| N                  | 1590                                        | N             | 1590                                         |               |                                               |
| P                  | 1615                                        | P             | 1615                                         |               |                                               |
| Q                  | 1641                                        | Q             | 1641                                         |               |                                               |
| R                  | 1666                                        | R             | 1666                                         |               |                                               |
| S                  | 1692                                        | S             | 1692                                         |               |                                               |
| T                  | 1717                                        | T             | 1717                                         |               |                                               |
| U                  | 1742                                        | U             | 1742                                         |               |                                               |
| V                  | 1768                                        | V             | 1768                                         |               |                                               |
| W                  | 1793                                        | W             | 1793                                         |               |                                               |
| X                  | 1819                                        | X             | 1819                                         |               |                                               |
| Y                  | 1844                                        | Y             | 1844                                         |               |                                               |
| 2                  | 1869                                        | 2             | 1869                                         |               |                                               |
| 3                  | 1895                                        | 3             | 1895                                         |               |                                               |
| 4                  | 1920                                        | 4             | 1920                                         |               |                                               |
| 5                  | 1946                                        | 5             | 1946                                         |               |                                               |
| 6                  | 1971                                        | 6             | 1971                                         |               |                                               |

|                                                                                                                                              |  |            |  |                                                                                                                                                                                       |                  |                                           |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------|-----------------|
| APPROVALS                                                                                                                                    |  | DATE       |  | <div> <i>National Semiconductor</i><br/>2900 Semiconductor Dr., Santa Clara, CA 95052-8090</div> |                  |                                           |                 |
| DRAWN<br><b>MARTA SUCHY</b>                                                                                                                  |  | 05/31/2000 |  |                                                                                                                                                                                       |                  |                                           |                 |
| DFTG. CHK.<br><b>THANH LEQUANG</b>                                                                                                           |  | 01/22/2002 |  |                                                                                                                                                                                       |                  |                                           |                 |
| ENGR. CHK.<br><b>VIRAJ PATWARDHAN</b>                                                                                                        |  | 01/22/2002 |  |                                                                                                                                                                                       |                  |                                           |                 |
|                                                                                                                                              |  |            |  | <div>MICRO SMD, 9 BUMP,<br/>0.5mm PITCH</div>                                                                                                                                         |                  |                                           |                 |
|                                                                                                                                              |  |            |  |                                                                                                                                                                                       |                  |                                           |                 |
|                                                                                                                                              |  |            |  |                                                                                                                                                                                       |                  |                                           |                 |
| <div><div><br/>PROJECTION<br/>INCH<br/>[MM]</div></div> |  |            |  | SCALE<br><b>N/A</b>                                                                                                                                                                   | SIZE<br><b>C</b> | DRAWING NUMBER<br><b>(SC)MKT-BPA09XXX</b> | REV<br><b>C</b> |
|                                                                                                                                              |  |            |  | DO NOT SCALE DRAWING                                                                                                                                                                  |                  | SHEET 2 of 2                              |                 |