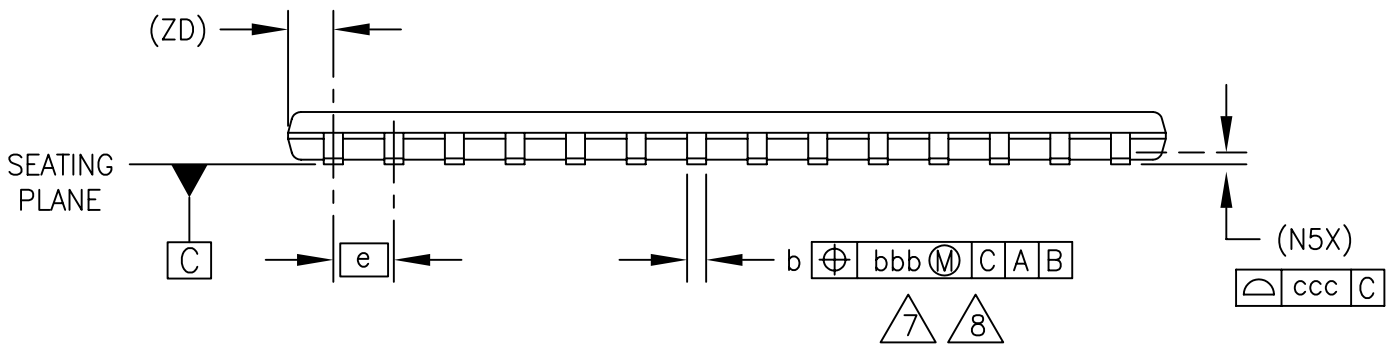
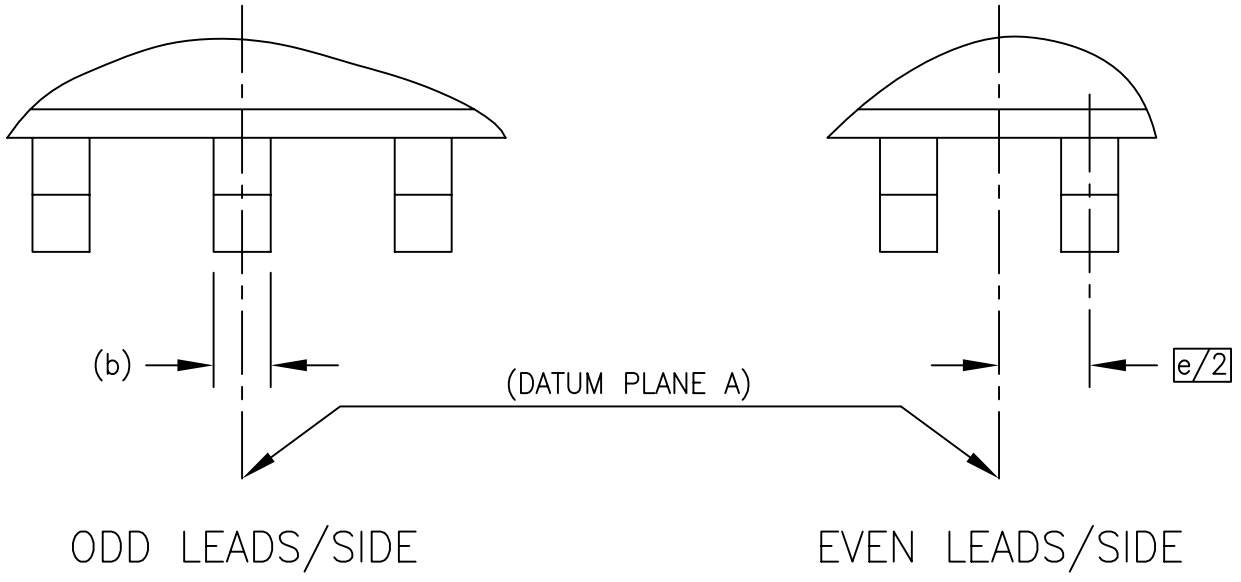
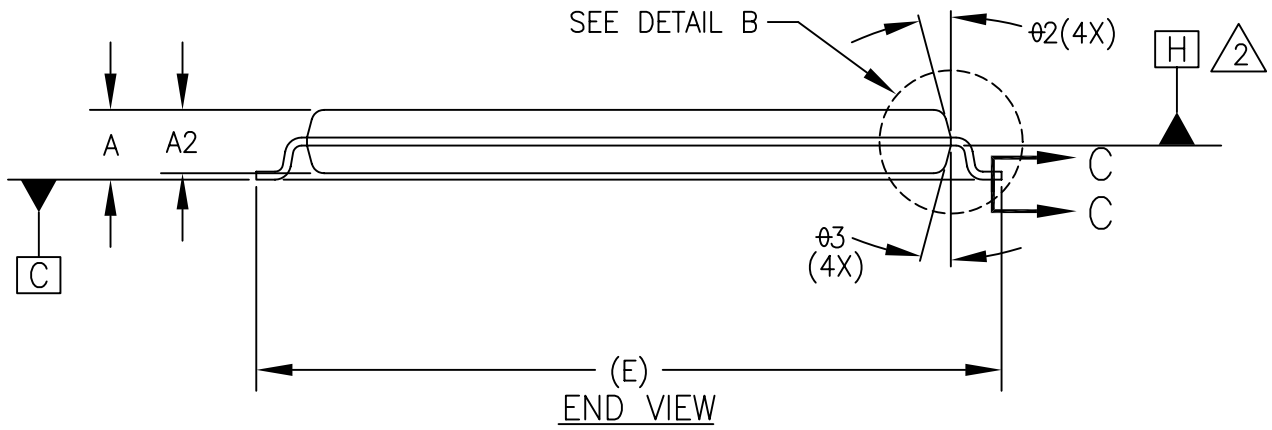


TOP VIEW

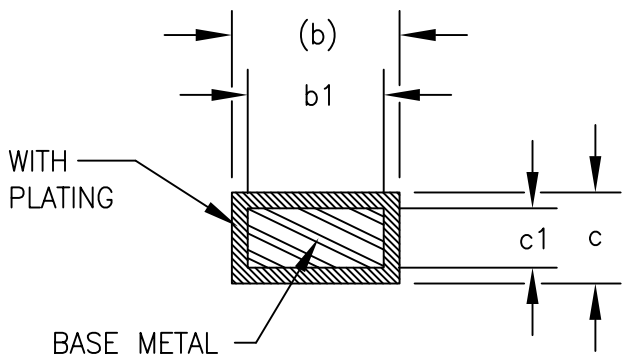


SIDE VIEW

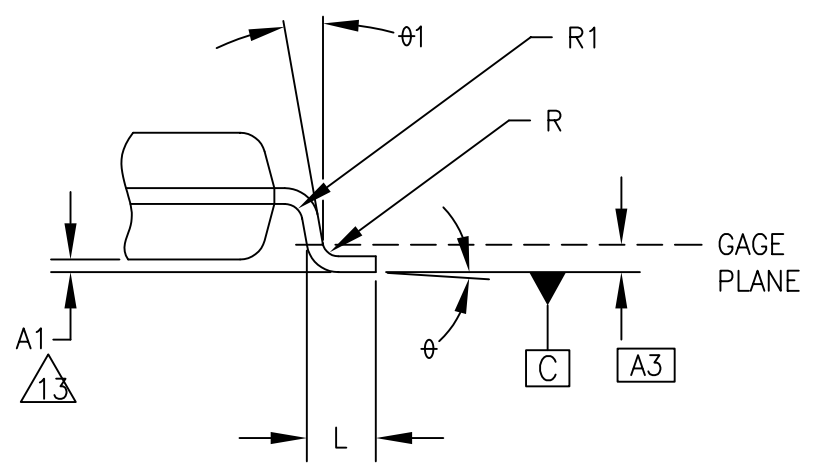
|  |  |             |                   |        |                 |
|--|--|-------------|-------------------|--------|-----------------|
| JEDEC<br>SOLID STATE PRODUCT<br>OUTLINES                     | THIS STANDARD OUTLINE HAS BEEN PREPARED BY JEDEC JC-11 COMMITTEE<br>AND APPROVED BY THE JEDEC COUNCIL AND REFLECTS A PRODUCT WITH WIDE<br>ACCEPTANCE IN ELECTRONICS INDUSTRY; CHANGES ARE NOT LIKELY TO OCCUR. |             |                   |        |                 |
| TITLE: THIN SMALL OUTLINE<br>PACKAGE<br>10.16 mm BODY FAMILY | R-PDSO-G/TSOPII  | ISSUE:<br>H | DATE:<br>Jun 2006 | MS-024 | PAGE:<br>1 OF 7 |



DETAIL A

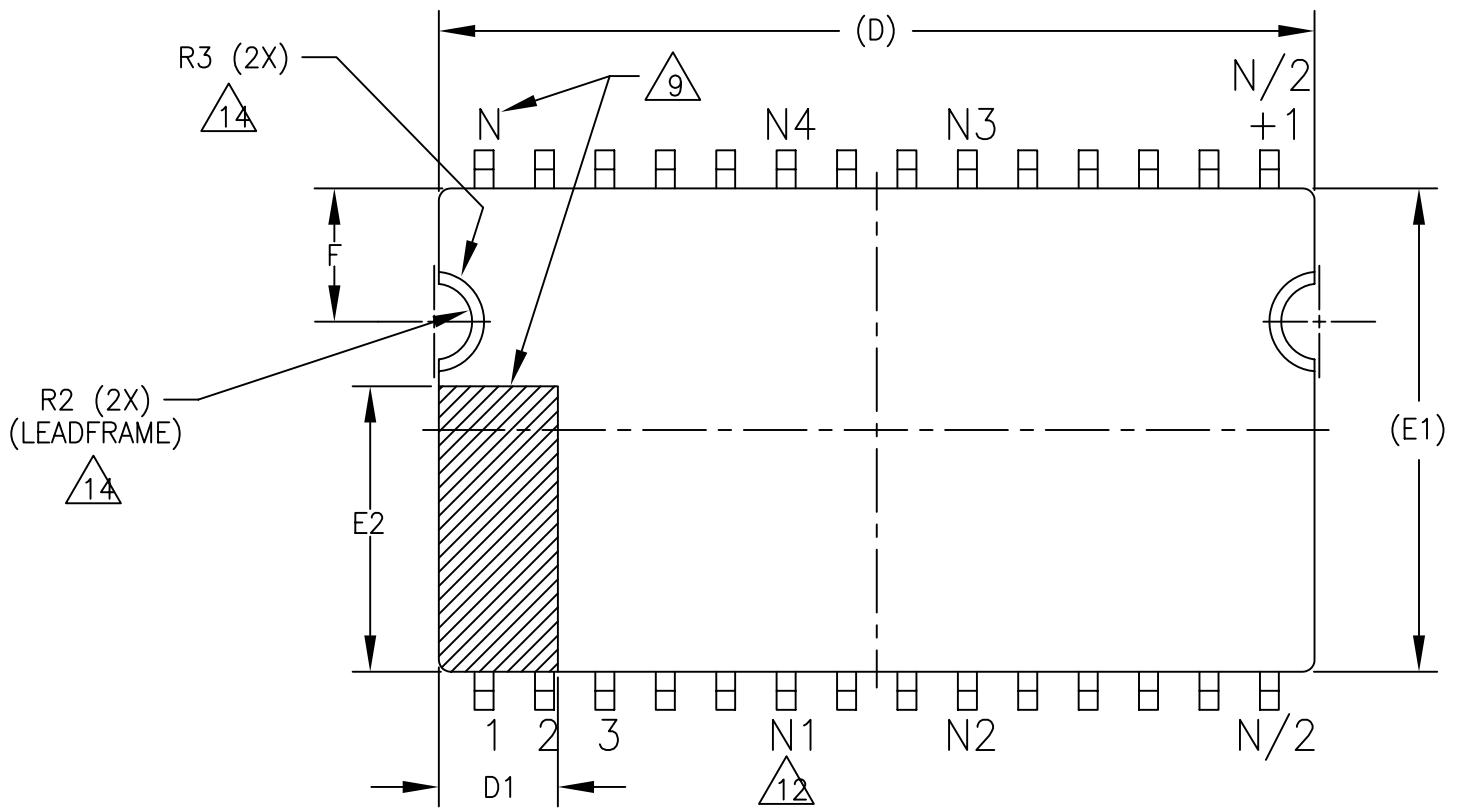


SECTION C-C



DETAIL B

## LEAD NUMBERING – STANDARD LEAD FUNCTION



## LEAD NUMBERING – MIRROR IMAGE LEAD FUNCTION

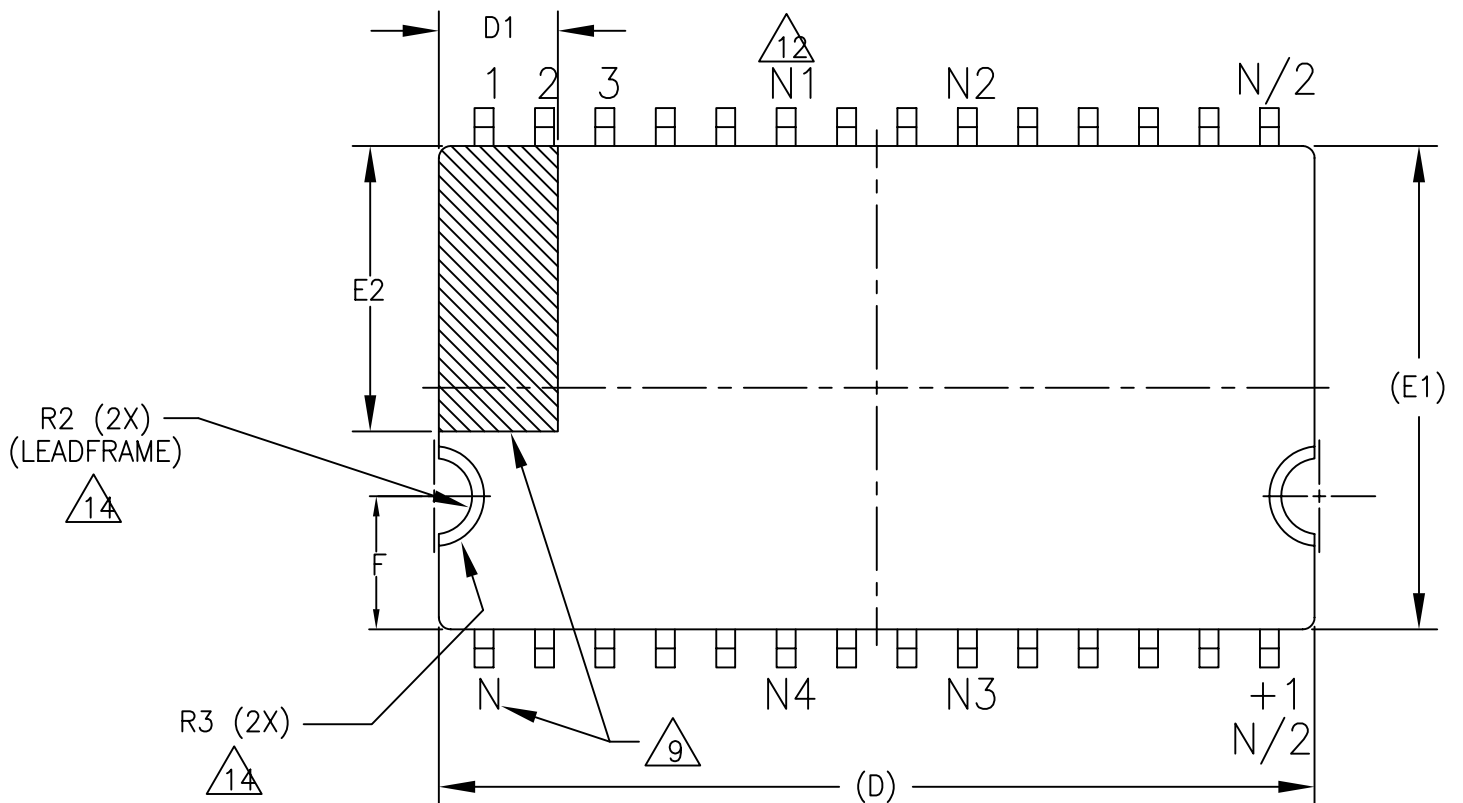


TABLE 1

| SYMBOL                         | COMMON DIMENSIONS<br>ALL DIMENSIONS IN MILLIMETERS |      |      | NOTE |
|--------------------------------|--|------|------|------|
|                                | MIN  | NOM  | MAX  |      |
| A                              | ----   | ---- | 1.20 |      |
| A1                             | 0.05   | ---- | 0.15 | 13   |
| A2                             | 0.95   | 1.00 | 1.05 |      |
| A3                             | 0.25 BSC   |      |      |      |
| c                              | 0.10   | ---- | 0.21 | 7    |
| c1                             | 0.10   | ---- | 0.16 | 7    |
| D1                             | ----   | ---- | 2.50 | 9    |
| E                              | 11.76 BSC  |      |      | 3    |
| E1                             | 10.16 BSC  |      |      | 6    |
| E2                             | ----   | ---- | 6.00 | 9    |
| F                              | 2.60   | 2.80 | 3.00 | 14   |
| L                              | 0.40   | 0.50 | 0.60 |      |
| R                              | 0.12   | ---- | 0.35 |      |
| R1                             | 0.12   | ---- | ---- |      |
| R2                             | 0.69   | 0.74 | 0.80 | 14   |
| R3                             | ----   | ---- | 1.05 | 14   |
| θ                              | 0°   | ---- | 8°   |      |
| θ1                             | 0°   | ---- | ---- |      |
| θ2                             | 10°  | 15°  | 20°  |      |
| θ3                             | 10°  | 15°  | 20°  |      |
| TOLERANCE OF FORM AND POSITION |  |      |      |      |
| aaa                            | 0.13   |      |      |      |
| ddd                            | 0.20   |      |      |      |
| NOTE                           | 1, 5   |      |      |      |
| REF                            | 11.11-753S   |      |      |      |
| ISSUE                          | H  |      |      |      |

TABLE 2

| VARIATIONS<br>ALL DIMENSIONS IN MILLIMETERS |            |  |            |             |                   |            |                 |      |
|---|------------|--|------------|-------------|-------------------|------------|-----------------|------|
| VARIATION SYMBOL                            | AA         | AB   | AC         | BA          | BB                | BC         | NOTE            |      |
| b   | MIN        | 0.30   | 0.30       | 0.30        | 0.30              | 0.30       | 7, 8            |      |
|   | NOM        | ----   | ----       | ----        | ----              | ----       |                 |      |
|   | MAX        | 0.52   | 0.52       | 0.45        | 0.52              | 0.45       |                 | 0.45 |
| b1  | MIN        | 0.30   | 0.30       | 0.30        | 0.30              | 0.30       | 7               |      |
|   | NOM        | 0.40   | 0.40       | 0.35        | 0.40              | 0.35       |                 | 0.35 |
|   | MAX        | 0.45   | 0.45       | 0.40        | 0.45              | 0.40       |                 | 0.40 |
| D   | 18.41 BSC  | 18.41 BSC  | 18.41 BSC  | 20.95 BSC   | 20.95 BSC         | 20.95 BSC  | 6               |      |
| ZD  | 0.95 REF.  | 0.95 REF.  | 0.805 REF. | 0.95 REF.   | 0.875 REF.        | 0.875 REF. |                 |      |
| e   | 1.27 BSC   | 1.27 BSC   | 0.80 BSC   | 1.27 BSC    | 0.80 BSC          | 0.80 BSC   |                 |      |
| N   | 28         | 28   | 44         | 32          | 50                | 50         | 11              |      |
| N1  | ----       | 6  | 10         | ----        | 11                | ----       | 12              |      |
| N2  | ----       | 9  | 13         | ----        | 15                | ----       | 12              |      |
| N3  | ----       | 20   | 32         | ----        | 36                | ----       | 12              |      |
| N4  | ----       | 23   | 35         | ----        | 40                | ----       | 12              |      |
| N5  | 28         | 24   | 40         | 32          | 44                | 50         | 12              |      |
| TOLERANCE OF FORM AND POSITION              |            |  |            |             |                   |            |                 |      |
| bbb   | 0.20       | 0.20   | 0.20       | 0.20        | 0.20              | 0.20       |                 |      |
| ccc   | 0.10       | 0.10   | 0.10       | 0.10        | 0.10              | 0.10       |                 |      |
| NOTE  | 1, 5       |  |            |             |                   |            |                 |      |
| REF.  | 11.11-753S |  |            |             |                   |            |                 |      |
| ISSUE                                       | H          |  |            |             |                   |            |                 |      |
| JEDEC<br>SOLID STATE PRODUCT<br>OUTLINES    |            | TITLE: THIN SMALL OUTLINE<br>PACKAGE<br>10.16 mm BODY FAMILY |            | ISSUE:<br>H | DATE:<br>Jun 2006 | MS-024     | PAGE:<br>4 OF 7 |      |

TABLE 2 CONTINUED

VARIATIONS  
ALL DIMENSIONS IN MILLIMETERS

| VARIATION SYMBOL               | BD         | CA        | CB         | DA        | EA         | FA        | NOTE |      |
|--------------------------------|------------|-----------|------------|-----------|------------|-----------|------|------|
| b                              | MIN        | 0.17      | 0.30       | 0.22      | 0.30       | 0.30      | 7, 8 |      |
|                                | NOM        | ----      | ----       | ----      | ----       | ----      |      |      |
|                                | MAX        | 0.27      | 0.52       | 0.38      | 0.52       | 0.45      |      | 0.45 |
| b1                             | MIN        | 0.17      | 0.30       | 0.22      | 0.30       | 0.30      | 7    |      |
|                                | NOM        | 0.20      | 0.40       | 0.30      | 0.40       | 0.35      |      | 0.35 |
|                                | MAX        | 0.23      | 0.45       | 0.33      | 0.45       | 0.40      |      | 0.40 |
| $\square$                      | 20.95 BSC  | 23.49 BSC | 23.49 BSC  | 26.03 BSC | 28.57 BSC  | 22.22 BSC | 6    |      |
| ZD                             | 0.725 REF. | 0.95 REF. | 0.695 REF. | 0.95 REF. | 0.685 REF. | 0.71 REF. |      |      |
| $\square$                      | 0.50 BSC   | 1.27 BSC  | 0.65 BSC   | 1.27 BSC  | 0.80 BSC   | 0.80 BSC  |      |      |
| N                              | 80         | 36        | 70         | 40        | 70         | 54        | 11   |      |
| N1                             | ----       | ----      | ----       | ----      | ----       | ----      | 12   |      |
| N2                             | ----       | ----      | ----       | ----      | ----       | ----      | 12   |      |
| N3                             | ----       | ----      | ----       | ----      | ----       | ----      | 12   |      |
| N4                             | ----       | ----      | ----       | ----      | ----       | ----      | 12   |      |
| N5                             | 80         | 36        | 70         | 40        | 70         | 54        | 12   |      |
| TOLERANCE OF FORM AND POSITION |            |           |            |           |            |           |      |      |
| bbb                            | 0.08       | 0.20      | 0.12       | 0.20      | 0.20       | 0.20      |      |      |
| ccc                            | 0.10       | 0.10      | 0.10       | 0.10      | 0.10       | 0.10      |      |      |
| NOTE                           | 1, 5       |           |            |           |            |           |      |      |
| REF.                           | 11.11-753S |           |            |           |            |           |      |      |
| ISSUE                          | H          |           |            |           |            |           |      |      |

VARIATIONS  
ALL DIMENSIONS IN MILLIMETERS

| VARIATION SYMBOL               | FB         | FC        | GA        | XX       | XX       | XX       | NOTE |
|--------------------------------|------------|-----------|-----------|----------|----------|----------|------|
| b                              | MIN        | 0.17      | 0.22      | 0.13     |          |          | 7, 8 |
|                                | NOM        | ----      | ----      | ----     |          |          |      |
|                                | MAX        | 0.27      | 0.38      | 0.23     |          |          |      |
| b1                             | MIN        | 0.17      | 0.22      | 0.13     |          |          | 7    |
|                                | NOM        | 0.20      | 0.30      | 0.16     |          |          |      |
|                                | MAX        | 0.23      | 0.33      | 0.19     |          |          |      |
| $\square$                      | 22.22 BSC  | 22.22 BSC | 11.20 BSC | X.XX BSC | X.XX BSC | X.XX BSC | 6    |
| ZD                             | 0.61 REF.  | 0.71 REF. | 0.40 REF. |          |          |          |      |
| $\square$                      | 0.50 BSC   | 0.65 BSC  | 0.40 BSC  |          |          |          |      |
| N                              | 86         | 66        | 54        |          |          |          | 11   |
| N1                             | ----       | ----      | ----      |          |          |          | 12   |
| N2                             | ----       | ----      | ----      |          |          |          | 12   |
| N3                             | ----       | ----      | ----      |          |          |          | 12   |
| N4                             | ----       | ----      | ----      |          |          |          | 12   |
| N5                             | 86         | 66        | 54        |          |          |          | 12   |
| TOLERANCE OF FORM AND POSITION |            |           |           |          |          |          |      |
| bbb                            | 0.08       | 0.12      | 0.07      |          |          |          |      |
| ccc                            | 0.10       | 0.10      | 0.08      |          |          |          |      |
| NOTE                           | 1, 5       |           |           |          |          |          |      |
| REF.                           | 11.11-753S |           |           |          |          |          |      |
| ISSUE                          | H          |           |           |          |          |          |      |

## NOTES:

- 1 DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5M-1994.  $\theta$  ANGLE ARE IN DEGREES.
- 2 DATUM PLANE H COINCIDENT WITH BOTTOM OF LEAD, WHERE LEAD EXITS BODY.
- 3 TO BE DETERMINED AT SEATING PLANE C.
- 4 DATUMS A AND B TO BE DETERMINED AT DATUM H.
- 5 ALL DIMENSIONS IN MILLIMETERS.
- 6 DIMENSION D AND E1 ARE DETERMINED AT DATUM H. DIMENSION D DOES NOT INCLUDE MOLD PROTRUSIONS OR GATE BURRS. MOLD PROTRUSIONS AND GATE BURRS SHALL NOT EXCEED 0.15 mm PER SIDE. DIMENSION E1 DOES NOT INCLUDE INTERLEAD MOLD PROTRUSIONS. INTERLEAD MOLD PROTRUSIONS SHALL NOT EXCEED 0.25 mm PER SIDE.
- 7 THESE DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10 mm AND 0.25 mm FROM THE LEAD TIP.
- 8 DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION/INTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL NOT CAUSE THE LEAD TO BE WIDER THAN THE MAXIMUM b DIMENSION BY MORE THAN 0.13 mm. DAMBAR INTRUSION SHALL NOT CAUSE THE LEAD TO BE NARROWER THAN THE MINIMUM b DIMENSION BY MORE THAN 0.07 mm.
- 9 THE LEAD #1 IDENTIFIER AND LEAD NUMBERING CONVENTION SHALL CONFORM TO JEP 95, SECTION 3, SPP-012. DETAILS OF LEAD #1 IDENTIFIER ARE OPTIONAL BUT MUST BE LOCATED WITHIN THE ZONE INDICATED. THE LEAD #1 IDENTIFIER MAY BE EITHER A MOLDED OR A MARKED FEATURE.
- 10 EXACT DESIGN OF THIS FEATURE IS OPTIONAL.
- 11 N IS THE MAXIMUM NUMBER OF LEADS.
- 12 FOR LEAD IDENTIFICATION PURPOSES ONLY. LEADS BETWEEN N1 AND N2 AND BETWEEN N3 AND N4 WILL BE OMITTED IF VALUES FOR N1, N2, N3 AND N4 ARE LISTED IN VARIATION TABLE. N5 IS THE ACTUAL LEAD COUNT.
- 13 A1 IS DEFINED AS THE DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.
- 14 THIS ALIGNMENT FEATURE IS OPTIONAL.

|  |  |             |                   |        |                 |
|--|--|-------------|-------------------|--------|-----------------|
| JEDEC<br>SOLID STATE PRODUCT<br>OUTLINES | TITLE: THIN SMALL OUTLINE<br>PACKAGE<br>10.16 mm BODY FAMILY | ISSUE:<br>H | DATE:<br>Jun 2006 | MS-024 | PAGE:<br>6 OF 7 |
|--|--|-------------|-------------------|--------|-----------------|

# Change Record

If the change involves any words added or deleted (excluding deletion of accidentally repeated words), the change is to be included below. Punctuation changes may or may not occur.

| Issue: | Date:         | JC11 Item Number |
|--------|---------------|------------------|
| A      | August 1994   | 11.11-368S       |
| B      | June 1995     | 11.11-398S       |
| C      | January 1996  | 11.11-413S       |
| D      | June 1997     | 11.11-420S       |
| E      | February 1999 | 11.11-502S       |
| F      | December 1999 | 11.11-517S       |
| G      | October 2000  | 11.11-566S       |

## Change Record History

| Issue H                            | Date: June 2006  | Item Number 11.11-753S  |
|------------------------------------|--|---|
| Location                           | Change from:   | Changed to:   |
| Page 4, Table 1, Common Dimensions | C = 0.12 min. --- Nom, 0.21 Max.<br>c1 = 0.12 Min, 0.15 Nom, 0.16 Max. | C = 0.10 min. --- Nom, 0.21 Max.<br>c1 = 0.10 Min, --- Nom, 0.16 Max. |
|                                    |  |   |
|                                    |  |   |
|                                    |  |   |
|                                    |  |   |

| Issue:   | Date:        | Item Number: |
|----------|--------------|--------------|
| Location | Change from: | Changed to:  |
|          |              |              |
|          |              |              |
|          |              |              |
|          |              |              |