

JEDEC
SOLID STATE PRODUCT
OUTLINES

THIS REGISTERED OUTLINE HAS BEEN PREPARED BY THE JEDEC JC-11 COMMITTEE
AND REFLECTS A PRODUCT WITH ANTICIPATED USAGE IN THE ELECTRONICS INDUSTRY;
CHANGES ARE LIKELY TO OCCUR.

TITLE: THIN SMALL OUTLINE
PACKAGE
8.89 mm BODY FAMILY

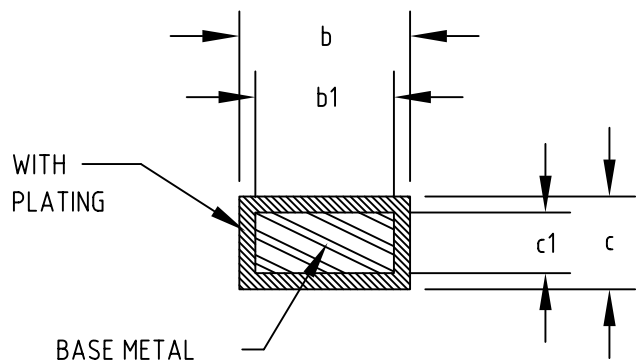
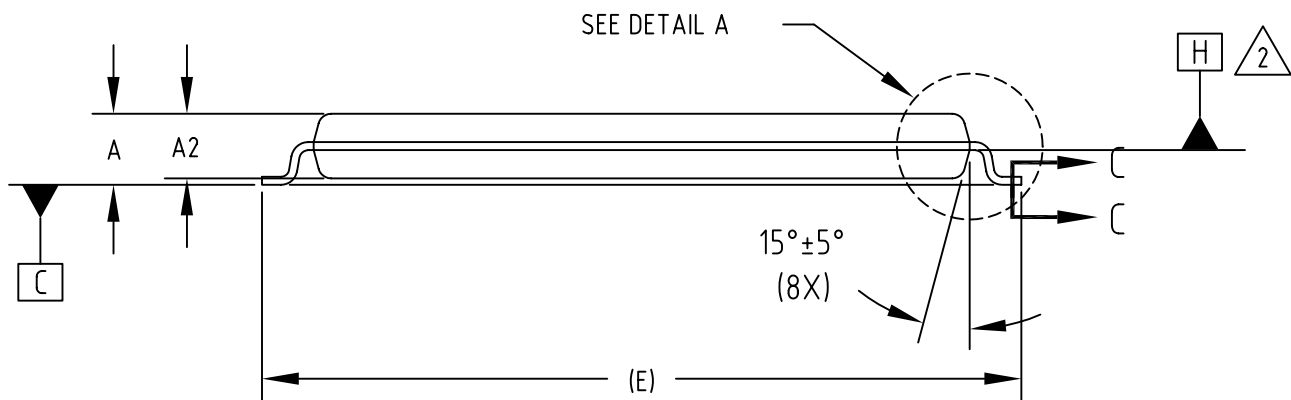
R-PDSO-G/TSOPII

ISSUE:
A

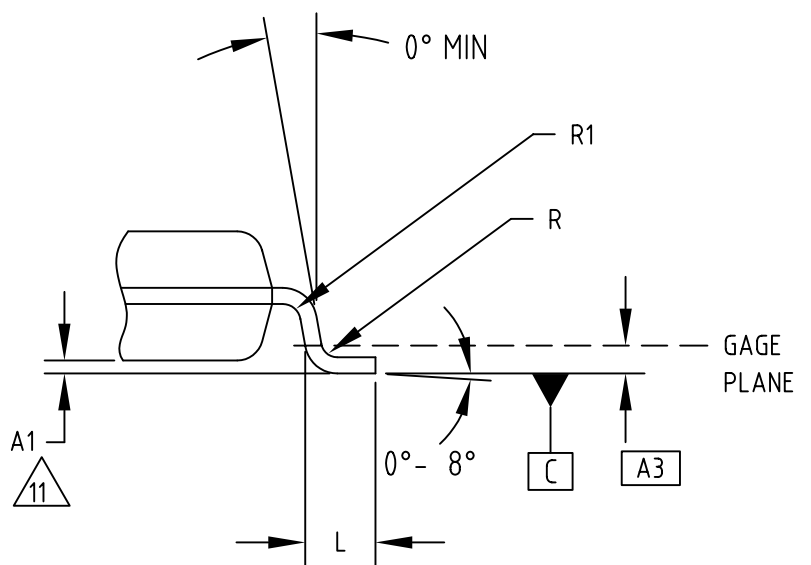
DATE:
JAN 2004

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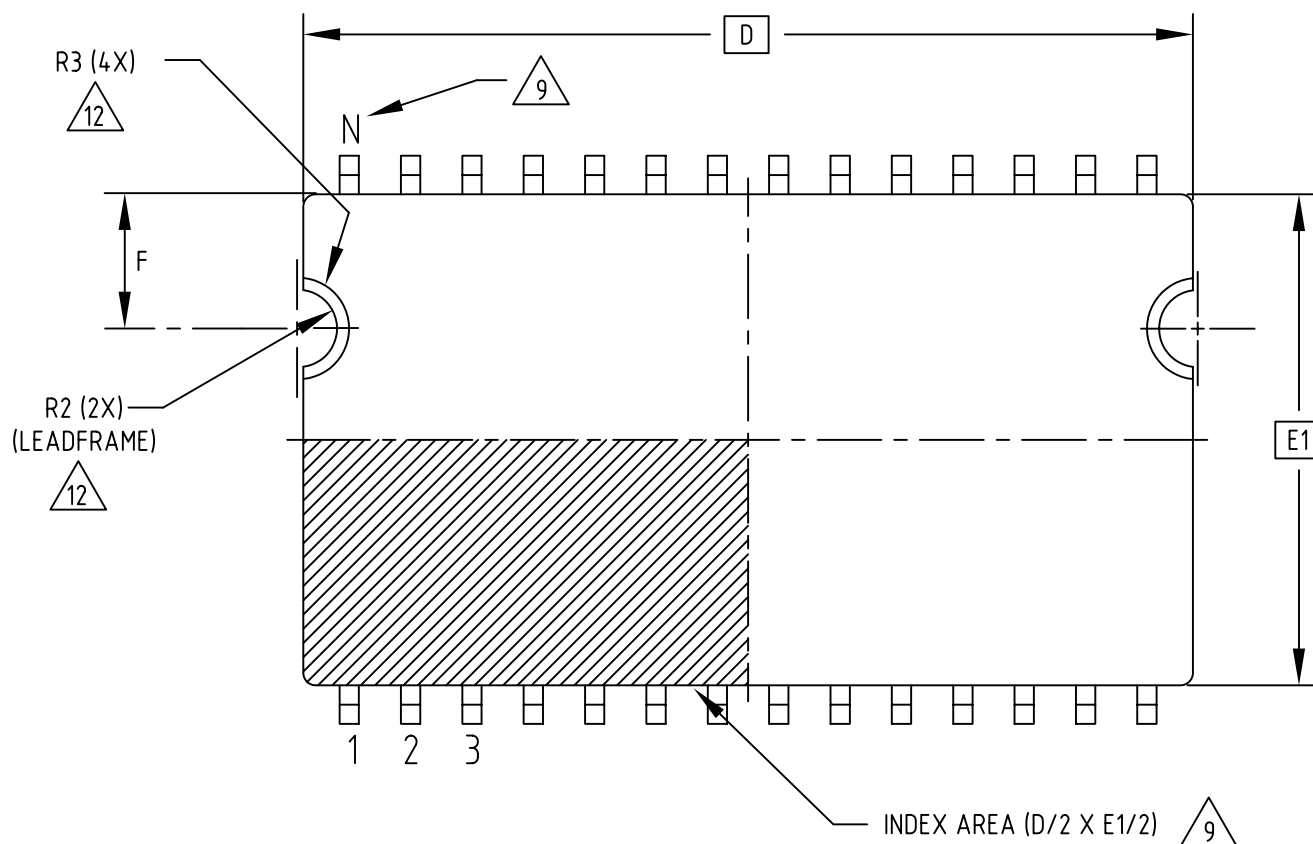


SECTION C-C

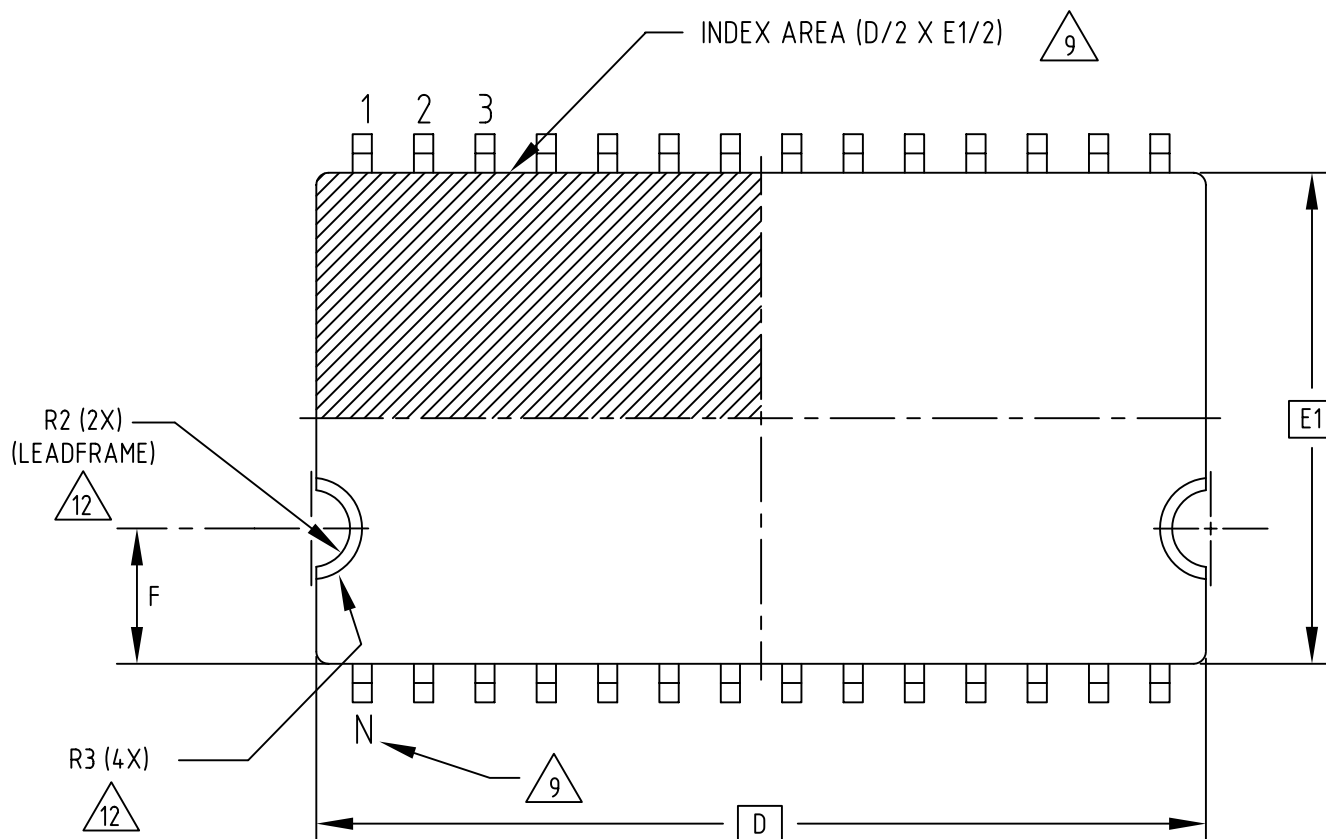


DETAIL A

LEAD NUMBERING - STANDARD LEAD FUNCTION



LEAD NUMBERING - MIRROR IMAGE LEAD FUNCTION



| S Y M B O L | COMMON DIMENSIONS | | | N O T E |
|----------------------------|----------------------------------|-------|-------|------------------|
| | ALL DIMENSIONS IN MILLIMETERS | | | |
| | MIN | NOM | MAX | |
| A | --- | --- | 1.20 | |
| A1 | 0.05 | --- | 0.15 | 11 |
| A2 | 0.95 | 1.00 | 1.05 | |
| A3 | 0.25 BASIC | | | |
| c | 0.105 | --- | 0.2 | 7 |
| c1 | 0.09 | 0.125 | 0.135 | 7 |
| E | 10.49 BASIC | | | 3 |
| E1 | 8.89 BASIC | | | 6 |
| F | 2.60 | 2.80 | 3.00 | |
| L | 0.40 | 0.50 | 0.60 | |
| R | 0.12 | --- | 0.35 | |
| R1 | 0.12 | --- | --- | |
| R2 | 0.69 | 0.74 | 0.80 | 12 |
| R3 | --- | --- | 1.05 | 12 |
| NOTE | 1, 5 | | | |
| REF | | | | |
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| TOLERANCE OF FORM AND POSITION | | |
|--------------------------------|--------|-------|
| SYMBOL | | NOTES |
| ccc | 0.13 | |
| ddd | 0.20 | |
| REF. | 11-668 | |
| NOTES | 1, 2 | |
| ISSUE | A | |

| S Y M B O L | VARIATIONS | | | | | | | | | | | | N O T E |
|--|-------------------------------|------|---|-------------|------|------|-------------|-------------|-------------------|-------------|--------|------|------------------|
| | ALL DIMENSIONS IN MILLIMETERS | | | | | | | | | | | | |
| | AA | | | AB | | | BA | | | BB | | | |
| | MIN | NOM | MAX | MIN | NOM | MAX | MIN | NOM | MAX | MIN | NOM | MAX | |
| b | 0.22 | --- | 0.38 | 0.13 | --- | 0.23 | 0.30 | --- | 0.45 | 0.17 | --- | 0.27 | 7,8 |
| b1 | 0.22 | 0.30 | 0.33 | 0.13 | 0.16 | 0.19 | 0.30 | 0.35 | 0.40 | 0.17 | 0.20 | 0.23 | 7 |
| D | 10.79 BASIC | | | 10.79 BASIC | | | 11.43 BASIC | | | 11.43 BASIC | | | 6 |
| ZD | 0.52 REF | | | 0.40 REF | | | 0.52 REF | | | 0.47REF | | | |
| e | 0.65 BASIC | | | 0.40 BASIC | | | 0.80 BASIC | | | 0.50 BASIC | | | |
| aaa | 0.12 | | | 0.07 | | | 0.20 | | | 0.08 | | | |
| bbb | 0.10 | | | 0.08 | | | 0.10 | | | 0.10 | | | |
| N | 32 | | | 52 | | | 28 | | | 44 | | | 10 |
| REF | 11-668 | | | 11-668 | | | 11-668 | | | 11-668 | | | |
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| | | | | | | | | | | | | | |
| S Y M B O L | VARIATIONS | | | | | | | | | | | | N O T E |
| | ALL DIMENSIONS IN MILLIMETERS | | | | | | | | | | | | |
| | BC | | | CA | | | DA | | | DB | | | |
| | MIN | NOM | MAX | MIN | NOM | MAX | MIN | NOM | MAX | MIN | NOM | MAX | |
| b | 0.13 | --- | 0.23 | 0.22 | --- | 0.38 | 0.30 | --- | 0.45 | 0.22 | --- | 0.38 | 7,8 |
| b1 | 0.13 | 0.16 | 0.19 | 0.22 | 0.30 | 0.33 | 0.30 | 0.35 | 0.40 | 0.22 | 0.30 | 0.33 | 7 |
| D | 11.43 BASIC | | | 12.06 BASIC | | | 13.33 BASIC | | | 13.33 BASIC | | | 6 |
| ZD | 0.32 REF | | | 0.51 REF | | | 0.67 REF | | | 0.49 REF | | | |
| e | 0.40 BASIC | | | 0.65 BASIC | | | 0.80 BASIC | | | 0.65 BASIC | | | |
| aaa | 0.07 | | | 0.12 | | | 0.20 | | | 0.12 | | | |
| bbb | 0.08 | | | 0.10 | | | 0.10 | | | 0.10 | | | |
| N | 56 | | | 36 | | | 32 | | | 40 | | | 10 |
| REF | 11-668 | | | 11-668 | | | 11-668 | | | 11-668 | | | |
| ISSUE | A | | | A | | | A | | | A | | | |
| | | | | | | | | | | | | | |
| S Y M B O L | VARIATIONS | | | | | | | | | | | | N O T E |
| | ALL DIMENSIONS IN MILLIMETERS | | | | | | | | | | | | |
| | DC | | | DD | | | EA | | | | | | |
| | MIN | NOM | MAX | MIN | NOM | MAX | MIN | NOM | MAX | MIN | NOM | MAX | |
| b | 0.17 | --- | 0.27 | 0.13 | --- | 0.23 | 0.13 | --- | 0.23 | | | | 7,8 |
| b1 | 0.17 | 0.20 | 0.23 | 0.13 | 0.16 | 0.19 | 0.13 | 0.16 | 0.19 | | | | 7 |
| D | 13.33 BASIC | | | 13.33 BASIC | | | 13.97 BASIC | | | | | | 6 |
| ZD | 0.42 REF | | | 0.47 REF | | | 0.39 REF | | | | | | |
| e | 0.50 BASIC | | | 0.40 BASIC | | | 0.40 BASIC | | | | | | |
| aaa | 0.08 | | | 0.07 | | | 0.07 | | | | | | |
| bbb | 0.10 | | | 0.08 | | | 0.08 | | | | | | |
| N | 52 | | | 64 | | | 68 | | | | | | 10 |
| REF | 11-668 | | | 11-668 | | | 11-668 | | | | | | |
| ISSUE | A | | | A | | | A | | | | | | |
| JEDEC SOLID STATE PRODUCT OUTLINES | | | TITLE: THIN SMALL OUTLINE PACKAGE 8.89 mm BODY FAMILY | | | | | ISSUE: A | DATE: JAN 2004 | | MO-249 | | PAGE: 5 OF 6 |

NOTES:

1 DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5M-1994.



DATUM PLANE H COINCIDENT WITH BOTTOM OF LEAD,
WHERE LEAD EXITS BODY.



TO BE DETERMINED AT SEATING PLANE C.



DATUMS A AND B TO BE DETERMINED AT DATUM H.

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ALL DIMENSIONS IN MILLIMETERS.



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.



THESE DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD
BETWEEN 0.10 mm AND 0.25 mm FROM THE LEAD TIP.



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.



THE LEAD #1 IDENTIFIER AND LEAD NUMBERING CONVENTION SHALL CONFORM TO
JESD 95-1 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

N IS THE MAXIMUM NUMBER OF LEADS.



A1 IS DEFINED AS THE DISTANCE FROM THE SEATING PLANE
TO THE LOWEST POINT ON THE PACKAGE BODY.



THIS ALIGNMENT FEATURE IS OPTIONAL.



EXACT DESIGN OF THIS FEATURE IS OPTIONAL.