

STANDARD PROCEDURES AND PRACTICES

NUMBER: **SPP-022, Issue B**

SUBJECT: **Package Thermal Pad Requirements**

EFFECTIVE DATE: **MARCH 2006**

ITEM NUMBER: **11.02-748S**

BACKGROUND:

The JC-11 Committee has recognized the need to provide direction for future variations that would have thermal pads.

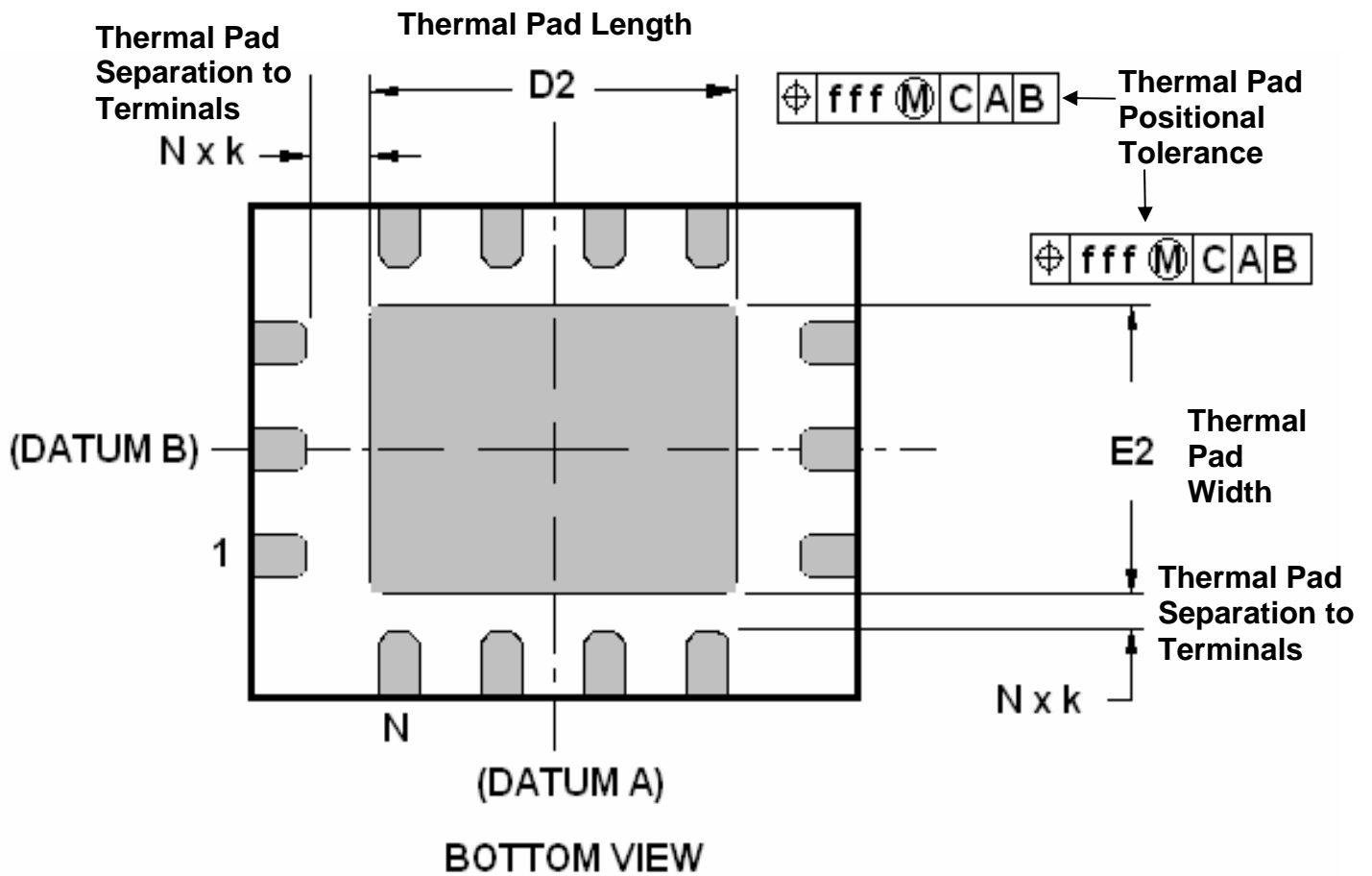
PRACTICE:

All future JEDEC package outlines and new variations to present JEDEC package outlines with thermal pads shall follow this SPP unless a design guide for a package family addresses this concern.

Thermal pad variations to be interchangeable at the assembly level must meet the following requirements:

1. The thermal pad must have a minimum separation of 0.20 mm from its edge to any package terminal as shown in the QFN figure as dimension k.
2. The thermal pad must have a positional tolerance defined as shown in the QFN figure as dimension fff and referenced to the package datum's. Typical values for these positional tolerances are: 0.10 mm for QFN/SON, and 0.15 mm for peripheral leaded packages.
3. The dimensional tolerance of the thermal pad should not exceed $\pm 15\%$ nor be greater than ± 0.50 mm of the nominal value for pads to be soldered directly to the board. If the thermal pads are not to be soldered to the board, then the tolerance limits do not apply. The thermal pad minimum dimension shall not be any less than 25% of the smallest nominal body length / width nor be smaller than 0.40 mm. The pads dimensions D2 and E2 are shown in the example of a QFN Package with a thermal pad.
4. The coplanarity zone applies to the exposed thermal pad as well as the package terminals only when both features are designed to be coplanar.
5. These requirements apply to any solid or segmented thermal features.

The figure shown in the standard is a QFN but these requirements apply to all package configurations where they have array or peripheral terminals.



**Example of a QFN Package
with a Thermal Pad**

Change Record

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

Initial Issue: A	Date: October 2005	Item: 11.02-729S
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Revision History

Issue: B	Date: March 2006	Item: 11.02-748S
Location	Changed from:	Changed to:
Page 1, Clause 4	The coplanarity zone applies to the exposed thermal pad as well as the package terminals.	The coplanarity zone applies to the exposed thermal pad as well as the package terminals only when both features are designed to be coplanar.

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