This device is designed specifically to power IMVP Mobile Processors under a strict disclosure agreement with Intel. The end user must have a current *CNDA* Agreement in place with Intel. For more information please contact IMVP@list.ti.com.

PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package | Pins	Package qty | Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
TPS51640ARSLR	Active	Production	VQFN (RSL) | 48	2500 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-10 to 105	TPS 51640A
TPS51640ARSLR.A	Active	Production	VQFN (RSL) | 48	2500 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-10 to 105	TPS 51640A
TPS51640ARSLR.B	Active	Production	VQFN (RSL) | 48	2500 | LARGE T&R	-	NIPDAU	Level-1-260C-UNLIM	-10 to 105	TPS 51640A
TPS51640ARSLT	Active	Production	VQFN (RSL) | 48	250 | SMALL T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-10 to 105	TPS 51640A
TPS51640ARSLT.A	Active	Production	VQFN (RSL) | 48	250 | SMALL T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-10 to 105	TPS 51640A
TPS59640RSLR	Active	Production	VQFN (RSL) | 48	2500 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59640
TPS59640RSLR.A	Active	Production	VQFN (RSL) | 48	2500 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59640
TPS59640RSLT	Active	Production	VQFN (RSL) | 48	250 | SMALL T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59640
TPS59640RSLT.A	Active	Production	VQFN (RSL) | 48	250 | SMALL T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59640
TPS59641RSLR	Active	Production	VQFN (RSL) | 48	2500 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59641
TPS59641RSLR.A	Active	Production	VQFN (RSL) | 48	2500 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59641
TPS59641RSLR.B	Active	Production	VQFN (RSL) | 48	2500 | LARGE T&R	-	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59641
TPS59641RSLRG4	Active	Production	VQFN (RSL) | 48	2500 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59641
TPS59641RSLRG4.A	Active	Production	VQFN (RSL) | 48	2500 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59641
TPS59641RSLT	Active	Production	VQFN (RSL) | 48	250 | SMALL T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59641
TPS59641RSLT.A	Active	Production	VQFN (RSL) | 48	250 | SMALL T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59641

Orderable part number	Status (1)	Material type (2)	Package | Pins	Package qty | Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
TPS59641RSLT.B	Active	Production	VQFN (RSL) | 48	250 | SMALL T&R	-	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 59641

(1) **Status:** For more details on status, see our product life cycle.

(2) **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

(3) **RoHS values:** Yes, No, RoHS Exempt. See the TI RoHS Statement for additional information and value definition.

(4) **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

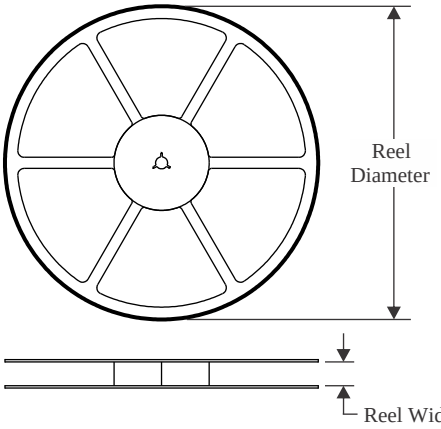
(5) **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

(6) **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

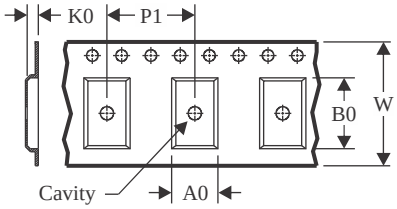
Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

TAPE AND REEL INFORMATION

REEL DIMENSIONS

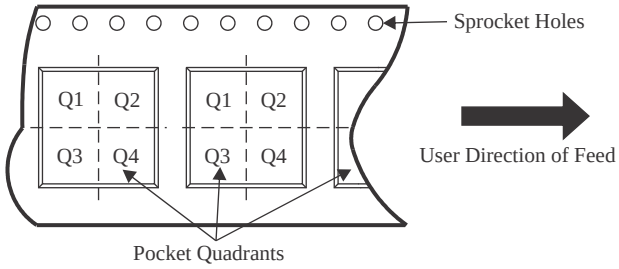


TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

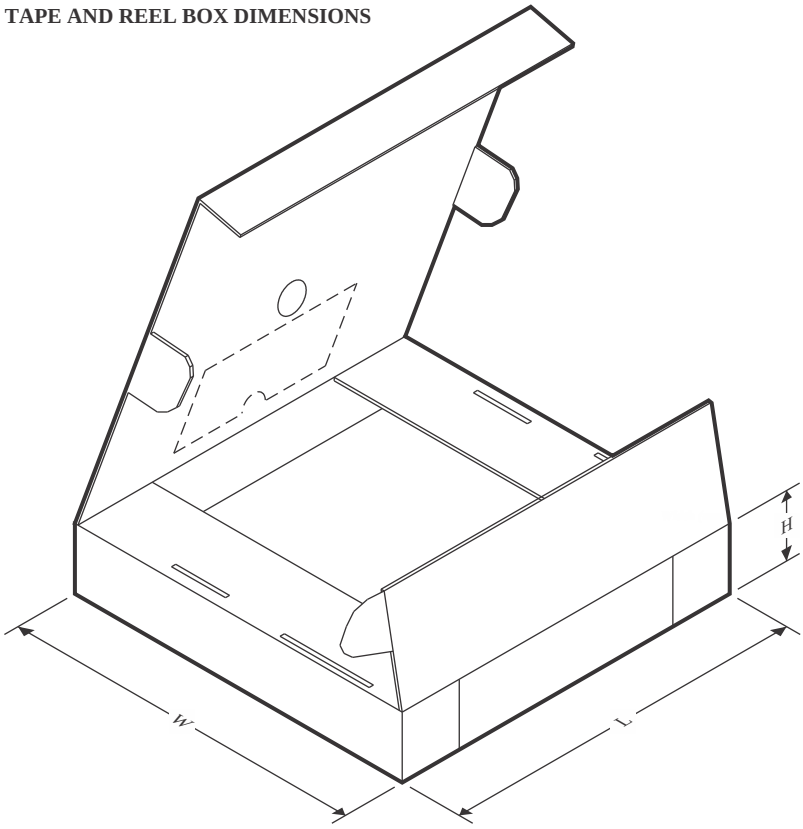
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
TPS51640ARSLR	VQFN	RSL	48	2500	330.0	16.4	6.3	6.3	1.1	12.0	16.0	Q2
TPS51640ARSLT	VQFN	RSL	48	250	180.0	16.4	6.3	6.3	1.1	12.0	16.0	Q2
TPS59640RSLR	VQFN	RSL	48	2500	330.0	16.4	6.3	6.3	1.1	12.0	16.0	Q2
TPS59640RSLT	VQFN	RSL	48	250	180.0	16.4	6.3	6.3	1.1	12.0	16.0	Q2
TPS59641RSLR	VQFN	RSL	48	2500	330.0	16.4	6.3	6.3	1.1	12.0	16.0	Q2
TPS59641RSLRG4	VQFN	RSL	48	2500	330.0	16.4	6.3	6.3	1.1	12.0	16.0	Q2
TPS59641RSLT	VQFN	RSL	48	250	180.0	16.4	6.3	6.3	1.1	12.0	16.0	Q2

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
TPS51640ARSLR	VQFN	RSL	48	2500	367.0	367.0	38.0
TPS51640ARSLT	VQFN	RSL	48	250	182.0	182.0	20.0
TPS59640RSLR	VQFN	RSL	48	2500	367.0	367.0	38.0
TPS59640RSLT	VQFN	RSL	48	250	182.0	182.0	20.0
TPS59641RSLR	VQFN	RSL	48	2500	367.0	367.0	38.0
TPS59641RSLRG4	VQFN	RSL	48	2500	367.0	367.0	38.0
TPS59641RSLT	VQFN	RSL	48	250	182.0	182.0	20.0

GENERIC PACKAGE VIEW

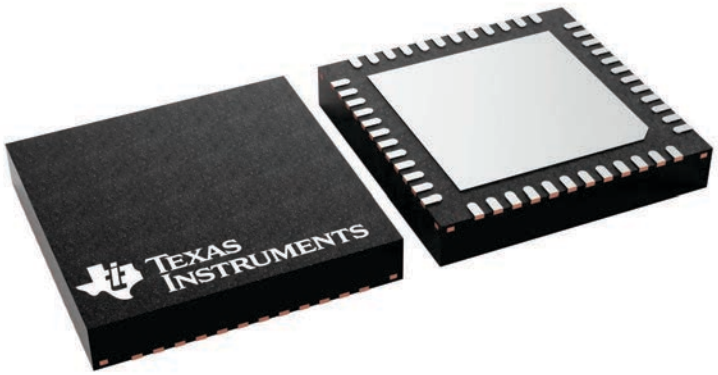
RSL 48

VQFN - 1 mm max height

6 x 6, 0.4 mm pitch

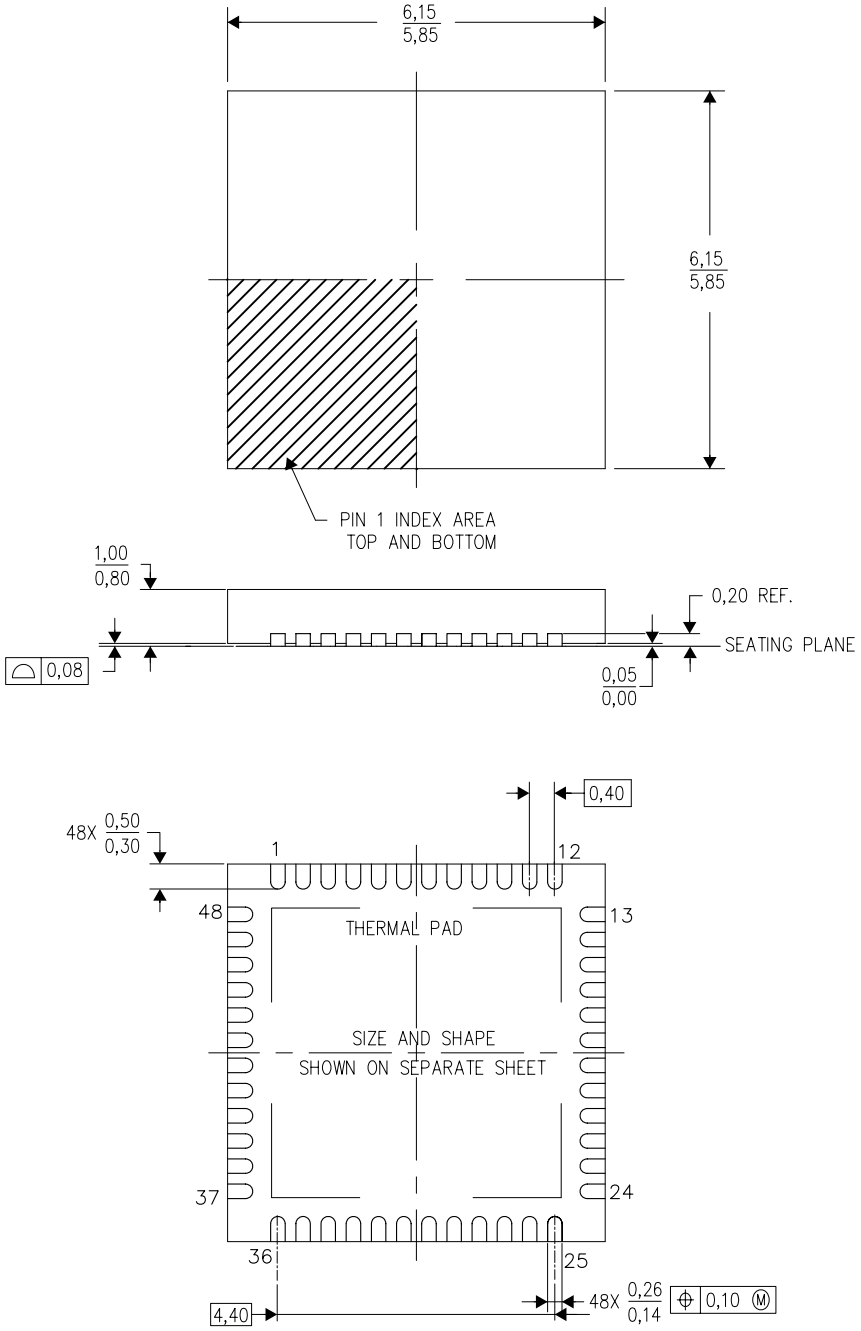
QUAD FLATPACK - NO LEAD

This image is a representation of the package family, actual package may vary.
Refer to the product data sheet for package details.



4225749/A

RSL (S–PVQFN–N48) PLASTIC QUAD FLATPACK NO–LEAD



NOTES:
A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M–1994.
B. This drawing is subject to change without notice.
C. Quad Flatpack, No–leads (QFN) package configuration.
D. The package thermal pad must be soldered to the board for thermal and mechanical performance.
E. See the additional figure in the Product Data Sheet for details regarding the exposed thermal pad features and dimensions.

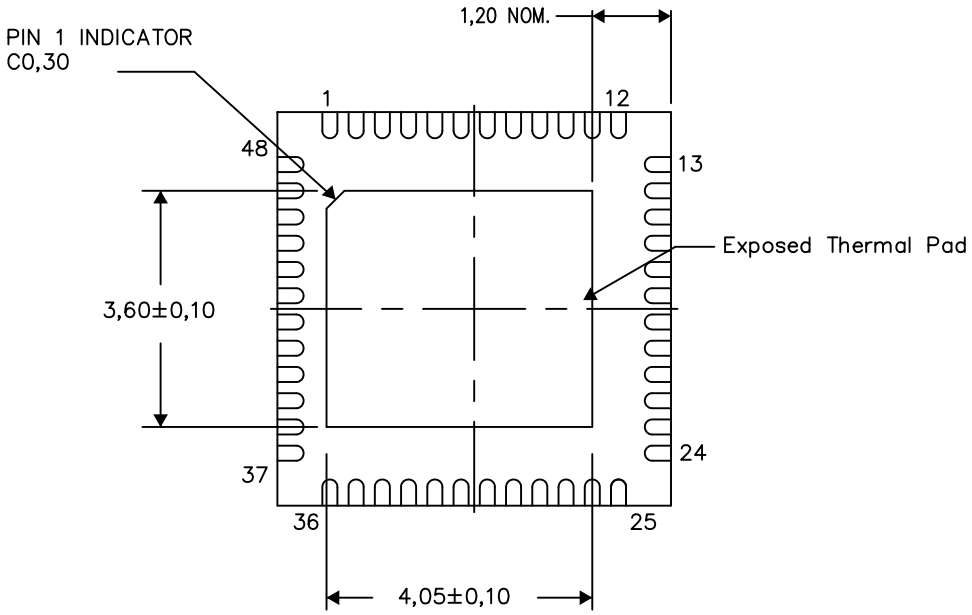
RSL (S–PVQFN–N48) PLASTIC QUAD FLATPACK NO–LEAD

THERMAL INFORMATION

This package incorporates an exposed thermal pad that is designed to be attached directly to an external heatsink. The thermal pad must be soldered directly to the printed circuit board (PCB). After soldering, the PCB can be used as a heatsink. In addition, through the use of thermal vias, the thermal pad can be attached directly to the appropriate copper plane shown in the electrical schematic for the device, or alternatively, can be attached to a special heatsink structure designed into the PCB. This design optimizes the heat transfer from the integrated circuit (IC).

For information on the Quad Flatpack No–Lead (QFN) package and its advantages, refer to Application Report, QFN/SON PCB Attachment, Texas Instruments Literature No. SLUA271. This document is available at www.ti.com.

The exposed thermal pad dimensions for this package are shown in the following illustration.



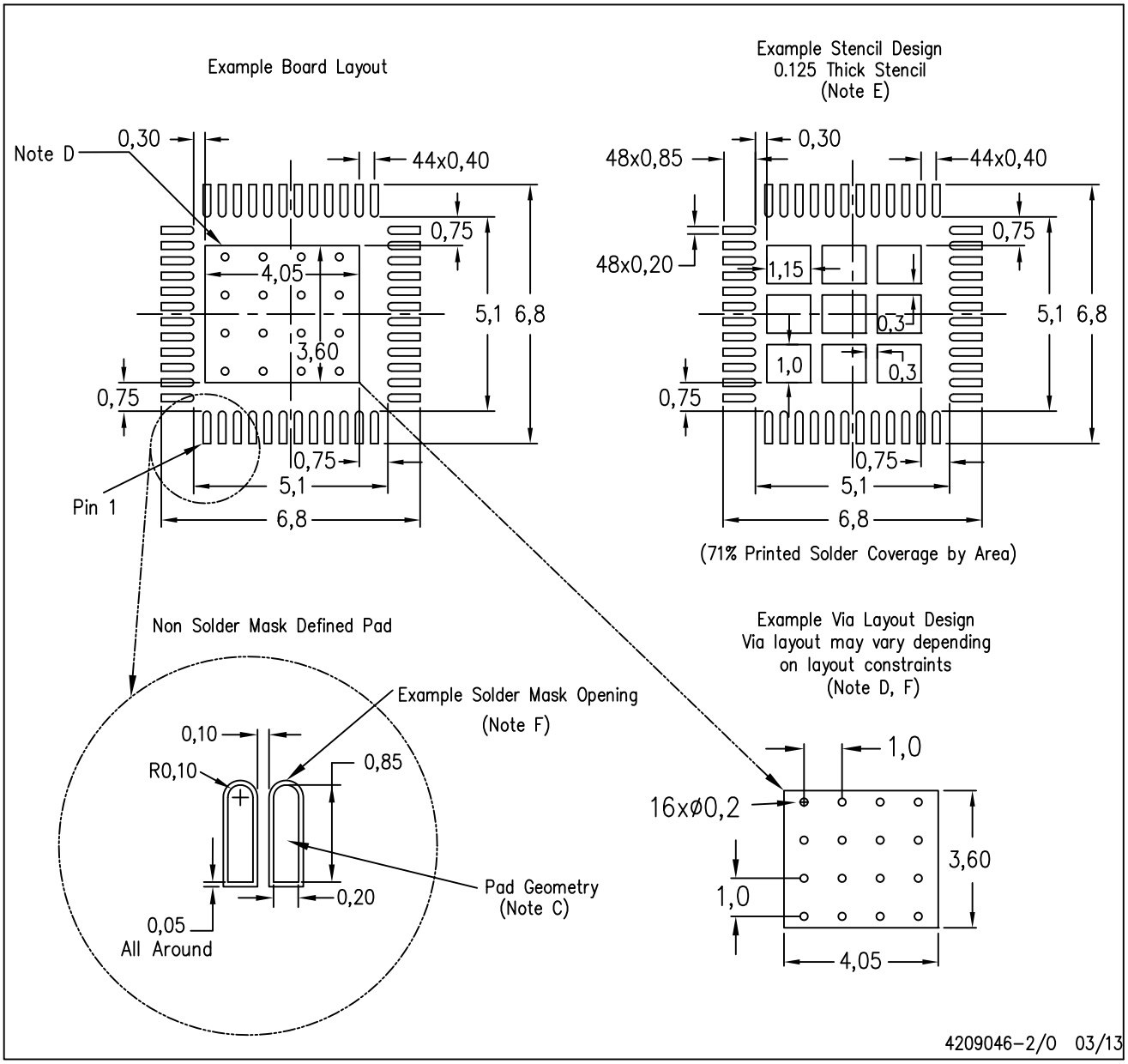
Bottom View

Exposed Thermal Pad Dimensions

4207841–3/P 03/13

NOTE: All linear dimensions are in millimeters

RSL (S–PVQFN–N48) PLASTIC QUAD FLATPACK NO–LEAD



NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Publication IPC–7351 is recommended for alternate designs.
D. This package is designed to be soldered to a thermal pad on the board. Refer to Application Note, QFN/SON PCB Attachment, Texas Instruments Literature No. SLUA271, and also the Product Data Sheets for specific thermal information, via requirements, and recommended board layout. These documents are available at www.ti.com <http://www.ti.com>.
E. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC 7525 for stencil design considerations.
F. Customers should contact their board fabrication site for recommended solder mask tolerances and via tenting recommendations for vias placed in the thermal pad.

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