

This device is designed specifically to power IMVP Mobile Processors under a strict disclosure agreement with Intel Corporation. The end user must have a current CNDA Agreement in place with Intel Corporation.

For a detailed data sheet and other design support tools, please contact [IMVP@list.ti.com](mailto: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)
<a href="#">TPS51631ARSMR</a>	Active	Production	VQFN (RSM)   32	3000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 51631A
TPS51631ARSMR.A	Active	Production	VQFN (RSM)   32	3000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 51631A
TPS51631ARSMR.B	Active	Production	VQFN (RSM)   32	3000   LARGE T&R	-	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 51631A
<a href="#">TPS51631ARSMT</a>	Active	Production	VQFN (RSM)   32	250   SMALL T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 51631A
TPS51631ARSMT.A	Active	Production	VQFN (RSM)   32	250   SMALL T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 51631A
TPS51631ARSMTG4	Active	Production	VQFN (RSM)   32	250   SMALL T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 51631A
TPS51631ARSMTG4.A	Active	Production	VQFN (RSM)   32	250   SMALL T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	TPS 51631A

<sup>(1)</sup> **Status:** For more details on status, see our [product life cycle](#).

<sup>(2)</sup> **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.

<sup>(3)</sup> **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.

<sup>(4)</sup> **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.

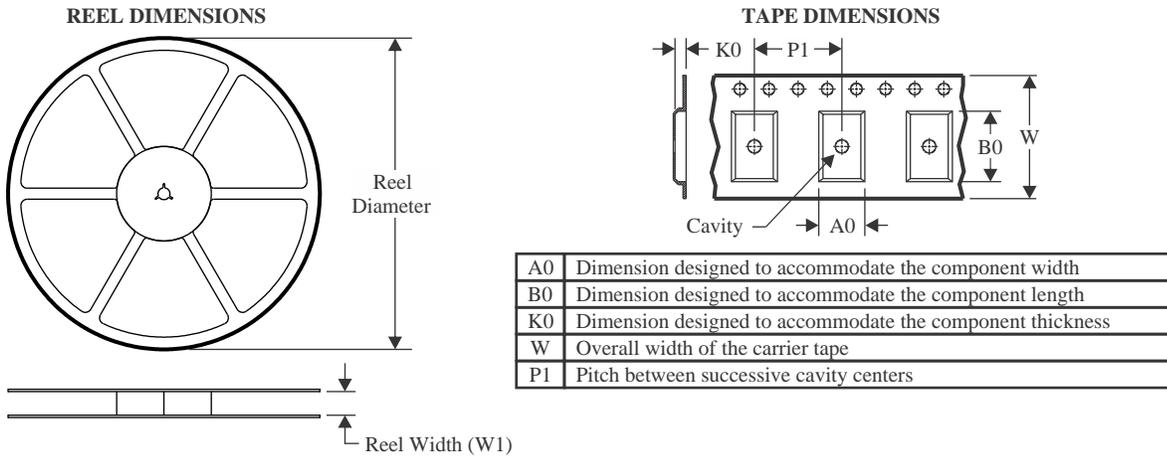
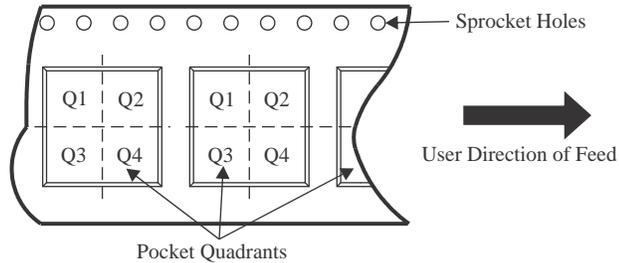
<sup>(5)</sup> **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature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

<sup>(6)</sup> **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.

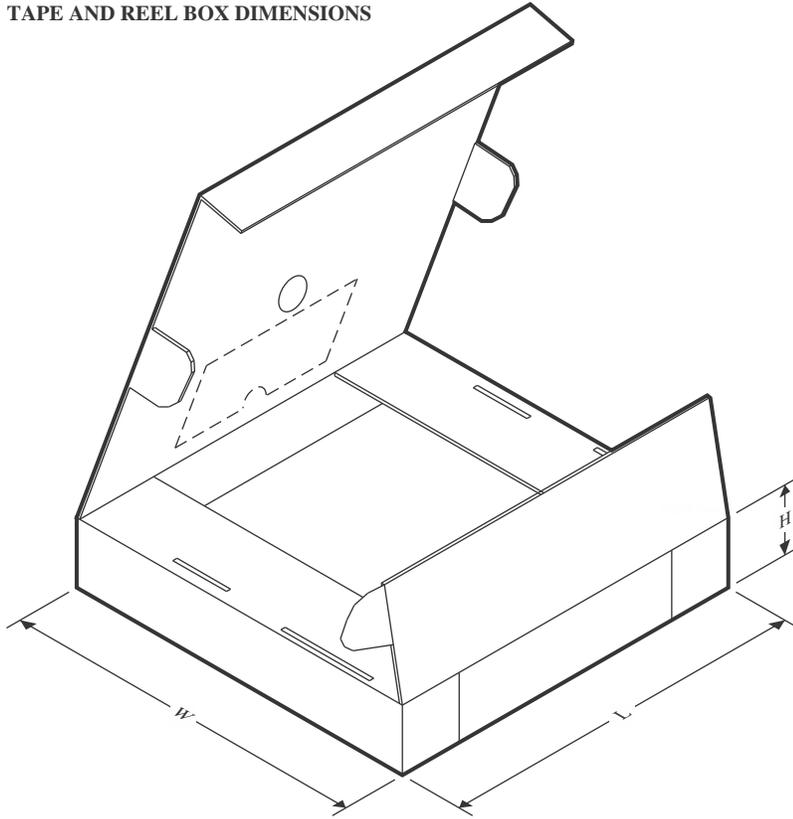
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**TAPE AND REEL INFORMATION**

**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
TPS51631ARSMR	VQFN	RSM	32	3000	330.0	12.4	4.25	4.25	1.15	8.0	12.0	Q2
TPS51631ARSMT	VQFN	RSM	32	250	180.0	12.4	4.25	4.25	1.15	8.0	12.0	Q2
TPS51631ARSMTG4	VQFN	RSM	32	250	180.0	12.4	4.25	4.25	1.15	8.0	12.0	Q2

**TAPE AND REEL BOX DIMENSIONS**


\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
TPS51631ARSMR	VQFN	RSM	32	3000	346.0	346.0	33.0
TPS51631ARSMT	VQFN	RSM	32	250	182.0	182.0	20.0
TPS51631ARSMTG4	VQFN	RSM	32	250	182.0	182.0	20.0

## GENERIC PACKAGE VIEW

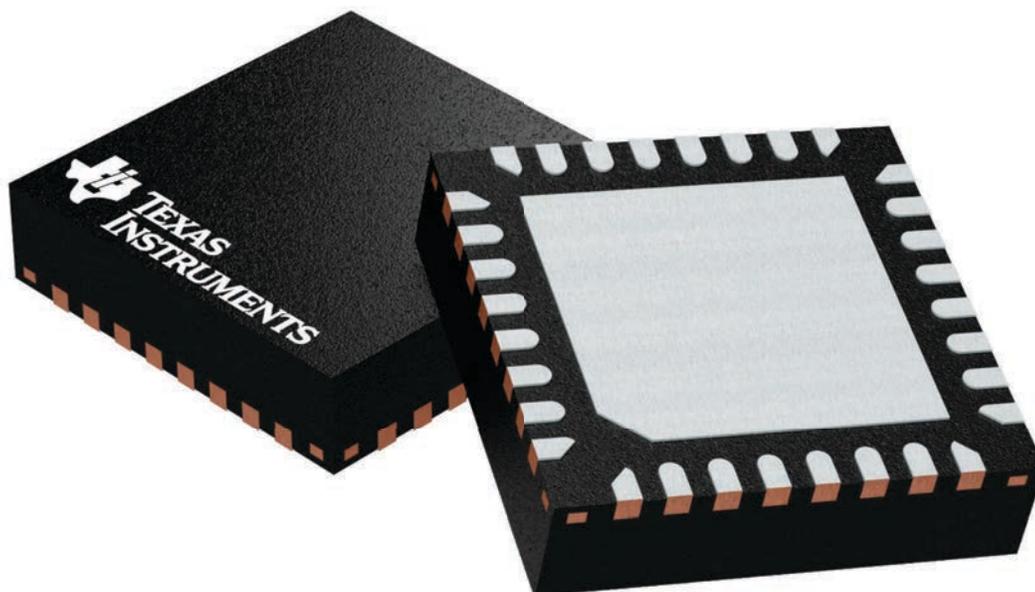
**RSM 32**

**VQFN - 1 mm max height**

4 x 4, 0.4 mm pitch

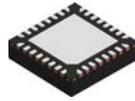
PLASTIC QUAD FLATPACK - NO LEAD

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



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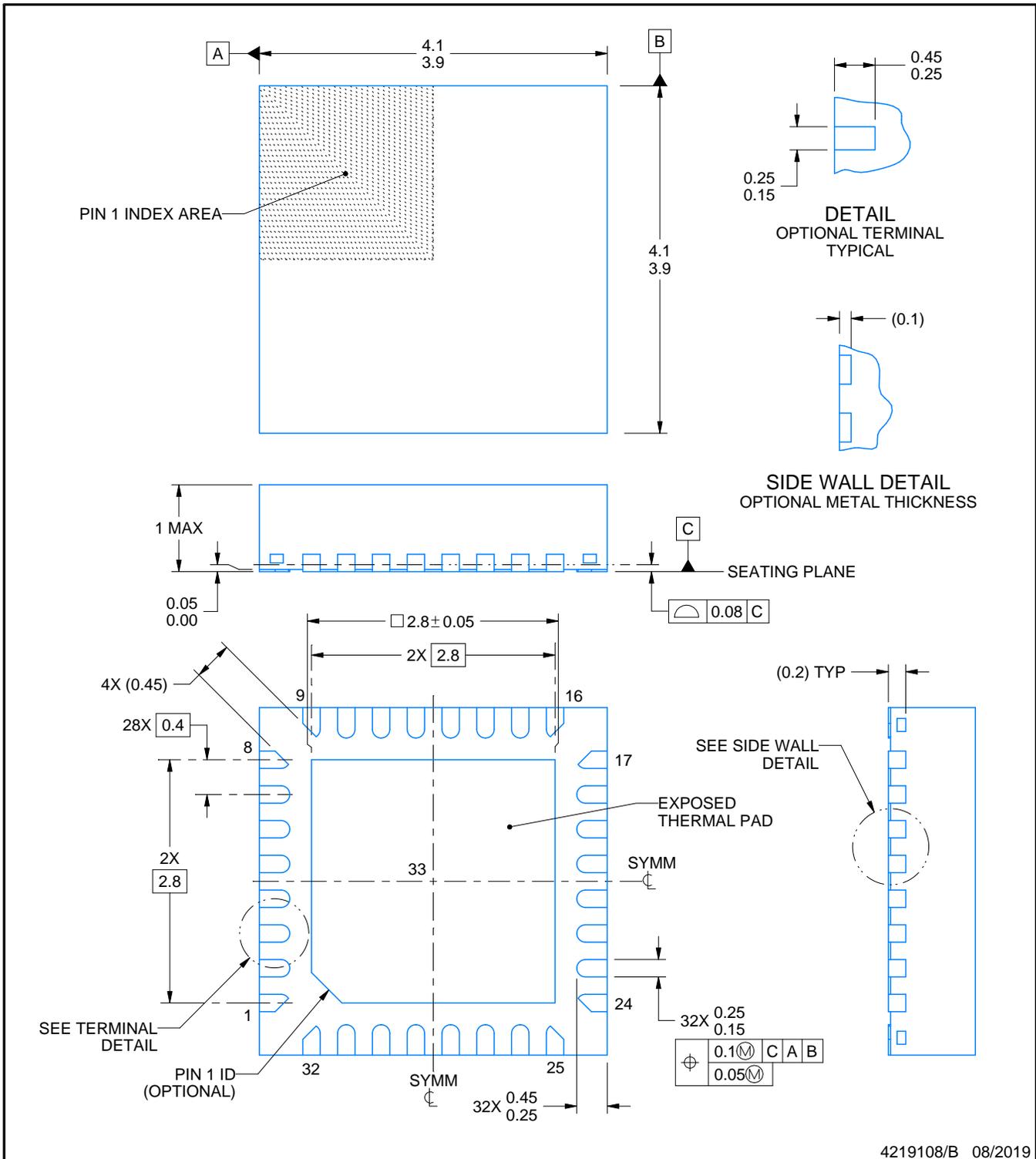
# RSM0032B



# PACKAGE OUTLINE

## VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



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### NOTES:

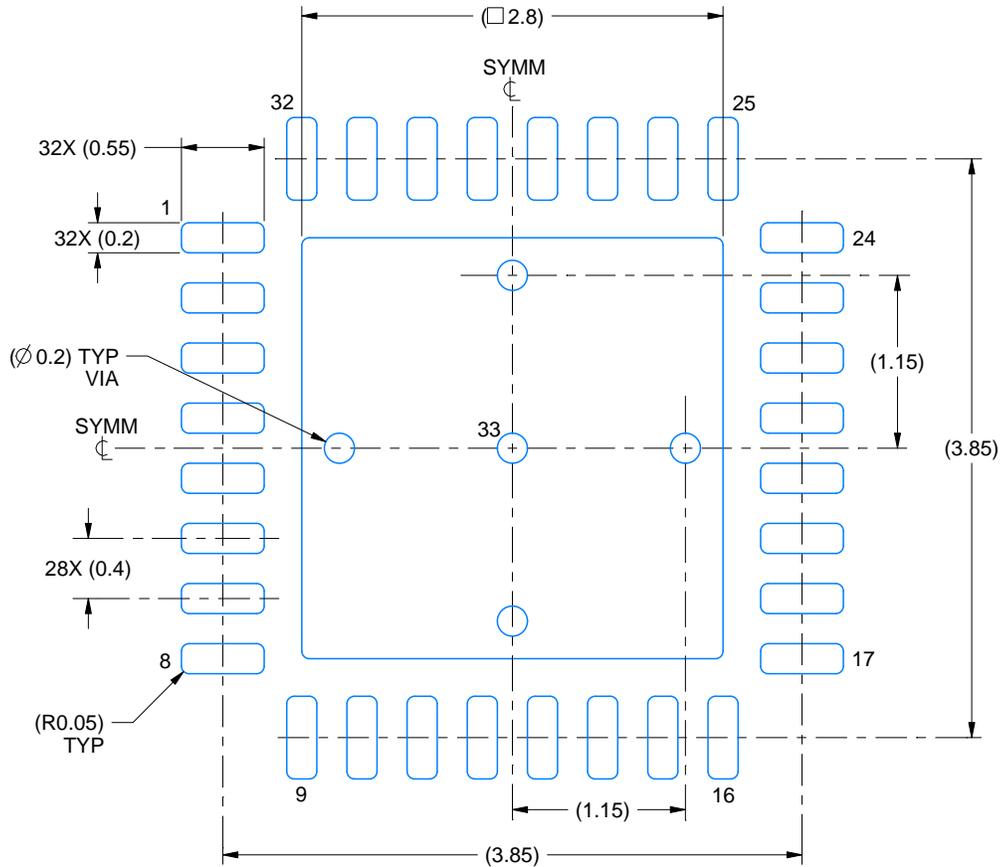
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. The package thermal pad must be soldered to the printed circuit board for thermal and mechanical performance.

# EXAMPLE BOARD LAYOUT

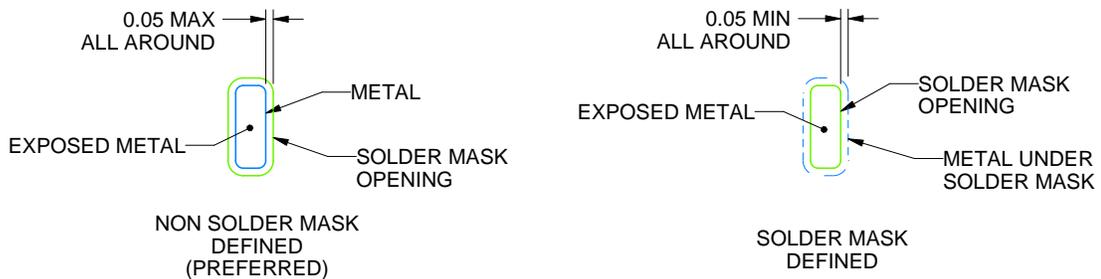
RSM0032B

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE:20X



SOLDER MASK DETAILS

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NOTES: (continued)

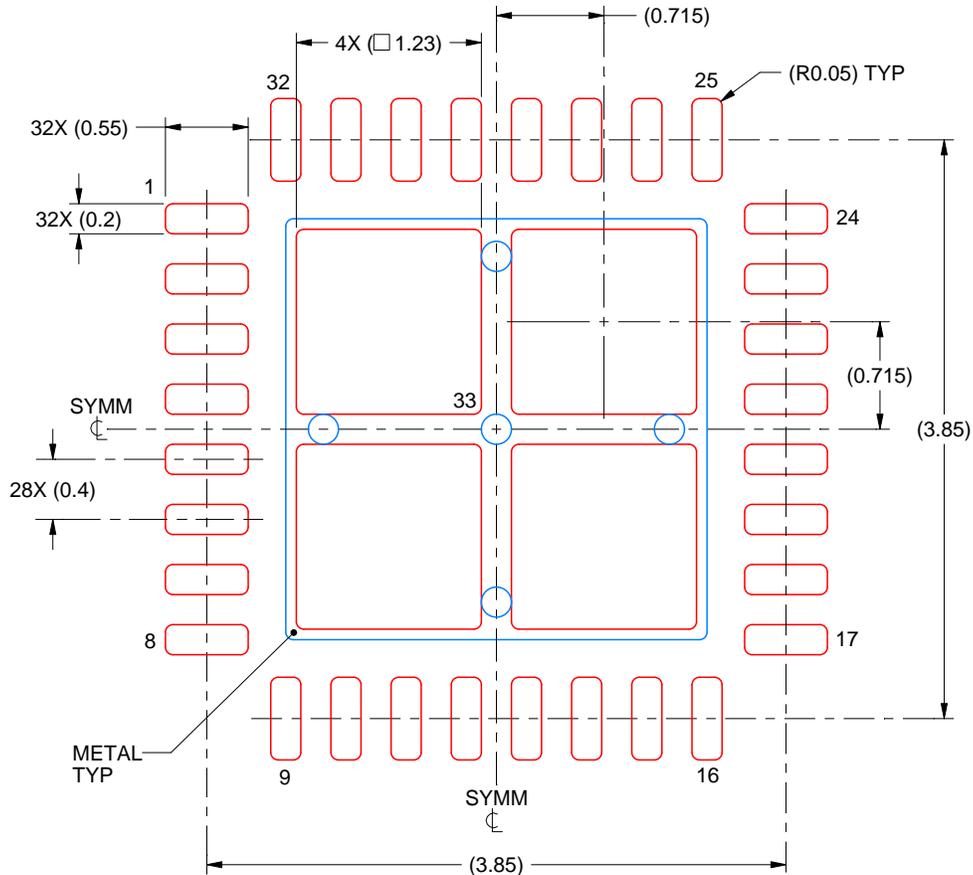
4. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 ([www.ti.com/lit/slue271](http://www.ti.com/lit/slue271)).
5. Vias are optional depending on application, refer to device data sheet. If any vias are implemented, refer to their locations shown on this view. It is recommended that vias under paste be filled, plugged or tented.

# EXAMPLE STENCIL DESIGN

RSM0032B

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



**SOLDER PASTE EXAMPLE**  
BASED ON 0.1 mm THICK STENCIL

EXPOSED PAD 33:  
77% PRINTED SOLDER COVERAGE BY AREA UNDER PACKAGE  
SCALE:20X

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NOTES: (continued)

6. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.

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