TEXAS INSTRUMENTS
MSPM0L1105, MSPM0L1106
ZHCSR49 – OCTOBER 2022

MSPM0L110x 混合信号微控制器

1 特性

- **内核**
  - Arm® 32 位 Cortex®-M0+ CPU，频率高达 32MHz
- **工作特性**
  - 工作温度范围：–40°C 至 105°C
  - 宽电源电压范围：1.62V 至 3.6V
- **存储器**
  - 高达 64KB 的闪存
  - 4KB SRAM
- **高性能模拟外设**
  - 一个具有总计多达 10 个外部通道的 12 位 1.45Msps 模数转换器 (ADC)
  - 可配置的 1.4V 或 2.5V 内部 ADC 电压基准 (VREF)
  - 一个通用放大器 (GPAMP)
  - 集成温度传感器
- **经优化的低功耗模式**
  - 运行：96µA/MHz (CoreMark)
  - 停止：4MHz 时为 200µA，32kHz 时为 45µA
  - 待机：1.1µA（SRAM 处于保持模式）
  - 关断：83nA，具有 IO 唤醒能力
- **智能数字外设**
  - 3 通道 DMA 控制器
  - 四个 16 位通用计时器，每个计时器具有两个捕捉/比较寄存器，支持待机模式下的低功耗运行，总共支持 8 个 PWM 通道
  - 窗口化看门狗计时器
- **增强型通信接口**
  - 两个 UART 接口；一个支持 LIN、IrDA、DALI、Smart Card、Manchester 并且都支持待机模式下的低功耗运行
  - 一个 I^2C 接口支持 FM+ (1Mbit/s)、SMBus、PMBus 和从停止模式唤醒
  - 一个 SPI 支持高达 16Mbit/s
- **时钟系统**
  - 精度高达 ±1% 的内部 4MHz 至 32MHz 振荡器 (SYSOSC)
  - 内部 32kHz 低频振荡器 (LFOSC)
- **数据完整性**
  - 循环冗余校验器（CRC-16 或 CRC-32）
- **灵活的 I/O 功能**
  - 多达 28 个 GPIO
  - 两个 5V 容限开漏 IO
- **开发支持**
  - 2 引脚串行线调试 (SWD)
- **封装选项**
  - 32 引脚 VQFN (RHB)
  - 28 引脚 VSSOP (DGS)
  - 24 引脚 VQFN (RGE)
  - 20 引脚 VSSOP (DGS)
  - 16 引脚 SOT (DYY)、WQFN (RTR)[1]
- **系列成员**
  - MSPM0L1105：32KB 闪存、4KB RAM
  - MSPM0L1106：64KB 闪存、4KB RAM
- **开发套件与软件**（另请参阅*工具与软件*）
  - LP-MSPM0L1306 LaunchPad™ 开发套件
  - MSP 软件开发套件 (SDK)

2 应用

- 电池充电和管理
- 电源和电力输送
- 个人电子产品
- 楼宇安防与防火安全
- 联网外设和打印机
- 电网基础设施
- 智能抄表
- 通信模块
- 医疗和保健
- 照明

[1] 16 引脚 WQFN 封装为产品预发布状态。

3 说明

MSPM0L110x 微控制器 (MCU) 属于 MSP 高度集成的超低功耗 32 位 MCU 系列，该 MCU 系列基于增强型 Arm® Cortex®-M0+ 内核平台，工作频率最高可达 32MHz。这些低成本 MCU 提供高性能模拟外设集成，支持 -40°C 至 105°C 的工作温度范围，并在 1.62V 至 3.6V 的电源电压下运行。

MSPM0L110x 器件提供高达 64KB 的嵌入式闪存程序存储器和 4KB 的 SRAM。这些 MCU 包含精度高达 ±1% 的高速片上振荡器，无需外部晶体。其他特性包括 3 通道 DMA、16 位和 32 位 CRC 加速器，以及各种高性能模拟外设，例如一个具有可配置内部电压基准的 12 位 1.45MSPS ADC、一个通用放大器和一个片上温度传感器。这些器件还提供智能数字外设，例如四个 16 位通用计时器、一个窗口化看门狗计时器和各种通信外设（包括两个 UART、一个 SPI 和一个 I^2C）。这些通信外设为 LIN、IrDA、DALI、Manchester、Smart Card、SMBus 和 PMBus 提供协议支持。

TI MSPM0 系列低功耗 MCU 包含具有不同模拟和数字集成度的器件，可让客户找到满足其工程需求的 MCU。此架构结合了多种低功耗模式，并经过优化，可在便携式测量应用中延长电池寿命。

MSPM0L110x MCU 由广泛的硬件和软件生态系统提供支持，随附参考设计和代码示例，便于您快速开始设计。开发套件包括可供购买的 LaunchPad™ 套件和适用于目标插座板的设计文件。TI 还提供免费的 MSP 软件开发套件 (SDK)，该套件在 TI Resource Explorer 中作为 Code Composer Studio™ IDE 桌面版和云版组件提供。MSPM0 MCU 还通过 MSP Academy 提供广泛的在线配套资料、培训，并通过 TI E2E™ 支持论坛提供在线支持。

有关完整的模块说明，请参阅 *MSPM0 L 系列 32MHz 微控制器技术参考手册*。

CAUTION

系统级静电放电 (ESD) 保护必须符合器件级 ESD 规范，以防发生电气过载或对数据或代码存储器造成干扰。有关更多信息，请参阅 MSP430™ 系统级 ESD 注意事项，因为该应用手册中的准则也适用于 MSPM0 MCU。

4 功能方框图

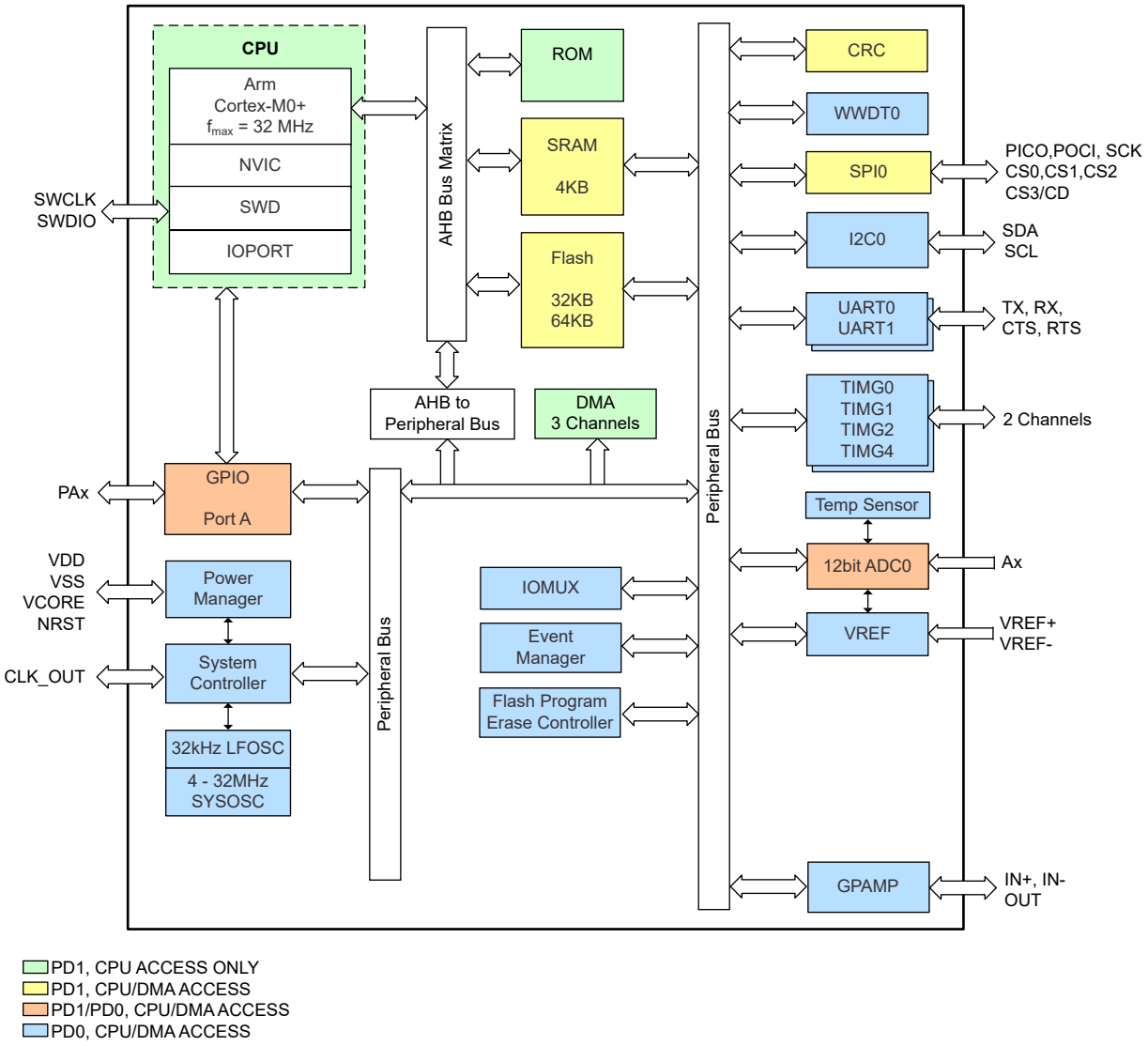


图 4-1. MSPM0L110x 功能方框图

ADVANCE INFORMATION

5 器件和文档支持

TI 提供大量的开发工具。下面列出了用于评估器件性能、生成代码和开发解决方案的工具和软件。

5.1 器件命名规则

为了指出产品开发周期所处的阶段，TI 为所有 MSP MCU 器件和支持工具的产品型号分配了前缀。.每个 MSP MCU 商用系列产品都具有以下两个前缀之一：MSP 或 X。这些前缀代表了产品开发的发展阶段，即从工程原型 (X) 直到完全合格的生产器件 (MSP)。

X – 实验器件，不一定代表最终器件的电气规格

MSP - 完全合格的生产器件

X 器件在供货时附带如下免责声明：

“开发中的产品用于内部评估用途。”MSP 器件的特性已经全部明确，并且器件的质量和可靠性已经完全论证。TI 的标准保修证书对该器件适用。预测显示原型器件 (X) 的故障率大于标准生产器件。由于这些器件的预计最终使用故障率尚不确定，德州仪器 (TI) 建议不要将它们用于任何生产系统。请仅使用合格的生产器件。

TI 的器件命名规则还包含具有器件产品系列名称的后缀。此后缀表示温度范围、封装类型和配送形式。图 5-1 提供了解读完整器件名称的图例。

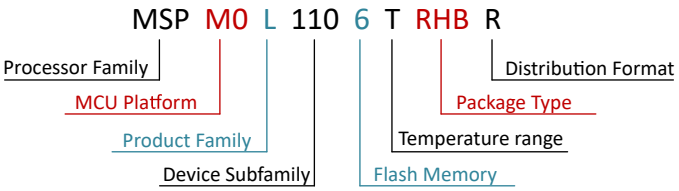


图 5-1. 器件命名规则

表 5-1. 器件命名规则

处理器系列	MSP = 混合信号处理器 X = 实验性器件
MCU 平台	M0 = 基于 Arm 的 32 位 M0+
产品系列	L = 32MHz 频率
器件子系列	110 = ADC
闪存存储器	5 = 32KB 6 = 64KB
温度范围	T = -40°C 至 105°C S = -40°C 至 125°C
封装类型	请参阅 www.ti.com/packaging
配送形式	T = 小卷带 R = 大卷带 无标记 = 管装或托盘

如需 MSP 器件不同封装类型的可订购器件型号，请参阅本文的“封装选项附录”，浏览 ti.com，或联系您的 TI 销售代表。

5.2 工具与软件

设计套件与评估模块

MSPM0 LaunchPad (LP) 板：LP-MSPM0L1306	支持立即在业内出色的集成式模拟和低成本通用 MSPM0 MCU 系列上开始进行开发。展示了所有器件引脚和功能；包括一些内置电路、开箱即用软件演示，以及用于编程/调试/EnergyTrace 的板载 XDS110 调试探针。 LP 生态系统包括数十个用于扩展功能的 BoosterPack 可堆叠插件模块。
嵌入式软件	
MSPM0 软件开发套件 (SDK)	包含软件驱动程序、中间件库、文档、工具和代码示例，可为所有 MSPM0 器件提供熟悉且简单的用户体验。
软件开发工具	
TI 云工具	在网络浏览器上开始评估和开发，无需进行任何安装。云工具还具有可下载的离线版本。
TI Resource Explorer	TI SDK 的在线门户。可在 CCS IDE 或 TI 云工具中访问。
SysConfig	直观的 GUI，可用于配置器件和外设、解决系统冲突、生成配置代码，以及自动进行引脚多路复用设置。可在 CCS IDE 或 TI 云工具中访问。（离线版）
MSP Academy	所有开发人员了解 MSPM0 MCU 平台的良好起点，其中包含涵盖各种主题的培训模块。TIRex 的一部分。
GUI Composer	简化评估某些 MSPM0 功能的 GUI，例如无需任何代码即可配置和监测完全集成的模拟信号链。
IDE 和编译器工具链	
Code Composer Studio™ (CCS) IAR Embedded Workbench® IDE Keil® MDK IDE GNU Arm 嵌入式工具链	包括 TI Arm-Clang 编译器。支持所有 TI Arm Cortex MCU，并具有有竞争力的代码大小性能优势、编译时间短、代码覆盖支持、安全认证支持和完全免费使用。

5.3 支持资源

TI E2E™ 支持论坛是工程师的重要参考资料，可直接从专家获得快速、经过验证的解答和设计帮助。搜索现有解答或提出自己的问题可获得所需的快速设计帮助。

链接的内容由各个贡献者“按原样”提供。这些内容并不构成 TI 技术规范，并且不一定反映 TI 的观点；请参阅 TI 的《使用条款》。

5.4 商标

LaunchPad™, Code Composer Studio™, and TI E2E™ are trademarks of Texas Instruments.
Arm® and Cortex® are registered trademarks of Arm Limited.
所有商标均为其各自所有者的财产。

5.5 Electrostatic Discharge Caution

This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

5.6 术语表

TI 术语表	本术语表列出并解释了术语、首字母缩略词和定义。

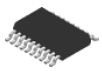
ADVANCE INFORMATION

6 机械、封装和可订购信息

下述页面包含机械、封装和订购信息。这些信息是指定器件可用的最新数据。数据如有变更，恕不另行通知，且不会对此文档进行修订。有关此数据表的浏览器版本，请查阅左侧的导航栏。

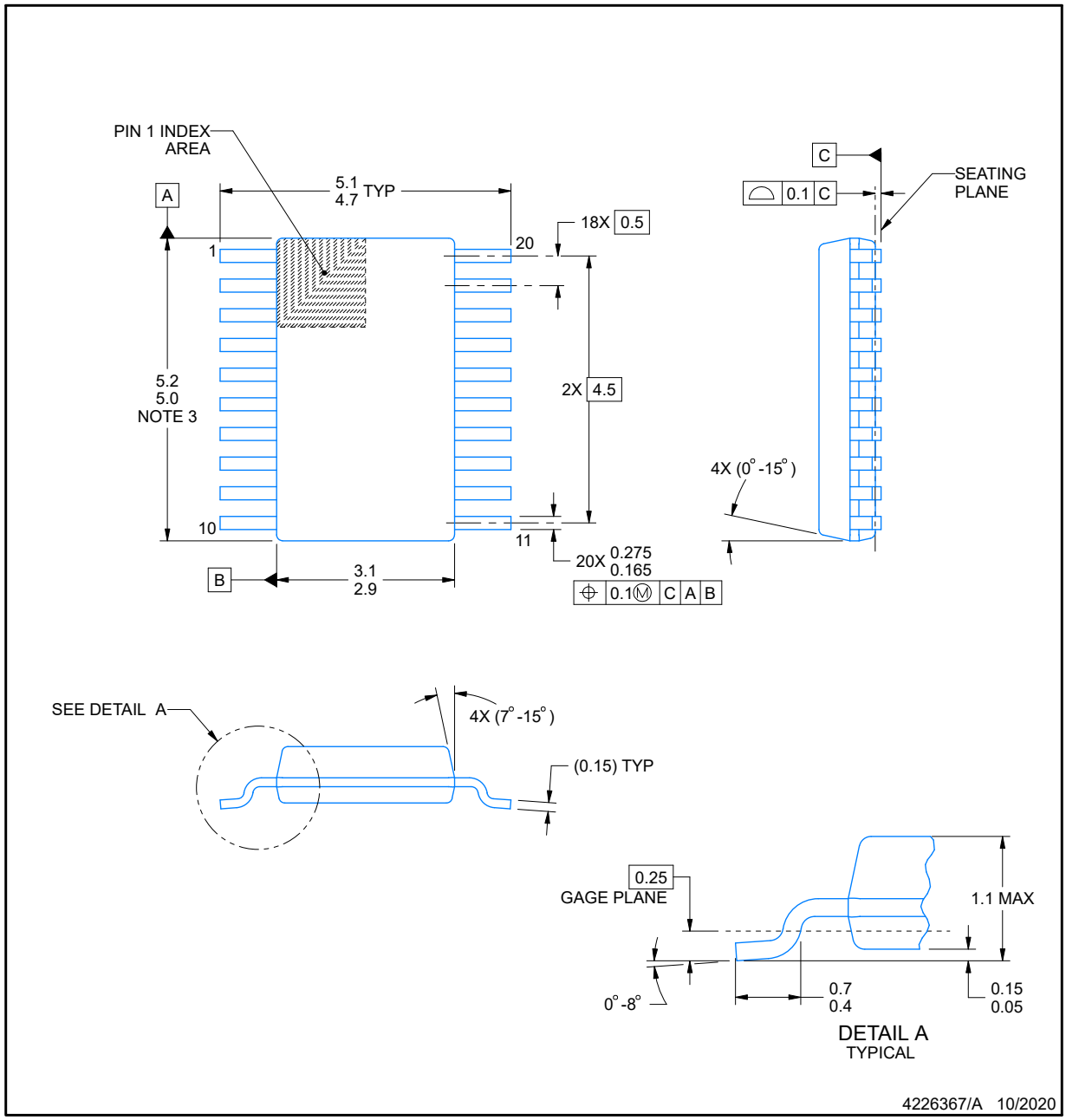
PACKAGE OUTLINE

DGS0020A



VSSOP - 1.1 mm max height

SMALL OUTLINE PACKAGE



PowerPAD is a trademark of Texas Instruments.

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. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. No JEDEC registration as of September 2020.
5. Features may differ or may not be present.

ADVANCE INFORMATION

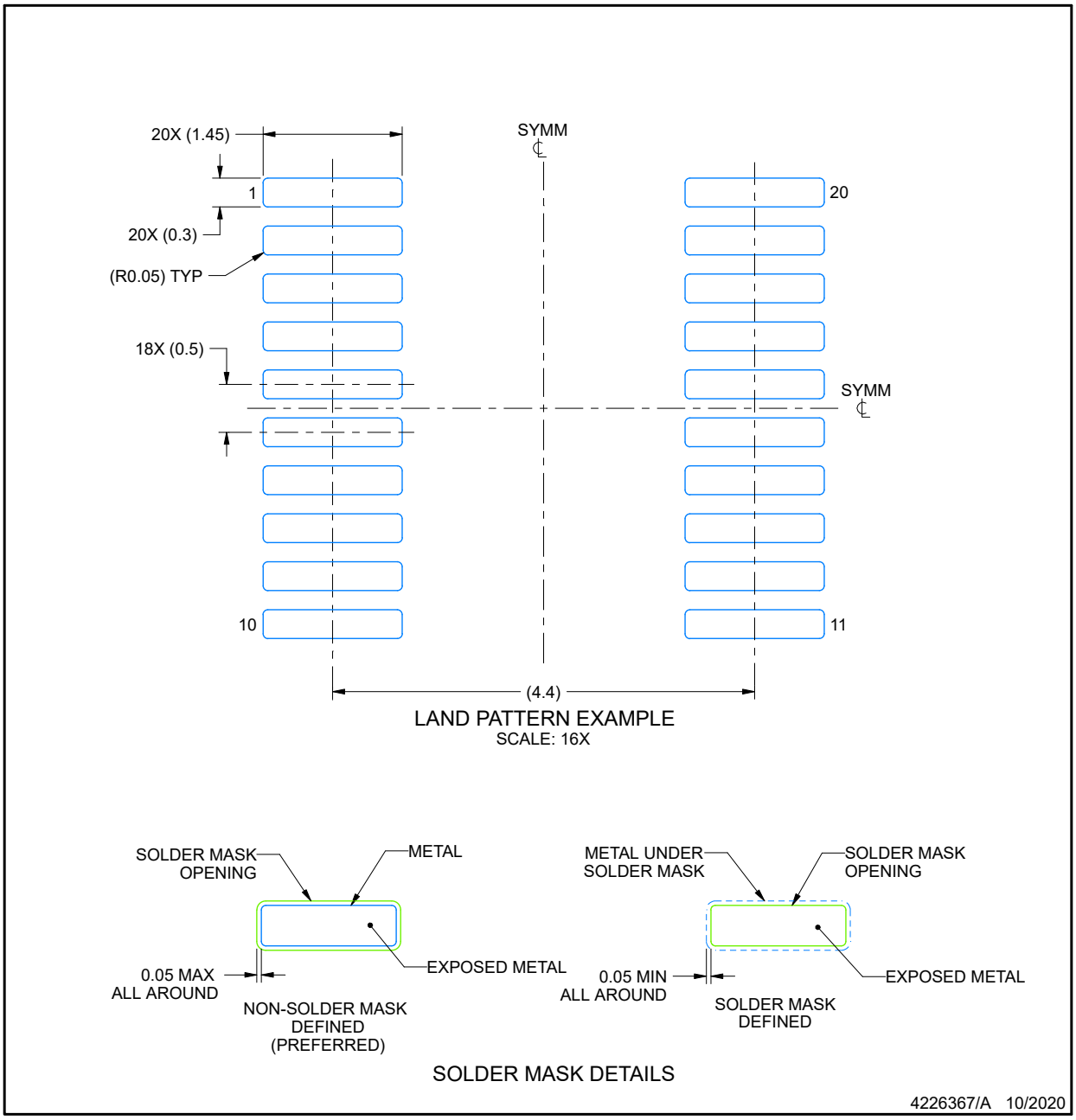
ADVANCE INFORMATION

EXAMPLE BOARD LAYOUT

DGS0020A

VSSOP - 1.1 mm max height

SMALL OUTLINE PACKAGE



NOTES: (continued)

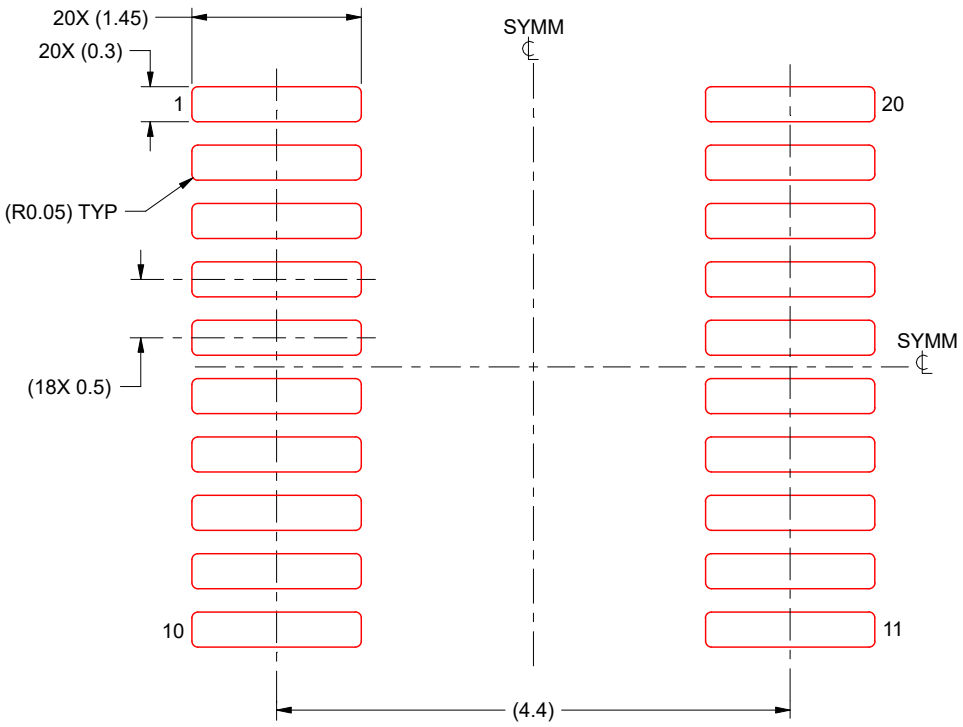
6. Publication IPC-7351 may have alternate designs.
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.
8. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature numbers SLMA002 (www.ti.com/lit/slma002) and SLMA004 (www.ti.com/lit/slma004).
9. Size of metal pad may vary due to creepage requirement.
10. Vias are optional depending on application, refer to device data sheet. It is recommended that vias under paste be filled, plugged or tented.

EXAMPLE STENCIL DESIGN

DGS0020A

VSSOP - 1.1 mm max height

SMALL OUTLINE PACKAGE



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE: 16X

4226367/A 10/2020

ADVANCE INFORMATION

NOTES: (continued)

11. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
12. Board assembly site may have different recommendations for stencil design.

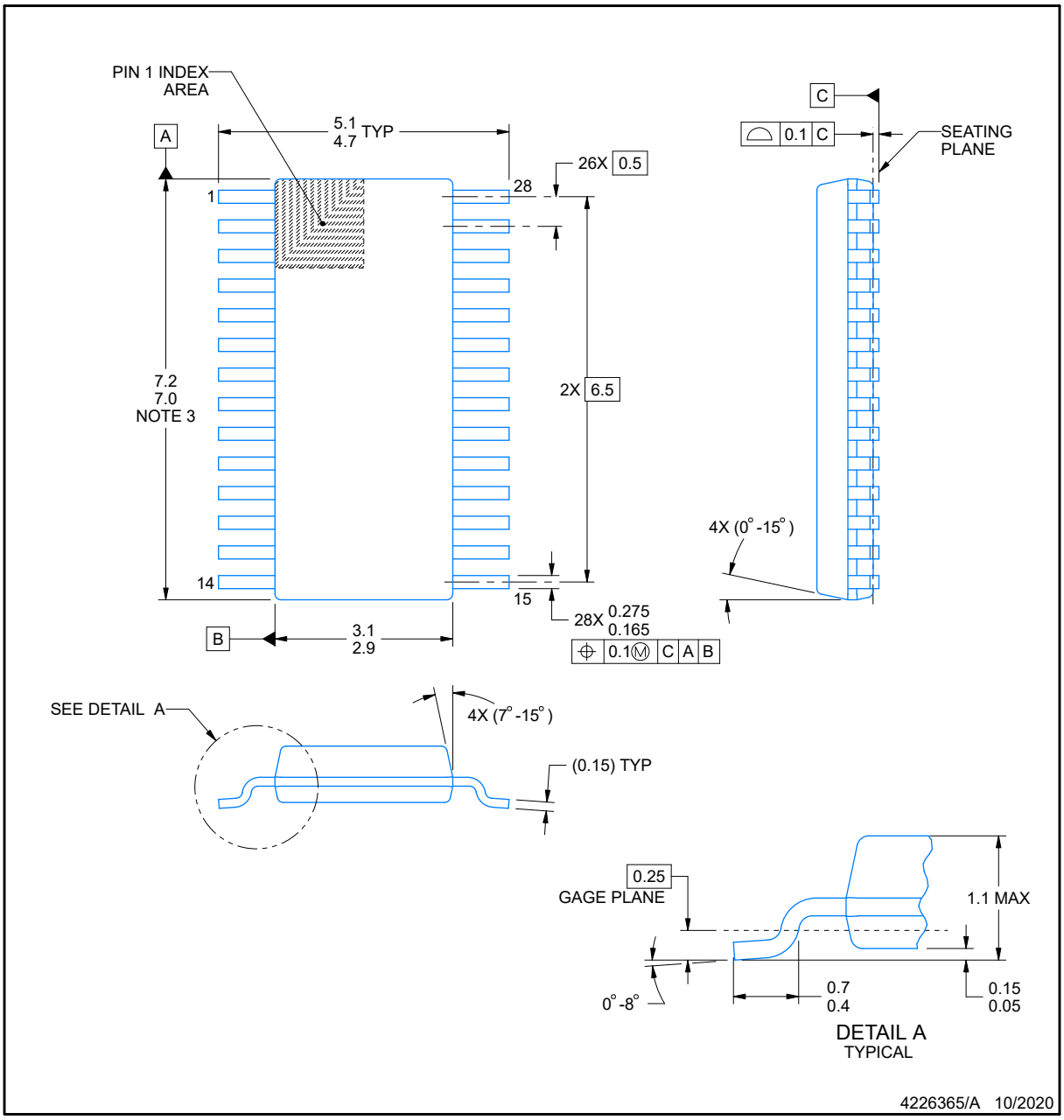
ADVANCE INFORMATION

PACKAGE OUTLINE

DGS0028A

VSSOP - 1.1 mm max height

SMALL OUTLINE PACKAGE



PowerPAD is a trademark of Texas Instruments.

NOTES:

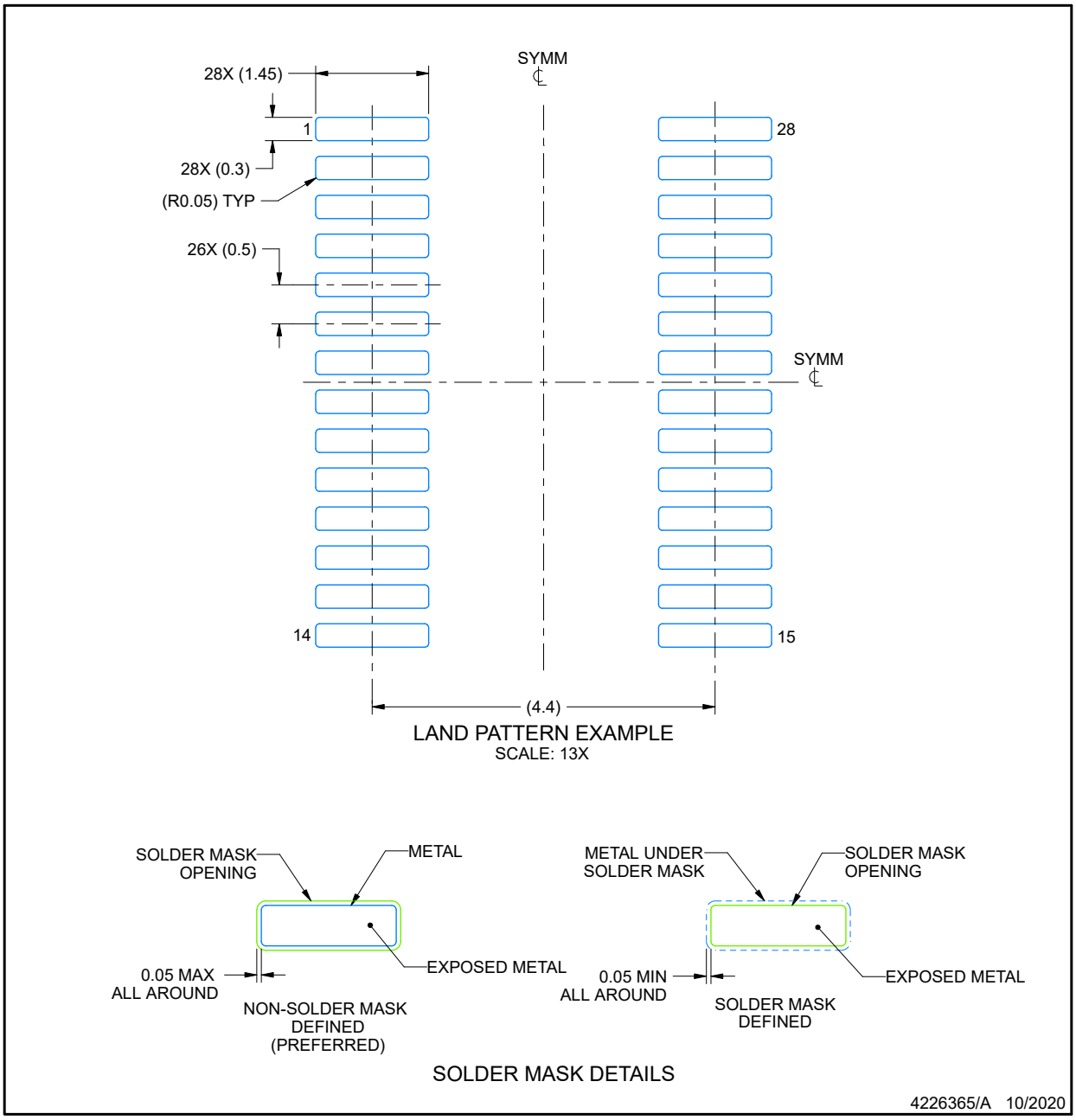
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. No JEDEC registration as of September 2020.
5. Features may differ or may not be present.

EXAMPLE BOARD LAYOUT

DGS0028A

VSSOP - 1.1 mm max height

SMALL OUTLINE PACKAGE



NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.
8. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature numbers SLMA002 (www.ti.com/lit/slma002) and SLMA004 (www.ti.com/lit/slma004).
9. Size of metal pad may vary due to creepage requirement.
10. Vias are optional depending on application, refer to device data sheet. It is recommended that vias under paste be filled, plugged or tented.

ADVANCE INFORMATION

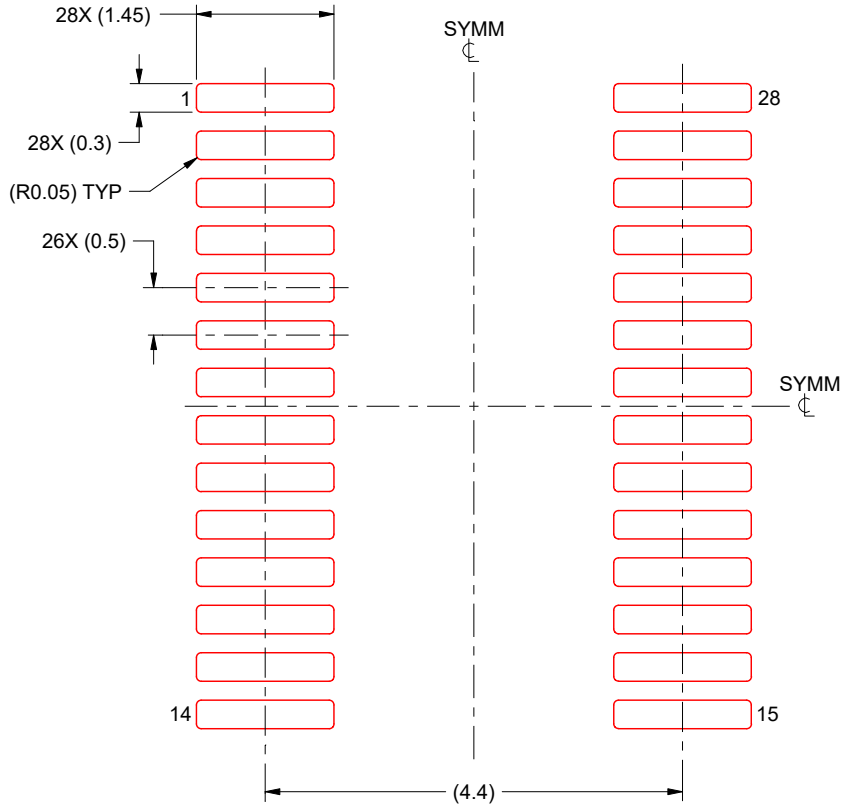
ADVANCE INFORMATION

EXAMPLE STENCIL DESIGN

DGS0028A

VSSOP - 1.1 mm max height

SMALL OUTLINE PACKAGE



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE: 13X

4226365/A 10/2020

NOTES: (continued)

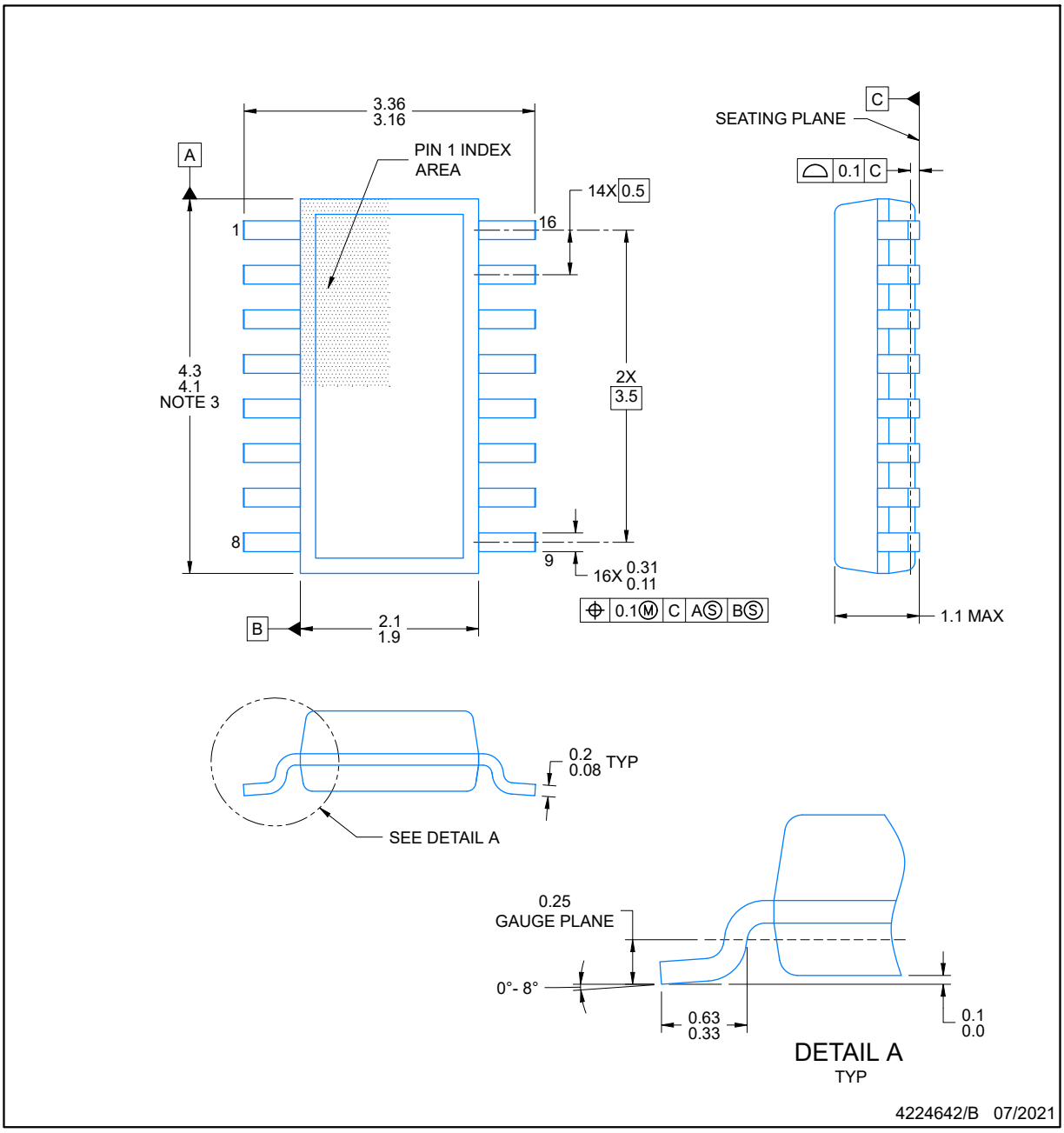
11. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
12. Board assembly site may have different recommendations for stencil design.

PACKAGE OUTLINE

DYY0016A

SOT-23-THIN - 1.1 mm max height

PLASTIC SMALL OUTLINE



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. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.50 per side.
5. Reference JEDEC Registration MO-345, Variation AA

ADVANCE INFORMATION

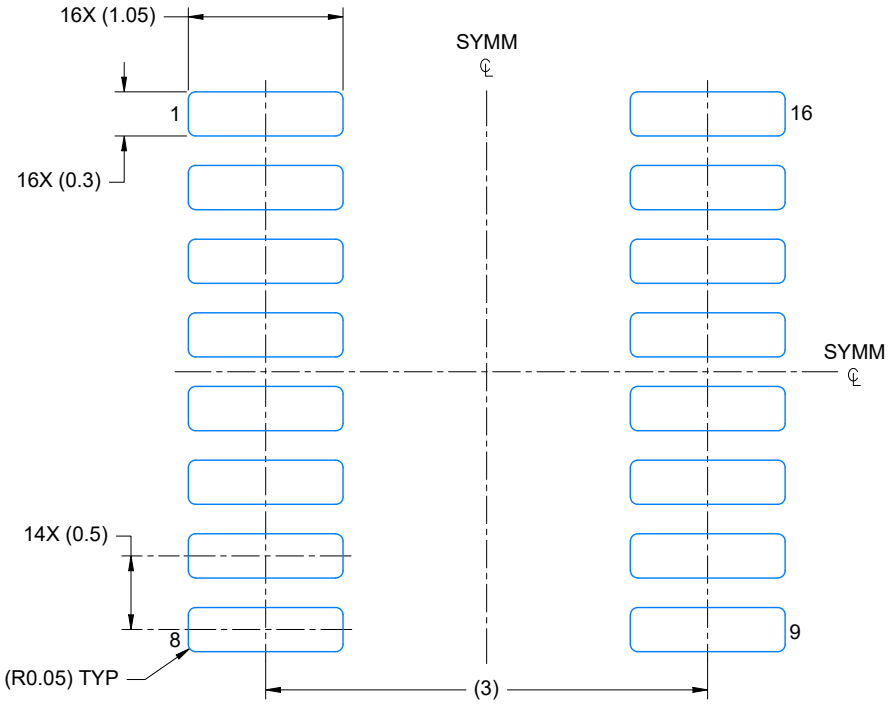
ADVANCE INFORMATION

EXAMPLE BOARD LAYOUT

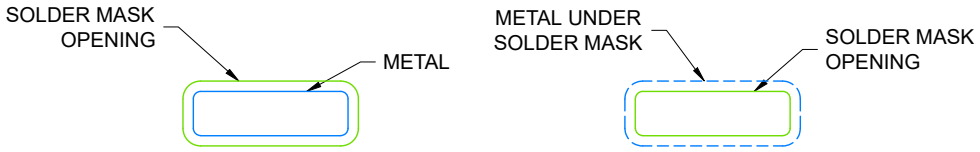
DYY0016A

SOT-23-THIN - 1.1 mm max height

PLASTIC SMALL OUTLINE



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 20X



NON- SOLDER MASK DEFINED (PREFERRED)

SOLDER MASK DEFINED

SOLDER MASK DETAILS

4224642/B 07/2021

NOTES: (continued)

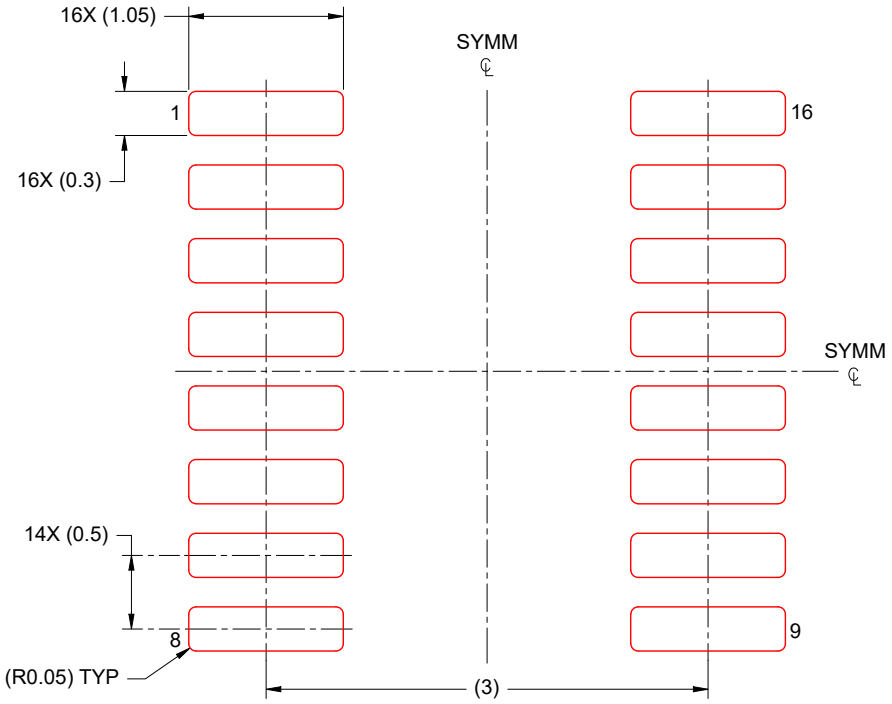
6. Publication IPC-7351 may have alternate designs.
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

EXAMPLE STENCIL DESIGN

DYY0016A

SOT-23-THIN - 1.1 mm max height

PLASTIC SMALL OUTLINE



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE: 20X

4224642/B 07/2021

NOTES: (continued)

8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

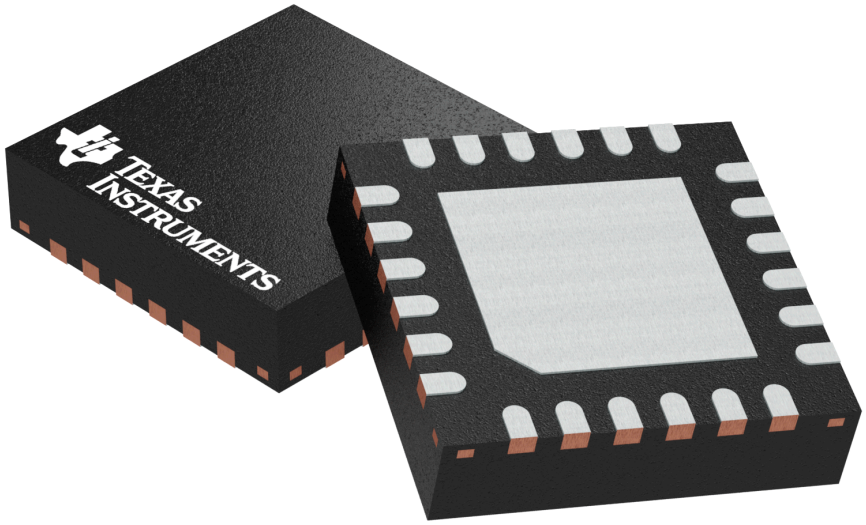
ADVANCE INFORMATION

ADVANCE INFORMATION

GENERIC PACKAGE VIEW

RGE 24 VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



Images above are just a representation of the package family, actual package may vary.
Refer to the product data sheet for package details.

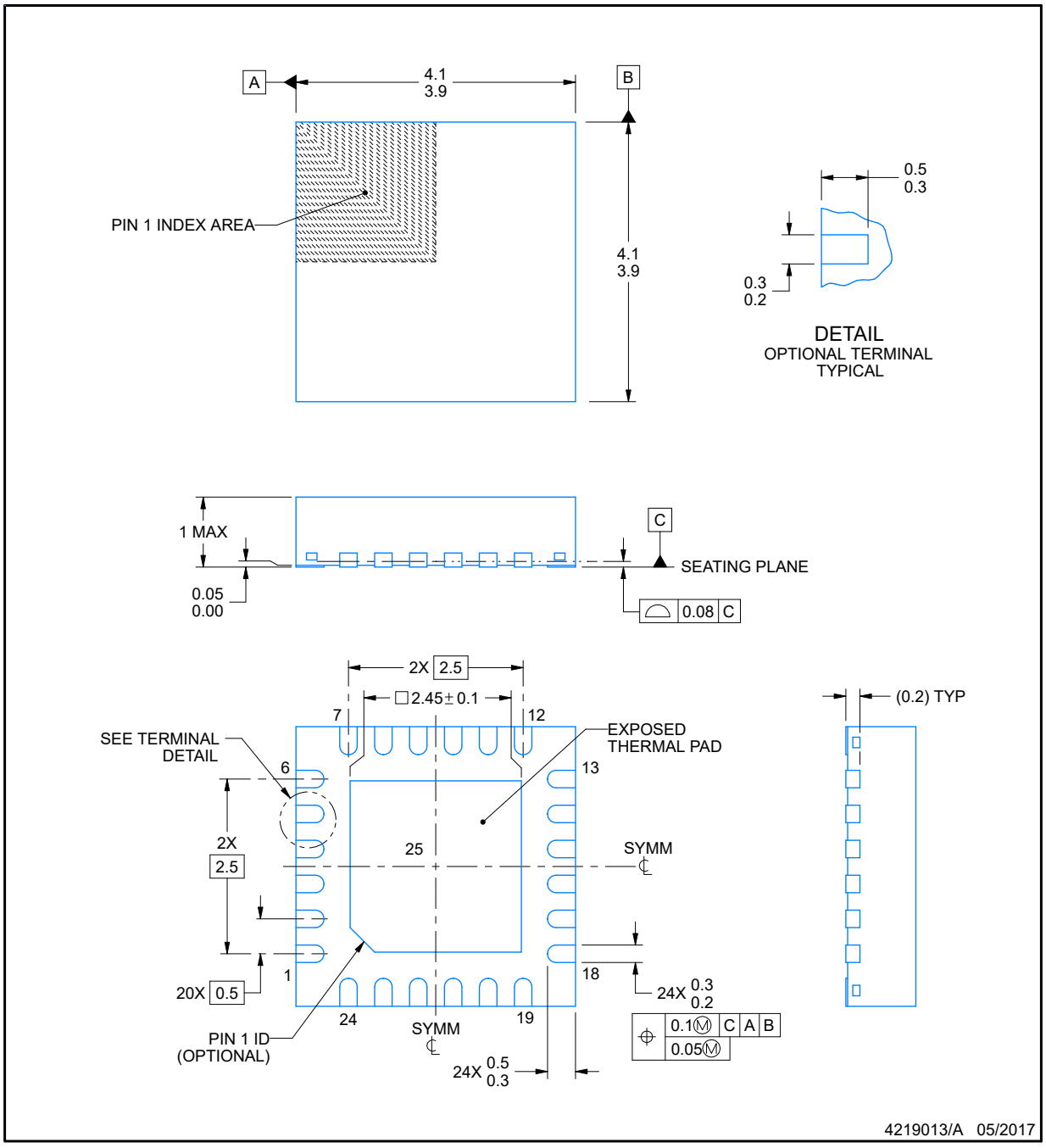
4204104/H

RGE0024B

PACKAGE OUTLINE

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



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.

ADVANCE INFORMATION

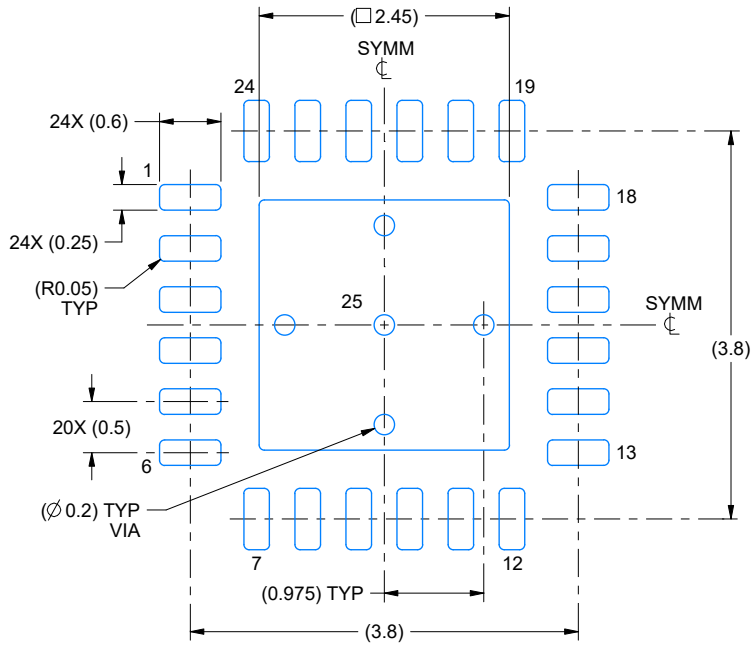
ADVANCE INFORMATION

EXAMPLE BOARD LAYOUT

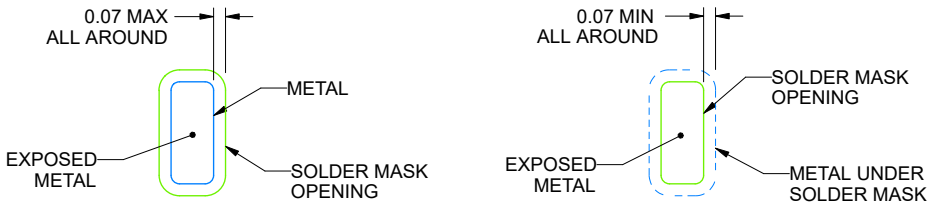
RGE0024B

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE:15X



SOLDER MASK DETAILS

4219013/A 05/2017

NOTES: (continued)

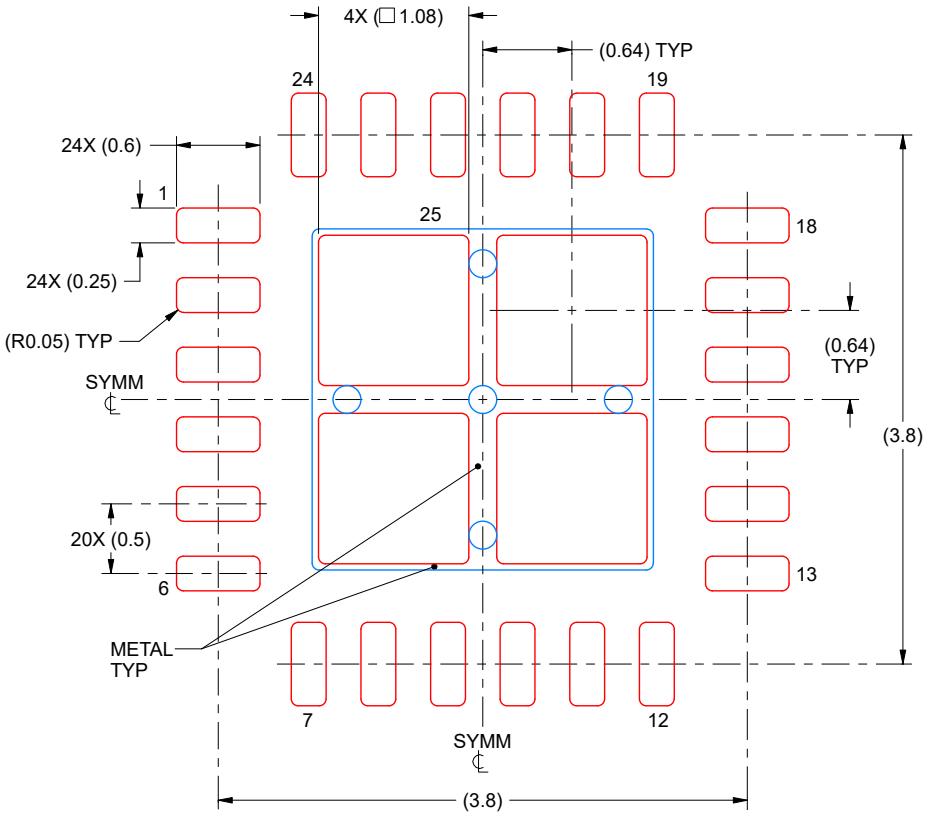
4. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 (www.ti.com/lit/slua271).
5. Vias are optional depending on application, refer to device data sheet. If any vias are implemented, refer to their locations shown on this view. It is recommended that vias under paste be filled, plugged or tented.

EXAMPLE STENCIL DESIGN

RGE0024B

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL

EXPOSED PAD 25
78% PRINTED SOLDER COVERAGE BY AREA UNDER PACKAGE
SCALE:20X

4219013/A 05/2017

NOTES: (continued)

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

ADVANCE INFORMATION

ADVANCE INFORMATION

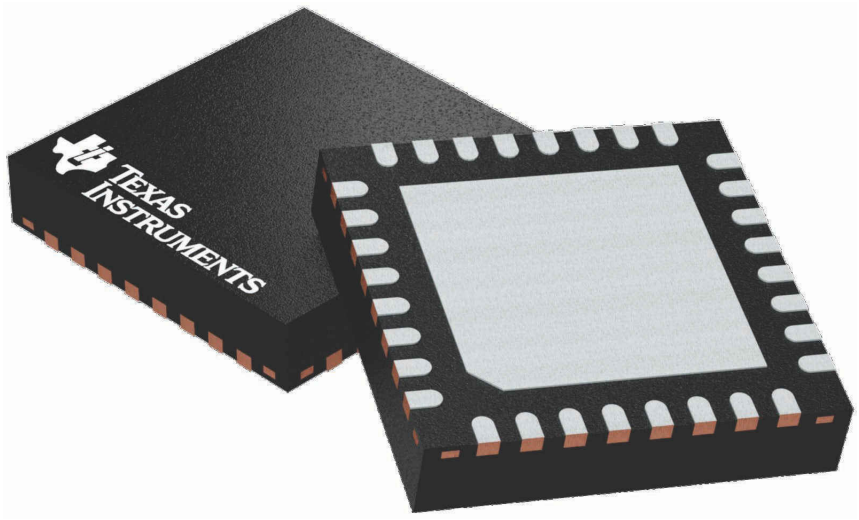
GENERIC PACKAGE VIEW

RHB 32

VQFN - 1 mm max height

5 x 5, 0.5 mm pitch

PLASTIC QUAD FLATPACK - NO LEAD



Images above are just a representation of the package family, actual package may vary.
Refer to the product data sheet for package details.

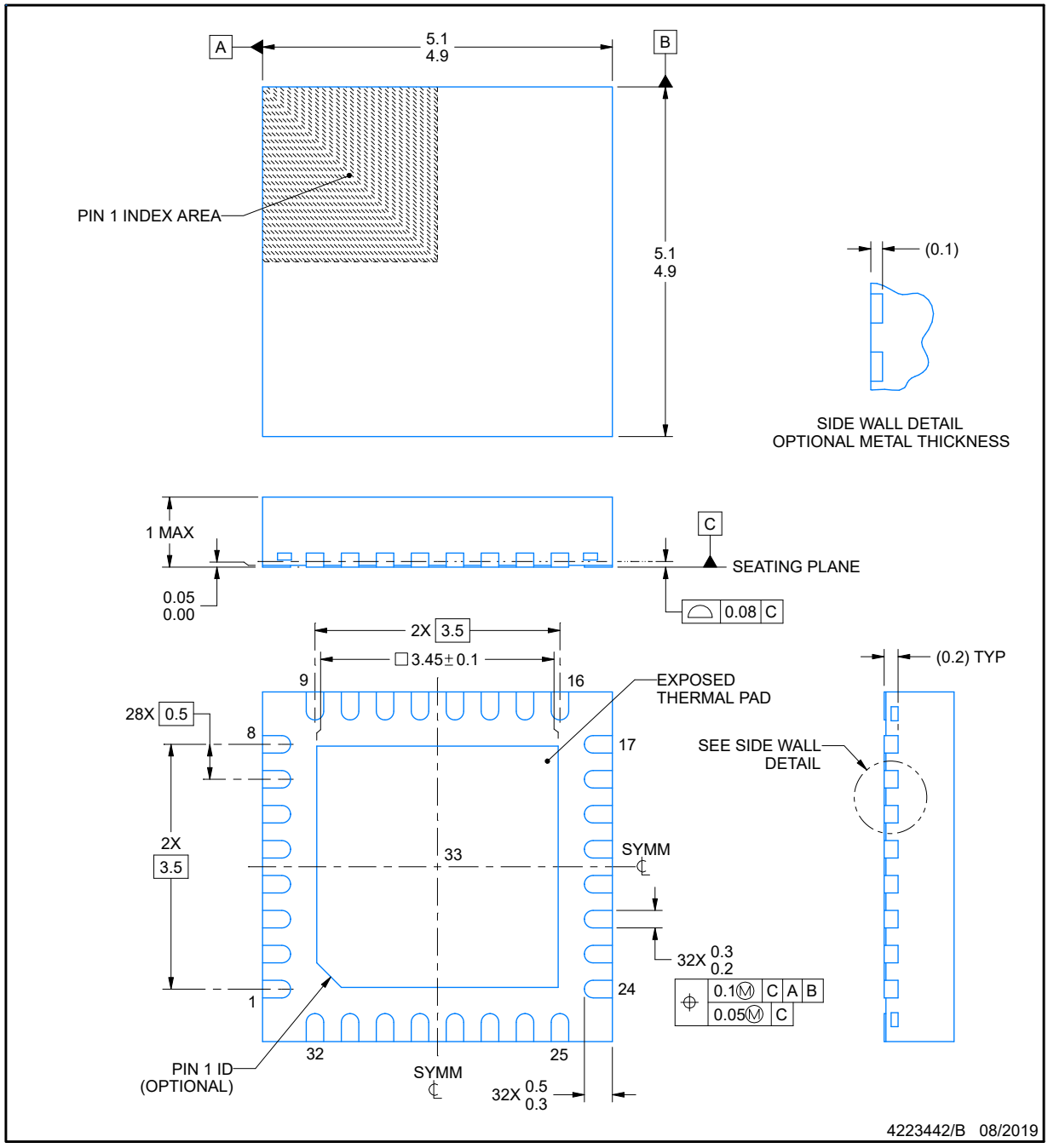
4224745/A

PACKAGE OUTLINE

RHB0032E

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



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.

ADVANCE INFORMATION

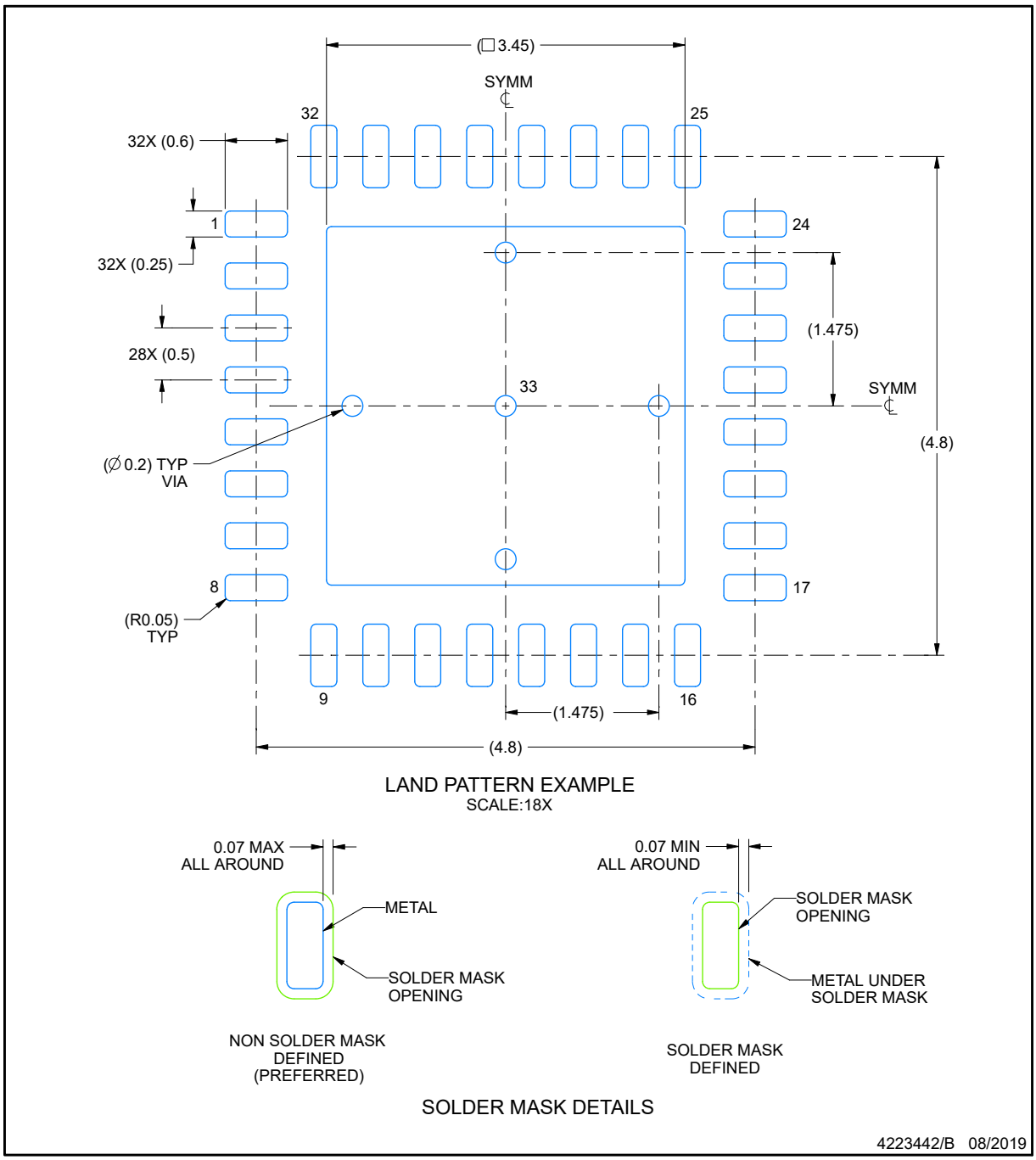
ADVANCE INFORMATION

EXAMPLE BOARD LAYOUT

RHB0032E

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



NOTES: (continued)

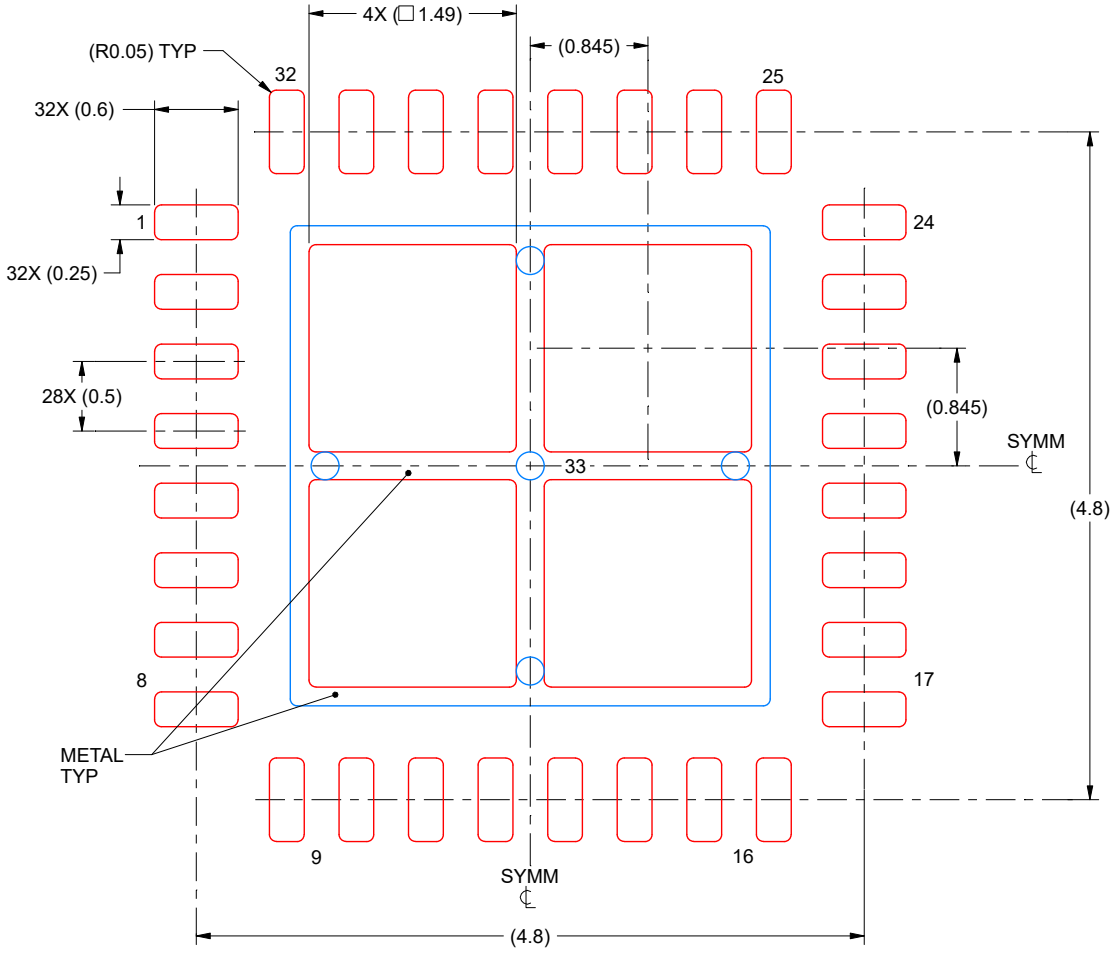
4. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 (www.ti.com/lit/slua271).
5. Vias are optional depending on application, refer to device data sheet. If any vias are implemented, refer to their locations shown on this view. It is recommended that vias under paste be filled, plugged or tented.

EXAMPLE STENCIL DESIGN

RHB0032E

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL

EXPOSED PAD 33:
75% PRINTED SOLDER COVERAGE BY AREA UNDER PACKAGE
SCALE:20X

4223442/B 08/2019

NOTES: (continued)

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

ADVANCE INFORMATION

7 修订历史记录

注：以前版本的页码可能与当前版本的页码不同

日期	修订版本	说明
2022 年 10 月	*	初始发行版

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)
MSPM0L1105TDGS20R	Active	Production	VSSOP (DGS) | 20	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	M0L1105T
MSPM0L1105TDGS20R.A	Active	Production	VSSOP (DGS) | 20	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	M0L1105T
MSPM0L1105TDGS20R.B	Active	Production	VSSOP (DGS) | 20	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	M0L1105T
MSPM0L1105TDGS28R	Active	Production	VSSOP (DGS) | 28	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	L1105T
MSPM0L1105TDGS28R.A	Active	Production	VSSOP (DGS) | 28	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	L1105T
MSPM0L1105TDGS28R.B	Active	Production	VSSOP (DGS) | 28	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	L1105T
MSPM0L1105TDYYR	Active	Production	SOT-23-THIN (DYY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	M0L1105T
MSPM0L1105TDYYR.A	Active	Production	SOT-23-THIN (DYY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	M0L1105T
MSPM0L1105TDYYR.B	Active	Production	SOT-23-THIN (DYY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	M0L1105T
MSPM0L1105TRGER	Active	Production	VQFN (RGE) | 24	3000 | LARGE T&R	Yes	NIPDAU | SN	Level-1-260C-UNLIM	-40 to 105	MSPM0 L1105T
MSPM0L1105TRGER.A	Active	Production	VQFN (RGE) | 24	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	MSPM0 L1105T
MSPM0L1105TRGER.B	Active	Production	VQFN (RGE) | 24	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	MSPM0 L1105T
MSPM0L1105TRHBR	Active	Production	VQFN (RHB) | 32	3000 | LARGE T&R	Yes	NIPDAU | SN	Level-2-260C-1 YEAR	-40 to 105	MSPM0 L1105T
MSPM0L1105TRHBR.A	Active	Production	VQFN (RHB) | 32	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	MSPM0 L1105T
MSPM0L1105TRHBR.B	Active	Production	VQFN (RHB) | 32	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	MSPM0 L1105T
MSPM0L1105TRTRR	Active	Production	WQFN (RTR) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	L1105T
MSPM0L1105TRTRR.A	Active	Production	WQFN (RTR) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	L1105T
MSPM0L1105TRTRR.B	Active	Production	WQFN (RTR) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	L1105T
MSPM0L1106TDGS20R	Active	Production	VSSOP (DGS) | 20	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	M0L1106T
MSPM0L1106TDGS20R.A	Active	Production	VSSOP (DGS) | 20	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	M0L1106T
MSPM0L1106TDGS20R.B	Active	Production	VSSOP (DGS) | 20	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	M0L1106T
MSPM0L1106TDGS28R	Active	Production	VSSOP (DGS) | 28	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	L1106T

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)
MSPM0L1106TDGS28R.A	Active	Production	VSSOP (DGS) | 28	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	L1106T
MSPM0L1106TDGS28R.B	Active	Production	VSSOP (DGS) | 28	5000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	L1106T
MSPM0L1106TDYYR	Active	Production	SOT-23-THIN (DYY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	M0L1106T
MSPM0L1106TDYYR.A	Active	Production	SOT-23-THIN (DYY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	M0L1106T
MSPM0L1106TDYYR.B	Active	Production	SOT-23-THIN (DYY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	M0L1106T
MSPM0L1106TRGER	Active	Production	VQFN (RGE) | 24	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 105	MSPM0 L1106T
MSPM0L1106TRGER.A	Active	Production	VQFN (RGE) | 24	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 105	MSPM0 L1106T
MSPM0L1106TRGER.B	Active	Production	VQFN (RGE) | 24	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 105	MSPM0 L1106T
MSPM0L1106TRHBR	Active	Production	VQFN (RHB) | 32	3000 | LARGE T&R	Yes	NIPDAU | SN	Level-2-260C-1 YEAR	-40 to 105	MSPM0 L1106T
MSPM0L1106TRHBR.A	Active	Production	VQFN (RHB) | 32	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	MSPM0 L1106T
MSPM0L1106TRHBR.B	Active	Production	VQFN (RHB) | 32	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 105	MSPM0 L1106T
MSPM0L1106TRTRR	Active	Production	WQFN (RTR) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	L1106T
MSPM0L1106TRTRR.A	Active	Production	WQFN (RTR) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	L1106T
MSPM0L1106TRTRR.B	Active	Production	WQFN (RTR) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 105	L1106T

(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.

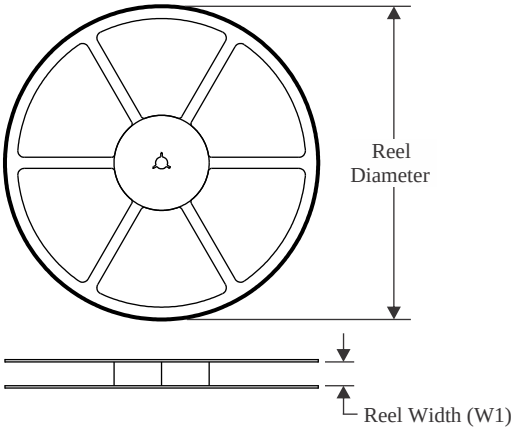
(5) **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will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

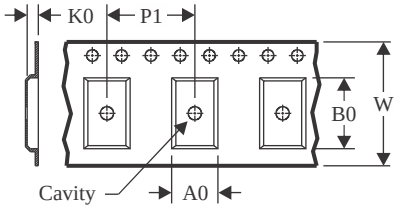
Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

TAPE AND REEL INFORMATION

REEL DIMENSIONS

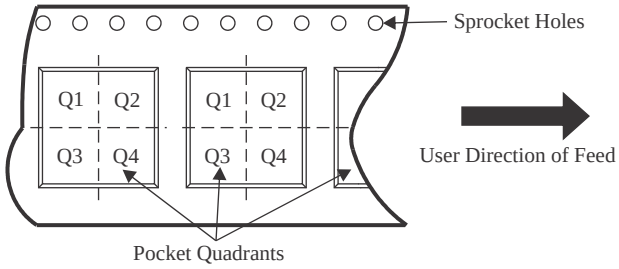


TAPE DIMENSIONS



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

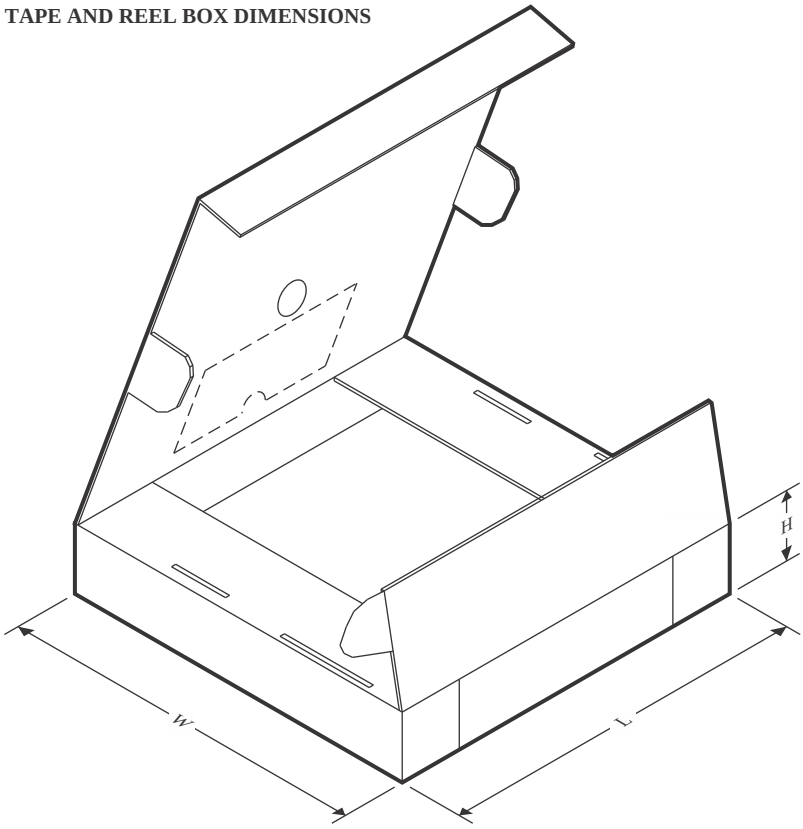
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*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
MSPM0L1105TDGS20R	VSSOP	DGS	20	5000	330.0	16.4	5.4	5.4	1.45	8.0	16.0	Q1
MSPM0L1105TDGS28R	VSSOP	DGS	28	5000	330.0	16.4	5.5	7.4	1.45	8.0	16.0	Q1
MSPM0L1105TDYYR	SOT-23-THIN	DYY	16	3000	330.0	12.4	4.8	3.6	1.6	8.0	12.0	Q3
MSPM0L1105TRGER	VQFN	RGE	24	3000	330.0	12.4	4.3	4.3	1.3	8.0	12.0	Q2
MSPM0L1105TRHBR	VQFN	RHB	32	3000	330.0	12.4	5.3	5.3	1.3	8.0	12.0	Q2
MSPM0L1105TRTRR	WQFN	RTR	16	3000	180.0	8.4	2.25	3.25	1.05	4.0	8.0	Q2
MSPM0L1106TDGS20R	VSSOP	DGS	20	5000	330.0	16.4	5.4	5.4	1.45	8.0	16.0	Q1
MSPM0L1106TDGS28R	VSSOP	DGS	28	5000	330.0	16.4	5.5	7.4	1.45	8.0	16.0	Q1
MSPM0L1106TDYYR	SOT-23-THIN	DYY	16	3000	330.0	12.4	4.8	3.6	1.6	8.0	12.0	Q3
MSPM0L1106TRGER	VQFN	RGE	24	3000	330.0	12.4	4.25	4.25	1.15	8.0	12.0	Q2
MSPM0L1106TRHBR	VQFN	RHB	32	3000	330.0	12.4	5.3	5.3	1.3	8.0	12.0	Q2
MSPM0L1106TRTRR	WQFN	RTR	16	3000	180.0	8.4	2.25	3.25	1.05	4.0	8.0	Q2

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
MSPM0L1105TDGS20R	VSSOP	DGS	20	5000	353.0	353.0	32.0
MSPM0L1105TDGS28R	VSSOP	DGS	28	5000	353.0	353.0	32.0
MSPM0L1105TDYYR	SOT-23-THIN	DYY	16	3000	336.6	336.6	31.8
MSPM0L1105TRGER	VQFN	RGE	24	3000	356.0	356.0	36.0
MSPM0L1105TRHBR	VQFN	RHB	32	3000	356.0	356.0	36.0
MSPM0L1105TRTRR	WQFN	RTR	16	3000	210.0	185.0	35.0
MSPM0L1106TDGS20R	VSSOP	DGS	20	5000	353.0	353.0	32.0
MSPM0L1106TDGS28R	VSSOP	DGS	28	5000	353.0	353.0	32.0
MSPM0L1106TDYYR	SOT-23-THIN	DYY	16	3000	336.6	336.6	31.8
MSPM0L1106TRGER	VQFN	RGE	24	3000	367.0	367.0	35.0
MSPM0L1106TRHBR	VQFN	RHB	32	3000	356.0	356.0	36.0
MSPM0L1106TRTRR	WQFN	RTR	16	3000	210.0	185.0	35.0

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最后更新日期：2025 年 10 月