

## 具有升压、数字前端和内部波形存储器的压电式触觉驱动器驱动器

查询样品: **DRV2667**

### 特性

- 集成数字前端
  - 高达 **400kHz** 的 **I<sup>2</sup>C** 总线控制
  - 高级波形合成器
  - **2kB** 内部波形存储器
  - 内部 **100** 字节先进先出 (**FIFO**) 接口
  - **TS5000** 兼容
  - 可选模拟输入
- 高压压电式触觉驱动器
  - 在 **200V<sub>PP</sub>** 和 **300Hz** 上驱动高达 **100nF** 的负载
  - 在 **150V<sub>PP</sub>** 和 **300Hz** 上驱动高达 **150nF** 的负载
  - 在 **100V<sub>PP</sub>** 和 **300Hz** 上驱动高达 **330nF** 的负载
  - 在 **50V<sub>PP</sub>** 和 **300Hz** 上驱动高达 **680nF** 的负载
  - 差分输出
- 集成的 **105V** 升压转换器
  - 可调升压电压
  - 可调节升压限流
  - 集成功率场效应晶体管 (**FET**) 和二极管
  - 无需变压器
- **2ms** 快速启动时间 (典型值)
- **3V** 至 **5.5V** 的宽电源电压范围
- **1.8V** 兼容, **VDD** 容限数字引脚
- 采用 **4mm x 4mm x 0.9mm** 四方扁平无引线 (**QFN**) 封装 (**RGP**)
- 具有与 **DRV8662** 相似的引脚并且与 **DRV2665** 引脚兼容

### 应用范围

- 移动电话
- 平板电脑
- 便携式计算机
- 键盘和鼠标
- 电脑游戏
- 支持触控的器件

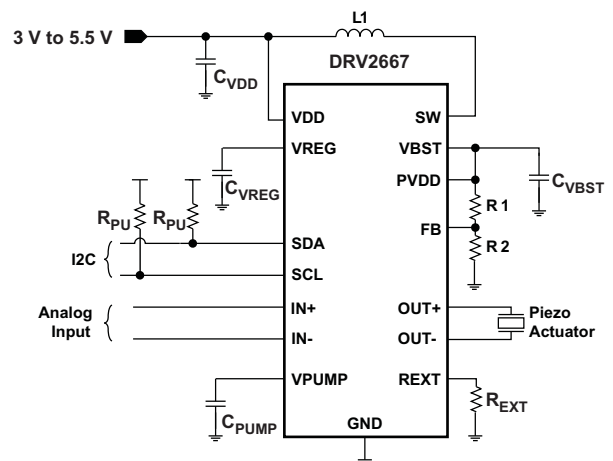
### 说明

DRV2667 是一款压电式触觉驱动器, 此驱动器集成有 105V 升压开关、集成功率二极管、集成型全差分放大器 and 集成型数字前端。这个多用途器件能够驱动高压和低压压电式触觉致动器。输入信号可在 I<sup>2</sup>C 端口上或者通过模拟输入驱动。

DRV2667 数字接口可通过一个 I<sup>2</sup>C 兼容总线获得。在主机系统中, 一个数字接口减轻了脉宽调制 (PWM) 生成或者额外模拟通道要求方面的昂贵处理器负担。任一到内部 FIFO 的写入将自动唤醒此器件并在 2ms 的内部启动程序之后开始播放波形。当数据流停止或者 FIFO 正在运行时, DRV2667 将自动进入一个无爆音关断程序。

DRV2667 还包括深度易失性波形存储器来用最小的延迟保存且读取波形, 以及一个高级波形合成器来用最少的存储器构建复杂触觉波形。这就提供了一个硬件加速方式, 从而减轻了处理器的触觉生成工作并大大减少了触觉接口上的总线流量。

使用两个外部电阻来设定升压电压, 并且升压电流限制可通过 R<sub>EXT</sub> 电阻进行编程。2ms 的典型启动时间使得 DRV2667 成为实现快速触觉响应压电式驱动器的理想选择。热过载保护防止过驱时对器件造成的损坏。



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**PACKAGING INFORMATION**

| Orderable Device | Status<br>(1) | Package Type | Package<br>Drawing | Pins | Package<br>Qty | Eco Plan<br>(2) | Lead finish/<br>Ball material<br>(6) | MSL Peak Temp<br>(3) | Op Temp (°C) | Device Marking<br>(4/5) | Samples        |
|------------------|---------------|--------------|--------------------|------|----------------|-----------------|--------------------------------------|----------------------|--------------|-------------------------|----------------|
| DRV2667RGPR      | ACTIVE        | QFN          | RGP                | 20   | 3000           | RoHS & Green    | NIPDAU                               | Level-4-260C-72 HR   | -40 to 85    | 2667                    | <b>Samples</b> |
| DRV2667RGPT      | ACTIVE        | QFN          | RGP                | 20   | 250            | RoHS & Green    | NIPDAU                               | Level-4-260C-72 HR   | -40 to 85    | 2667                    | <b>Samples</b> |

(1) The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

(2) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".

**RoHS Exempt:** TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.

**Green:** TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead finish/Ball material - Orderable Devices 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.

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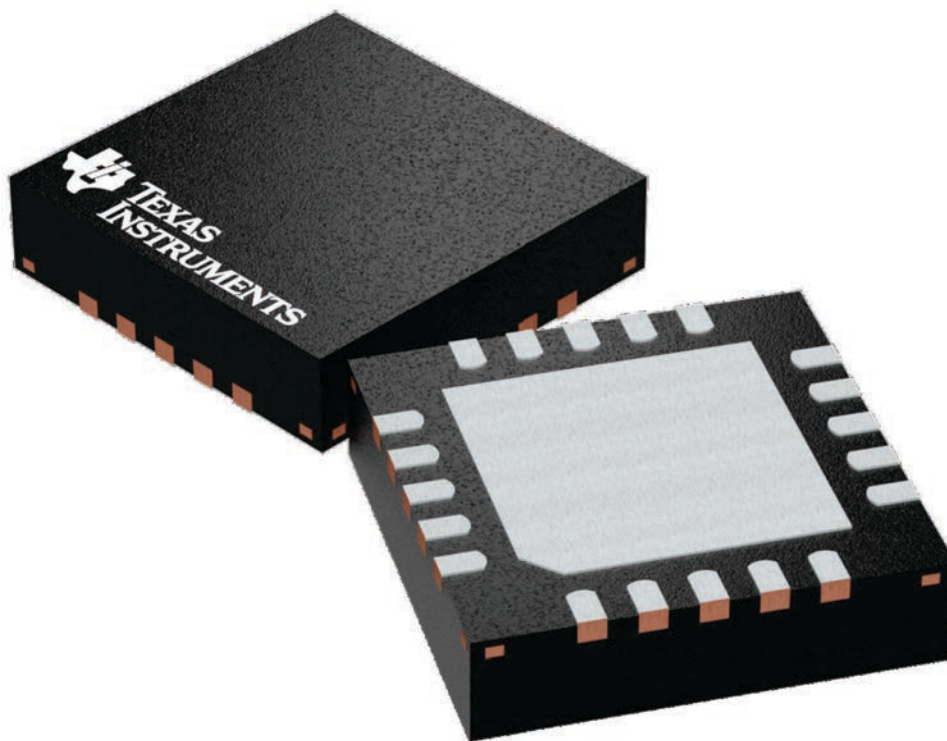
## GENERIC PACKAGE VIEW

**RGP 20**

**VQFN - 1 mm max height**

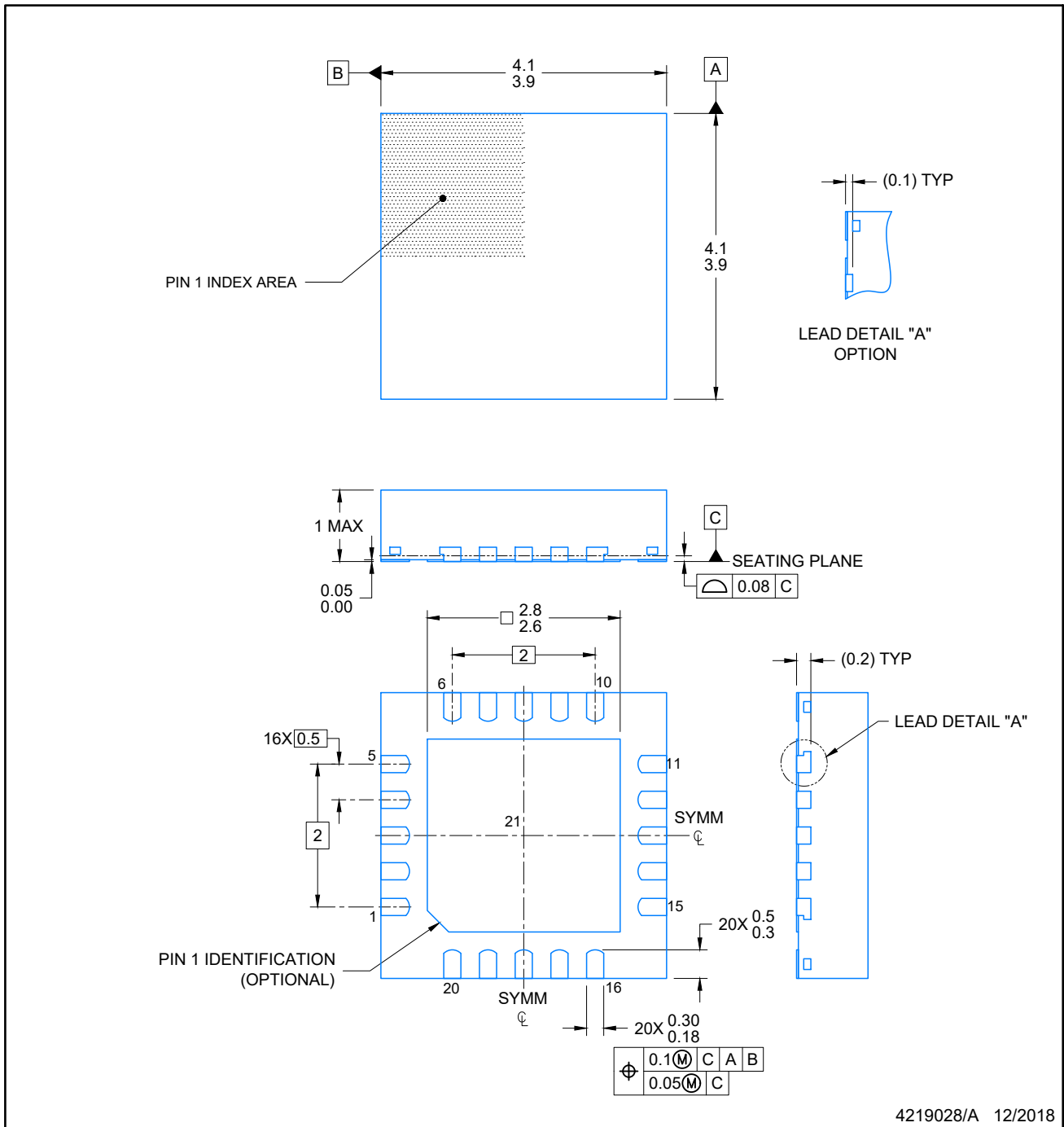
4 x 4, 0.5 mm pitch

VERY THIN QUAD FLATPACK



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

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NOTES:

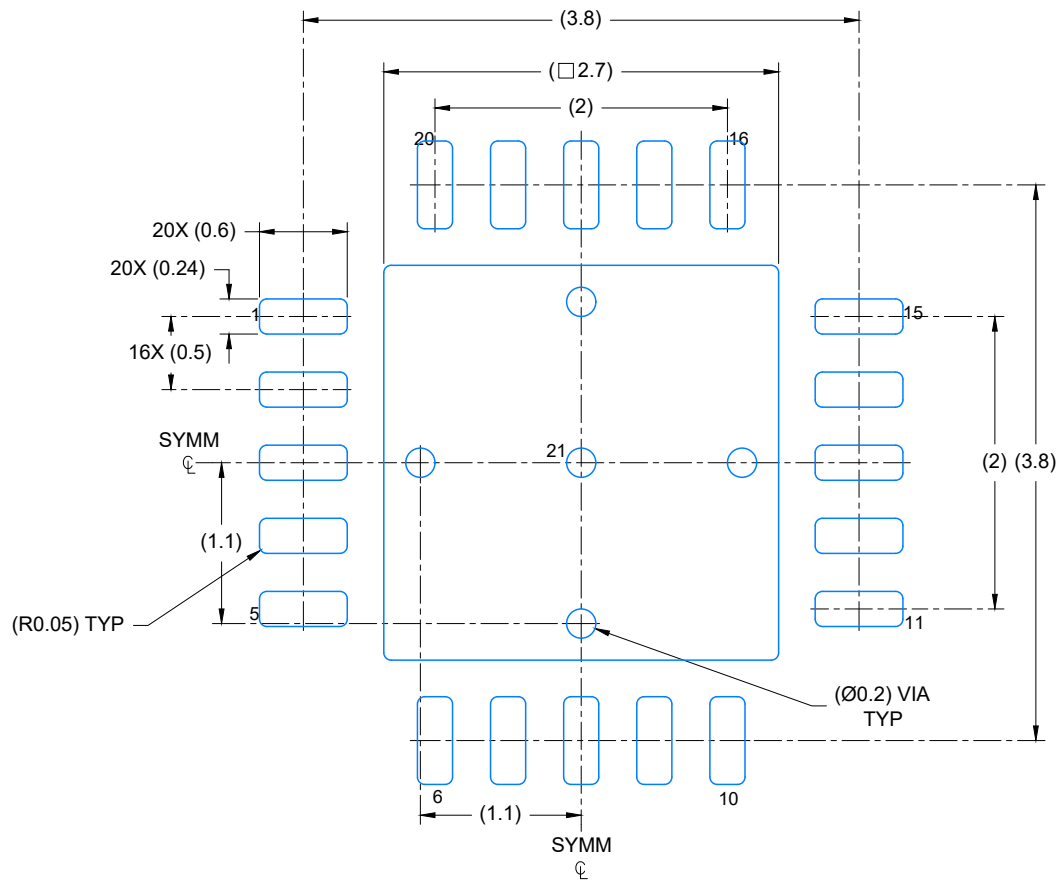
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. The package thermal pad must be soldered to the printed circuit board for optimal thermal and mechanical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

# EXAMPLE BOARD LAYOUT

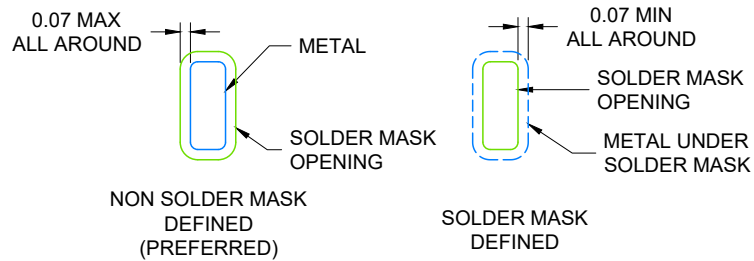
VQFN - 1 mm max height

RGP0020D

PLASTIC QUAD FLATPACK- NO LEAD



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE: 20X



SOLDER MASK DETAILS

4219028/A 12/2018

NOTES: (continued)

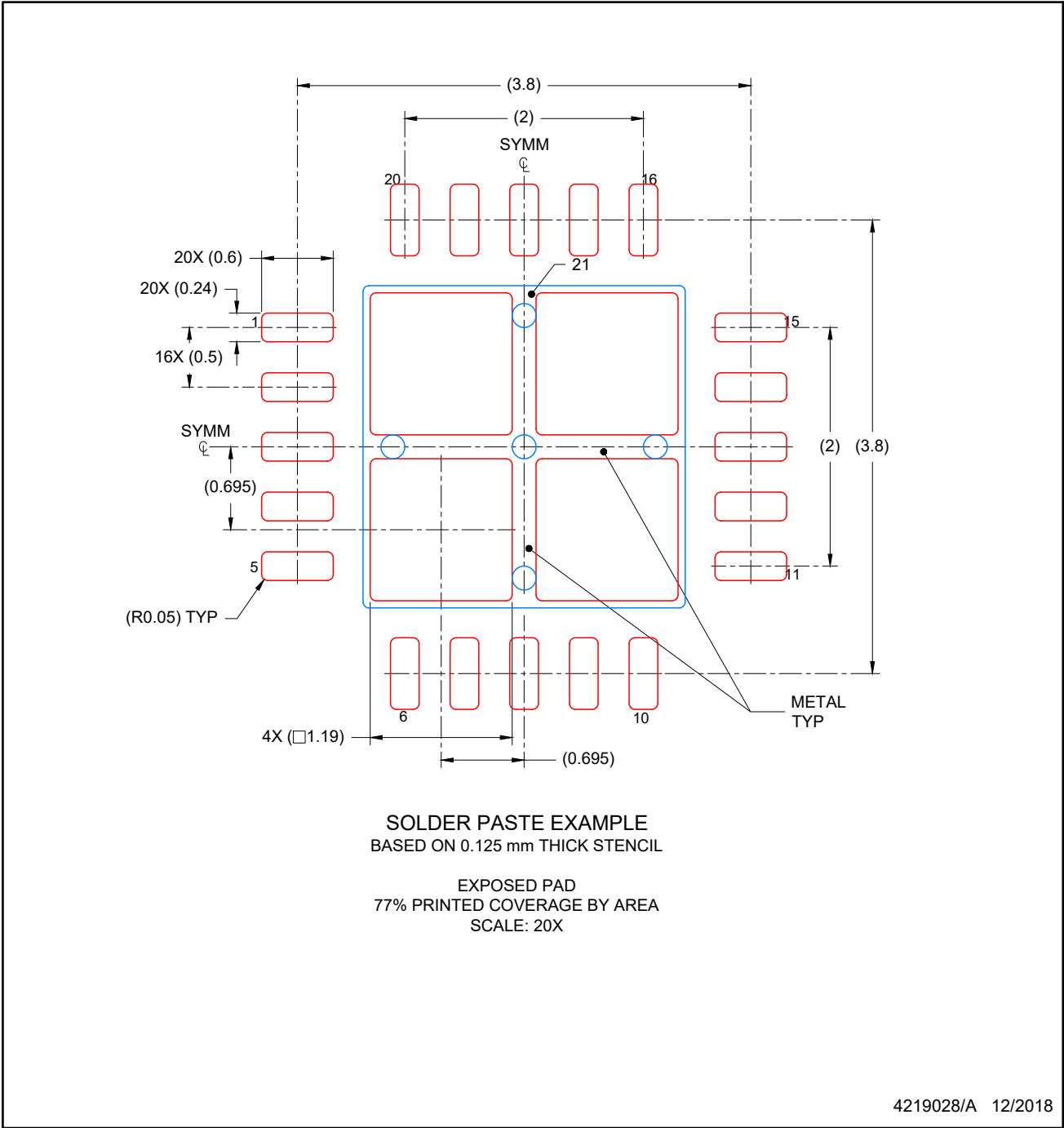
4. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 ([www.ti.com/lit/sluea271](http://www.ti.com/lit/sluea271)).
5. Vias are optional depending on application, refer to device data sheet. If any vias are implemented, refer to their locations shown on this view. It is recommended that vias under paste be filled, plugged or tented.

# EXAMPLE STENCIL DESIGN

RGP0020D

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK- NO LEAD



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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