

TPS650340-Q1 汽车摄像头 PMIC

1 特性

- 符合汽车应用要求
- 符合 AEC-Q100 1 级标准
 - 40°C 至 +125°C 环境工作温度范围
- 三个降压转换器：
 - BUCK1 V_{IN} 范围为 4.0V 至 18.3V
 - BUCK1 V_{OUT} 范围为 2.5V 至 4.0V
 - BUCK1 输出电流高达 800mA
 - BUCK2 和 BUCK3 V_{IN} 范围为 2.5V 至 5.5V
 - BUCK2 和 BUCK3 V_{OUT} 范围为 0.9V 至 1.9V
 - BUCK2 输出电流高达 600mA
 - BUCK3 输出电流高达 600mA
 - 用于降低 EMI 的扩频时钟 (SSC) 发生器
 - 2.3MHz 强制固定开关频率 PWM 模式工作
- 一个低压降 (LDO) 稳压器：
 - V_{IN} 范围为 2.5V 至 5.5V
 - V_{OUT} 范围为 1.8V 至 3.3V
 - 低噪声和高 PSRR
 - 输出电流高达 300mA
- 具有可湿性侧面的 3.0mm × 3.5mm 22 引脚 WQFN 封装

2 应用

- 汽车摄像头模块
 - 环视摄像头模块
 - 后视摄像头模块
 - 驾驶员监控摄像头模块
 - 同轴电缆供电 (POC) 摄像头模块
 - 电子视镜摄像头模块

3 说明

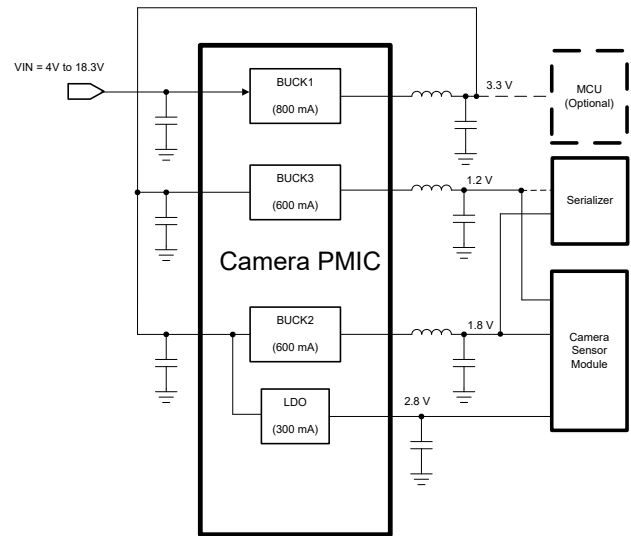
TPS650340-Q1 器件是一种高度集成的电源管理 IC，可适用于汽车摄像头模块。此器件包含三个降压转换器和一个低压降 (LDO) 稳压器。BUCK1 降压转换器的输入电压范围高达 18.3V，用于连接到用于供电的同轴电缆 (PoC)。所有转换器都在强制固定频率 PWM 模式下工作。LDO 提供 300mA 的电流，在 2.5V 至 5.5V 的输入电压范围内运行。降压转换器和 LDO 具有单独的电压输入，可实现最大的设计和时序控制灵活性。

TPS650340-Q1 采用 22 引脚 WQFN 封装 (3.0 mm × 3.5 mm)。

封装信息

器件型号	封装 ⁽¹⁾	封装尺寸 (标称值)
TPS650340-Q1	WQFN (22)	3.00mm × 3.50mm

(1) 如需了解所有可用封装，请参阅数据表末尾的可订购产品附录。



TPS650340-Q1 应用电路



4 器件和文档支持

4.1 器件支持

4.1.1 第三方产品免责声明

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4.2 接收文档更新通知

要接收文档更新通知，请导航至 ti.com 上的器件产品文件夹。点击 [通知](#) 进行注册，即可每周接收产品信息更改摘要。有关更改的详细信息，请查看任何已修订文档中包含的修订历史记录。

4.3 支持资源

[TI E2E™ 中文支持论坛](#) 是工程师的重要参考资料，可直接从专家处获得快速、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，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](#)。

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4.5 静电放电警告



静电放电 (ESD) 会损坏这个集成电路。德州仪器 (TI) 建议通过适当的预防措施处理所有集成电路。如果不遵守正确的处理和安装程序，可能会损坏集成电路。

ESD 的损坏小至导致微小的性能降级，大至整个器件故障。精密的集成电路可能更容易受到损坏，这是因为非常细微的参数更改都可能会导致器件与其发布的规格不相符。

4.6 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。

5 机械、封装和可订购信息

以下页面包含机械、封装和可订购信息。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。

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)
TPS65034003RZDRQ1	Active	Production	WQFN-FCRLF (RZD) 22	3000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-	O34003

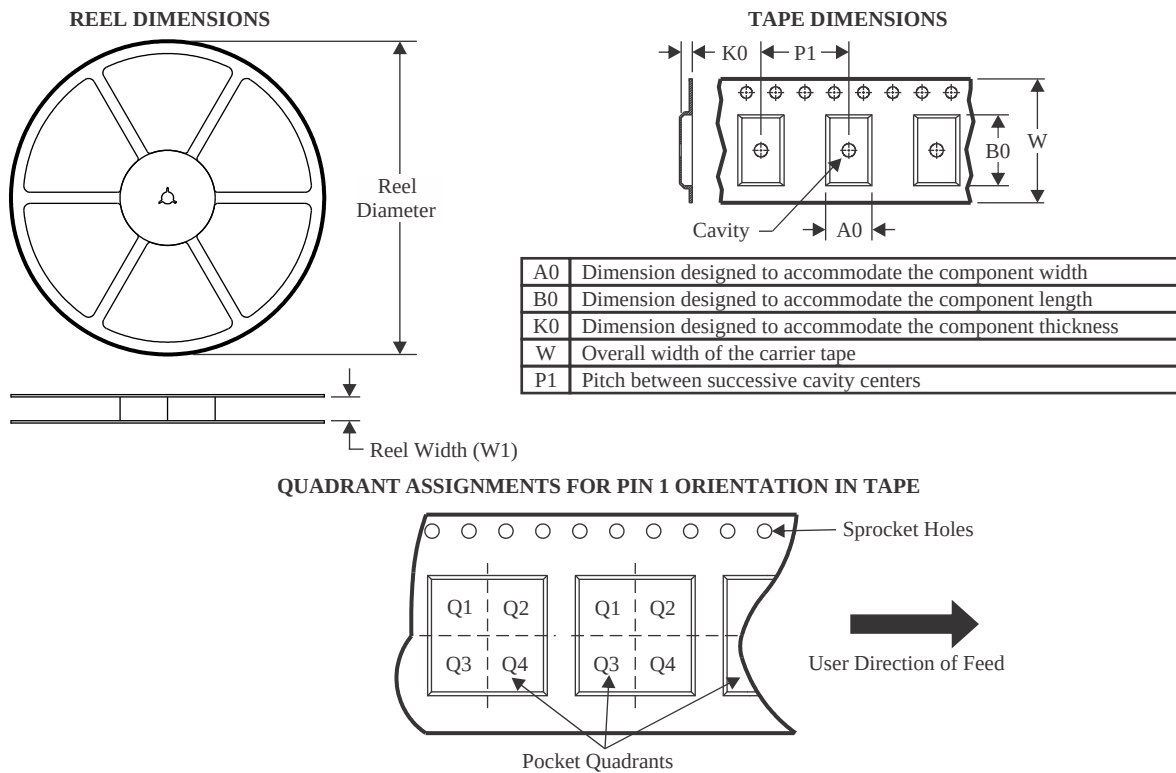
- (1) **Status:** For more details on status, see our [product life cycle](#).
- (2) **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, 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.

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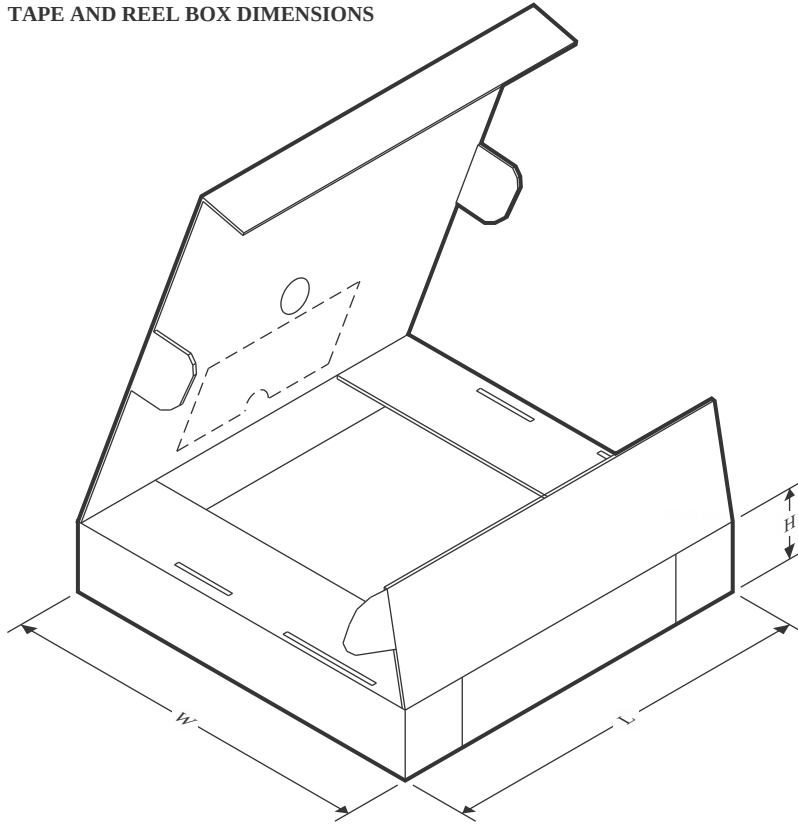
TAPE AND REEL INFORMATION



*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
TPS65034003RZDRQ1	WQFN-FCRLF	RZD	22	3000	330.0	12.4	3.3	3.8	1.2	8.0	12.0	Q1

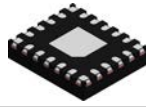
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
TPS65034003RZDRQ1	WQFN-FCRLF	RZD	22	3000	367.0	367.0	35.0

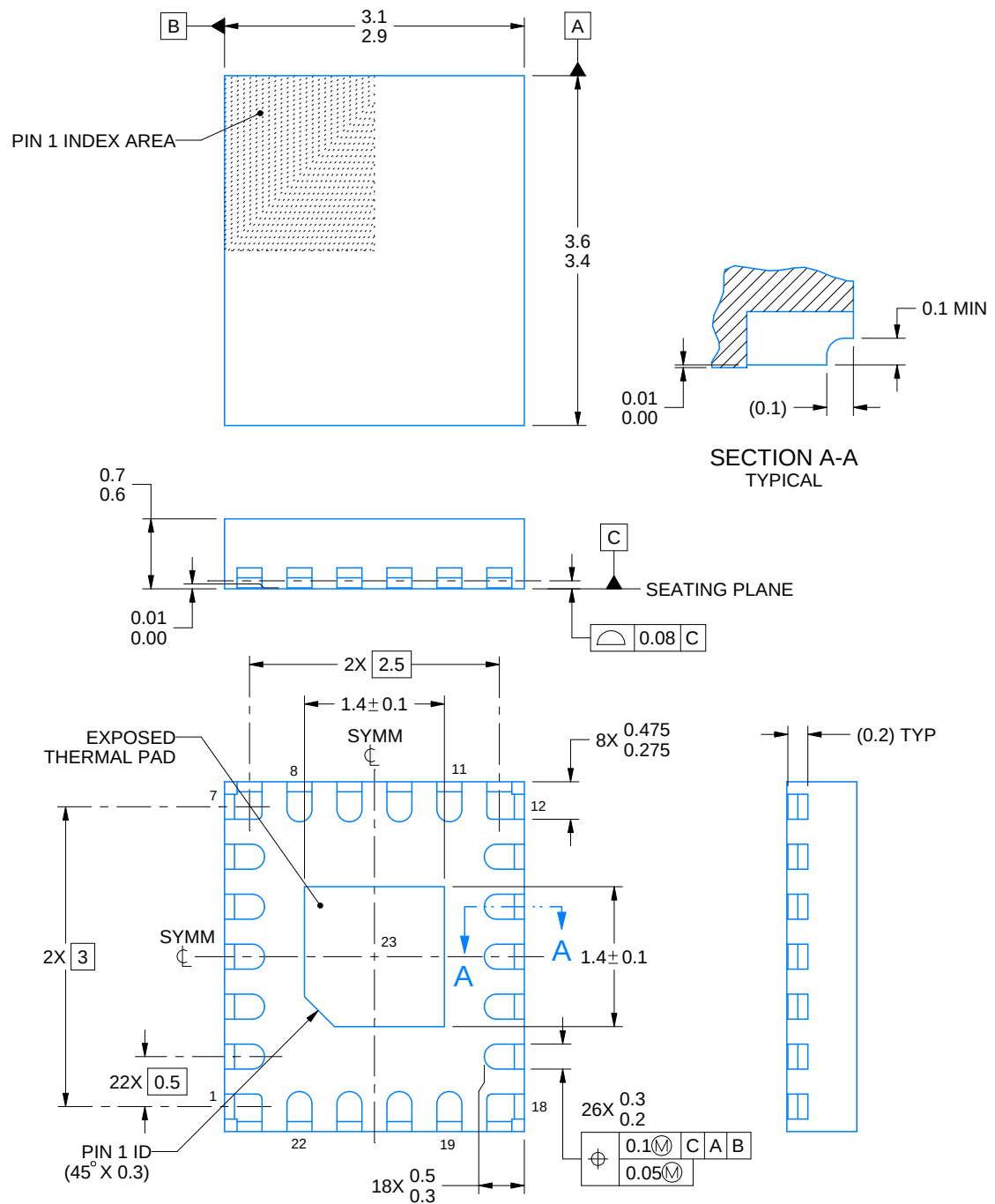
RZD0022A



PACKAGE OUTLINE

WQFN-FCRLF - 0.7 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



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NOTES:

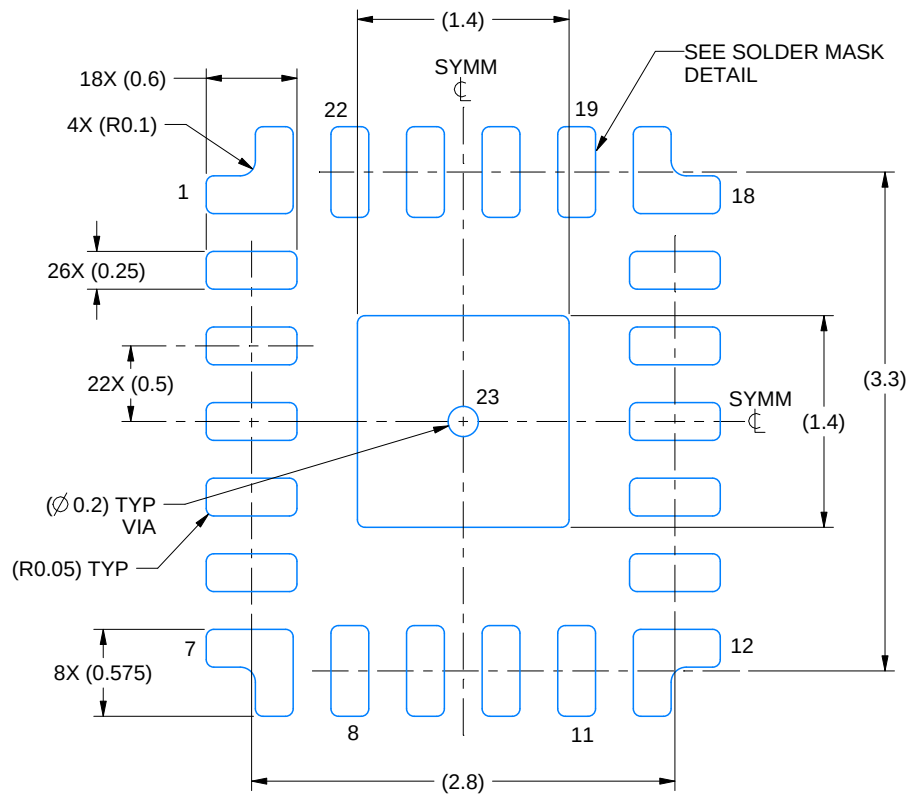
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. The package thermal pad must be soldered to the printed circuit board for thermal and mechanical performance.

EXAMPLE BOARD LAYOUT

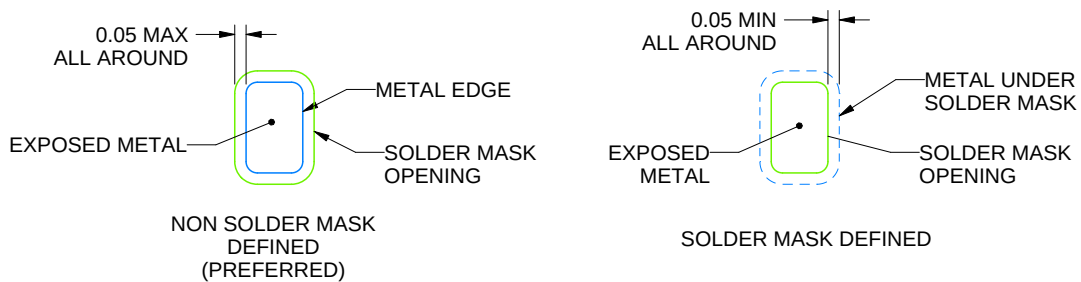
RZD0022A

WQFN-FCRLF - 0.7 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)

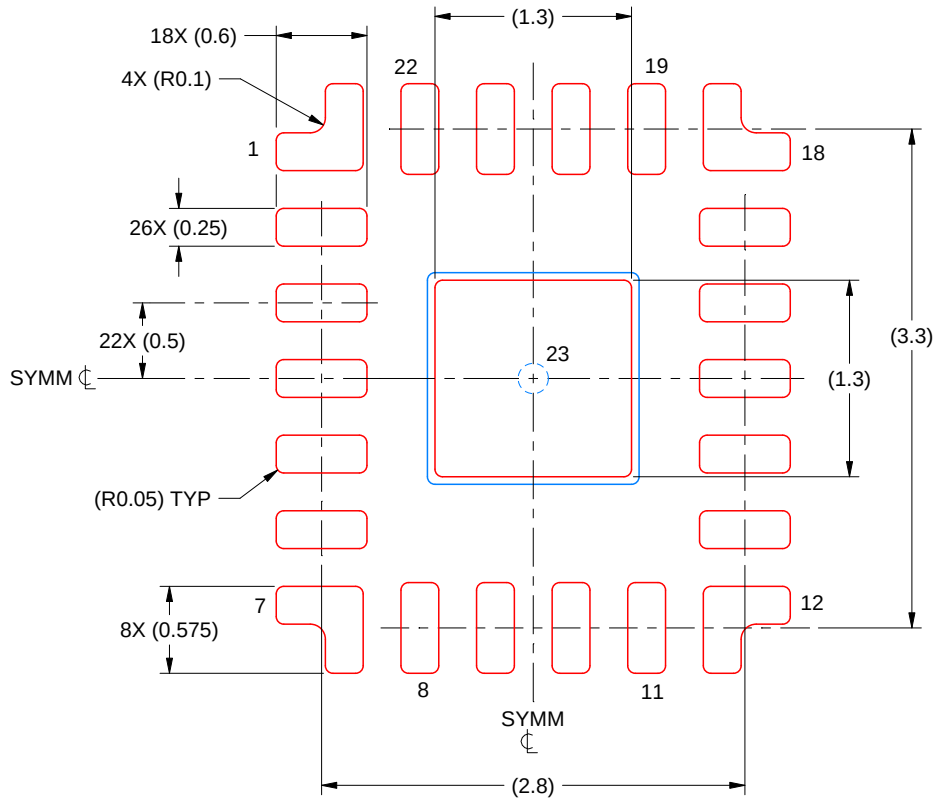
4. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 (www.ti.com/lit/sluea271).
5. Vias are optional depending on application, refer to device data sheet. If any vias are implemented, refer to their locations shown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

EXAMPLE STENCIL DESIGN

RZD0022A

WQFN-FCRLF - 0.7 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



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

EXPOSED PAD 19
86% PRINTED SOLDER COVERAGE BY AREA UNDER PACKAGE

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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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