# 带有针对线性谐振制动器 (LRA) 自动谐振跟踪和针对离心旋转质量制动器 (ERM) 优化驱动的触控反馈驱动器

查询样品: DRV2603

PRODUCT PREVIEW

## 特性

- 灵活触控反馈 / Vibra 驱动程序
  - LRA（线性谐振 制动器）
  - ERM（离心旋转质量)
- 针对 LRA 的自动谐振跟踪
  - 无需频率校准
  - 自动驱动换向
  - 自动制动 算法
  - 宽输入脉宽调制 (PWM) 频率 范围
- 持续振动强度超过 供应范围
- 自动输入电平转换
- 0% 到 100% 占空 比控制的范围
- 快速启动时间
- 从单端输入的 差分驱动
- 2.5V 至 5.2 V 的宽电源电压范围
- 1.8V 兼容，5V 容限数字引脚
- 采用 2mm x 2mm x 0.75mm 四方扁平无引线 (QFN) 封装 (RUN)

## 应用范围

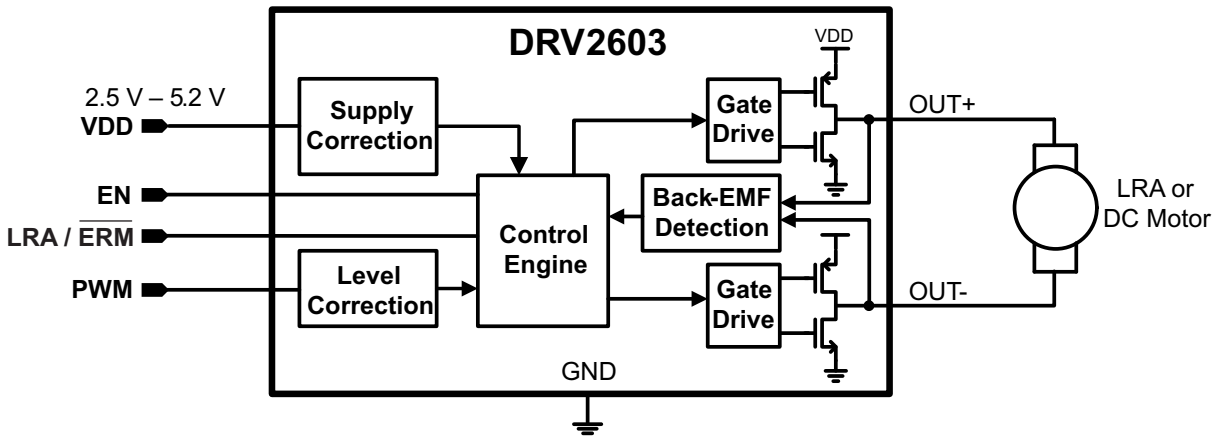
- 移动电话
- 平板电脑
- 支持触控 的器件

## 说明

DRV2603 是一款专为解决在驱动 线性谐振制动器 (LRA) 和离心旋转质量制动器 (ERM) 触觉反馈元件中常见障碍的触觉反馈驱动器。 DRV2603 还被用于为具有低延迟、极高的效率、以及大驱动强度的便携式器件中常用 制动器提供驱动力量。

LRA 制动器通常有一个窄频带，在该频带内它们有充分的 触觉反馈响应。 这个频率窗口通常在 ±2.5Hz 左右，所以对驱动一个 LRA 制动器来说是一个挑战。 DRV2603 通过采用自动谐振 跟踪解决了这个问题，它会自动检测并跟踪最佳的换向频率。 这意味着 在输入范围（10kHz 至 250kHz）内的任一 PWM 频率都会自动产生 正确的谐振输出频率。 作为一个额外的好处就是 DRV2603 能够执行优化的 制动算法，以此阻止 LRA 振铃，留给用户一个清晰的触觉反馈 感觉。

对于 ERM 和 LRA 制动器，DRV2603 自动输入电平转换在无需增加额外的外部元件的情况下解决了 低电压 PWM 源的问题，所以如果 数字 I/O 电平变化时，输出电压不会改变。 DRV2603 还有电源校正 功能来确保无电源调节时的恒定振动强度，从而允许一个 高效，直接电池连接。




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## PACKAGING INFORMATION

| Orderable Device | Status (1) | Package Type | Package Drawing | Pins | Package Qty | Eco Plan (2) | Lead finish/ Ball material (6) | MSL Peak Temp (3) | Op Temp (°C) | Device Marking (4/5) | Samples |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DRV2603RUNR | ACTIVE | QFN | RUN | 10 | 3000 | RoHS & Green | NIPDAU | Level-2-260C-1 YEAR | -40 to 85 | 2603 | Samples |
| DRV2603RUNT | ACTIVE | QFN | RUN | 10 | 250 | RoHS & Green | NIPDAU | Level-2-260C-1 YEAR | -40 to 85 | 2603 | Samples |

(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

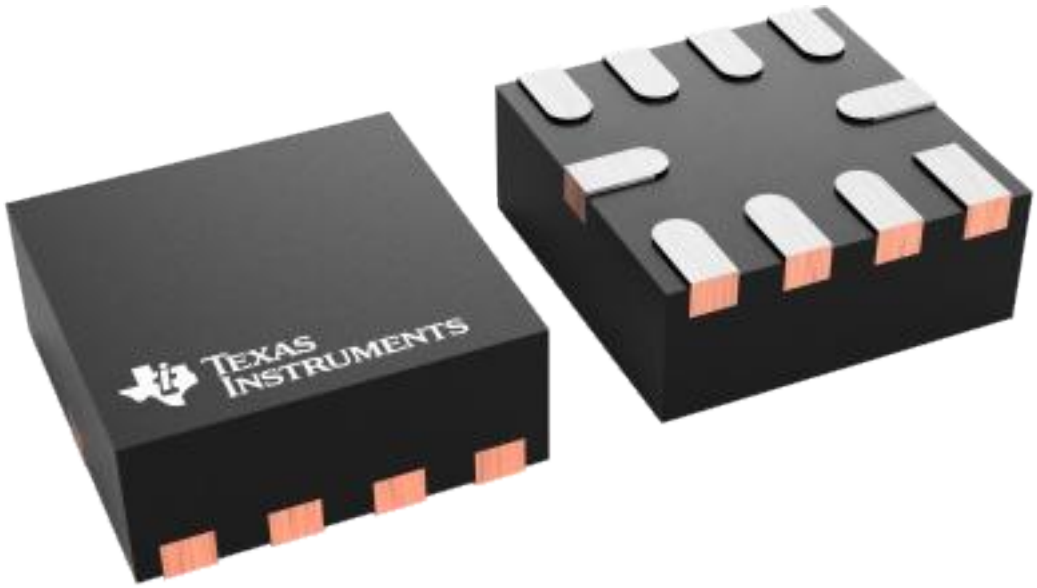
## RUN 10

## WQFN - 0.8 mm max height

**2 X 2, 0.5 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.



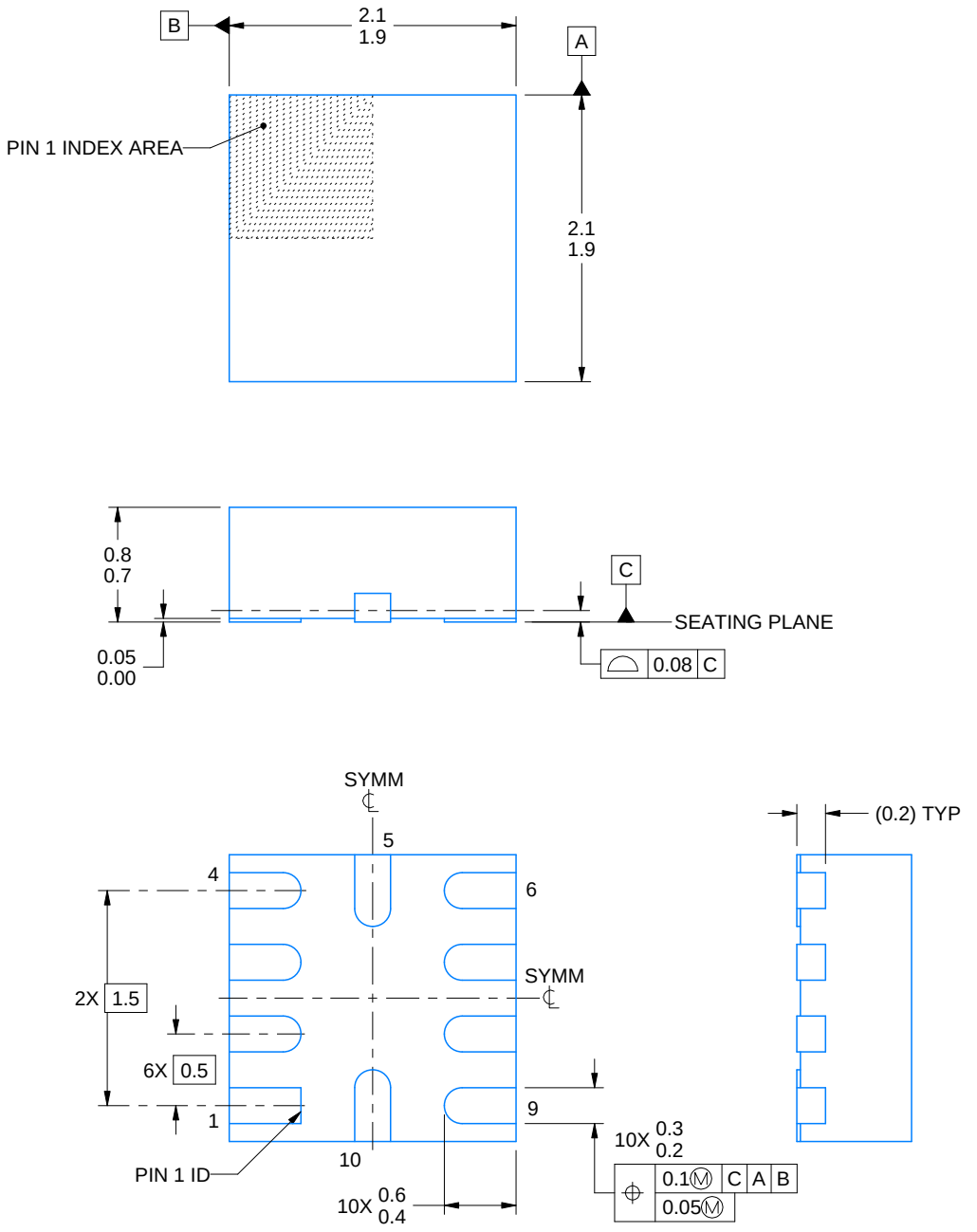

4228249/A

# RUN0010A

# PACKAGE OUTLINE

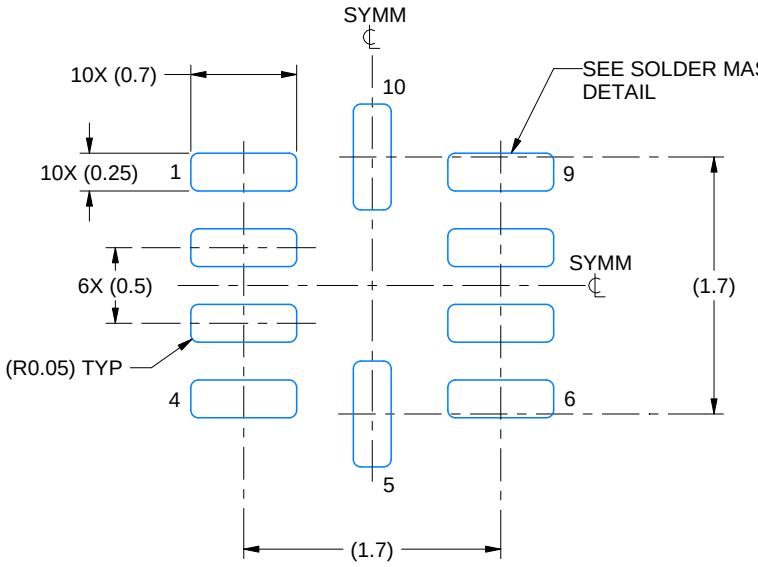
## WQFN - 0.8 mm max height

PLASTIC QUAD FLATPACK - NO LEAD

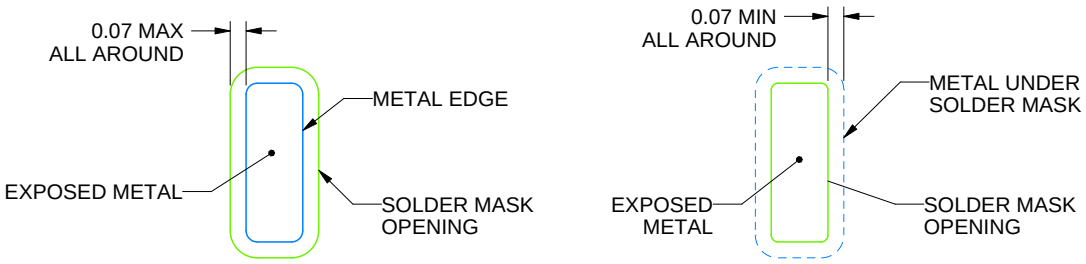



NOTES:

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.




LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 20X




SOLDER MASK DETAILS

4220470/A 05/2020

NOTES: (continued)

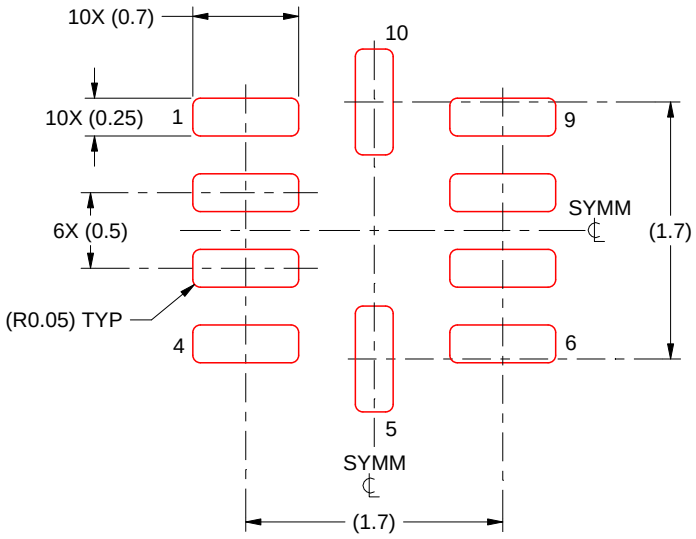
3. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 (www.ti.com/lit/slua271).

# EXAMPLE STENCIL DESIGN

## RUN0010A

## WQFN - 0.8 mm max height

PLASTIC QUAD FLATPACK - NO LEAD




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

4220470/A 05/2020

NOTES: (continued)

4. 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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