

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**

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

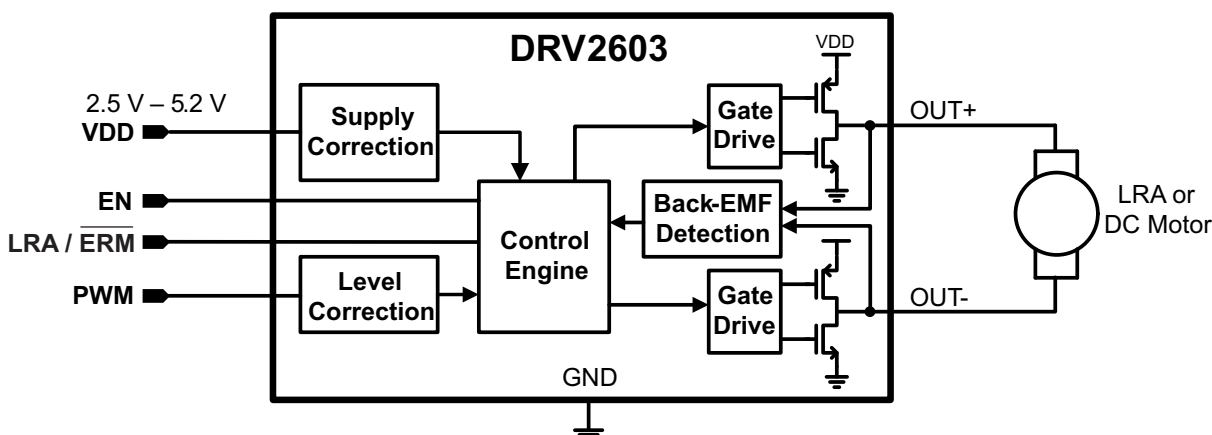
- 移动电话
- 平板电脑
- 支持触控 的器件

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 $\pm 2.5\text{Hz}$ 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 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)
DRV2603RUNR	Active	Production	QFN (RUN) 10	3000 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	2603
DRV2603RUNR.A	Active	Production	QFN (RUN) 10	3000 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	2603
DRV2603RUNR.B	Active	Production	QFN (RUN) 10	3000 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	2603
DRV2603RUNRG4	Active	Production	QFN (RUN) 10	3000 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	2603
DRV2603RUNRG4.A	Active	Production	QFN (RUN) 10	3000 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	2603
DRV2603RUNRG4.B	Active	Production	QFN (RUN) 10	3000 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	2603
DRV2603RUNT	Active	Production	QFN (RUN) 10	250 SMALL T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	2603
DRV2603RUNT.A	Active	Production	QFN (RUN) 10	250 SMALL T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	2603
DRV2603RUNT.B	Active	Production	QFN (RUN) 10	250 SMALL T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	2603

(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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GENERIC PACKAGE VIEW

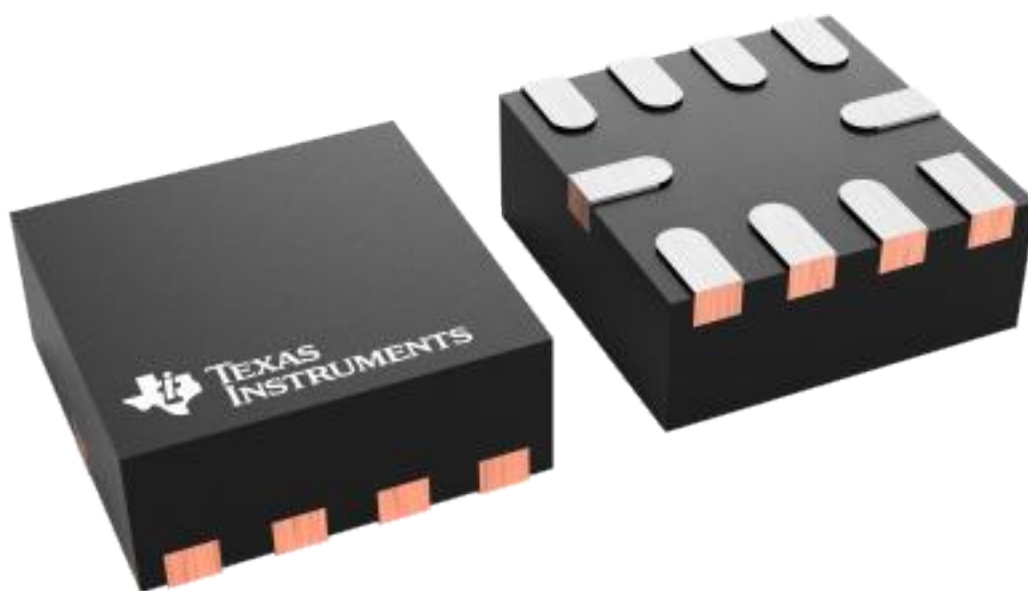
RUN 10

WQFN - 0.8 mm max height

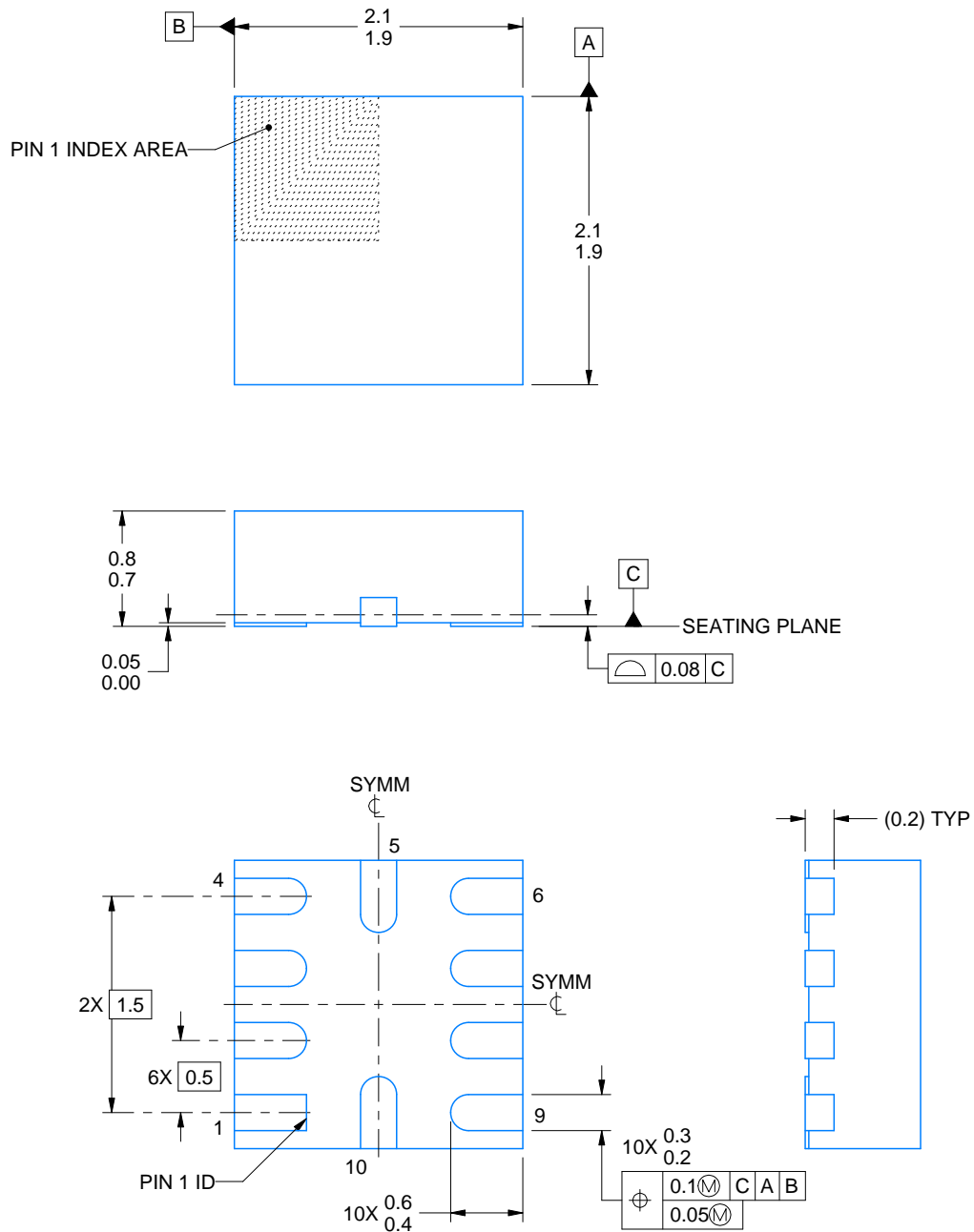
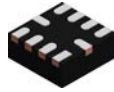
2 X 2, 0.5 mm pitch

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.



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NOTES:

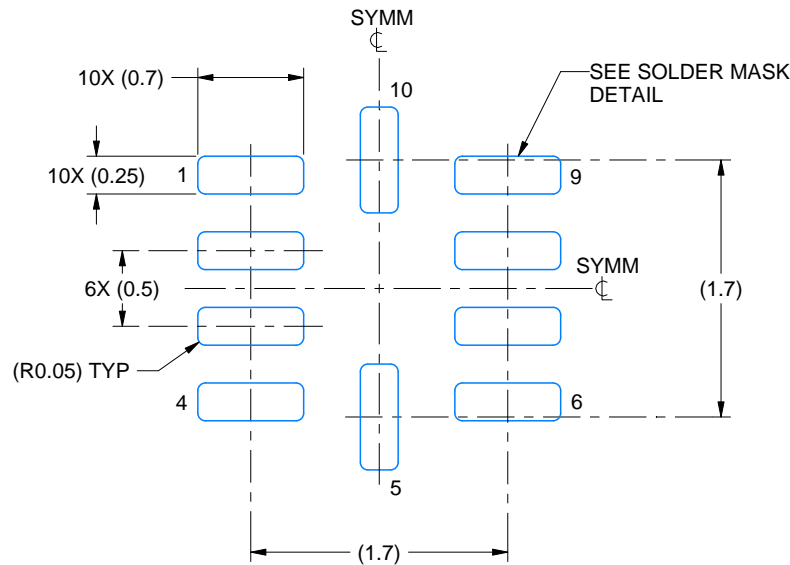
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.

EXAMPLE BOARD LAYOUT

RUN0010A

WQFN - 0.8 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 20X



SOLDER MASK DETAILS

4220470/A 05/2020

NOTES: (continued)

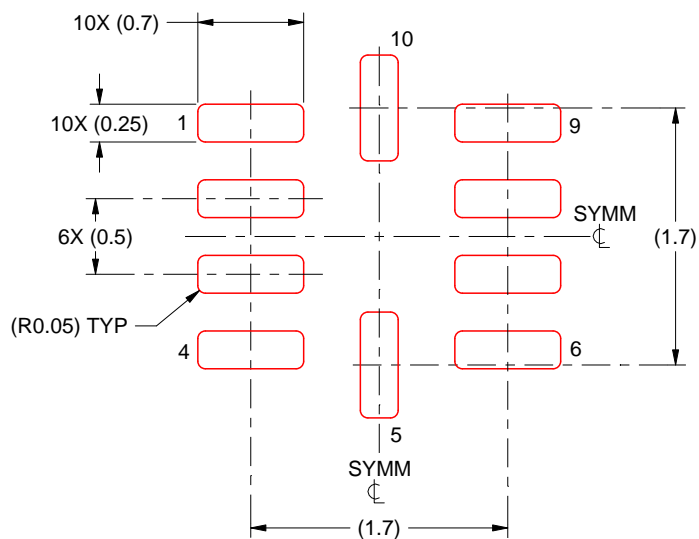
- This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 (www.ti.com/lit/slua271).

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

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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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