

高级电源管理单元

查询样品: [TPS658643](#)

1 介绍

1.1 主要特性

- 集成型电源
 - 3 个可编程降压转换器
 - 软件控制型启用/强制 PWM 模式
 - 自动省电模式
 - 最大 1.5 A 输出 (SM0 和 SM2)
 - 最大 2 A 输出 (SM1)
 - 11 个可编程的通用型 LDO
 - 7 个具有 1.25V 至 3.3V 输出电压的 LDO
 - 2 个具有 0.725V 至 1.5V 或 1.25V 至 2.586V 输出电压 (可在出厂时进行配置) 的 LDO
 - 1 个具有 1.25V 至 3.3V 输出电压的“始终接通型” LDO
 - 1 个具有 1.7V 至 2.475V 输出电压的 LDO
- 显示器支持功能
 - 3 个具有可编程频率和占空比的 PWM 输出
 - 双 RGB LED 驱动器
- 主机接口
 - I2C 总线
 - 具有可屏蔽中断功能的中断控制器
 - GPIO 控制 (4)
- 系统管理
 - 对所有电源输出均提供了电源状态良好监视
 - 软件复位功能
 - 硬件接通/关断及重启控制
- 实时计数器
- 具有 3 种操作模式的 11 通道 ADC
 - 单路转换
 - 峰值检测
 - 求平均

1.2 应用范围

- 平板 PC
- 笔记本电脑
- 智能电话
- 便携式导航设备
- 便携式媒体播放器



1.3 说明

TPS658643 提供了一款适合手持设备的易用型全集成化解决方案, 该器件将多个稳压电源、系统管理及显示功能电路集成在一个小型封装之中。I²C 接口可实现对众多子系统参数的控制。内部寄存器具有一组完整的状态信息, 从而可实现故障状况的轻松诊断及主机控制型处理。



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

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)
TPS658643ZWSR	Active	Production	NFBGA (ZWS) 169	1000 LARGE T&R	Yes	SNAGCU	Level-3-260C-168 HR	-40 to 85	658643ZWS
TPS658643ZWSR.B	Active	Production	NFBGA (ZWS) 169	1000 LARGE T&R	Yes	SNAGCU	Level-3-260C-168 HR	-40 to 85	658643ZWS

- ⁽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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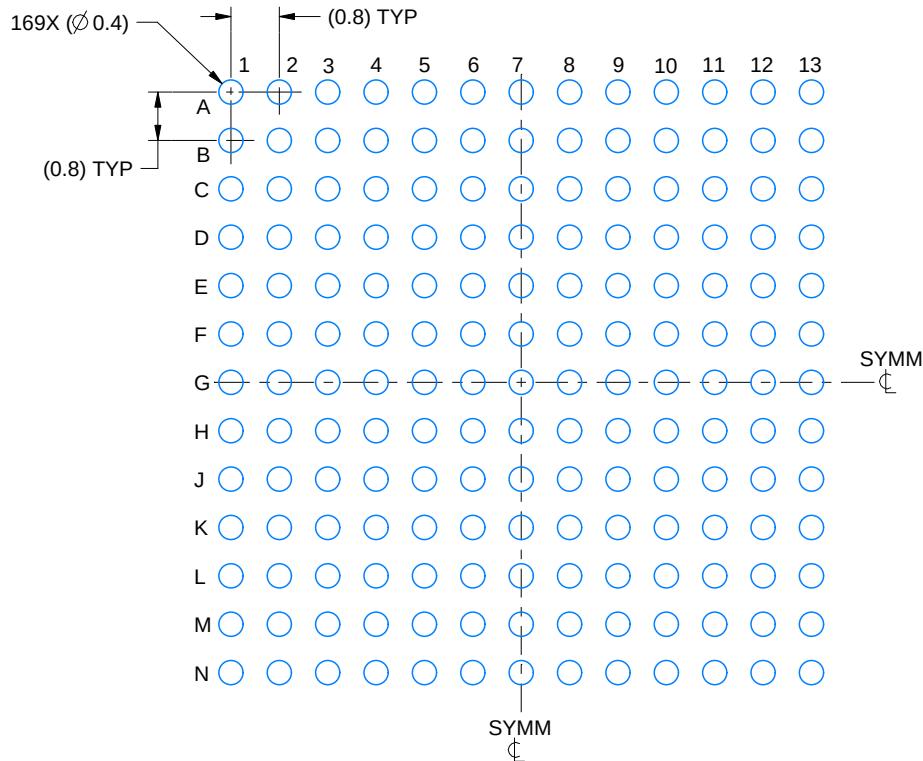
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EXAMPLE BOARD LAYOUT

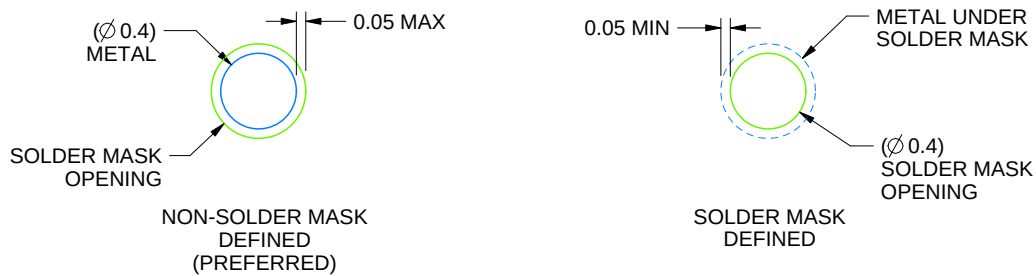
ZWS0169A

NFBGA - 1.4 mm max height

PLASTIC BALL GRID ARRAY



LAND PATTERN EXAMPLE
SCALE:8X



SOLDER MASK DETAILS
NOT TO SCALE

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NOTES: (continued)

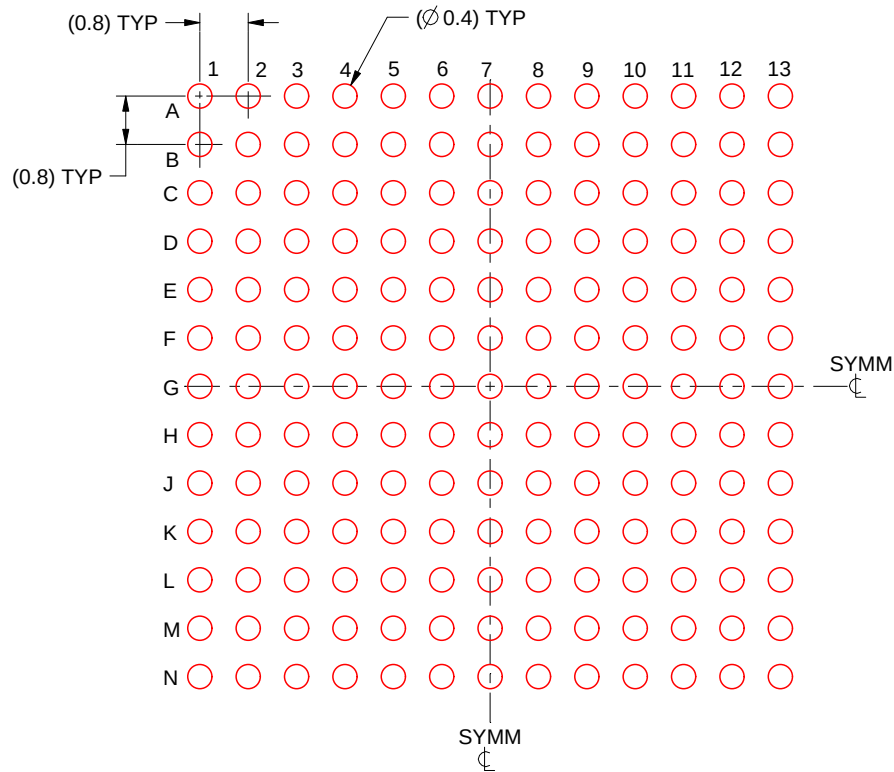
- Final dimensions may vary due to manufacturing tolerance considerations and also routing constraints.
For information, see Texas Instruments literature number SSZA002 (www.ti.com/lit/ssza002).

EXAMPLE STENCIL DESIGN

ZWS0169A

NFBGA - 1.4 mm max height

PLASTIC BALL GRID ARRAY



SOLDER PASTE EXAMPLE
 BASED ON 0.15 mm THICK STENCIL
 SCALE:8X

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NOTES: (continued)

4. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release.

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