

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 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
TPS658643ZWSR	ACTIVE	NFBGA	ZWS	169	1000	RoHS & Green	SNAGCU	Level-3-260C-168 HR	-40 to 85	658643ZWS	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.

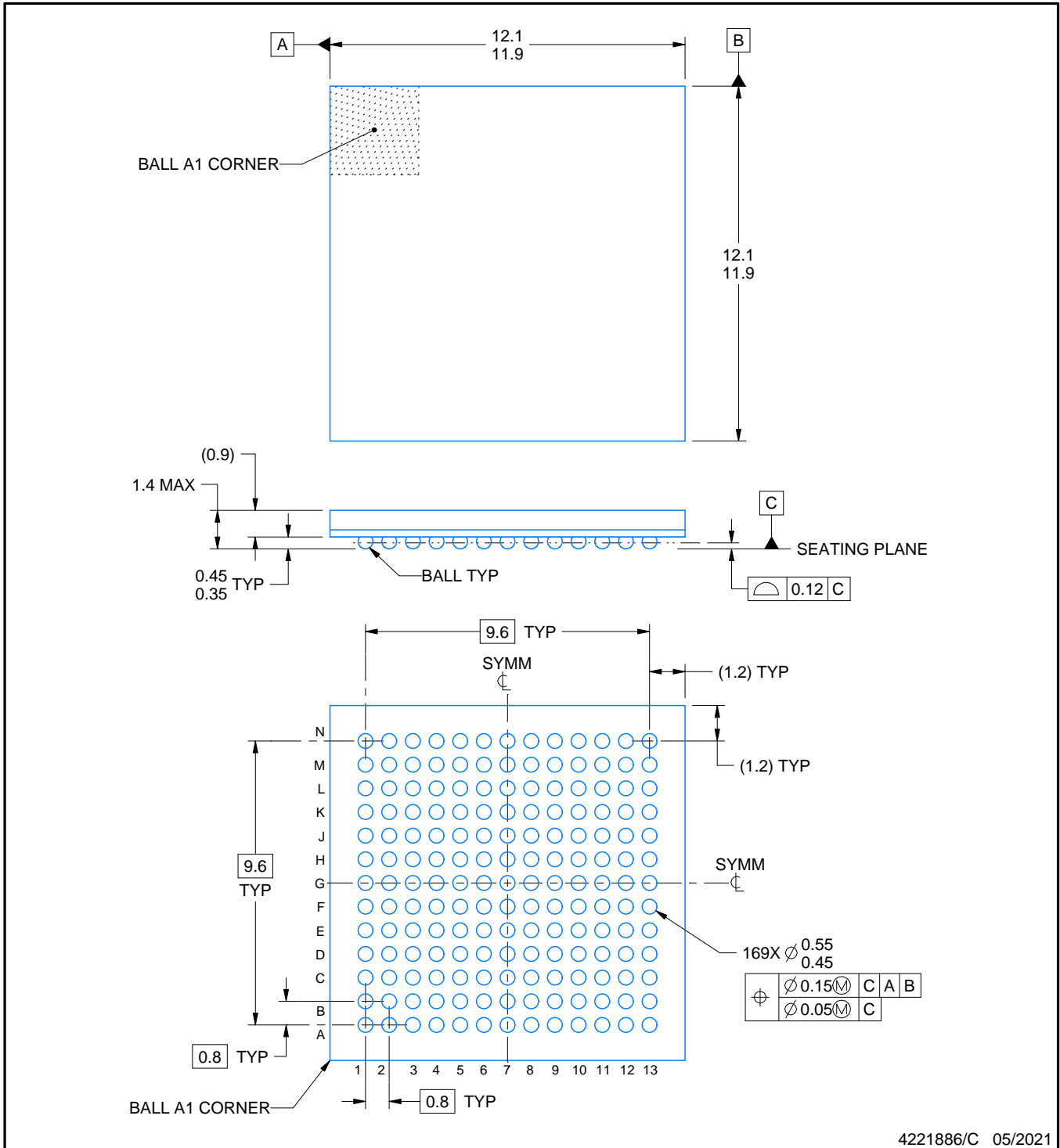
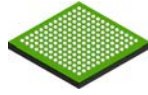
(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(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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NOTES:

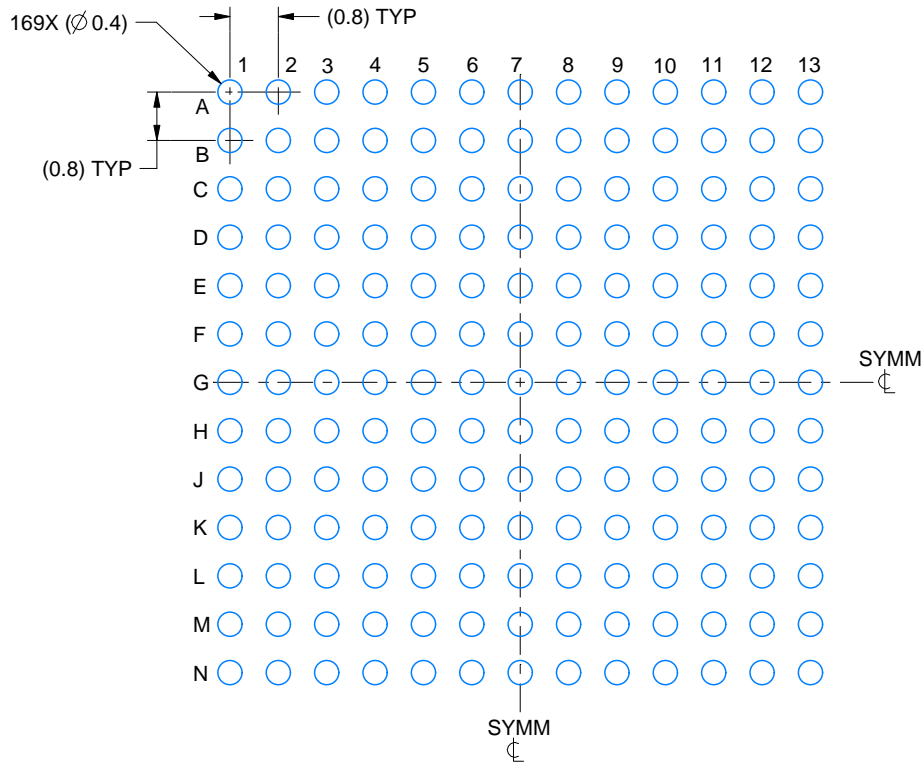
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.

EXAMPLE BOARD LAYOUT

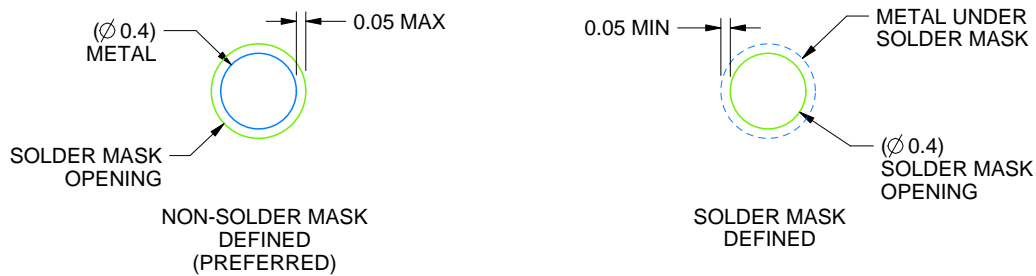
ZWS0169A

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)

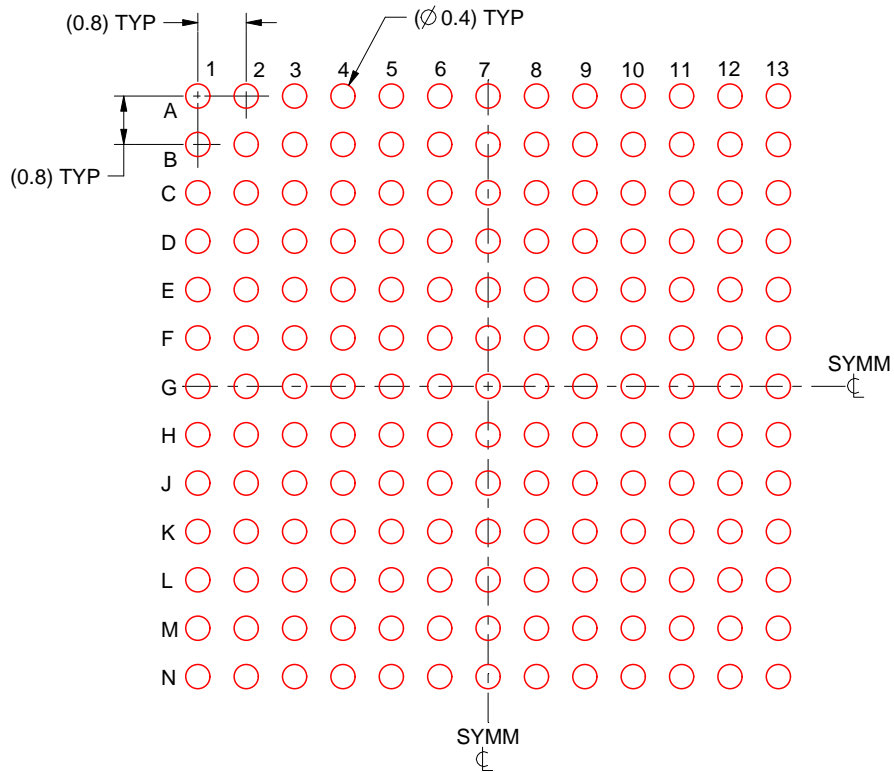
- Final dimensions may vary due to manufacturing tolerance considerations and also routing constraints. For information, see Texas Instruments literature number SSZA002 (www.ti.com/lit/ssza002).

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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