500mA，高效 MicroSiP™ 降压转换器（尺寸 < 1mm）

查询样品: TPS82690, TPS82695, TPS82697

特性

- 整体解决方案尺寸 < 6.7mm^2
- 运行频率为 **4MHz** 时，效率高达 **95%**
- **24μA** 静态电流
- 高占空比运行
- *同类产品最佳的*负载与线路瞬态
- **DC** 电压输出总精度为 **±2%**
- 自动脉冲频率调制 **(PFM) /** 脉冲宽度调制 **(PWM)** 模式切换
- 低纹波轻负载 **PFM** 模式
- 出色的 **AC** 负载稳压
- 内部软启动，**130μs** 启动时间
- 集成型有源断电排序（可选）
- 电流过载和热关断保护
- 厚度不到 **1mm** 的解决方案

应用范围

- 低压差 **(LDO)** 替代产品
- 手机、智能电话
- 负载点 **(PoL)** 应用

说明

TPS8269xSIP 器件是用于低功率应用的完全 500mA，DC/DC 降压电源。 封装中包括开关稳压器、电感和输入/输出电容器。 线路设计无需采用额外器件。

TPS8269xSIP 基于高频同步降压 dc-dc 转换器，此器件非常适合于电池供电的便携式应用。 本示例中使用的 MicroSIP™ DC/DC 转换器运行在经调节的 4MHz 开关频率下并且在轻负载电流上进入省电模式以在全部负载电流范围内保持高效率。

PFM 模式可在轻负载工作时将静态电流降至 24 μA（典型值），从而可延长电池使用寿命。 对于对噪声要求较高的应用，该器件具有 PWM 展频功能，可提供较低噪声的稳定输出并降低噪声对输入端的影响。 结合高电源抑制比 (PSRR) 和 AC 负载调制性能，使得该器件适合用来替代线性稳压器以获得更高的电源转换效率。

TPS8269xSIP 封装在一个紧凑的 (2.3mm x 2.9mm) 和低厚度 (1.0mm) 的球状引脚栅格阵列 (BGA) 封装内，非常适合由标准表面贴装设备进行自动组装。

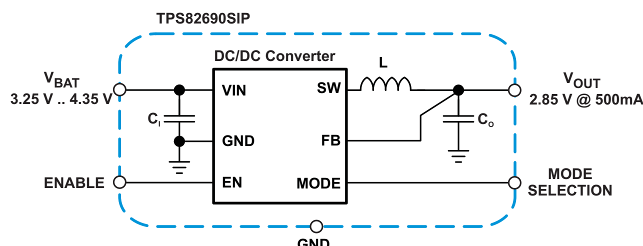

图 **1.** 典型应用

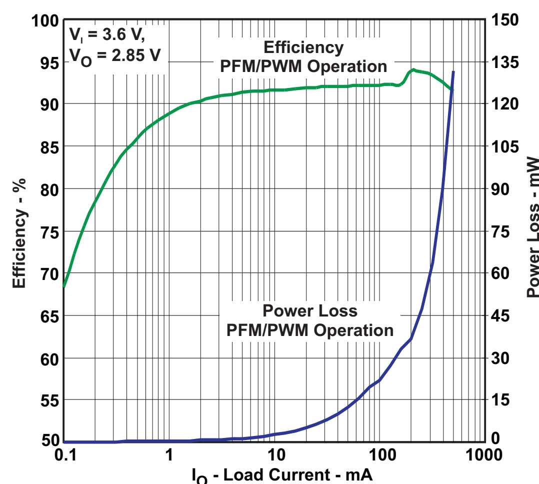

图 **2.** 效率与 负载电流

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English Data Sheet: SLVSA66

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
TPS82695SIPR	ACTIVE	uSiP	SIP	8	3000	RoHS & Green	SNAGCU	Level-2-260C-1 YEAR	-40 to 85	UF	Samples
TPS82695SIPT	ACTIVE	uSiP	SIP	8	250	RoHS & Green	SNAGCU	Level-2-260C-1 YEAR	-40 to 85	UF	Samples
TPS82697SIPR	ACTIVE	uSiP	SIP	8	3000	RoHS & Green	SNAGCU	Level-2-260C-1 YEAR	-40 to 85	C2	Samples
TPS82697SIPT	ACTIVE	uSiP	SIP	8	250	RoHS & Green	SNAGCU	Level-2-260C-1 YEAR	-40 to 85	C2	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.
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(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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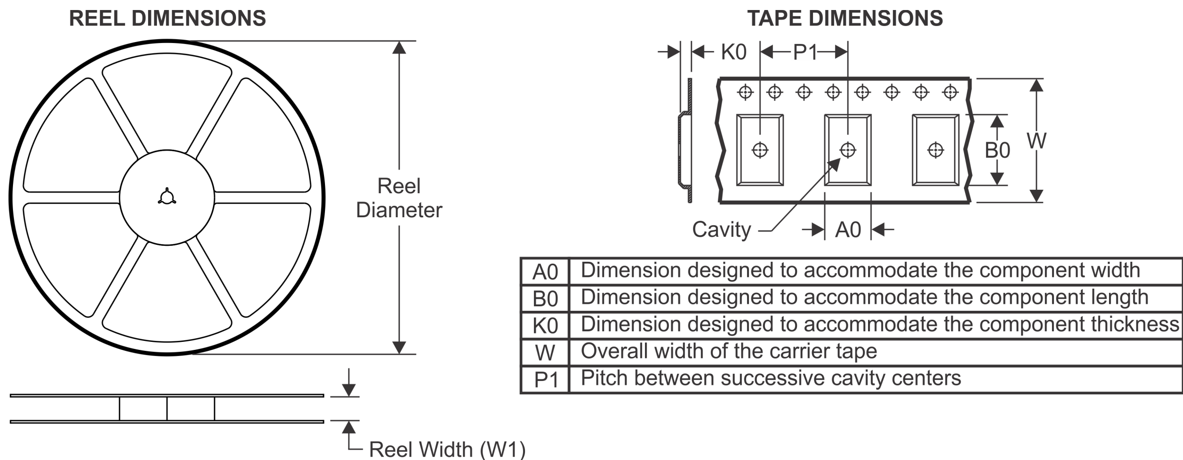
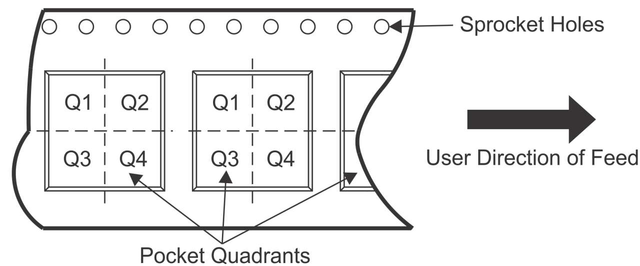
TAPE AND REEL INFORMATION



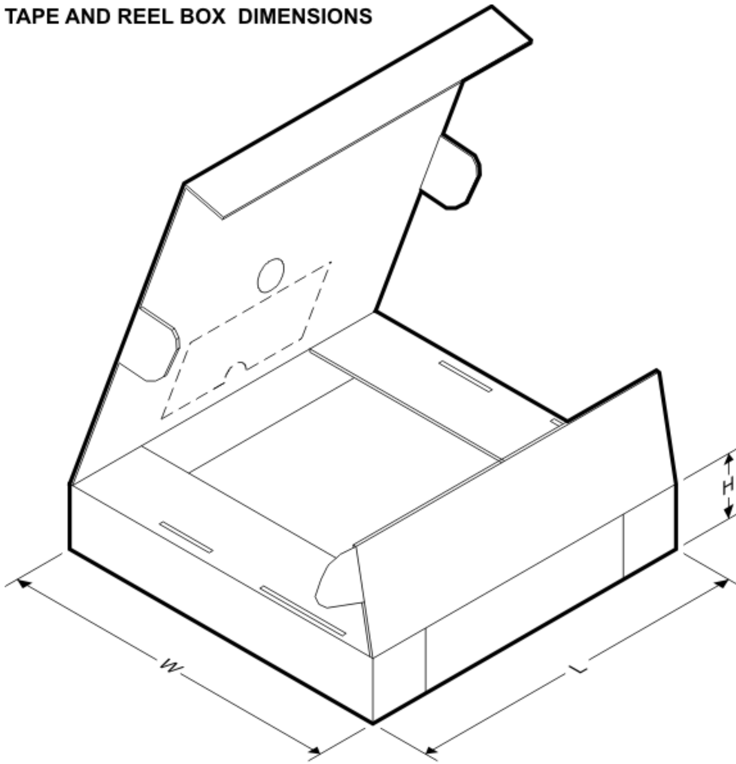
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*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
TPS82695SIPR	uSiP	SIP	8	3000	178.0	9.0	2.45	3.05	1.1	4.0	8.0	Q2
TPS82695SIPT	uSiP	SIP	8	250	178.0	9.0	2.45	3.05	1.1	4.0	8.0	Q2
TPS82697SIPR	uSiP	SIP	8	3000	178.0	9.0	2.45	3.05	1.1	4.0	8.0	Q2
TPS82697SIPT	uSiP	SIP	8	250	178.0	9.0	2.45	3.05	1.1	4.0	8.0	Q2

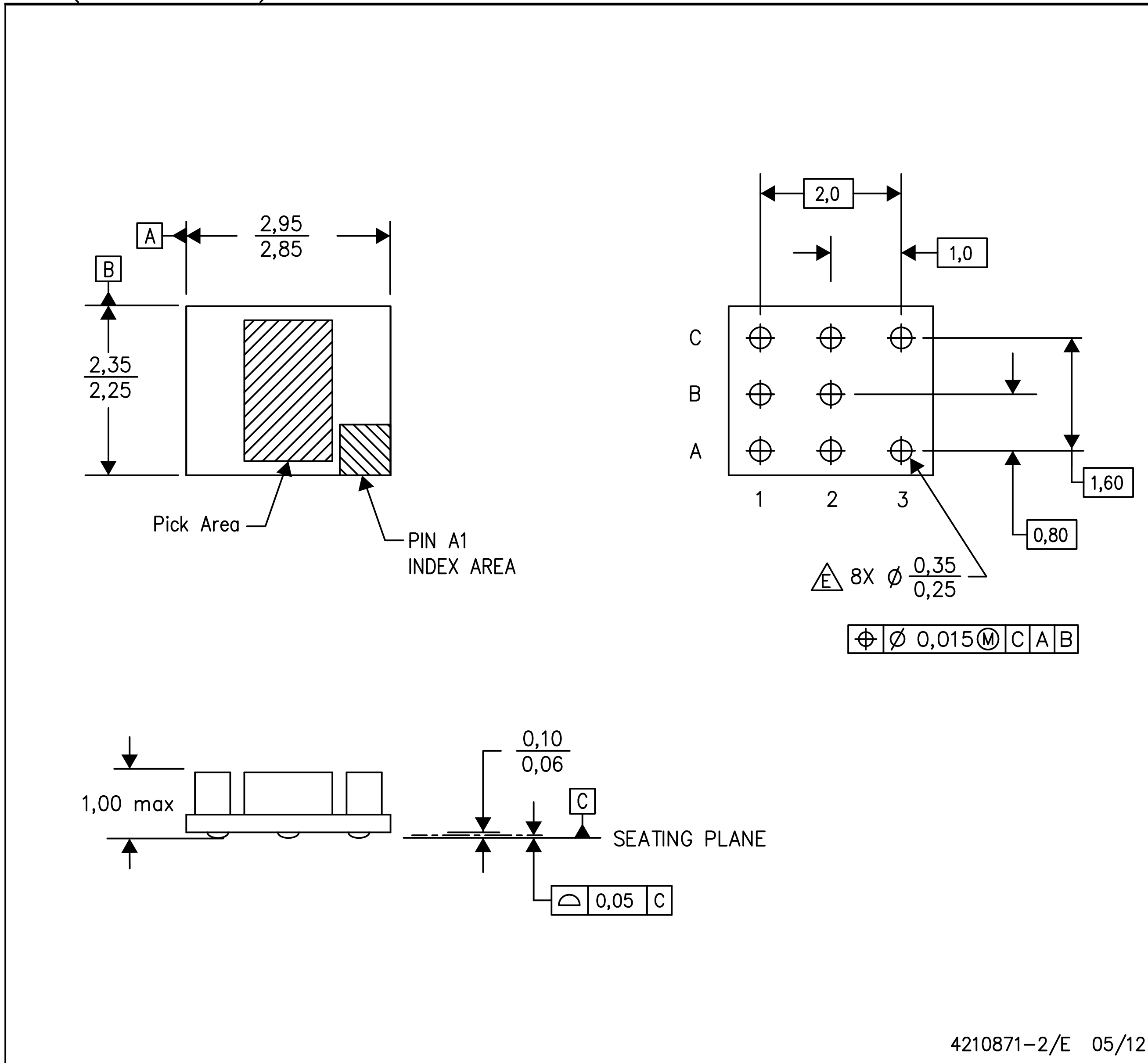
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
TPS82695SIPR	uSiP	SIP	8	3000	223.0	194.0	35.0
TPS82695SIPT	uSiP	SIP	8	250	223.0	194.0	35.0
TPS82697SIPR	uSiP	SIP	8	3000	223.0	194.0	35.0
TPS82697SIPT	uSiP	SIP	8	250	223.0	194.0	35.0

SIP (R–uSiP–N8) MicroSiP™



NOTES:
- A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M–1994.
- B. This drawing is subject to change without notice.
- C. MicroSiP™ package configuration – Micro System in Package.
- D. Reference Product Data Sheet for array population. 3 x 3 matrix pattern is shown for illustration only.
- E. This package contains Pb–free balls.

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