

## AMC7908 8 通道功率放大器监测器和控制器

### 1 特性

- 8 个模拟输出
  - 8 个单调 DAC : 1.22mV 分辨率
  - 自动配置的输出范围 :
    - 正输出电压 : 0V 至 10V
    - 负输出电压 : -10V 至 0V
  - 高电流驱动能力
  - 高容性负载容差
- 输出开/关控制开关
  - 快速开关
  - 低电阻
- 多通道 ADC 监测器
  - 2 个高压外部输入 : 0V 至 85V
  - 2 个高侧电流检测放大器 : 高达 85V 的共模范围
  - 本地温度传感器 :  $\pm 2.5^{\circ}\text{C}$  的精度
- 用于启动和关断事件的输出序列控制
- 内部 2.5V 基准
- SPI 和 I<sup>2</sup>C 接口 : 工作电压为 1.65V 至 3.6V
  - SPI : 4 线接口
  - I<sup>2</sup>C : 16 个目标地址
- 额定温度范围 :  $-40^{\circ}\text{C}$  至  $+125^{\circ}\text{C}$
- 工作温度范围 :  $-40^{\circ}\text{C}$  至  $+150^{\circ}\text{C}$

### 2 应用

- 宏远程无线电单元 (RRU)
- 有源天线系统 mMIMO (AAS)
- 室外回程单元
- 雷达

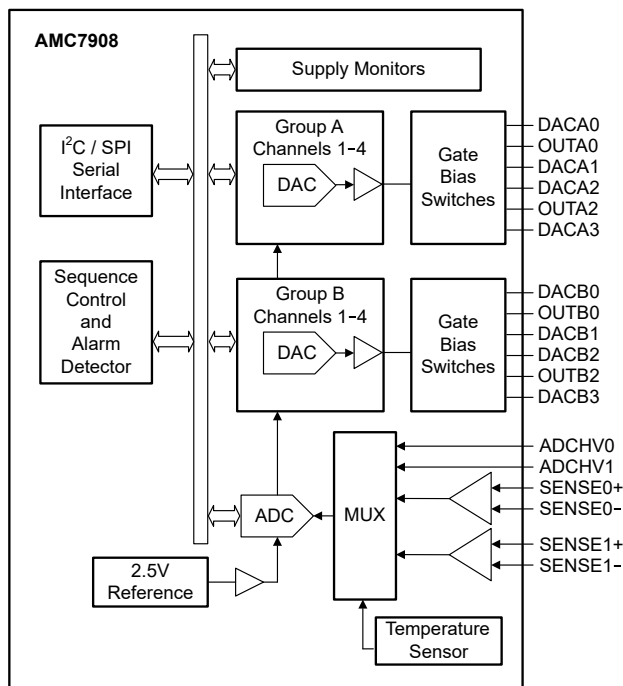
### 3 说明

AMC7908 是一款高度集成的功率放大器 (PA) 监测和控制器件, 能够监控温度、电流和电压。

AMC7908 偏置控制器基于八个具有可编程输出范围的数模转换器 (DAC)。八个栅极偏置输出通过专用控制引脚来开启和关闭。栅极偏置开关旨在提供快速响应, 可实现正确的电源时序控制, 并保护 GaAs 和 GaN 等耗尽型晶体管。

AMC7908 监测器基于高精度的多通道模数转换器 (ADC)。该器件集成了两个高压输入、两个高侧电流检测放大器和一个高精度片上温度传感器。

AMC7908 具有高功能集成度和宽工作温度范围特性, 因此非常适合用作射频通信系统中功率放大器的一体化偏置控制电路。凭借灵活的 DAC 输出范围和内置时序控制特性, 该器件可用作适用于多种晶体管技术 (例如 LDMOS、GaAs 和 GaN) 的偏置控制器。



简化版方框图

### 封装信息

器件型号	封装 <sup>(1)</sup>	封装尺寸 <sup>(2)</sup>
AMC7908	RHB ( VQFN , 32 )	5mm × 5mm

(1) 有关更多信息, 请参阅节 6。

(2) 封装尺寸 (长 × 宽) 为标称值, 并包括引脚 (如适用)。



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## 4 器件和文档支持

### 4.1 文档支持

#### 4.1.1 相关文档

请参阅以下相关文档：

- 德州仪器 (TI)，[AMC7908EVM 用户指南](#)

### 4.2 接收文档更新通知

要接收文档更新通知，请导航至 [ti.com](#) 上的器件产品文件夹。点击 [通知](#) 进行注册，即可每周接收产品信息更改摘要。有关更改的详细信息，请查看任何已修订文档中包含的修订历史记录。

### 4.3 支持资源

[TI E2E™ 中文支持论坛](#) 是工程师的重要参考资料，可直接从专家处获得快速、经过验证的解答和设计帮助。搜索现有解答或提出自己的问题，获得所需的快速设计帮助。

链接的内容由各个贡献者“按原样”提供。这些内容并不构成 TI 技术规范，并且不一定反映 TI 的观点；请参阅 TI 的 [使用条款](#)。

### 4.4 商标

TI E2E™ is a trademark of Texas Instruments.

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### 4.5 静电放电警告



静电放电 (ESD) 会损坏这个集成电路。德州仪器 (TI) 建议通过适当的预防措施处理所有集成电路。如果不遵守正确的处理和安装程序，可能会损坏集成电路。

ESD 的损坏小至导致微小的性能降级，大至整个器件故障。精密的集成电路可能更容易受到损坏，这是因为非常细微的参数更改都可能会导致器件与其发布的规格不相符。

### 4.6 术语表

[TI 术语表](#) 本术语表列出并解释了术语、首字母缩略词和定义。

## 5 修订历史记录

注：以前版本的页码可能与当前版本的页码不同

日期	修订版本	注释
August 2024	*	初始发行版

## 6 机械、封装和可订购信息

以下页面包含机械、封装和可订购信息。这些信息是指定器件可用的最新数据。数据如有变更，恕不另行通知，且不会对此文档进行修订。有关此数据表的浏览器版本，请查阅左侧的导航栏。

**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
AMC7908RHBR	ACTIVE	VQFN	RHB	32	3000	RoHS & Green	NIPDAUAG	Level-3-260C-168 HR	-40 to 125	AMC 7908	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

**RHB 32**

**VQFN - 1 mm max height**

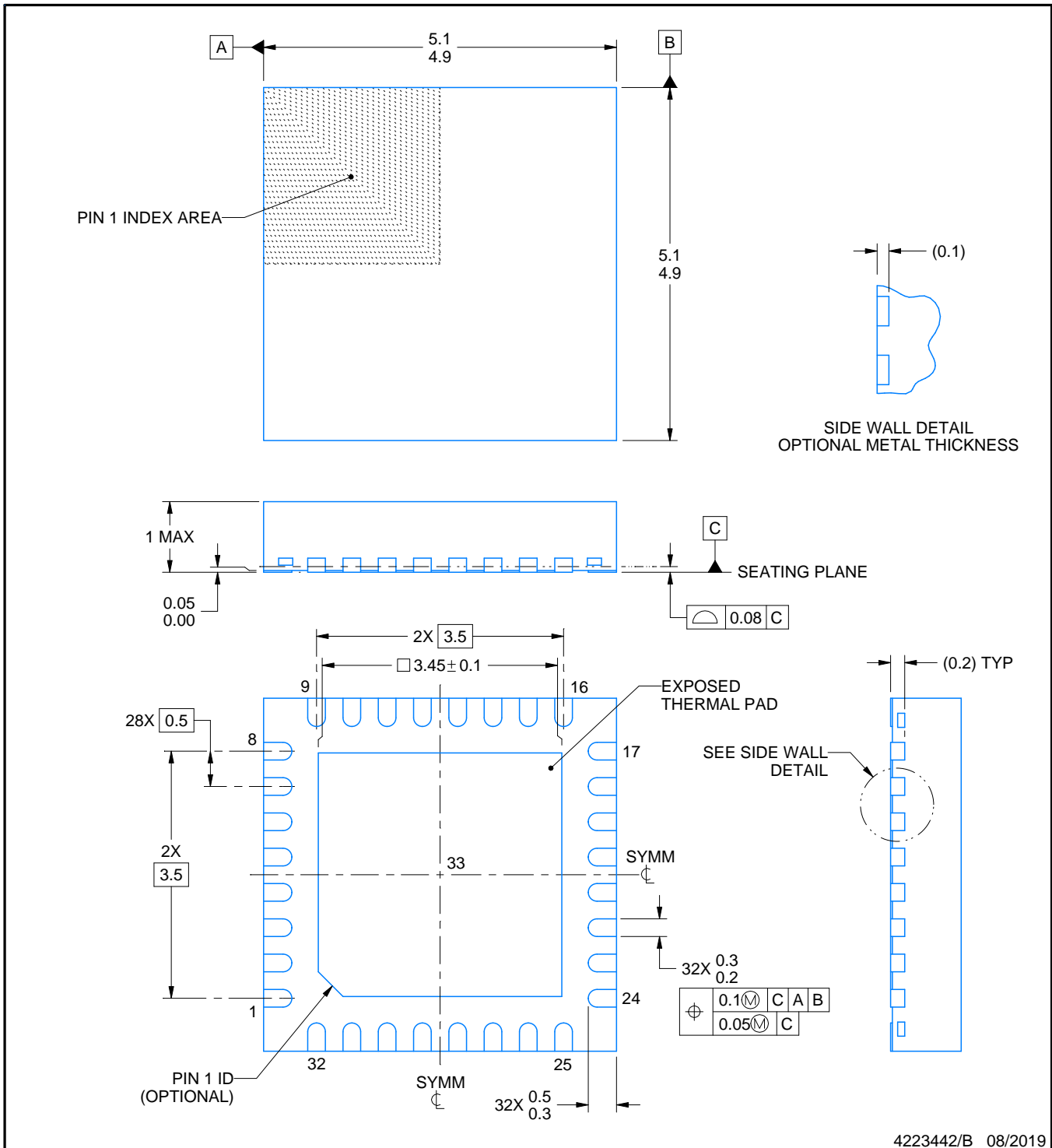
5 x 5, 0.5 mm pitch

PLASTIC QUAD FLATPACK - NO LEAD



Images above are just 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.
3. The package thermal pad must be soldered to the printed circuit board for thermal and mechanical performance.

# EXAMPLE BOARD LAYOUT

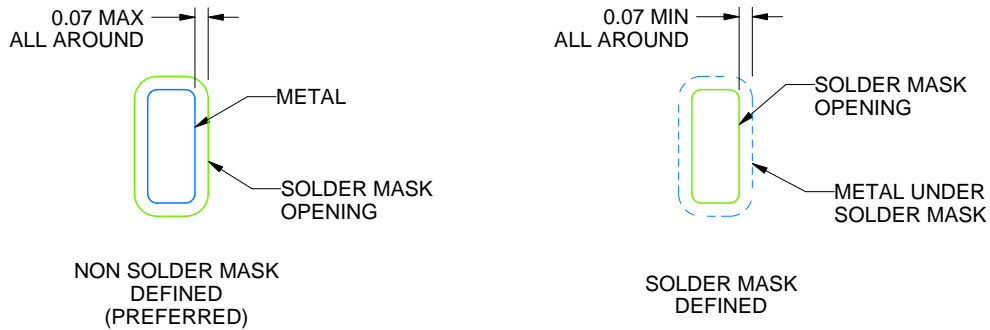
RHB0032E

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



LAND PATTERN EXAMPLE  
SCALE:18X



SOLDER MASK DETAILS

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NOTES: (continued)

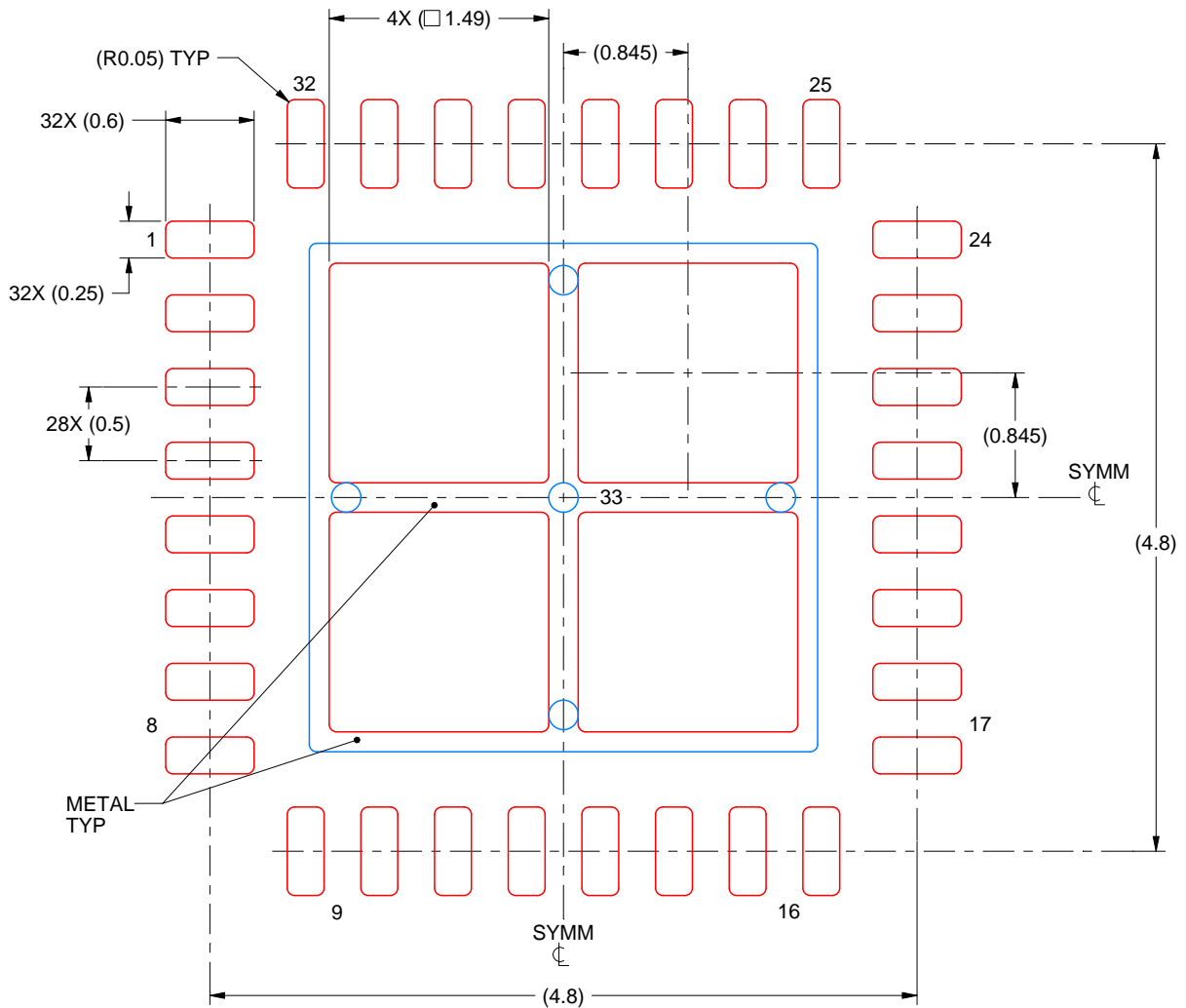
4. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 ([www.ti.com/lit/sl原因271](http://www.ti.com/lit/sl原因271)).
5. Vias are optional depending on application, refer to device data sheet. If any vias are implemented, refer to their locations shown on this view. It is recommended that vias under paste be filled, plugged or tented.

# EXAMPLE STENCIL DESIGN

RHB0032E

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



**SOLDER PASTE EXAMPLE**  
 BASED ON 0.125 mm THICK STENCIL

EXPOSED PAD 33:  
 75% PRINTED SOLDER COVERAGE BY AREA UNDER PACKAGE  
 SCALE:20X

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NOTES: (continued)

6. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.



## 重要声明和免责声明

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