

具有多通道 ADC、双极 DAC、温度传感器和 GPIO 端口的 AMC7932 32 通道 12 位模拟监控器和控制器

1 特性

- 32 个单调性 12 位 DAC
 - 可编程范围：- 10V 至 0V、- 5V 至 0V、0V 至 5V 和 0V 至 10V
 - 高电流驱动能力
 - 自动范围检测器
- FlexIO 引脚；可配置的 ADC 和 GPIO
 - AMC7932：6 个 FlexIO 引脚
 - AMC7932F：5 个 FlexIO 引脚
- 12 位，250kSPS SAR ADC
 - 输入范围：0 V 到 5 V 和 0 V 到 2.5 V
 - 可编程超限报警
- 通用 I/O (GPIO)
- 内置时序控制特性
- 内部 2.5V 基准电压
- 内部温度传感器
 - 精度：±2.5°C (最大值)
 - 分辨率：0.0625°C
- 与 SPI 兼容的接口：1.65V 至 5.5V 工作电压
 - AMC7932：3 线模式
 - AMC7932F：4 线模式
- 额定温度范围：- 40°C 至 +125°C
- 工作温度范围：- 40°C 至 +150°C

2 应用

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

3 说明

AMC7932 是一款高度集成的模拟监控器和控制器件，专为高密度通用监控器和控制系统而设计。AMC7932 包含 32 个 12 位数模转换器 (DAC)，其输出范围可通过编程实现。器件还包含带有可编程阈值检测器、温度传感器和内部基准的多路复用 12 位模数转换器 (ADC)。AMC7932 的高集成度可显著减少组件数量并简化闭环系统设计，从而使其成为布板空间至关重要的高密度应用的理想选择。

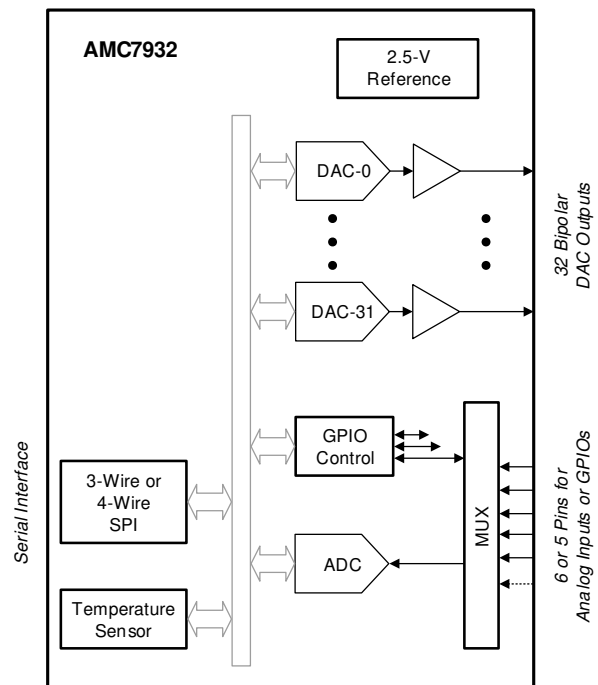
器件包括灵活输入/输出 (FlexIO) 引脚，可配置为 ADC 的模拟输入或具有两个可用选项的 GPIO：AMC7932 (6 个 FlexIO 引脚) 和 AMC7932F (5 个 FlexIO 引脚)。通过 3 线 (AMC7932) 或 4 线 (AMC7932F) SPI 兼容接口与器件进行通信。

AMC7932 具有高集成度和宽工作温度范围等优势，因此非常适合用作多通道射频通信系统中功率放大器 (PA) 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，该器件可用作面向多种晶体管技术 (例如 LDMOS、GaA 和 GaN) 的偏置控制器。

器件信息

器件型号	封装 ⁽¹⁾	封装尺寸 (标称值)
AMC7932	TQFP (48)	7.00mm × 7.00mm

(1) 要了解所有可用封装，请参见数据表末尾的封装选项附录。



简化版原理图



4 Device and Documentation Support

4.1 Documentation Support

4.1.1 Related Documentation

For related documentation see the following:

- Texas Instruments, [LMP8480 / LMP8481 Precision 76V High-Side Current Sense Amplifiers with Voltage Output data sheet](#)
- Texas Instruments, [LM50/LM50-Q1 SOT-23 Single-Supply Centigrade Temperature Sensor data sheet](#)

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](https://www.ti.com) 上的器件产品文件夹。点击 [订阅更新](#) 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™ 支持论坛是工程师的重要参考资料，可直接从专家获得快速、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可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 Trademarks

TI E2E™ is a trademark of Texas Instruments.

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4.5 Electrostatic Discharge Caution



This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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 Mechanical, Packaging, and Orderable Information

The following pages include mechanical, packaging, and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document. For browser-based versions of this data sheet, refer to the left-hand navigation.

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)
AMC7932FPHPR	Active	Production	HTQFP (PHP) 48	1000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 125	AMC7932F
AMC7932FPHPR.A	Active	Production	HTQFP (PHP) 48	1000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 125	AMC7932F
AMC7932FPHPT	Active	Production	HTQFP (PHP) 48	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 125	AMC7932F
AMC7932FPHPT.A	Active	Production	HTQFP (PHP) 48	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 125	AMC7932F
AMC7932FPHPTG4	Active	Production	HTQFP (PHP) 48	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 125	AMC7932F
AMC7932FPHPTG4.A	Active	Production	HTQFP (PHP) 48	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 125	AMC7932F
AMC7932PHPR	Active	Production	HTQFP (PHP) 48	1000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 125	AMC7932
AMC7932PHPR.A	Active	Production	HTQFP (PHP) 48	1000 LARGE T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 125	AMC7932
AMC7932PHPT	Active	Production	HTQFP (PHP) 48	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 125	AMC7932
AMC7932PHPT.A	Active	Production	HTQFP (PHP) 48	250 SMALL T&R	Yes	NIPDAU	Level-3-260C-168 HR	-40 to 125	AMC7932

⁽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

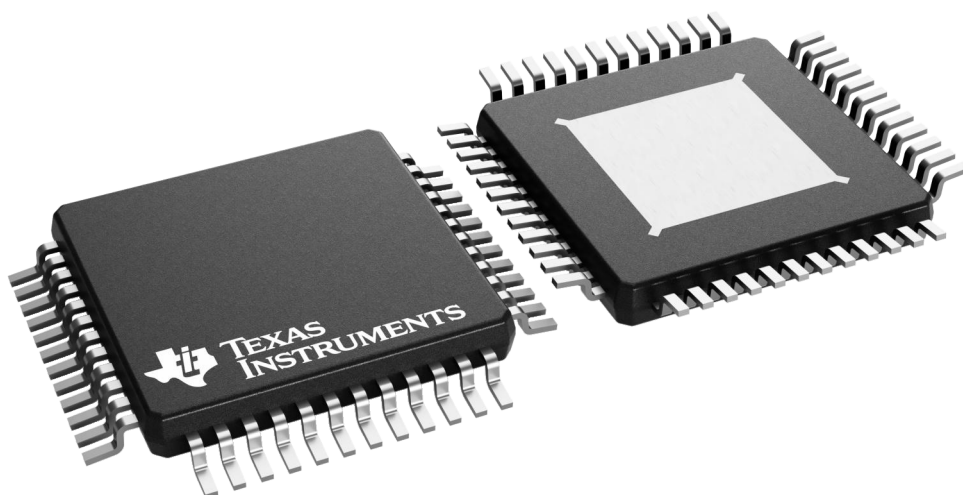
PHP 48

TQFP - 1.2 mm max height

7 x 7, 0.5 mm pitch

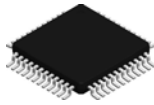
QUAD FLATPACK

This image is a representation of the package family, actual package may vary.
Refer to the product data sheet for package details.



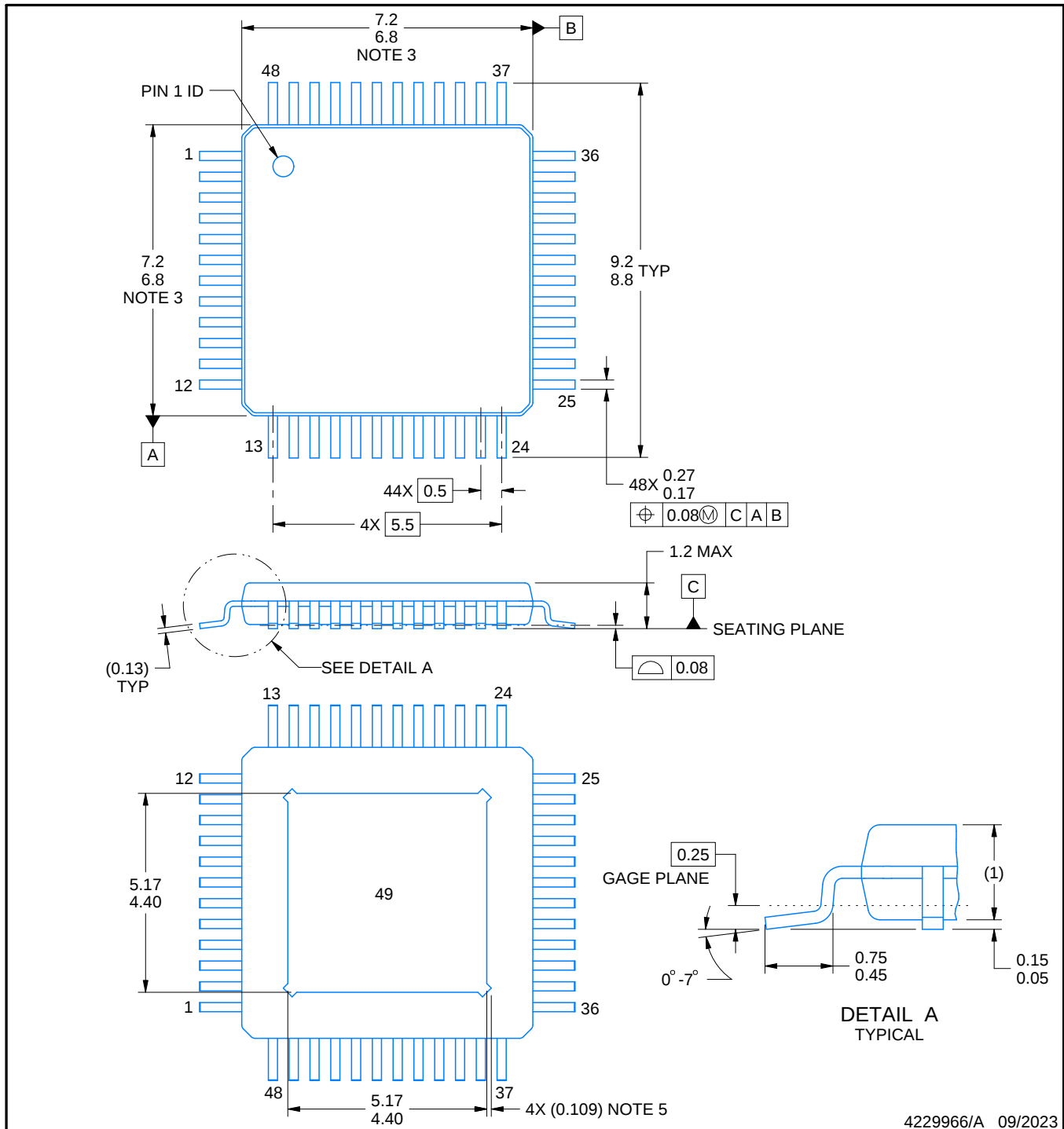
4226443/A

PHP0048N



PowerPAD™ HTQFP - 1.2 mm max height

PLASTIC QUAD FLATPACK



4229966/A 09/2023

NOTES:

PowerPAD is a trademark of Texas Instruments.

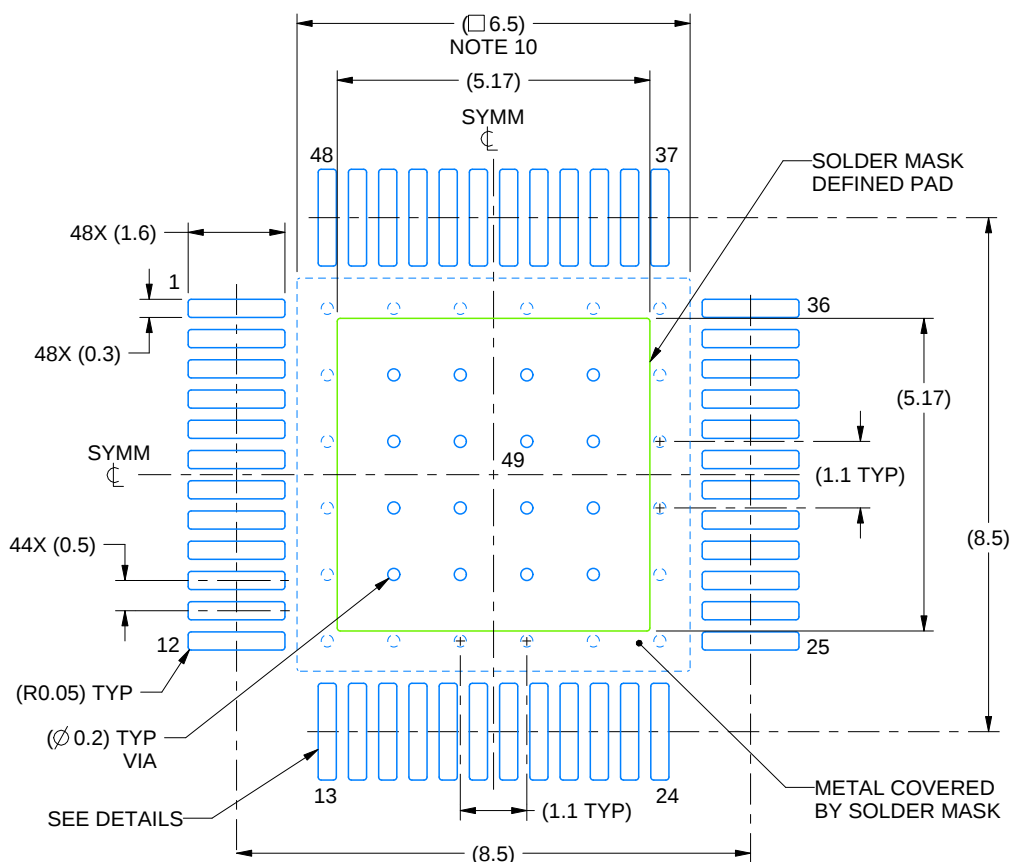
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. Reference JEDEC registration MS-026.
5. Feature may not be present.

EXAMPLE BOARD LAYOUT

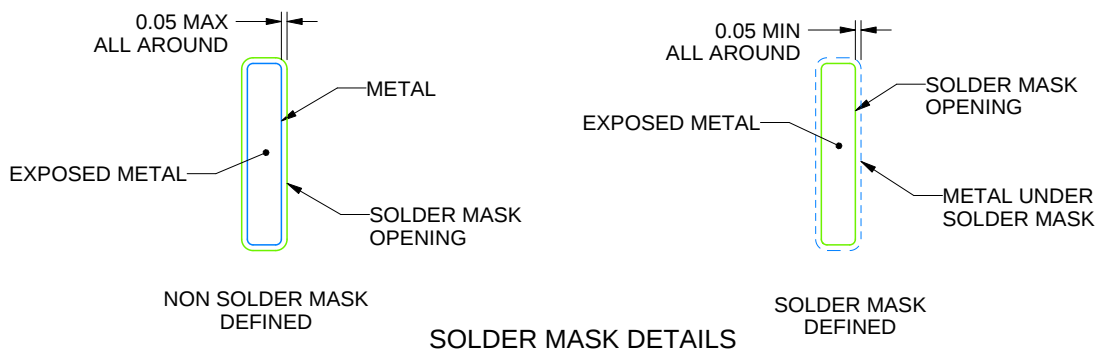
PHP0048N

PowerPAD™ HTQFP - 1.2 mm max height

PLASTIC QUAD FLATPACK



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE:8X



SOLDER MASK DETAILS

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NOTES: (continued)

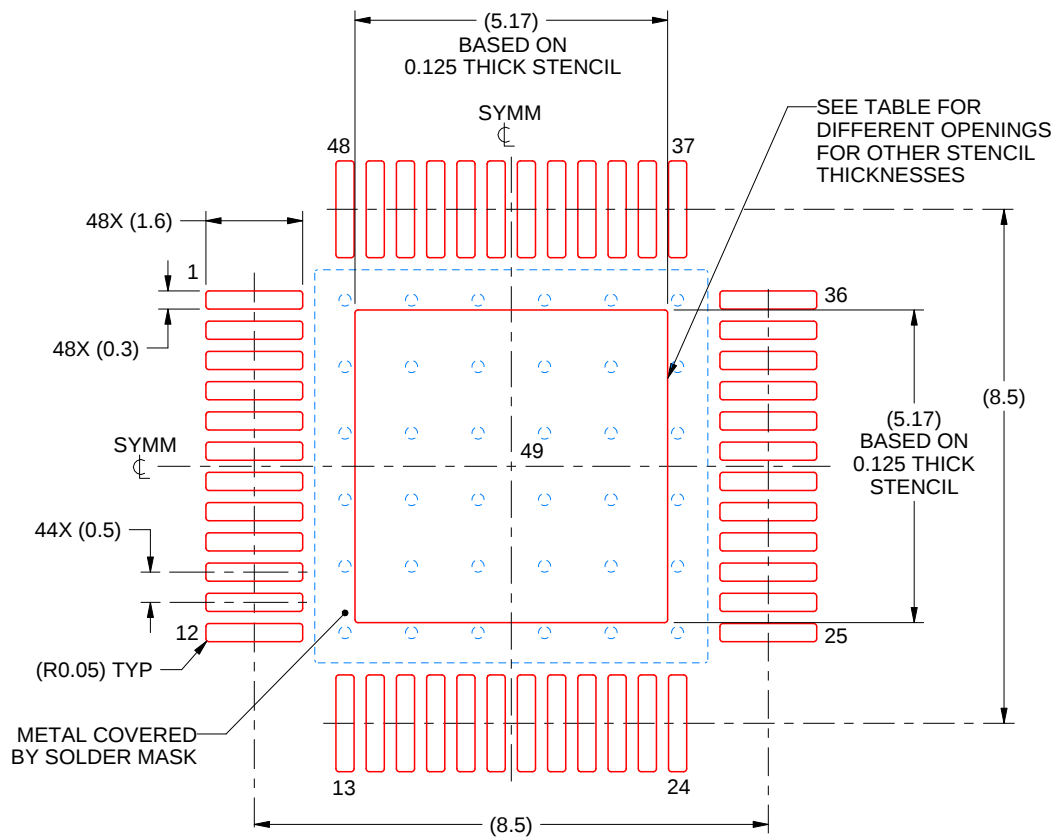
6. Publication IPC-7351 may have alternate designs.
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.
8. This package is designed to be soldered to a thermal pad on the board. See technical brief, Powerpad thermally enhanced package, Texas Instruments Literature No. SLMA002 (www.ti.com/lit/slma002) and SLMA004 (www.ti.com/lit/slma004).
9. Vias are optional depending on application, refer to device data sheet. It is recommended that vias under paste be filled, plugged or tented.
10. Size of metal pad may vary due to creepage requirement.

EXAMPLE STENCIL DESIGN

PHP0048N

PowerPAD™ HTQFP - 1.2 mm max height

PLASTIC QUAD FLATPACK



SOLDER PASTE EXAMPLE
EXPOSED PAD
100% PRINTED SOLDER COVERAGE BY AREA
SCALE:8X

STENCIL THICKNESS	SOLDER STENCIL OPENING
0.1	5.78 X 5.78
0.125	5.17 X 5.17 (SHOWN)
0.150	4.72 X 4.72
0.175	4.37 X 4.37

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NOTES: (continued)

11. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
12. Board assembly site may have different recommendations for stencil design.

重要通知和免责声明

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