

AMC60304 具有高电流输出 DAC 和多通道 ADC 的 4 通道光学监视器和控制器

1 特性

- 四个 12 位电流输出 DAC (IDAC)
 - 200mA 满量程输出范围
- 多通道 12 位、1MSPS SAR ADC
 - 四个外部输入：2.5V 和 5V 输入范围
 - 四个 IDAC 电压监测通道
 - 可编程序列发生器
 - 可编程超限报警
- 内部 2.5V 基准电压
- 电源和温度故障警报
- SPI 和 I²C 接口：1.7V 至 3.6V 工作电压
 - SPI：4 线接口
 - I²C：四个目标地址
- 额定温度范围：- 40°C 至 +125°C

2 应用

- 光学模块
- 数据中心内部互联 (地铁)

3 说明

AMC60304 是一款高度集成的低功耗模拟监视器和控制器，经优化可实现大电流输出。该器件包含四个 12

位电流输出数模转换器 (IDAC)、一个 12 位 1MSPS 模数转换器 (ADC)、电源和温度警报监控器以及一个高精度内部基准。

AMC60304 IDAC 支持 200mA 的满量程输出范围和超低的功率耗散。这些 IDAC 无需外部元件即可提供准确的电流偏置。

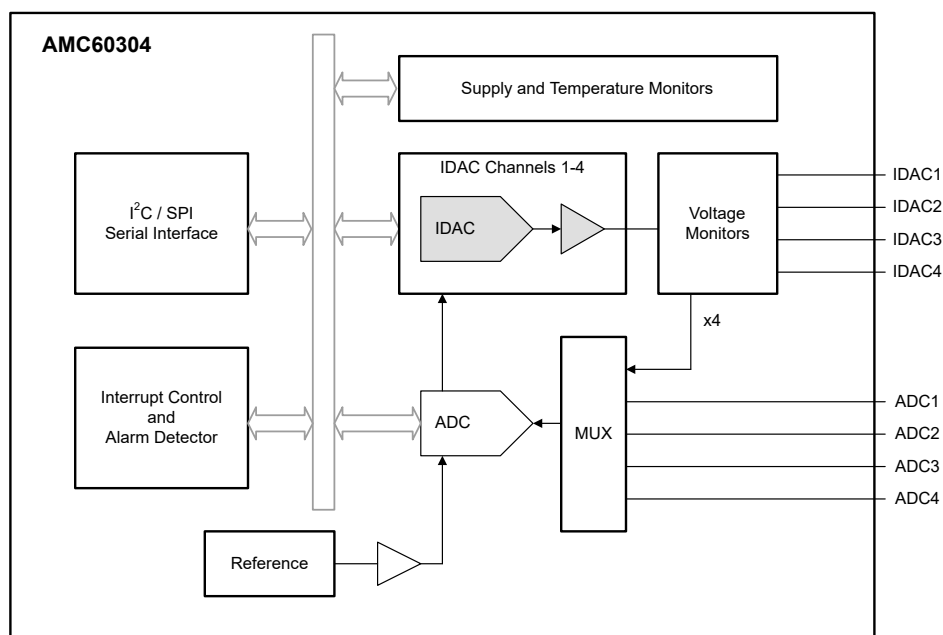
AMC60304 还包含四个多路复用到 ADC 的输入引脚，并包含一个低延迟窗口比较器。这些特性使该器件非常适用于接收信号强度指示器 (RSSI) 和信号丢失 (LOS) 检测。ADC 还能够测量 IDAC 引脚上的电压，从而能够监控这些输出。

AMC60304 的低功耗、高集成度、超小尺寸和宽工作温度范围使其非常适用于光模块一体化控制电路。

器件信息

器件型号	封装 ⁽¹⁾	封装尺寸 (标称值)
AMC60304	DSBGA (36)	2.56mm × 2.56mm

(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

备注

TI is transitioning to use more inclusive terminology. Some language may be different than what you would expect to see for certain technology areas.

4.1.1 Related Documentation

For related documentation, see the following: [AMC60304EVM user's guide](#)

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 [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.

所有商标均为其各自所有者的财产。

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 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
AMC60304YBHR	ACTIVE	DSBGA	YBH	36	3000	RoHS & Green	SNAGCU	Level-1-260C-UNLIM	-40 to 125	AMC60304	Samples
AMC60304YBHT	ACTIVE	DSBGA	YBH	36	250	RoHS & Green	SNAGCU	Level-1-260C-UNLIM	-40 to 125	AMC60304	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.

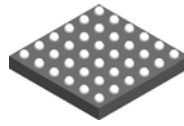
(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(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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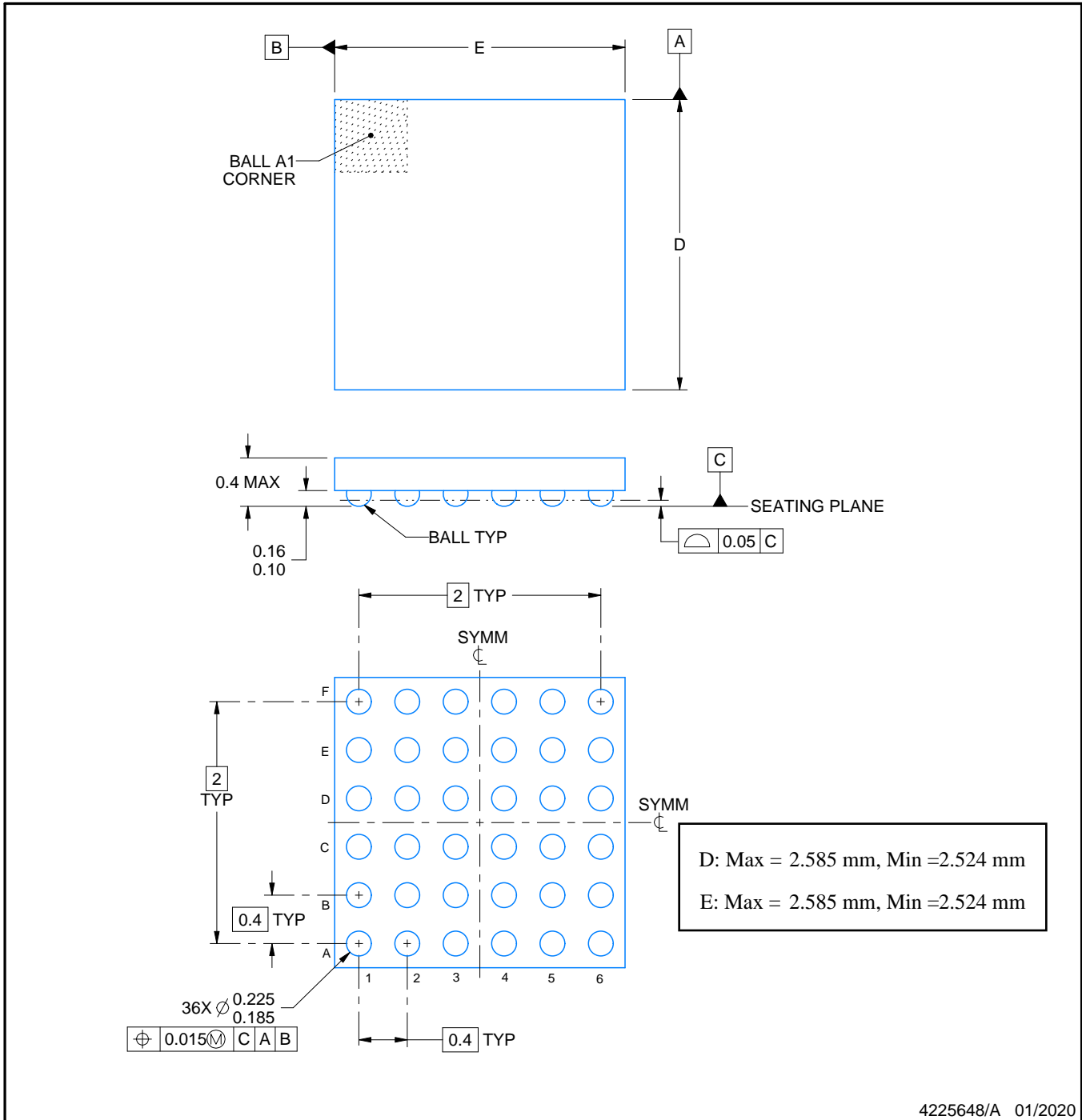
In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

YBH0036



PACKAGE OUTLINE
DSBGA - 0.4 mm max height

DIE SIZE BALL GRID ARRAY



NOTES:

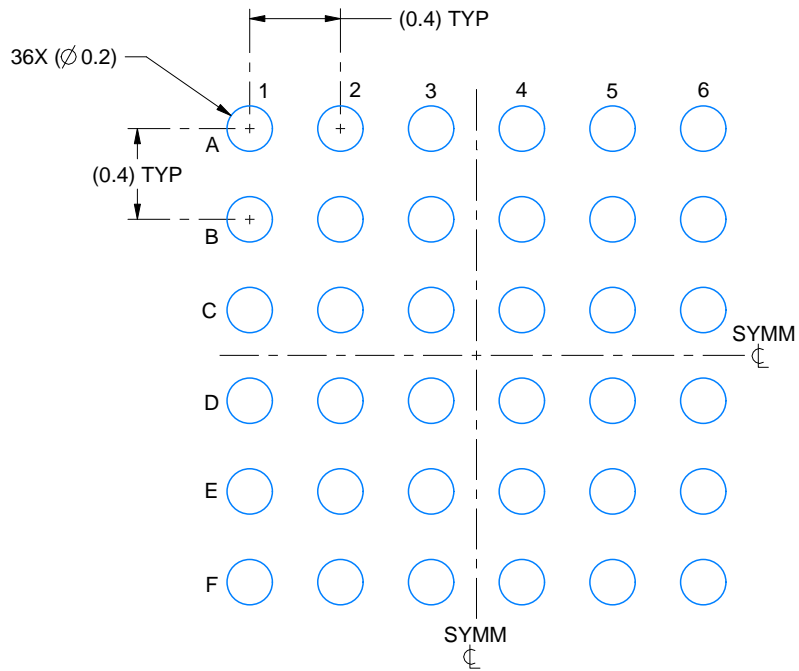
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.

EXAMPLE BOARD LAYOUT

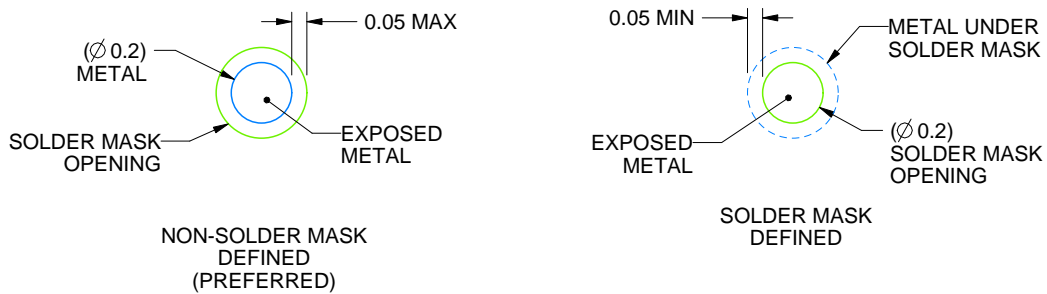
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DSBGA - 0.4 mm max height

DIE SIZE BALL GRID ARRAY



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 30X



SOLDER MASK DETAILS
NOT TO SCALE

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NOTES: (continued)

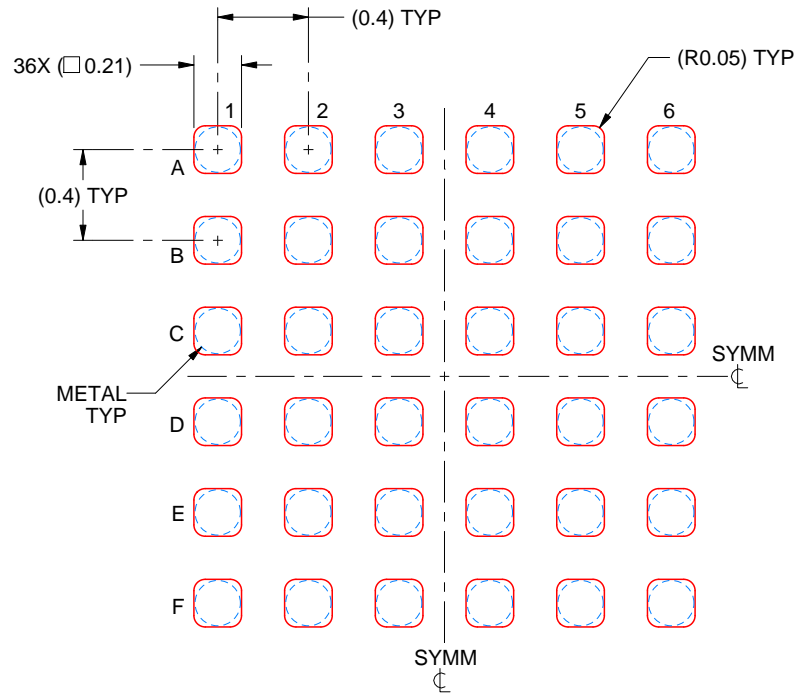
- Final dimensions may vary due to manufacturing tolerance considerations and also routing constraints. See Texas Instruments Literature No. SNVA009 (www.ti.com/lit/snva009).

EXAMPLE STENCIL DESIGN

YBH0036

DSBGA - 0.4 mm max height

DIE SIZE BALL GRID ARRAY



SOLDER PASTE EXAMPLE
BASED ON 0.075 mm THICK STENCIL
SCALE: 30X

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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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