

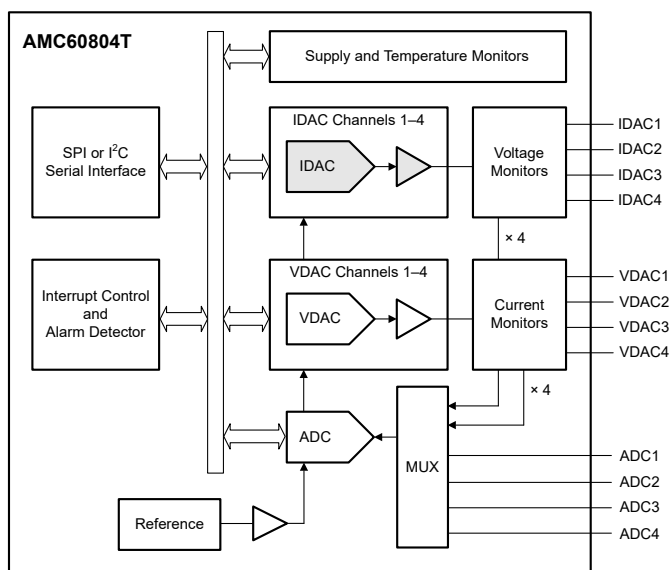
## AMC60804T 具有电流和电压输出 DAC 和多通道 ADC 的 4 通道光学监视器和控制器

### 1 特性

- 四个 12 位电流输出 DAC (IDAC)
  - 200mA 满量程输出范围
  - 低电源余量：200 mV/200 mA
- 四个 12 位电压输出 DAC (VDAC)
  - 可选的满量程输出范围：
    - 5V、-2.5V、+2.5V 和 +5V
  - 高电流驱动能力：±50mA
- 多通道 12 位、1MSPS SAR ADC
  - 四个外部输入：电压范围为 2.5V 至 5V
  - 四个 IDAC 电压监测通道
  - 四个 VDAC 电流监测通道
  - 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 I<sup>2</sup>C 接口：1.7V 至 3.6V 工作电压
  - SPI：4 线接口
  - I<sup>2</sup>C：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)



简化原理图

### 3 说明

AMC60804T 是一款高度集成的低功耗模拟监视器和控制器，适用于光收发器应用。

AMC60804T 包括四个 12 位电流输出数模转换器 (IDAC) 和四个 12 位电压输出 DAC (VDAC)，具有可编程输出范围。该器件还包括一个用于内外部信号监测的 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。

AMC60804T VDAC 可在正负输出范围内运行，能够拉出和灌入高达 50mA 的电流，是偏置光学调制器的理想选择。此外，AMC60804T IDAC 支持 200mA 的满量程输出范围和超低功率耗散。IDAC 无需使用外部元件来偏置激光二极管。AMC60804T 将四个 VDAC 和四个 IDAC 集于一身，可实现电吸收调制激光器的精确偏置。

AMC60804T 还包含四个多路复用到 ADC 的输入引脚，以及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 还能测量 IDAC 引脚的电压以及由 VDAC 拉出或灌入的电流，从而能够监控输出。

AMC60804T 的低功耗、高集成度、超小尺寸和宽工作温度范围特性使其非常适用于光模块一体化控制电路。

#### 封装信息

器件型号	封装 <sup>(1)</sup>	封装尺寸 (标称值)
AMC60804T	YBH ( 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。



## 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 Trademarks

所有商标均为其各自所有者的财产。

### 4.3 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。

### 4.4 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)
<a href="#">AMC60804TYBHR</a>	Active	Production	DSBGA (YBH)   36	3000   LARGE T&R	Yes	SNAGCU	Level-1-260C-UNLIM	-40 to 125	AMC60804T
AMC60804TYBHR.A	Active	Production	DSBGA (YBH)   36	3000   LARGE T&R	Yes	SNAGCU	Level-1-260C-UNLIM	-40 to 125	AMC60804T

(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.

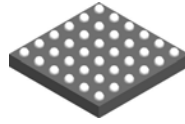
(6) **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

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.

**Important Information and Disclaimer:**The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

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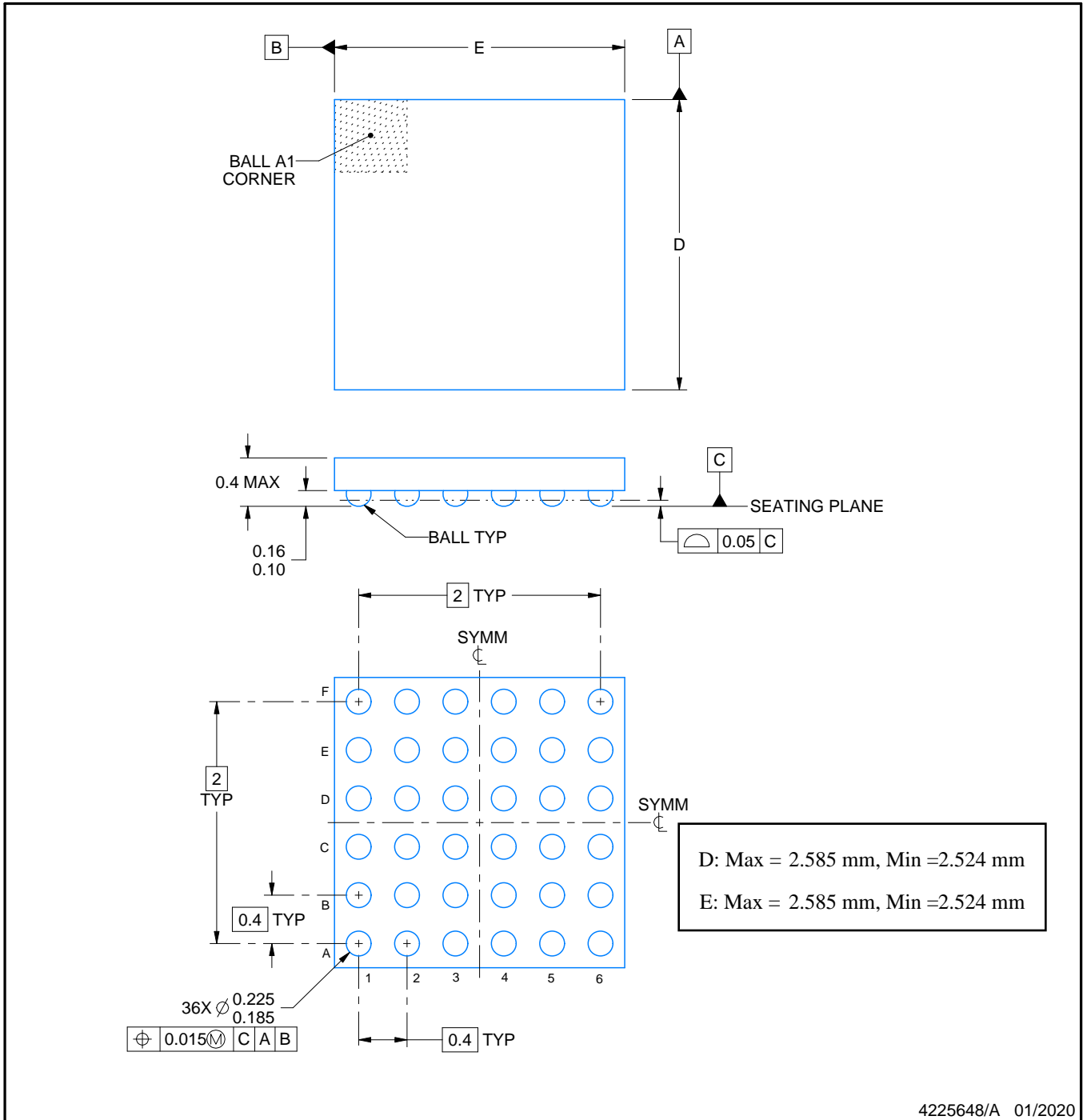
YBH0036



# PACKAGE OUTLINE

DSBGA - 0.4 mm max height

DIE SIZE BALL GRID ARRAY



NOTES:

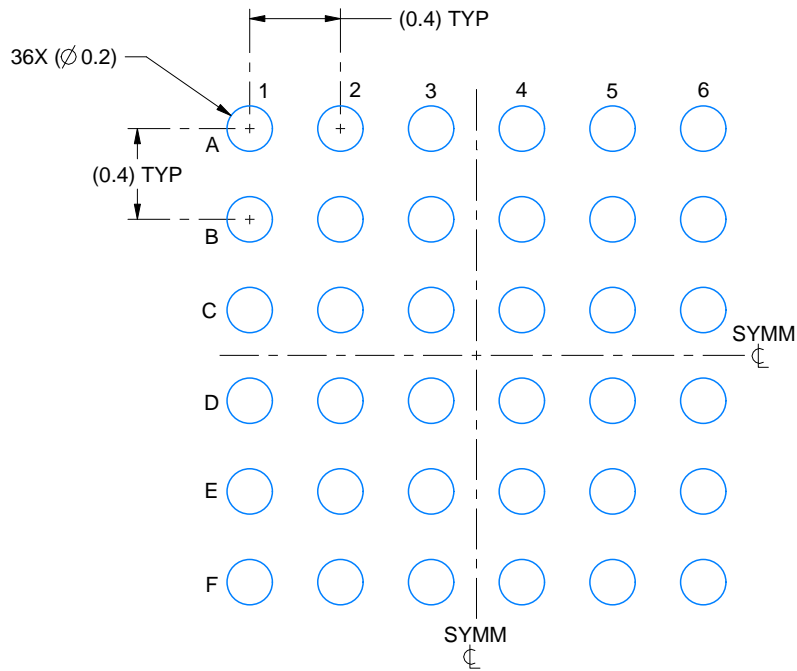
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.

# EXAMPLE BOARD LAYOUT

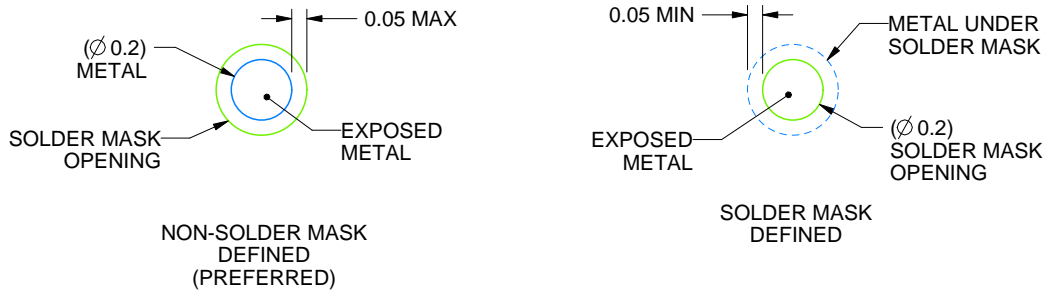
YBH0036

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)

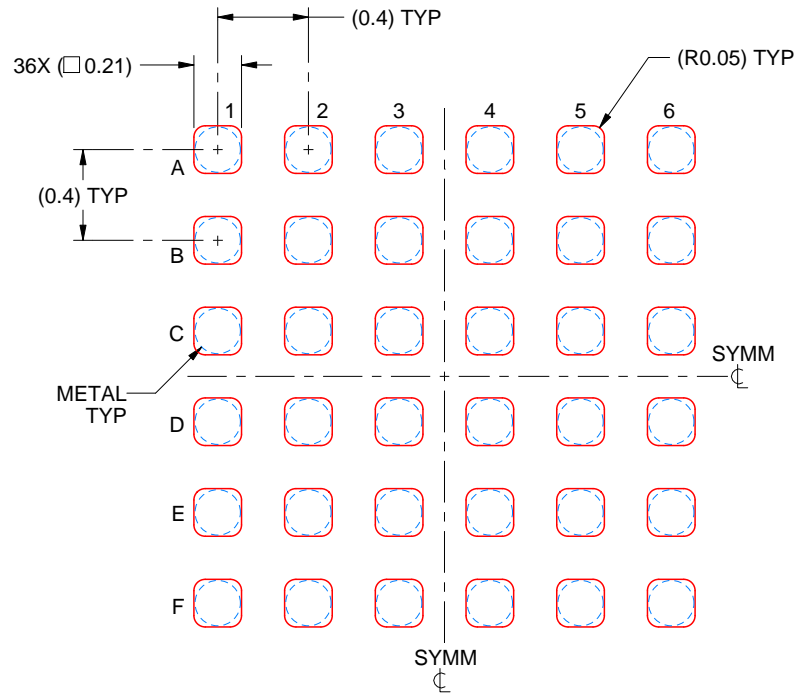
- Final dimensions may vary due to manufacturing tolerance considerations and also routing constraints. See Texas Instruments Literature No. SNVA009 ([www.ti.com/lit/snva009](http://www.ti.com/lit/snva009)).

# 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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最后更新日期：2025 年 10 月