

DLP472TP 0.47 4K UHD 数字微镜器件

1 特性

- 0.47 英寸对角线微镜阵列
 - 4K UHD (3840 × 2160) 显示分辨率
 - 5.4μm 微镜间距
 - ±17° 微镜倾斜度 (相对于平坦表面)
 - 底部照明
- SubLVDS 输入数据总线
- 支持 4K UHD (60Hz)
- 支持 1080p (高达 240Hz)
- 由 DLPC8445 显示控制器、DLPA3085 电源管理 IC (PMIC) 和 LED 驱动器支持 LED 正常运行

2 应用

- 移动智能电视
- 移动投影仪
- 数字标牌

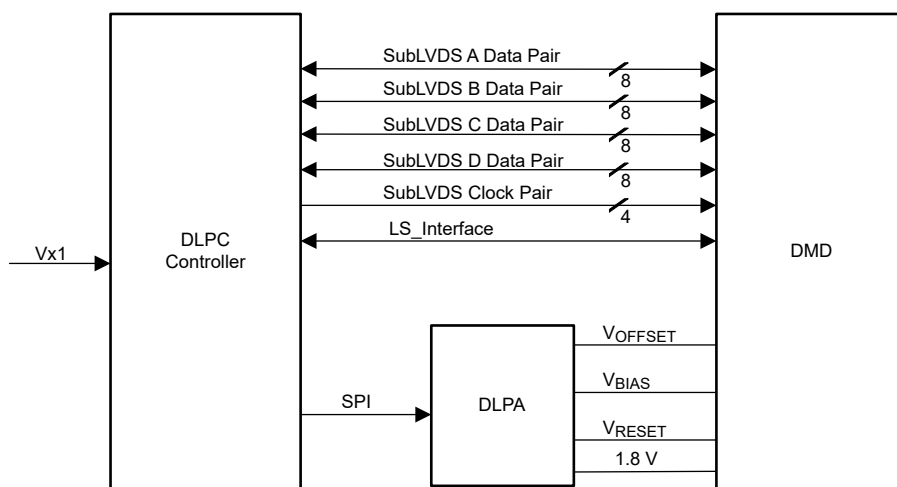
3 说明

DLP472TP 数字微镜器件 (DMD) 是一款数控微机电系统 (MEMS) 空间光调制器 (SLM)，可用于实现高亮的 4K UHD 显示系统。TI DLP® 产品 0.47 英寸 4K UHD 芯片组包括 DLP472TP DMD、DLPC8445 显示控制器、DLPA3085 PMIC 和 LED 驱动器。芯片组的外形紧凑，为体型小巧的 4K 超高清显示器提供完整的系统解决方案。

器件信息

器件型号	封装 ⁽¹⁾	封装尺寸
DLP472TP	FQY (166)	24.50mm × 11.00mm

(1) 如需了解所有可用封装，请参阅数据表末尾的可订购产品附录。



简化版应用



4 器件和文档支持

4.1 第三方产品免责声明

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4.2 器件支持

4.2.1 器件命名规则

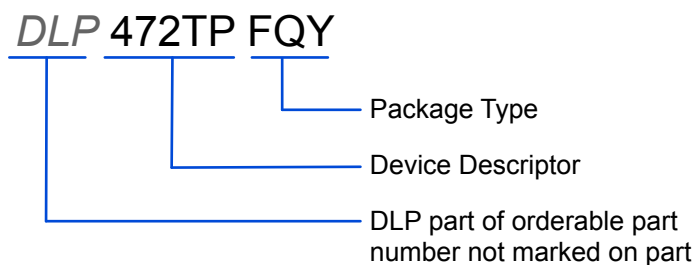


图 4-1. 器件型号说明

4.2.2 器件标识

器件标识包括人类可读的信息和二维矩阵码。图 4-2 说明了可供人类读取的信息，其中包括 GHJJJJJK 472TPFQY 这一清晰可辨的字符串。GHJJJJJK 是批次追踪代码，472TPFQY 则是器件标识。

示例：GHJJJJJK DLP472TPFQY

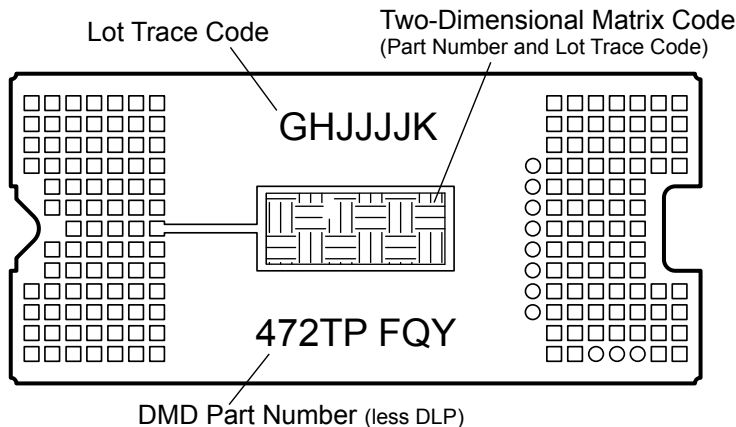


图 4-2. DMD 标识位置

4.3 文档支持

4.3.1 相关文档

以下文档包含与该 DMD 一起使用的芯片组元件相关的更多信息。

- [DLPC8445 高分辨率控制器数据表](#)
- [DLP43085 PMIC 和高电流 LED 驱动器 IC 数据表](#)

4.4 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。

4.5 商标

DLP® is a registered trademark of Texas Instruments.

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4.6 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。

4.7 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
May 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的最新可用数据。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
XDLP472TPFQY	ACTIVE	CLGA	FQY	174	80	RoHS & Green	NI/AU	N / A for Pkg Type	0 to 70		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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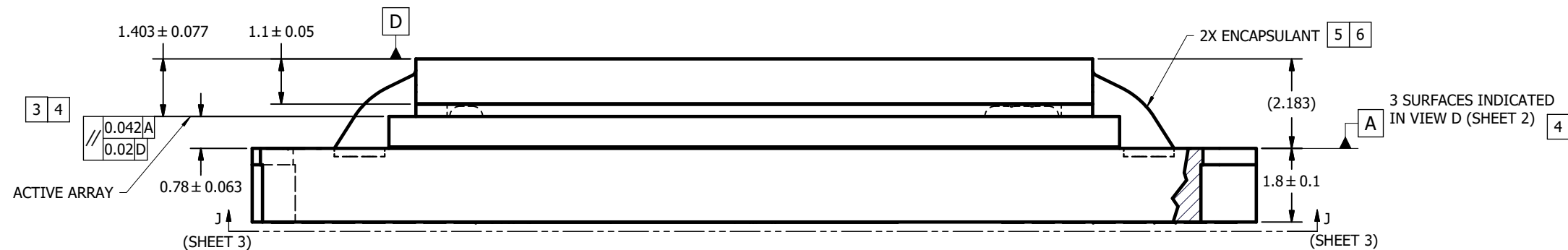
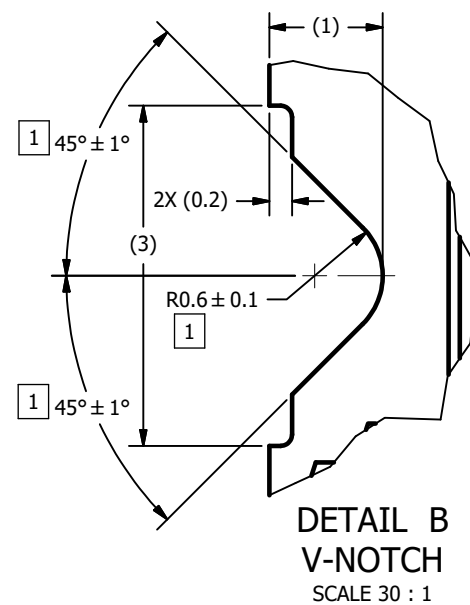
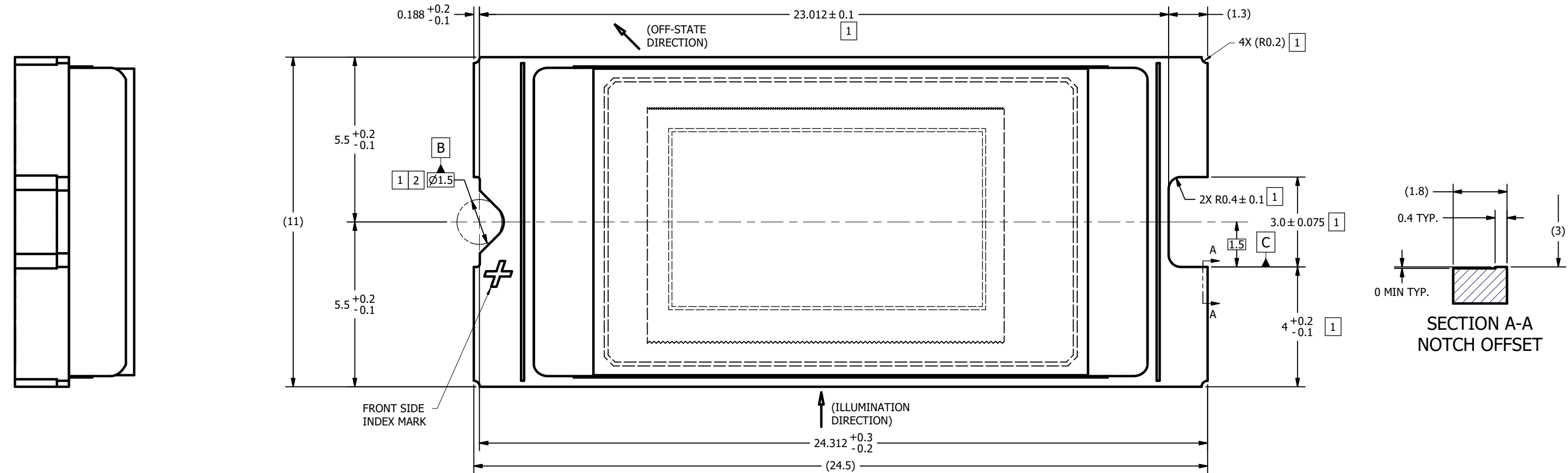
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NOTES UNLESS OTHERWISE SPECIFIED:

- 1 NOTCH DIMENSIONS ARE DEFINED BY UPPERMOST LAYERS OF CERAMIC, AS SHOWN IN SECTION A-A.
- 2 SEE DETAIL B FOR "V-NOTCH" DIMENSIONS.
- 3 DIE PARALLELISM TOLERANCE APPLIES TO DMD ACTIVE ARRAY ONLY.
- 4 WHILE ONLY THE THREE DATUM A TARGET AREAS A1, A2, AND A3 ARE USED FOR MEASUREMENT, ALL 4 CORNERS SHOULD BE CONTACTED, INCLUDING E1, TO SUPPORT MECHANICAL LOADS.
- 5 ENCAPSULANT TO BE CONTAINED WITHIN DIMENSIONS SHOWN IN VIEW D (SHEET 2). NO ENCAPSULANT IS ALLOWED ON TOP OF THE WINDOW.
- 6 ENCAPSULANT NOT TO EXCEED THE HEIGHT OF THE WINDOW.
- 7 ROTATION ANGLE OF DMD ACTIVE ARRAY IS A REFINEMENT OF THE LOCATION TOLERANCE AND HAS A MAXIMUM ALLOWED VALUE OF 0.6 DEGREES.
- 8 BOUNDARY MIRRORS SURROUNDING THE DMD ACTIVE ARRAY.

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REVISIONS			
REV	DESCRIPTION	DATE	BY
A	ECO 2202674: INITIAL RELEASE	12/22/22	HG



DETAIL B
V-NOTCH
SCALE 30 : 1

THIRD ANGLE
PROJECTION

	0314DA
NEXT ASSY	USED ON

APPLICATION

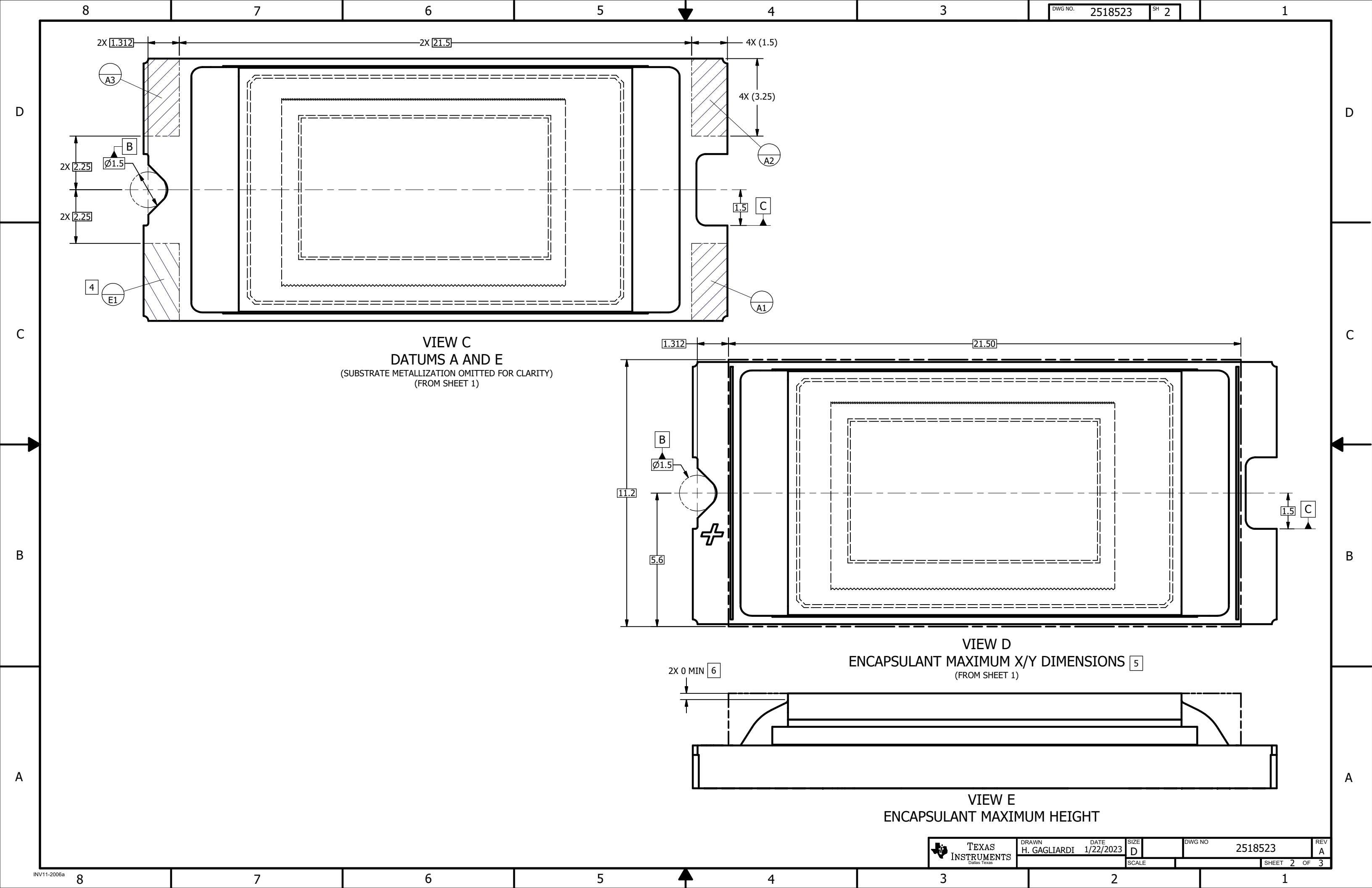
UNLESS OTHERWISE SPECIFIED

- DIMENSIONS ARE IN MILLIMETERS
- TOLERANCES:
 - ANGLES $\pm 1^\circ$
 - 2 PLACE DECIMALS ± 0.25
 - 1 PLACE DECIMALS ± 0.50
- ~~DIMENSIONAL LIMITS APPLY BEFORE PROCESSING~~
- INTERPRET DIMENSIONS IN ACCORDANCE WITH ASME Y14.5M-1994
- ~~REMOVE ALL BURRS AND SHARP EDGES~~
- PARENTHEtical INFORMATION FOR REFERENCE ONLY

DRAWN	DATE
H. GAGLIARDI	1/22/2023
ENGINEER	
H. GAGLIARDI	12/22/2022
QA/CE	
P. KONRAD	12/27/2022
CM	
B. HASKETT	12/22/2022
J. McKINLEY	12/22/2022
APPROVED	
M. GARCIA	1/3/2023

 TEXAS INSTRUMENTS Dallas Texas	
TITLE	ICD, MECHANICAL, DMD, .47 4K PKT-LVDS3 SERIES 321, (FQY PACKAGE)

SIZE D	DWG NO 2518523	REV A
SCALE 15:1	SHEET 1 OF 3	



D

C

B

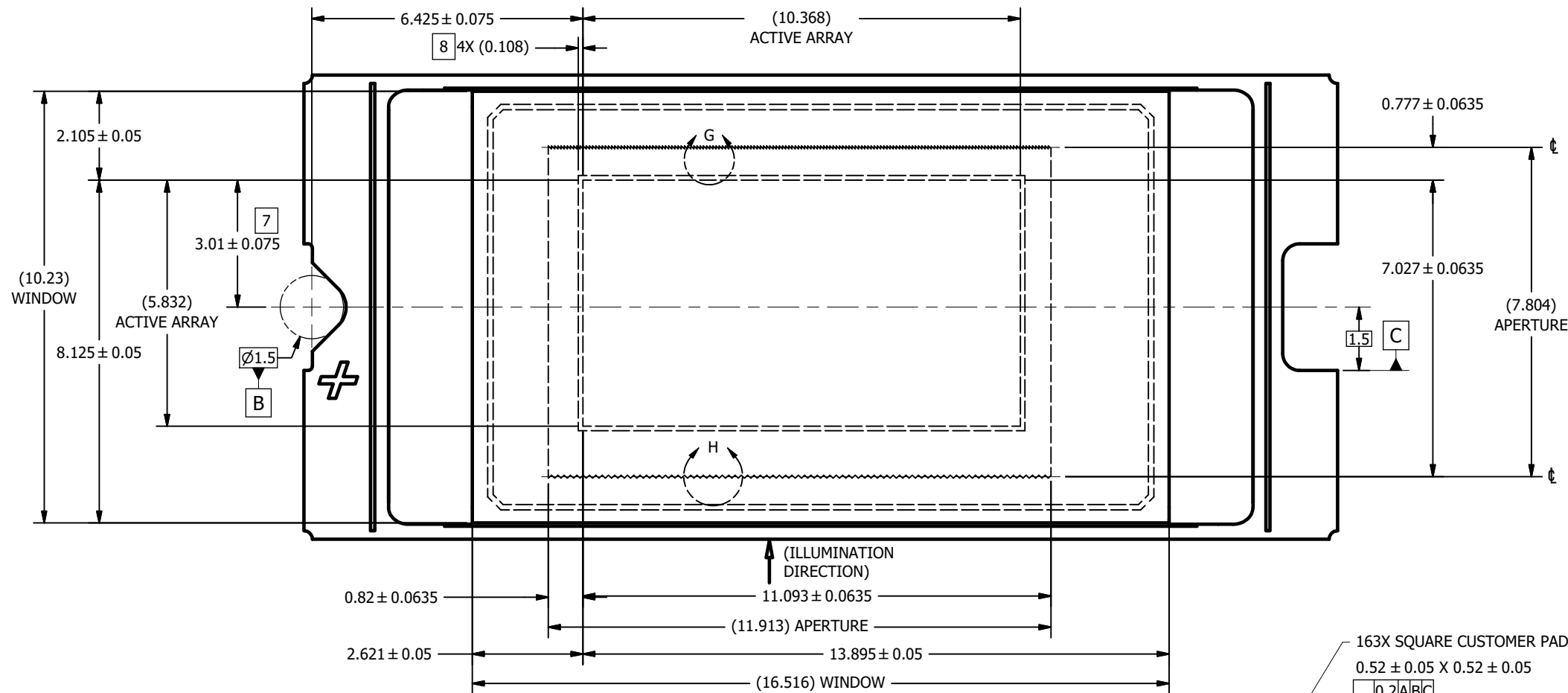
A

D

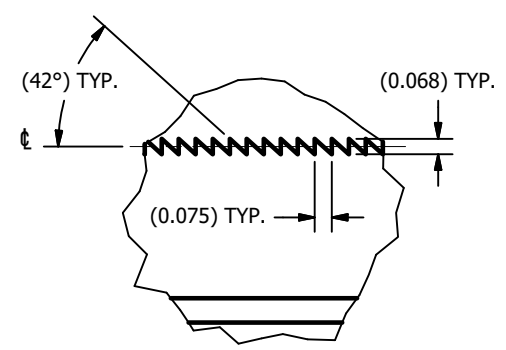
C

B

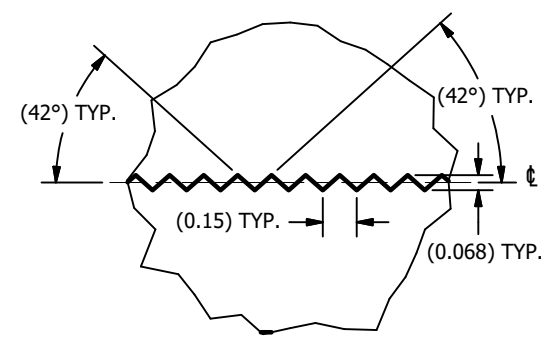
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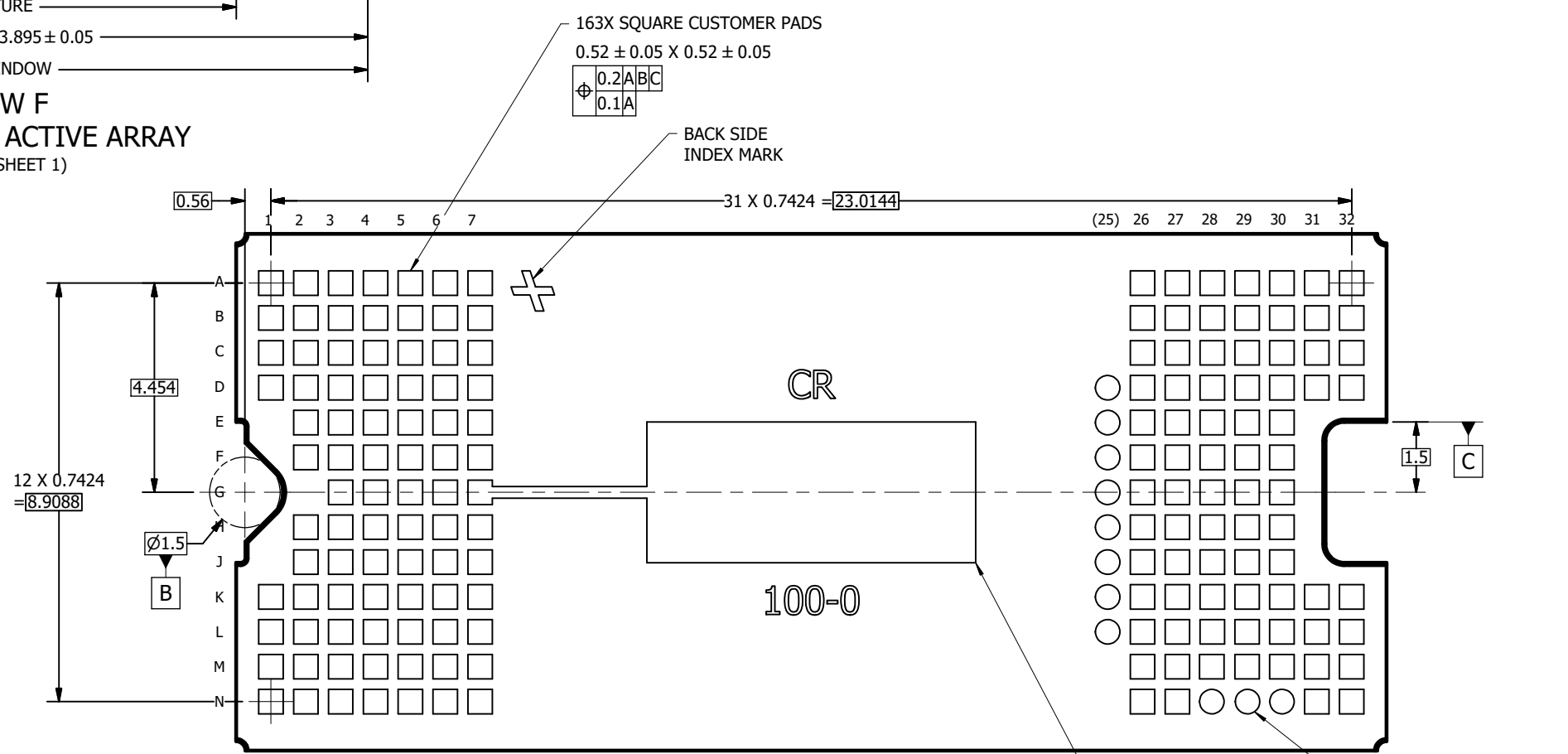
VIEW F
WINDOW AND ACTIVE ARRAY
(FROM SHEET 1)



DETAIL G
APERTURE TOP EDGE
SCALE 60 : 1



DETAIL H
APERTURE BOTTOM EDGE
SCALE 60 : 1



VIEW J-J
BACK SIDE METALLIZATION
(FROM SHEET 1)

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