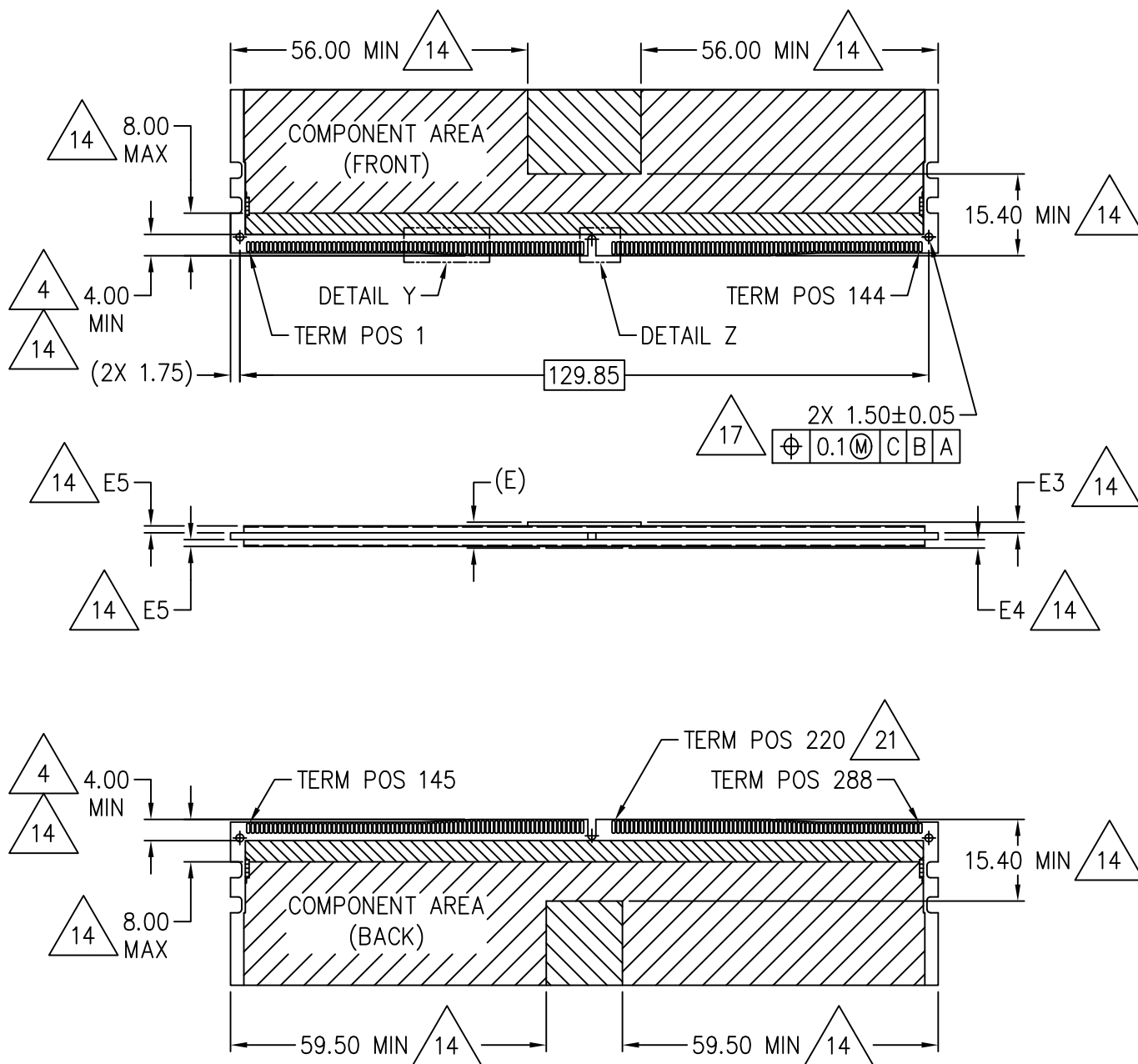
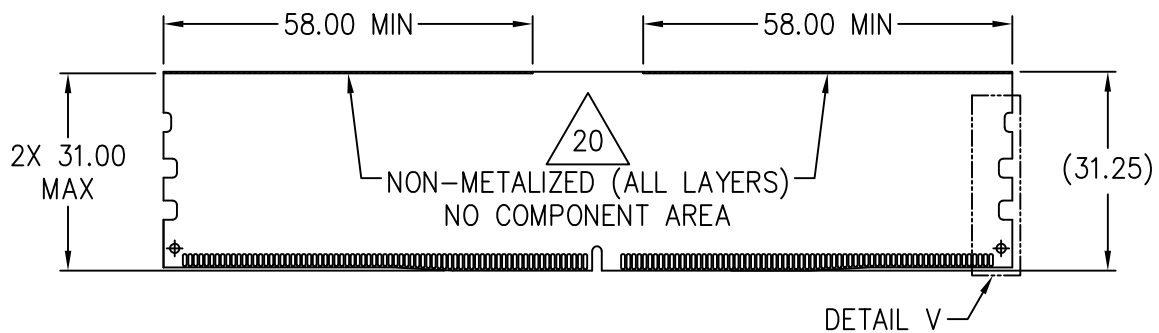


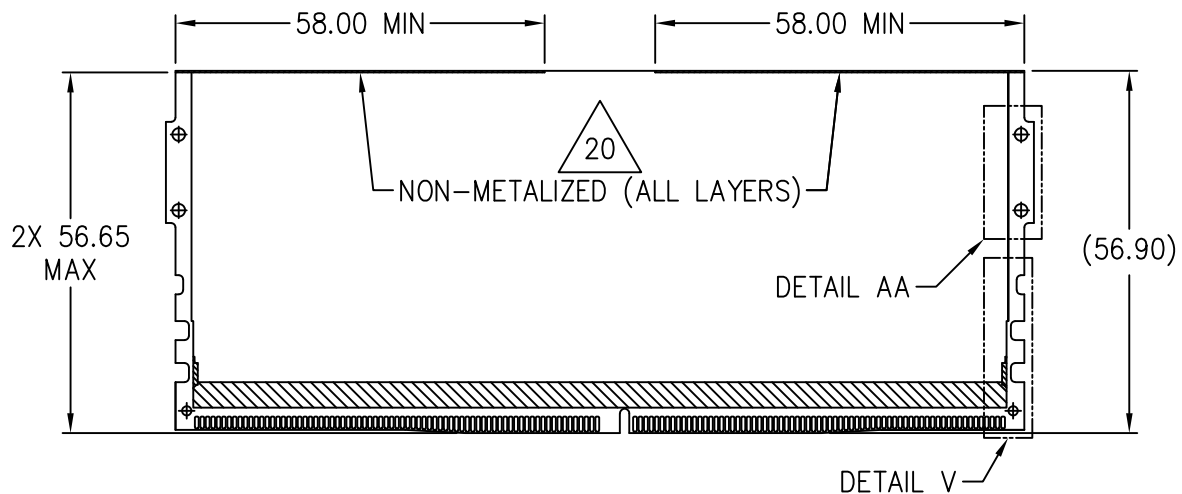
VARIATION: AAxA ¹⁵
SINGLE DIE ASSEMBLY SHOWN



VARIATION: ABxB 15



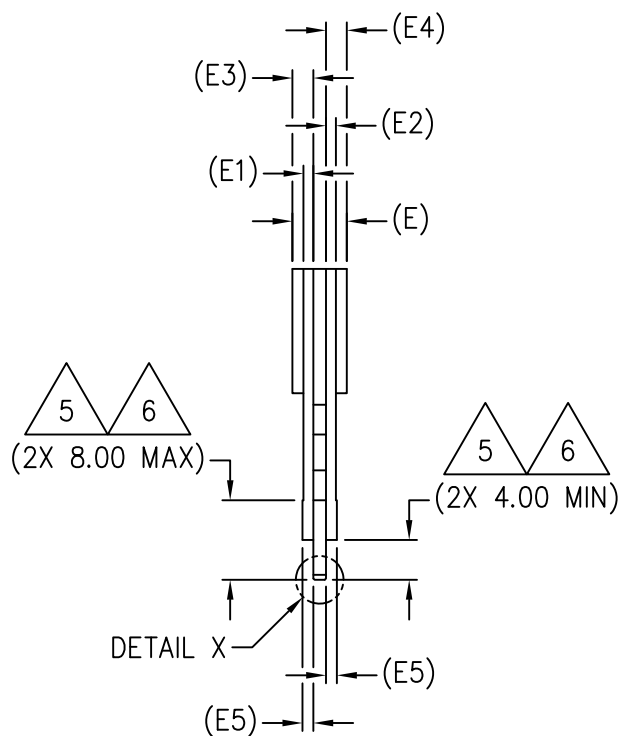
(OPTIONAL)



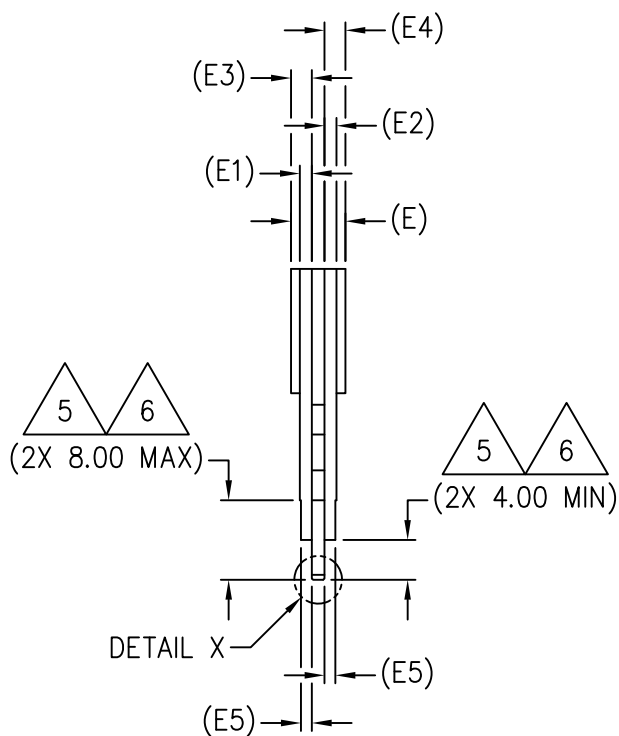
(OPTIONAL)

VARIATION: AAxA, BAxA, AND ABxB 15

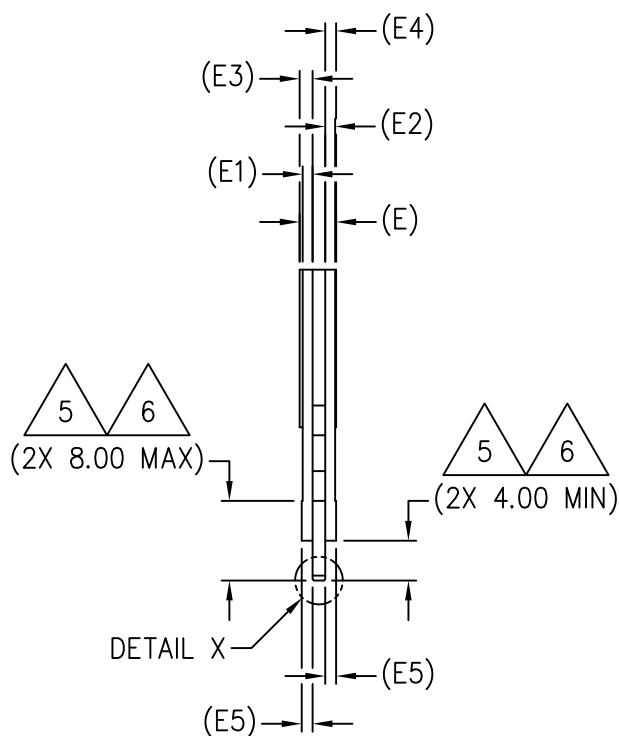
| | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------|------------------------------------|------------------------------------|
| <p>JEDEC SOLID STATE PRODUCT OUTLINE</p> <p><small>Copyright © 2025 JEDEC. All rights reserved. May not be reproduced without permission.</small></p> | <p>TITLE 288 TERM DDR5 DIMM, 0.85 MM PITCH, MICROELECTRONIC ASSEMBLY</p> | <p>NUMBER</p> <p>MO-329</p> | <p>ISSUE</p> <p>J</p> | <p>DATE</p> <p>APR 2025</p> | <p>SHEET</p> <p>7 OF 19</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------|------------------------------------|------------------------------------|



VARIATION: AAxA
SINGLE DIE PACKAGE

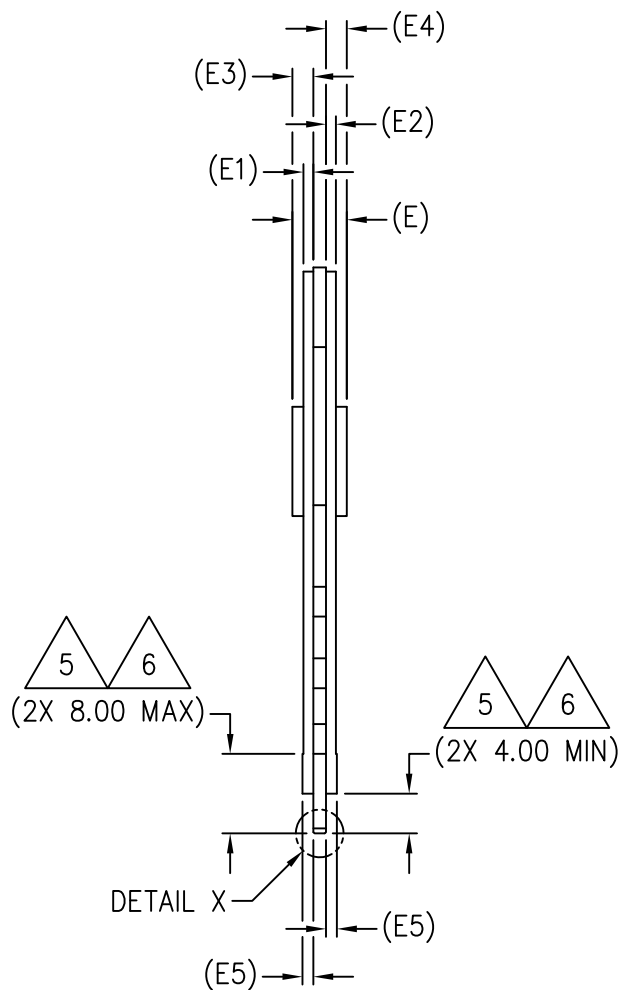


VARIATION: AAxA
MULTI DIE PACKAGE

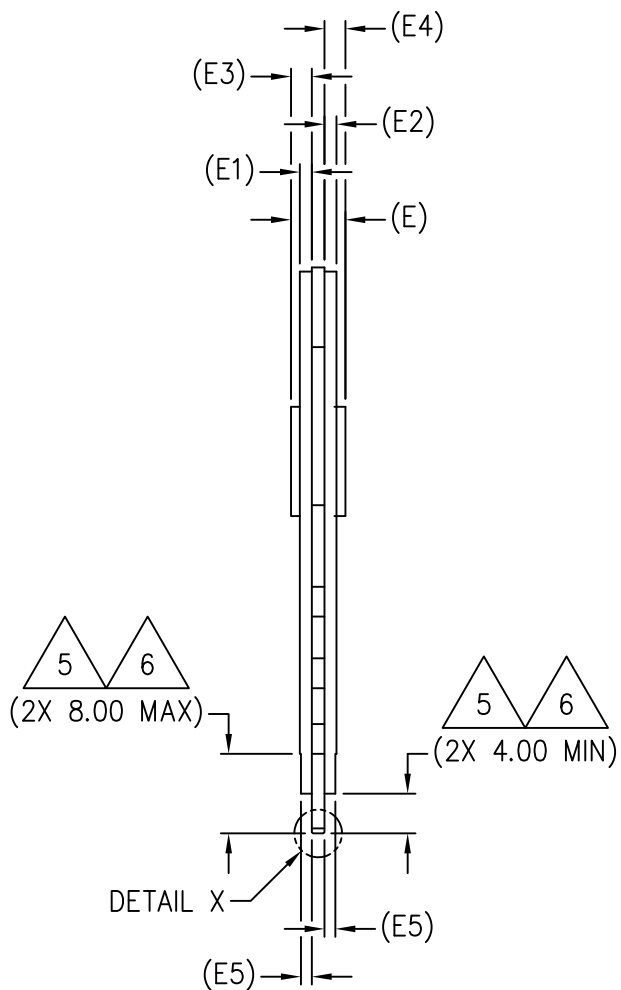


VARIATION: ABxB

VIEW A-A

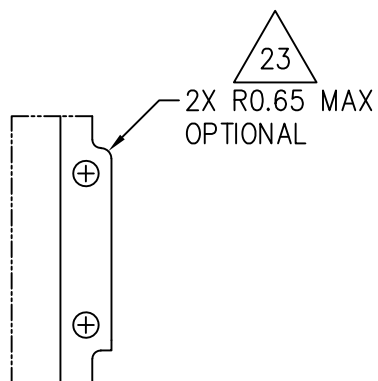


VARIATION: BAxA
SINGLE DIE PACKAGE

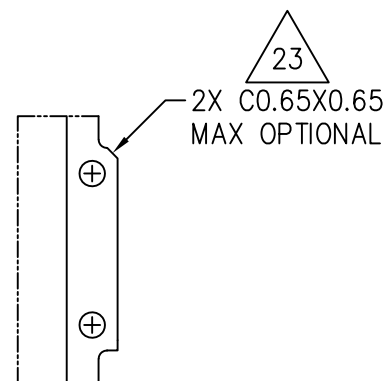


VARIATION: BAxA
MULTI DIE PACKAGE

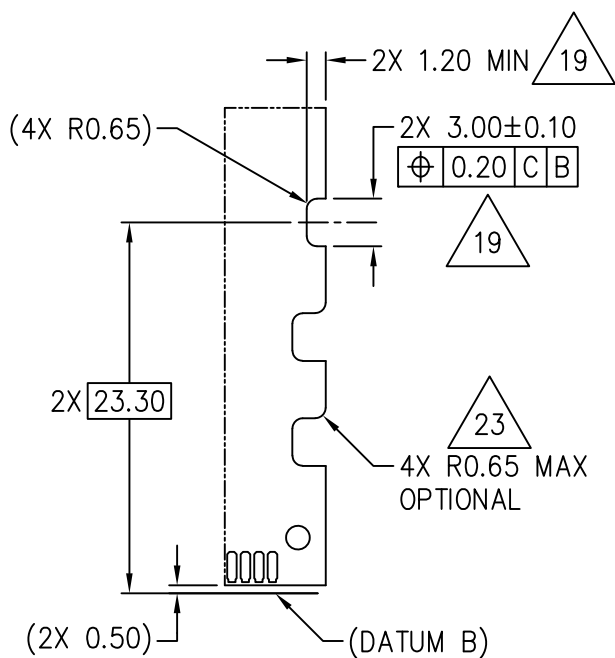
VIEW A-A



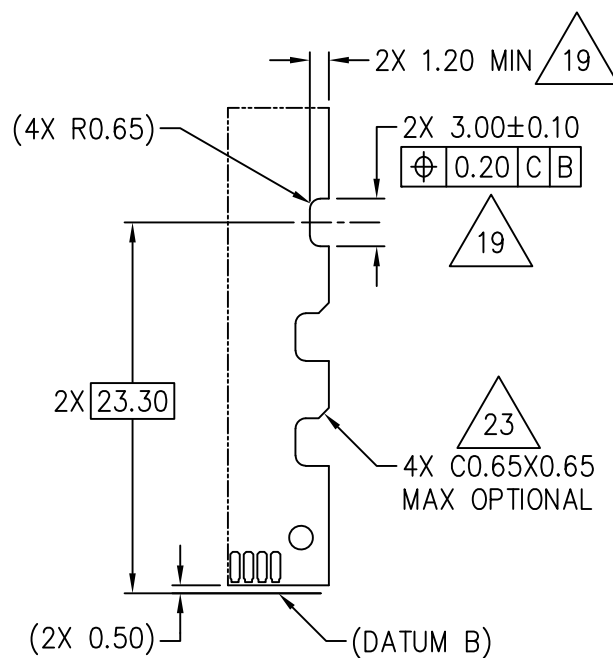
DETAIL AA



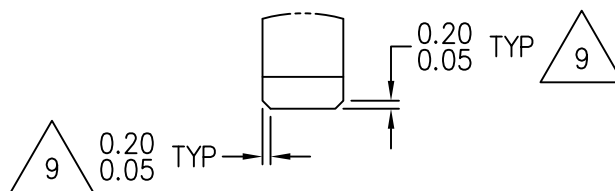
DETAIL AA



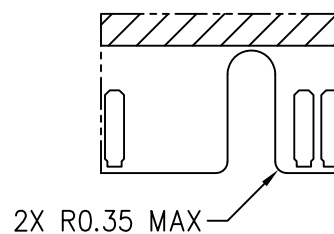
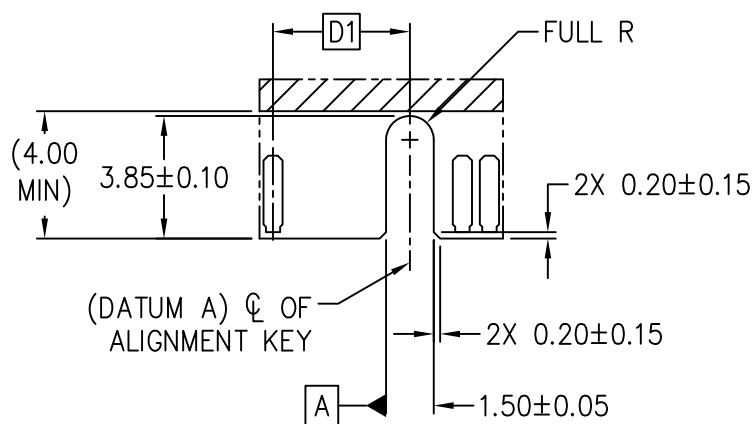
DETAIL V (OPTIONAL)



DETAIL V (OPTIONAL)

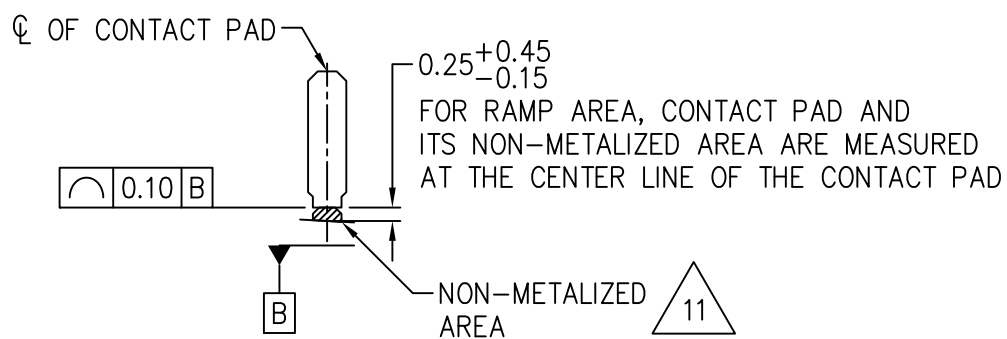


DETAIL X

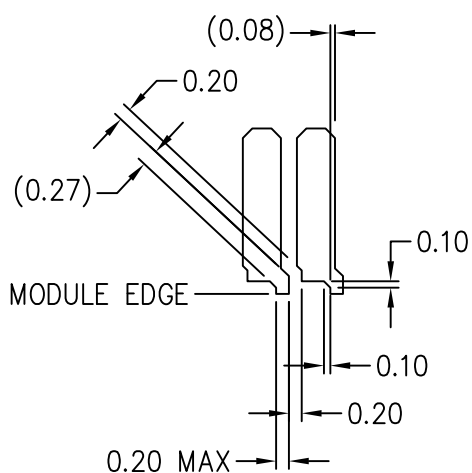


DETAIL Z
EITHER A CHAMFER OR RADII CAN BE USED

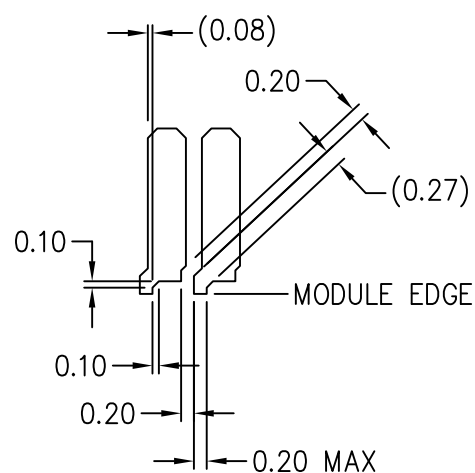




DETAIL P

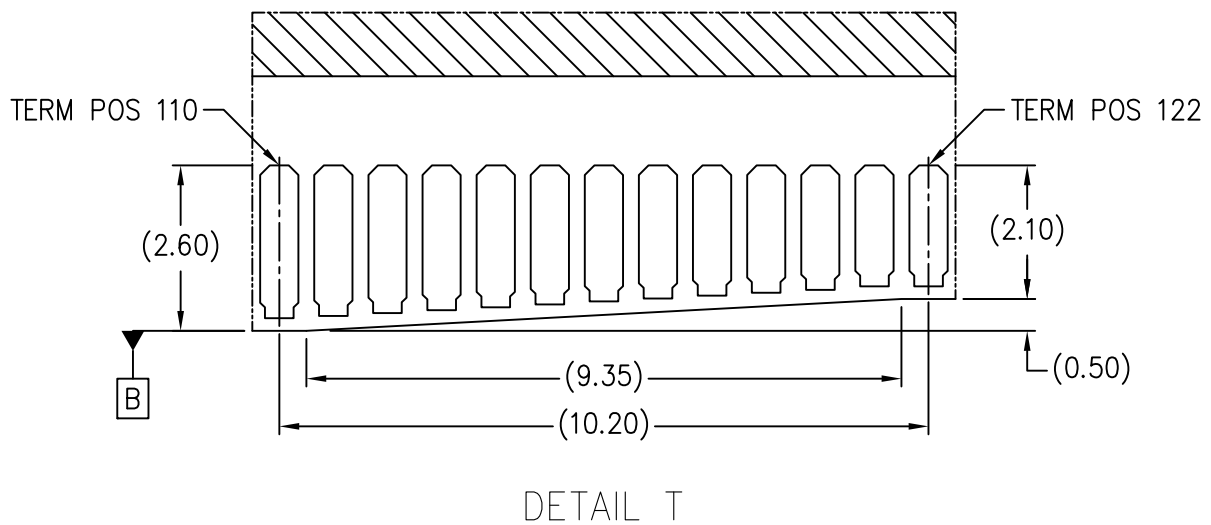
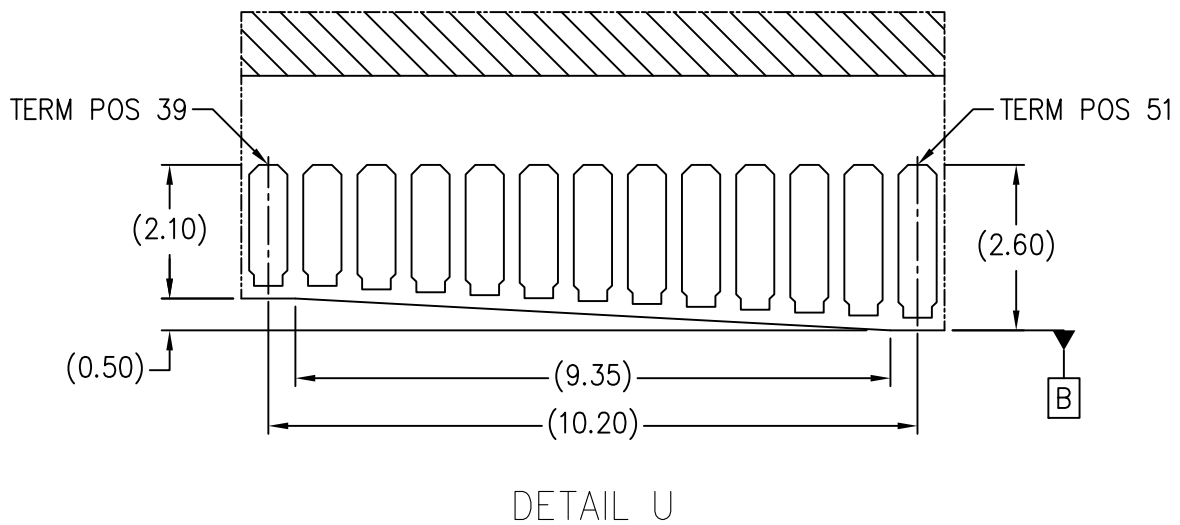
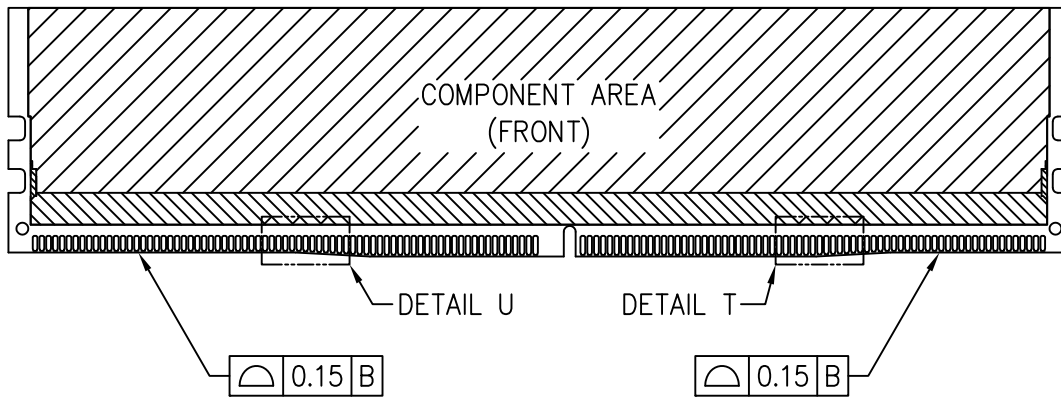


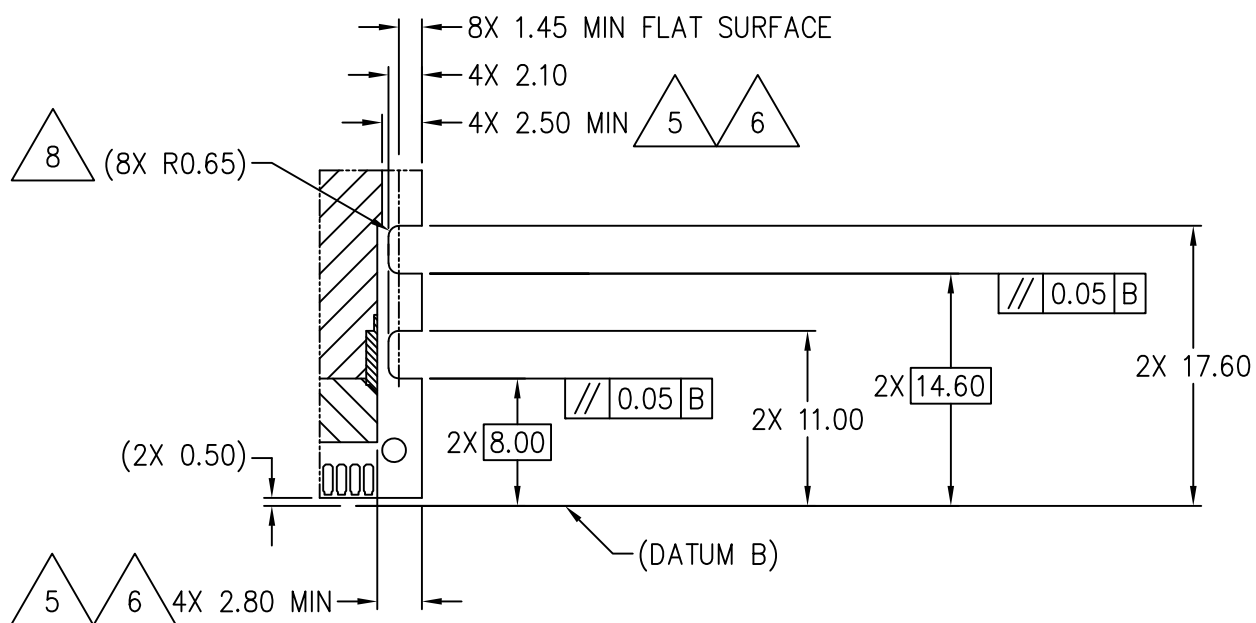
EXAMPLE(1) OF TIE BAR
WITH CONTACT PAD
DIMENSIONS ARE FOR REFERENCE



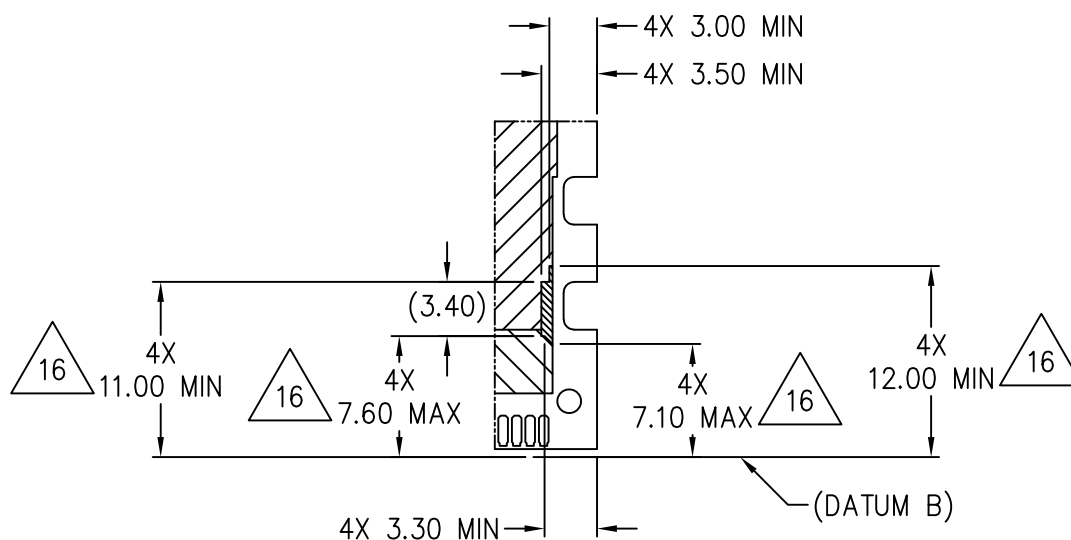
EXAMPLE(2) OF TIE BAR
WITH CONTACT PAD
DIMENSIONS ARE FOR REFERENCE



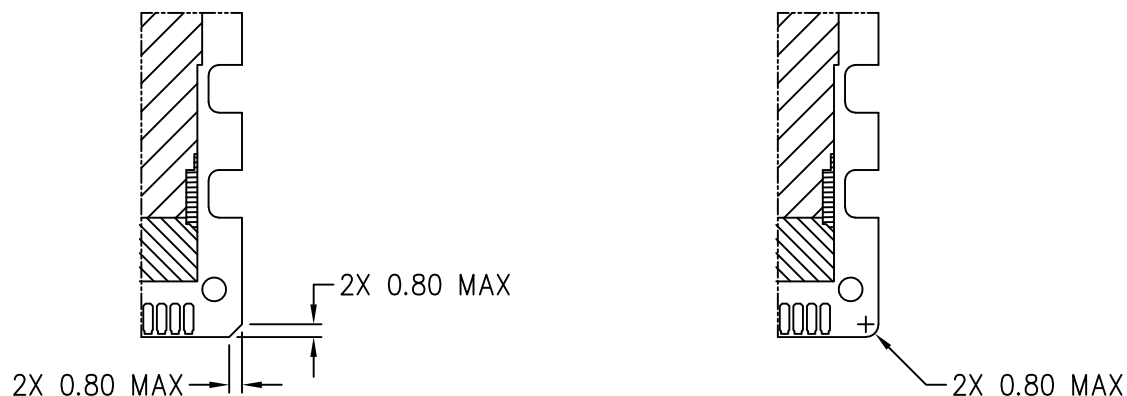




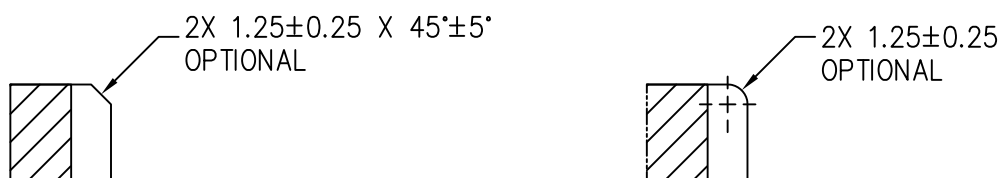
DETAIL W
LATCH NOTCH DETAIL



DETAIL W
DISCRETE COMPONENT KEEP OUT AREA DETAIL



DETAIL W



DETAIL Q

ANY COMBINATION OF CHAMFER OR RADII CAN BE USED

VARIATION Xxxx IS USED FOR MODULE HEIGHT.

TABLE 1

| MODULE HEIGHT | | | | | | | | | |
|---------------|-----------------|-------|-------|-----------------|-------|-------|-----|-----|-----|
| VARIATION ► | 1U DIMM Axxx | | | 2U DIMM Bxxx | | | --- | | |
| SYMBOL ▼ | MIN | NOM | MAX | MIN | NOM | MAX | MIN | NOM | MAX |
| Y | 31.10 | 31.25 | 31.80 | 56.75 | 56.90 | 57.05 | --- | --- | --- |
| | | | | | | | | | |
| NOTES | --- | | | --- | | | --- | | |
| REF | 14–224 | | | 14–224 | | | --- | | |
| ISSUE | H | | | H | | | --- | | |

VARIATION Axxx INCLUDES THE THERMAL SOLUTION HEIGHT IN THE MAXIMUM VALUE.
MAXIMUM MODULE HEIGHT OF VARIATION Axxx WITHOUT THE THERMAL SOLUTION IS 31.40 MM.

TABLE 2

| MODULE THICKNESS VARIATIONS | | | |
|-----------------------------|----------------------------------|----------------|-----|
| VARIATION ► | xAxx | xBxx | --- |
| SYMBOL ▼ | MAX | MAX | --- |
| (E) | 5.57 | 3.77 | --- |
| E1 (FRONT) | 1.00(*)/1.20(**) | 1.00 | --- |
| E2 (BACK) | 1.00(*)/1.20(**) | 1.00 | --- |
| E3 (FRONT) | 2.10 | 1.30 | --- |
| E4 (BACK) | 2.10 | 1.10 | --- |
| E5 | 1.10 | 1.10 | --- |
| | | | |
| NOTES | 5, 22 | 5 | --- |
| REF | 14–184, 14–197 14–206, 14–224 | 14–201, 14–206 | --- |
| ISSUE | H | D | --- |

* SINGLE DIE PACKAGE

** MULTI DIE PACKAGE

VARIATION xxXx IS USED FOR PLATING AND FOUND IN NOTE 10.

TABLE 3

| MECHANICAL KEYING (FRONT VIEW) | | | |
|--------------------------------|----------------|----------------|-----|
| VARIATION ► | xxxA | xxxB | --- |
| SYMBOL ▼ | | | --- |
| D | 3.875 BASIC | 1.425 BASIC | --- |
| D1 | 4.30 BASIC | 1.85 BASIC | --- |
| | | | |
| NOTES | 15 | | |
| REF | 14–184, 14–206 | 14–201, 14–206 | --- |
| ISSUE | D | D | --- |

NOTES:

1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5–2009.
2. TOLERANCES ON ALL DIMENSIONS ± 0.15 UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS ARE MM.



CARD THICKNESS APPLIES ACROSS TABS AND INCLUDES PLATING AND/OR METALIZATION. STRAIGHTNESS CALLOUT APPLIES TO ZONE DEFINED BY THE 4.00 MM CONTACT AREA DIMENSION FOR THE ENTIRE LENGTH OF 133.35 MM.



DIMENSIONS APPLICABLE WHEN COMPONENTS MOUNTED ON BOTH SIDES. DIMM LABEL IS NOT A PART OF THE COMPONENTS.



BORDER OF COMPONENT AREA.



EDGE OF CONTACT PADS AND TIE BARS, IF PRESENT, SHALL BE FREE OF BURRS.



THE (R0.65 MM) DIMENSION IS FOR REFERENCE ONLY. THE 1.45 MM MIN FLAT SURFACE AND THE 2.10 MM DIMENSIONS CONTROL THE FEATURE.

APPLICATION NOTES:



THE BEVEL IS NOT TO HIT THE PLATED CONTACTS.



PLATING FOR CONTACT PADS ARE:

- 1) VARIATION xxAx: GOLD PLATING 0.76 MICROMETERS MINIMUM OVER 2.00 MICROMETERS MINIMUM NICKEL.
- 2) VARIATION xxBx: GOLD PLATING 0.05 MICROMETERS MINIMUM OVER 0.25 MICROMETERS MINIMUM PALLADIUM OVER 2.00 MICROMETERS MINIMUM NICKEL.
- 3) VARIATION xxCx: GOLD PLATING 0.05 MICROMETERS MINIMUM OVER 2.00 MICROMETERS MINIMUM NICKEL.

MODULE PLATING RECOMMENDATIONS TESTED PER INDUSTRY STANDARD EIA 364–1000. RELIABILITY TESTING REQUIRES TEST MODULE, CONNECTOR, AND IDENTIFICATION OF TEST CONDITIONS.



'METALIZED' IS DEFINED AS ANY METAL SURFACE THAT HAS A RETURN PATH TO POWER SUPPLY OR GROUND, THROUGH A COMPONENT OR CONDUCTIVE PLANE VCC OR VDD, BLIND OR PLATED THROUGH HOLE (PTH), AS WELL AS NARROW OR WIDE TRACES. ANY SURFACE METALS SUCH AS CONNECTOR PIN IDENTIFICATION, PCB VENDOR CODE, ETC. THAT DO NOT HAVE A METALS AS A RETURN PATH ARE ACCEPTABLE. 'NON–METALIZED' IS DEFINED AS THE OPPOSITE TO 'METALIZED' AND DOES NOT INCLUDE ANY METAL OR CONDUCTIVE ELEMENTS THAT MAY CAUSE ELECTRICAL SHORT CIRCUIT. HOWEVER, ANY SURFACE METALS SUCH AS CONNECTOR PIN IDENTIFICATION, PCB VENDOR NAME OR CODE, ETC. THAT DOES NOT HAVE CONDUCTIVE RETURN PATH TO VCC OR VDD IS ACCEPTABLE.

- 12 VARIOUS COMPANIES HAVE ISSUED PATENTS AND RELATED PATENT APPLICATIONS THAT MAY APPLY TO THIS REGISTRATION. IF THE CURRENT ISSUE PATENTS OR LATER PATENTS RESULTING FROM RELATED APPLICATIONS DO APPLY, THESE COMPANIES INTEND TO COMPLY WITH THE JEDEC PATENT POLICY AND LICENSE UNDER REASONABLE TERMS AND CONDITIONS THAT ARE DEMONSTRABLY FREE OF ANY UNFAIR DISCRIMINATION. REFERENCED PATENTS ARE AS FOLLOWS.

| | |
|--------|------------------------|
| MICRON | US PATENT NO.: 7547213 |
|--------|------------------------|

- 13 THE DIMENSION ONLY APPLIES TO THE MODULE AREA AS INDICATED ABOVE THE NOTCH.
- 14 THE DIMENSION DEFINES THE BOUNDARY OF COMPONENTS, SUCH AS CAPACITORS AND INDUCTORS. ALL DIMENSIONS WITHIN THE BOX REFER TO THIS NOTE.
- 15 VARIATION $x_A \times x_A$ IS DEDICATED FOR DDR5 R/MR DIMM.
VARIATION $AB \times B$ IS DEDICATED FOR DDR5 UDIMM AND CUDIMM.
- 16 DISCRETE COMPONENT, SUCH AS CAPACITOR OR RESISTOR, IS NOT ALLOWED IN THIS AREA TO PREVENT DAMAGE DUE TO IMPROPER MODULE INSTALLATION. DRAM IS ALLOWED IN THIS AREA.
- 17 THE LOCATION AND SIZE OF THE TOOLING HOLES ARE OPTIONAL, BUT RECOMMENDED TO PREVENT CONNECTOR PIN DAMAGE DUE TO IMPROPER MODULE INSTALLATION.
- 18 THE CHAMFER FEATURE MAY NOT BE PRESENT WHEN TRACE CONNECTED TO THE GOLD FINGER.
- 19 (OPTIONAL) THE SIDE NOTCHES ARE RESERVED FOR THERMAL SOLUTION RETENTION FOR THE DIMM THAT HAVE INSUFFICIENT COOLING.
- 20 (OPTIONAL) THE AREAS ARE RESERVED FOR THERMAL SOLUTION RETENTION FOR THE DIMM DIMM THAT HAVE INSUFFICIENT COOLING.
- 21 NO GOLD FINGER AT TERMINAL POS 220 FOR ALL DDR5 MRDIMM AND DDR5 RDIMM WITH DATA RATE OVER 7200 MT/S. GOLD FINGER IS REQUIRED AT TERMINAL POS 220 FOR ALL DDR5 U/CU DIMM AND DDR5 RDIMM WITH DATA RATE EQUAL OR BELOW 7200 MT/S.
- 22 E1 AND E2 DIMENSIONS ARE RELATED TO DRAM PACKAGE STACKING.
- 23 THE OPTIONAL CHAMFER OR ROUND IS TO REDUCE THE SCRATCH WHEN DIMM IS PLACED INTO OR REMOVED FROM THE TRAY.

STP (3D) FILE RECORD
3D FILE NAMES MAY EXCEED LENGTH REQUIREMENTS FOR SOME SOFTWARE TOOLS.

| STP FILE NAME | DATE | ITEM NUMBER |
|--------------------------------------------------------------------|----------|----------------|
| MO-329D-ABxB_PDMA-N288_I0p85-R133p8x5p57Z31p8R2p55x0p6 | SEP 2021 | 14-206 |
| MO-329E-AAxA_PDMA-N288_I0p85-R133p8x5p57Z31p8R2p55x0p6 | JAN 2022 | 14-212 |
| MO-329H-BAxA_PDMA-N288_I0p85-R136p5x5p57Z57p05R2p55x0p6 | MAY 2024 | 14-224 |
| MO-329I-AAxA_PDMA-N288_I0p85-R133p8x5p57Z31p8R2p55x0p6 | NOV 2024 | 14-230 |
| MO-329I-BAxA_PDMA-N288_I0p85-R136p5x5p57Z57p05R2p55x0p6 | NOV 2024 | 14-230 |

TASK GROUP CONTRIBUTORS

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DELL INC.
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HEWLETT PACKARD ENTERPRISE COMPANY
HP INC.
IBM CORPORATION
INTEL CORPORATION
INVENTEC CORPORATION
LOTES CO. LTD.
LUXSHARE-ICT, INC.
MICRON TECHNOLOGY INC.
MOLEX LLC
SAMSUNG SEMICONDUCTOR
SHENZHEN DEREN ELECTRONIC CO. LTD.
SK HYNIX INC.
TE CONNECTIVITY
WLCO SHENZHEN CO. LTD.

| | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------|------------|------------------|-------------|
| JEDEC SOLID STATE PRODUCT OUTLINE <small>Copyright © 2025 JEDEC. All rights reserved. May not be reproduced without permission.</small> | TITLE 288 TERM DDR5 DIMM, 0.85 MM PITCH, MICROELECTRONIC ASSEMBLY | NUMBER MO-329 | ISSUE J | DATE APR 2025 | SHEET ii |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------|------------|------------------|-------------|

CHANGE RECORD

IF THE CHANGE INVOLVES ANY WORDS ADDED OR DELETED (EXCLUDING DELETION OF ACCIDENTALLY REPEATED WORDS), THE CHANGE IS TO BE INCLUDED BELOW. PUNCTUATION CHANGES MAY OR MAY NOT BE INCLUDED.

| | | |
|------------------|-------------------|---------------------|
| INITIAL ISSUE: A | DATE: AUGUST 2017 | ITEM NUMBER: 14-184 |
|------------------|-------------------|---------------------|

| | | |
|----------|------------------|---------------------|
| ISSUE: B | DATE: APRIL 2020 | ITEM NUMBER: 14-197 |
|----------|------------------|---------------------|

| LOCATION: | CHANGED FROM: | CHANGED TO: |
|------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| ALL SHEETS | 288 PIN DDR5 DIMM, 0.85MM 0.85MM PITCH | 288 PIN DDR5 DIMM, 0.85MM PITCH MICROELECTRONIC ASSEMBLY |
| SHEET 1 | DIMM | PDMA-N288-10p85- R133p8x5p57Z31p8R2p55x0p6 |
| | A | 31.25 ^{+0.55} -0.15 |
| | D | 133.35 |
| | | ADDED BOUNDARY AREAS |
| SHEET 2 | | ADD NEW BOUNDARY AREAS AND ADDED DIMENSIONS: 58.60 MIN, 19.25 MAX, 7.60 MAX, 8.00 MAX E3, E4, AND E5. |
| | | DELETED VARIATIONS Bxxx |
| SHEET 3 | | ADDED BOUNDARY TO VIEW A-A, DELETED VIEW B-B. |
| SHEET 4 | | ADDED 0.15 X 0.15 CHAMFER DIMENSION |
| SHEET 5 | | DIMENSIONS ARE FOR REFERENCE |
| SHEET 6 | | ADD NEW BOUNDARY |
| | | DELETED DETAIL V FOR VARIATIONS Bxxx SHEET |
| SHEET 8 | | DELETED MODULE HEIGHT VARIATIONS TABLE |
| | WAS VARIATION xBxx SYMBOL (E) WAS 4.05 SYMBOL E1 AND E2 WERE 1.65 | NOW VARIATION Axxx SYMBOL (E) NOW 5.57 SYMBOL E1 AND E2 NOW 1.00 ADDED SYMBOLS E3, E4, E5 WITH VARIATION 2.10. |
| SHEET 10 | | ADDED NOTES 14, 15, AND 16. |

CHANGE RECORD

IF THE CHANGE INVOLVES ANY WORDS ADDED OR DELETED (EXCLUDING DELETION OF ACCIDENTALLY REPEATED WORDS), THE CHANGE IS TO BE INCLUDED BELOW. PUNCTUATION CHANGES MAY OR MAY NOT BE INCLUDED.

| | | |
|----------|----------------------|---------------------|
| ISSUE: C | DATE: SEPTEMBER 2020 | ITEM NUMBER: 14-201 |
|----------|----------------------|---------------------|

| LOCATION: | CHANGED FROM: | CHANGED TO: |
|--------------|---------------|---------------------------------------------------------|
| SHEET 1 | 3.875 | D |
| SHEETS 1 & 2 | | ADDED TOOLING HOLES AND ASSOCIATED DIMENSIONS/NOTES |
| | | ADDED 2.5 X 0.7 KEEPOUT |
| | | ADDED VARIATION AAxx TEXT |
| SHEET 2 | | ADDED NOTE 14 TO E3 & E4 |
| SHEETS 3 & 4 | | NEW SHEETS FOR VARAIATION BBxx |
| SHEET 5 | | ADDED VARIATION BBxx FOR VIEW A-A |
| | 4.30 | D1 |
| SHEET 6 | | ADDED NOTE 18 DELTAS |
| SHEET 8 | | UPDATED HATCH FOR COMPONENT AREA |
| SHEET 9 | | ADDED 2.5 X 0.7 KEEPOUT AND ASSOCIATED DIMENSIONS/NOTES |
| | | ADDED TOOLING HOLES |
| SHEET 10 | | ADDED VARIATION Bxxx IN TABLE 1 |
| | | ADDED TABLE 2 |
| SHEET 12 | | ADDED NOTES 15 - 18 |
| SHEET i | | ADDED BBxx STEP FILE |
| SHEET ii | | ADDED DELL INC. |

| | | |
|----------|----------------------|---------------------|
| ISSUE: D | DATE: SEPTEMBER 2021 | ITEM NUMBER: 14-206 |
|----------|----------------------|---------------------|

| LOCATION: | CHANGED FROM: | CHANGED TO: |
|------------------|----------------|------------------------------------------------------------|
| SHEETS 1, 2, & 5 | VARIATION AAxx | VARIATION AAxA |
| SHEETS 3, 4, 5 | VARIATION BBxx | VARIATION ABxB |
| SHEETS 1-4, 8 | | MODIFIED THE COMPONENT AREA NEAR THE SIDE NOTCHES AND PINS |

CHANGE RECORD

IF THE CHANGE INVOLVES ANY WORDS ADDED OR DELETED (EXCLUDING DELETION OF ACCIDENTALLY REPEATED WORDS), THE CHANGE IS TO BE INCLUDED BELOW. PUNCTUATION CHANGES MAY OR MAY NOT BE INCLUDED.

| LOCATION: | CHANGED FROM: | CHANGED TO: |
|-------------------|------------------------|------------------------------------------------------------|
| SHEET 2 | 58.60 MIN (4X) | 58.00 MIN (4X) |
| | 19.25 MIN | 18.75 MIN |
| | 19.25 MIN | 19.00 MIN |
| | E3 & E4 | E4 & E3 (SWAPPED POSITIONS) |
| | | ADDED (E) |
| | | DELETED HORIZONTAL 8.00 MAX AND ASSOCIATED NOTE 14 (2X) |
| | 7.60 MAX (2X) | 8.00 MAX (2X) |
| SHEET 4 | 56.50 MIN (2X) | 56.00 MIN (2X) |
| | 15.80 MIN | 15.40 MIN |
| | 18.00 MIN | 15.40 MIN |
| | E3 & E4 | E4 & E3 (SWAPPED POSITIONS) |
| | | ADDED (E) |
| | | ADDED E5 AND ASSOCIATED NOTE 14 (2X) |
| | | ADDED 8.00 MAX AND ASSOCIATED NOTE 14 (2X) |
| SHEET 5 | | ADDED (E1) & (E2) (2X) |
| SHEET 9 | | ADDED: LATCH NOTCH DETAIL |
| | | ADDED LOWER DETAIL W |
| SHEETS 9 & 10 | | MODIFIED THE COMPONENT AREA NEAR THE SIDE NOTCHES AND PINS |
| SHEET 10 | | ADDED VARIATION NOTES Xxxx AND xxXx |
| | TABLE 1: Axxx & Bxxx | TABLE 1: xAxx & xBxx |
| | TABLE 1: E1 | TABLE 1: E1 (FRONT) |
| | TABLE 1: E2 | TABLE 1: E2 (BACK) |
| | TABLE 1: E3 1.10 | TABLE 1: E3 (FRONT) 1.30 |
| | TABLE 1: E4 1.30 | TABLE 1: E4 (BACK) 1.10 |
| | TABLE 1: E5 2.10 & --- | TABLE 1: E5 1.10 & 1.10 |
| | TABLE 2: xAxx & xBxx | TABLE 1: xxxA & xxxB |
| SHEET 13, NOTE 14 | | REMOVED: FOR VOLTAGE REGULATOR |
| SHEET 13, NOTE 15 | AAxx AND BBxx | AAxA AND ABxB |

CHANGE RECORD

IF THE CHANGE INVOLVES ANY WORDS ADDED OR DELETED (EXCLUDING DELETION OF ACCIDENTALLY REPEATED WORDS), THE CHANGE IS TO BE INCLUDED BELOW. PUNCTUATION CHANGES MAY OR MAY NOT BE INCLUDED.

| | | |
|-------------------|---------------|-------------|
| LOCATION: | CHANGED FROM: | CHANGED TO: |
| SHEET 13, NOTE 18 | FEATUER | FEATURE |

| | | |
|---------|--------------------|--------------------|
| ISSUE:E | DATE: JANUARY 2022 | ITEM NUMBER:14-212 |
|---------|--------------------|--------------------|

| | | |
|--------------|---------------|-----------------------------------------------------|
| LOCATION: | CHANGED FROM: | CHANGED TO: |
| SHEETS 1 & 2 | | UPDATED COMPONENT AREA |
| SHEET 2 | | ADDED 64.00 MAX DIMENSION ADDED (5.35) DIMENSION |
| SHEET 3 | | NEW SHEET |
| SHEET 14 | | ADDED NOTES 19 AND 20 |

| | | |
|---------|-------------------|--------------------|
| ISSUE:F | DATE: AUGUST 2023 | ITEM NUMBER:14-220 |
|---------|-------------------|--------------------|

| | | |
|-------------------|-----------------------------------------------------------------|-------------------------------------------------------------------|
| LOCATION: | CHANGED FROM: | CHANGED TO: |
| ALL SHEETS: TITLE | 288 PIN DDR5 DIMM, 0,85MM PITCH MICRO ELECTRONIC ASSEMBLY | 288 TERM DDR5 DIMM, 0,85MM PITCH, MICRO ELECTRONIC ASSEMBLY |
| SHEETS 1, 3, & 9 | PIN | TERM POS |
| SHEET 3 | | MOVED TO SHEET 5 |
| SHEETS 7 & 8 | 0.25±0.15 | 0.25 ^{+0.45} _{-0.15} |
| SHEET 12 | E1=1.00 MAX; E2=1.00 MAX | E1=1.20 MAX; E2=1.20 MAX |
| SHEET 14, NOTE 15 | ...R/LR DIMM... ...DDR5 UDIMM. | ...R/LR/MR DIMM... ...DDR5 UDIMM AND CUDIMM. |

| | | |
|---------|--------------------|--------------------|
| ISSUE:G | DATE:NOVEMBER 2023 | ITEM NUMBER:14-221 |
|---------|--------------------|--------------------|

| | | |
|------------------|---------------|------------------------------------------------------|
| LOCATION: | CHANGED FROM: | CHANGED TO: |
| SHEETS 1, 3 | | ADDED TERM POS 220 |
| SHEET 13, NOTE 5 | | ADDED: DIMM LABEL IS NOT A PART OF THE COMPONENTS |
| SHEET 14 | | ADDED NOTE 21 |

CHANGE RECORD

IF THE CHANGE INVOLVES ANY WORDS ADDED OR DELETED (EXCLUDING DELETION OF ACCIDENTALLY REPEATED WORDS), THE CHANGE IS TO BE INCLUDED BELOW. PUNCTUATION CHANGES MAY OR MAY NOT BE INCLUDED.

| | | |
|---------|---------------|--------------------|
| ISSUE:H | DATE:MAY 2024 | ITEM NUMBER:14-224 |
|---------|---------------|--------------------|

| LOCATION: | CHANGED FROM: | CHANGED TO: |
|-------------------|----------------------------------------------------|-------------------------------------------------------|
| SHEET 1 | PDMA-N288-I0p85-R133p8x#p#7Z31p8:R2p55x0p6 | PDMA-N288_I0p85-... |
| SHEETS 1 & 3 | | ADDED DETAIL Q |
| | | CORRECTED POSITION, E1 & E2 |
| SHEETS 2 & 4 | | ADDED 4.00 MIN |
| SHEETS 5 & 6 | | NEW SHEETS FOR VARIATION BAxA |
| SHEET 7 | | ADDED VARIATION BAxA |
| SHEET 8 | | ADDED VARIATION AAxA MULTI DIE ASSEMBLY |
| | | ADDED DIMENSIONS E3, E4, E5 |
| | | (8.00 MAX) |
| | 4.00 MIN | (4.00 MIN) |
| SHEET 9 | | NEW SHEETS FOR VARIATION BAxA |
| SHEET 11 | 0.17 | $0.17^{+0.45}_{-0.15}$ |
| | 0.24 | $0.24^{+0.45}_{-0.15}$ |
| SHEET 15 | | ADDED DETAIL Q |
| SHEET 16 | | DELETED: THIS MICROELECTRONIC ...THIS VARIATION IS A. |
| | | ADDED MODULE HEIGHT TABLE |
| | | ADDED SINGLE/MULTI DIE PACKAGE |
| SHEET 19, NOTE 15 | VARIATION AAxA IS DEDICATED FOR DDR5 R/LR/MR DIMM. | VARIATION xAxA IS DEDICATED FOR DDR5 R/MR DIMM. |
| SHEET 19 | | ADDED NOTE 22 |

CHANGE RECORD

IF THE CHANGE INVOLVES ANY WORDS ADDED OR DELETED (EXCLUDING DELETION OF ACCIDENTALLY REPEATED WORDS), THE CHANGE IS TO BE INCLUDED BELOW. PUNCTUATION CHANGES MAY OR MAY NOT BE INCLUDED.

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| ISSUE:H.01 | DATE: JUNE 2024 | ITEM NUMBER:14–224E |
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| LOCATION: | CHANGED FROM: | CHANGED TO: |
|-------------------|-------------------------------------------------------|---------------------------------------------------|
| SHEET 3 | | REMOVED ERRONEOUS 4.00 MIN DIMENSION |
| SHEET 5 | | REMOVED DUPLICATE 5.95 BASIC DIMENSION |
| SHEET 6 | (2X 1.40) | (2X 1.75) – SAME AS REV H |
| SHEET 10 | 2X 1.07 MIN | 2X 1.20 MIN – SAME AS REV H |
| SHEET 14 | 4X 1.08 | 4X 2.10 – SAME AS REV H |
| SHEET 19, NOTE 21 | NO GOLD FINGER PRESENT ... GOLD FINGER PRESENT ... | NO GOLD FINGER ... GOLD FINGER IS REQUIRED ... |

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| ISSUE:I | DATE:NOVEMBER 2024 | ITEM NUMBER:14–230 |
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| LOCATION: | CHANGED FROM: | CHANGED TO: |
|-------------------------|-------------------------------------|-----------------------------------------------------------------------------------|
| SHEET 2 | 18.75 MIN | 15.40 MIN |
| | 19.00 MIN 64.00 MAX | 17.20 MIN 63.75 MAX |
| | | CORRECTED 58.00 MIN DIMENSION POSITION |
| SHEET 6 | 42.90 MIN 31.90 MAX 58.00 MIN | 44.70 MAX 29.70 MIN 58.00 MAX |
| | | ADDED 58.00 MIN DIMENSIONS IN COMPONENT AREAS |
| | | REMOVED DUPLICATE 4X 2.00 DIMENSION |
| SHEET 7 | | CORRECTED DESCRIPTION IN BxA VARIATION |
| SHEET 19, NOTES 19 & 20 | ... ARE COOLING IS NOT SUFFICIENT | ... HAVE INSUFFICIENT COOLING |

CHANGE RECORD

IF THE CHANGE INVOLVES ANY WORDS ADDED OR DELETED (EXCLUDING DELETION OF ACCIDENTALLY REPEATED WORDS), THE CHANGE IS TO BE INCLUDED BELOW. PUNCTUATION CHANGES MAY OR MAY NOT BE INCLUDED.

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| ISSUE: J | DATE: APRIL 2025 | ITEM NUMBER: 14-235 |
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|-------------------|---------------|--------------------------------------------------------------------------------|
| LOCATION: | CHANGED FROM: | CHANGED TO: |
| SHEET 6 | 58.00 MAX | 59.50 MAX |
| SHEETS 7 & 9 | | ADD DETAIL AA |
| SHEET 10 | | UPDATE DETAIL V, ADD OPTIONAL 4X R0.65 MAX OR OPTIONAL 4X C0.65X0.65 MAX |
| SHEET 16, TABLE 1 | | ADDED 1U DIMM & 2U DIMM TO VARIATION |
| | | ADDED VARIATION Axxx.... & MAXIMUM MODULE... NOTES BELOW TABLE |
| SHEET 19 | | ADD NOTE 23 |