



Versal Adaptive SoC Packaging and Pinouts Architecture Manual (AM013)

Mechanical Drawings

SFVA784 Mechanical—VM1102, VE2202, and VE2302
NBVB1024 Mechanical—VM1302 and VM1402
NFVB1369 Mechanical—VM1502
NFVI1369 Mechanical—VP1002 and VP1052
NSVF1369 Mechanical—VM1302 and VM1402
NSVG1369 Mechanical—VC1502, VC1702, and VE1752
NSVH1369 Mechanical—VC2602, VC2802, VE2602, and VE2802
VFVC1596 Mechanical—VM1302 and VM1402
VIVA1596 Mechanical—VC1802 and VC1902
VIRA1596 Mechanical—XQVC1902 and XQVM1802
VSVA1596 Mechanical—VC1502, VC1702, and VE1752
VFVC1760 Mechanical—VM1502 and VM1802
VSVD1760 Mechanical—VM1302, VM1402
VSRD1760 Mechanical—XQVC1902 and XQVM1802
VSVD1760 Mechanical—VC1802, VC1902, and VM1802
VS VH1760 Mechanical—VC2602, VC2802, VE2602, and VE2802
XCDAISY-VSVA2197 and XQDAISY-VSRA2197 Daisy Chain Land Pattern
VSRA2197 Mechanical—XQVC1902 and XQVM1802
VSVA2197 Mechanical—VC1502, VM1502, VC1702, and VE1752
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VSVA2785 Mechanical—VP1102
VSVA2785 Mechanical—VP1202
VSVA2785 Mechanical—VP1402
VSVA2785 Mechanical—VP1502
VSVA2785 Mechanical—VP1552
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VSVA3340 Mechanical—VP1502
VSVA3340 Mechanical—VP1552
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VSVA3697 Mechanical—VH1522, VH1542, and VH1582
LSVC4072 Mechanical—VP1802
LSVA4737 Mechanical—VH1542 and VH1582
LSVA4737 Mechanical—VH1742 and VH1782
VSVA5601 Mechanical—VP1702
VSVA5601 Mechanical—VP1802
VSVA5601 Mechanical—VP2802

Mechanical Drawings

This chapter provides mechanical drawings (package specifications) of the Versal™ devices. The following table is a cross-reference to the mechanical drawings by device and package combination. See Package Specifications Designations for definitions of Evaluation Only, Engineering Sample, and Production mechanical drawings.

A 3D representation of each device in STEP format can be downloaded on the *3D CAD STEP Models* download site at: <https://www.xilinx.com/support/download/index.html/content/xilinx/en/downloadNav/device-models/3d-cad-step-models/versal-acaps.html>.

!! Important: All packages are available with eutectic-SnPb BGA balls. To order these packages, the device type starts with an XQ vs. XC or XA, and the Pb-free signifier in the package name is Q. For the mechanical drawings, refer to the Pb-free version of these packages.

See the [Table 6](#) table for details on key dimensions/tolerances shown in each mechanical drawing.

Table: Cross-Reference to Versal AI Core Series Mechanical Drawings by Package

Package	Devices						
	VC1352	VC1502	VC1702	VC1802	VC1902	VC2602	VC2802 XQVC1902
NBVA1024C1352 Evaluation Only							
NSVE1369C1352 Evaluation Only							
NSVG1369 Figure 1	Figure 1	Figure 1	Figure 1				
NSVH1369							Figure 1 Engineering Sample

Package	Devices						
	VC1352	VC1502	VC1702	VC1802	VC1902	VC2602	VC2802 XQVC1902
VIVA1596					Figure 1 Production		
VIRA1596					Figure 1 Production		
VSVA1596		Figure 1 Production					
VSVD1760				Figure 1 Production			
VSRD1760					Figure 1 Production		
VS VH1760						Figure 1 Engineering Sample	
VSRA2197					Figure 1 Production		
VSVA2197		Figure 1 Production		Figure 1 Production			

Table: Cross-Reference to Versal Prime Series Mechanical Drawings by Package

Package	Devices								
	VM1102	VM130	VM140	VM1502	VM1802	VM2202	VM2302	VM2502	VM2902
					XQVM1802				

Package	Devices								
	VM1102	VM1302	VM1402	VM1502	VM1802	VM2202	VM2302	VM2502	VM2902
SFVA784	VM1102				XQVM1802				
	Engineering Sample								
NBVB1024	Figure 1 Production								
NFVB1369			Figure 1						
			Production						
NSVF1369	Figure 1 Production								
NSVH1369					VM2202 Evaluation Only				
VFVC1596	Figure 1 Production								
VFVC1760			Figure 1	Figure 1					
			Production	Production					
VSVD1760	Figure 1 Production			Figure 1					
				Production					
VSRD1760				Figure 1					
				Production					
VSVI1760						VM2502 Evaluation Only			

Package	Devices									
	VM1102	VM1302	VM1402	VM1502	VM1802	VM2202	VM2302	VM2502	VM2902	
					XQVM1802					
VFVF1760							VM2302	VM2902	Engineering Sample	Engineering Sample
VSVA2197				Figure 1	Figure 1	Production	Production			
VSRA2197				Figure 1		Production				

Table: Cross-Reference to Versal Premium Series Mechanical Drawings by Package

Package	Devices										
	VP1002	VP1052	VP1102	VP1202	VP1402	VP1502	VP1552	VP1702	VP1802	VP2502	VP2802
NFVI1360	Figure 1	Figure 1									
	Engineering Sample (ES)										
VFVF1760	P1002, VP1052 Evaluation Only		VP1102 Engineering Sample		VP1402 Engineering Sample						
VSVC2021	P1002, VP1052 Evaluation Only										
VSVD2197			Figure 1								

Package	Devices				
	VP100	VP105	VP110	VP120	VP140
			ES		
VSVA2785	Figure 1	Figure 1	Figure 1	Figure 1	Figure 1
	Production	Production	Production	Production	ES
VSVA3340	Figure 1	Figure 1	Figure 1	Figure 1	Figure 1
	Production	Production	ES	Production	Production
VSVB3340					Figure 1 ES
LSVC4072				Figure 1	Production
VSVA5601			Figure 1 ES	Figure 1 ES	Figure 1 ES

Table: Cross-Reference to Versal HBM Series Mechanical Drawings by Package

Package	Devices				
	VH1522	VH1542	VH1582	VH1742	VH1782
VSVA3697	Figure 1 Engineering Sample				
LSVA4737		Figure 1 VH1542 Engineering Sample		Figure 1 VH1582 Engineering Sample	

Table: Cross-Reference to Versal AI Edge Series Mechanical Drawings by Package

Package	Devices

	VE1752	VE2002	VE2102	VE2202	VE2302	VE2602	VE2802
SBVA484		VE2002, VE2102 Evaluation Only					
SBVA625		VE2002, VE2102 Evaluation Only					
SFVA784		VE2002, VE2102 Evaluation Only		Figure 1 Engineering Sample			
NSVG1369	Figure 1 Production						
NSVH1369						Figure 1 Engineering Sample	
VSVA1596	Figure 1 Production						
VSVH1760						Figure 1 Engineering Sample	
VSVA2197	Figure 1 Production						

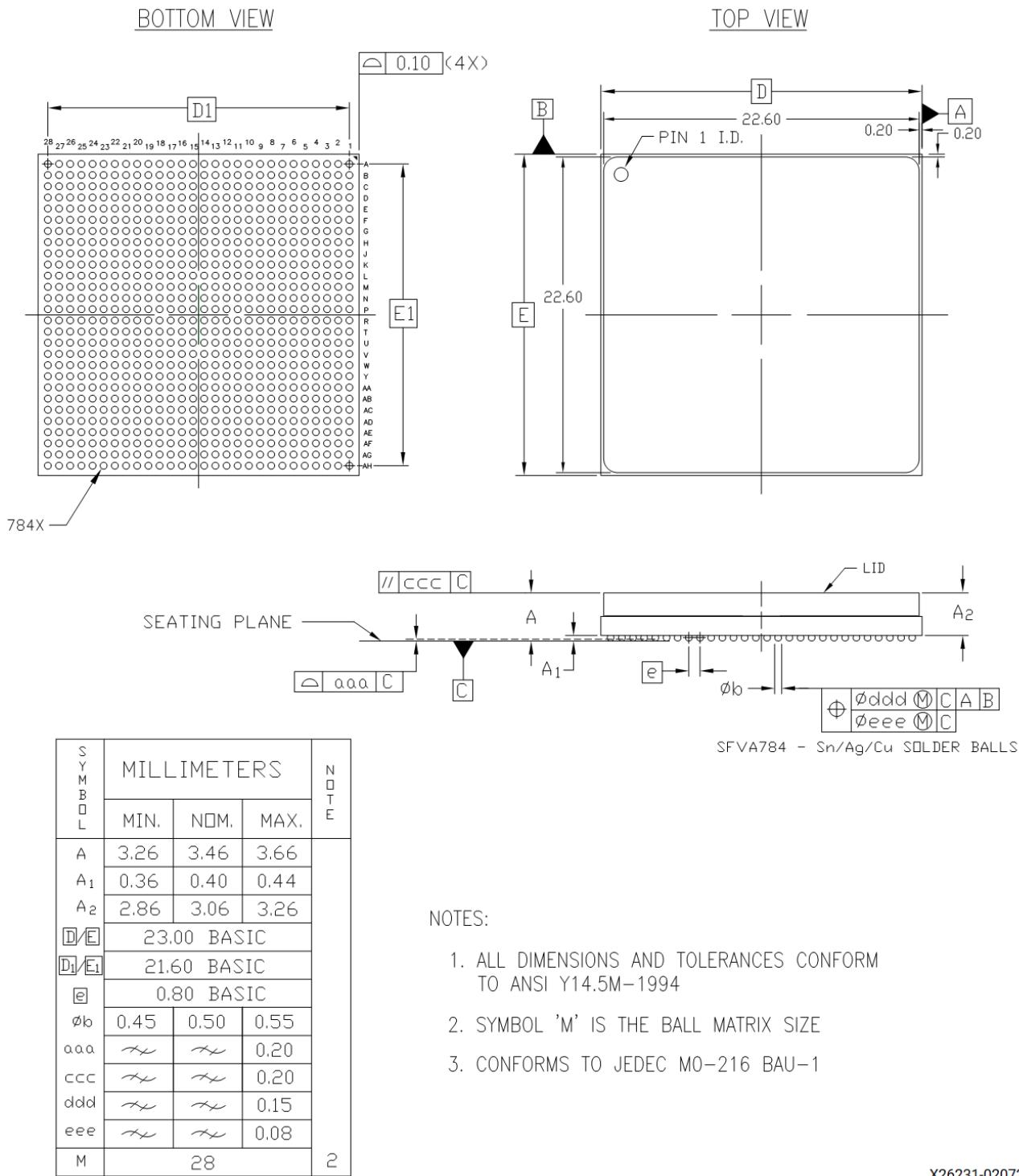
Table: Mechanical Drawing Dimension Definitions

Dimension	Definition
	Bilateral tolerance of package sides with respect to datums A and B
A	Thickness of package with respect to the seating plane datum C

Dimension	Definition
A ₁	Thickness of BGA balls with respect to the seating plane datum C
A ₂	Thickness of package body, including stiffener ring or lid and excluding BGA balls, with respect to the seating plane datum C
A ₃	Distance from top of silicon die to top of stiffener ring or lid with respect to the seating plane datum C
D/E	Length/width of package with respect to datums A and B
D ₁ /E ₁	Length/width of BGA matrix with respect to datums A and B
e	BGA ball pitch measured at the center of each ball
øb	BGA ball diameter
△ aaa	Unidirectional upward tolerance with respect to the seating plane datum C
/ / bbb	Bilateral tolerance for parallelism of package surface with respect to the seating plane datum C
øddd	BGA ball position tolerance of diameter ddd with respect to datums A and B perpendicular to the seating plane datum C in which the center of each ball must lie
øeee	BGA ball position tolerance of diameter eee measured with respect to other balls within the BGA matrix in which the center of each ball must lie
M	BGA ball matrix size

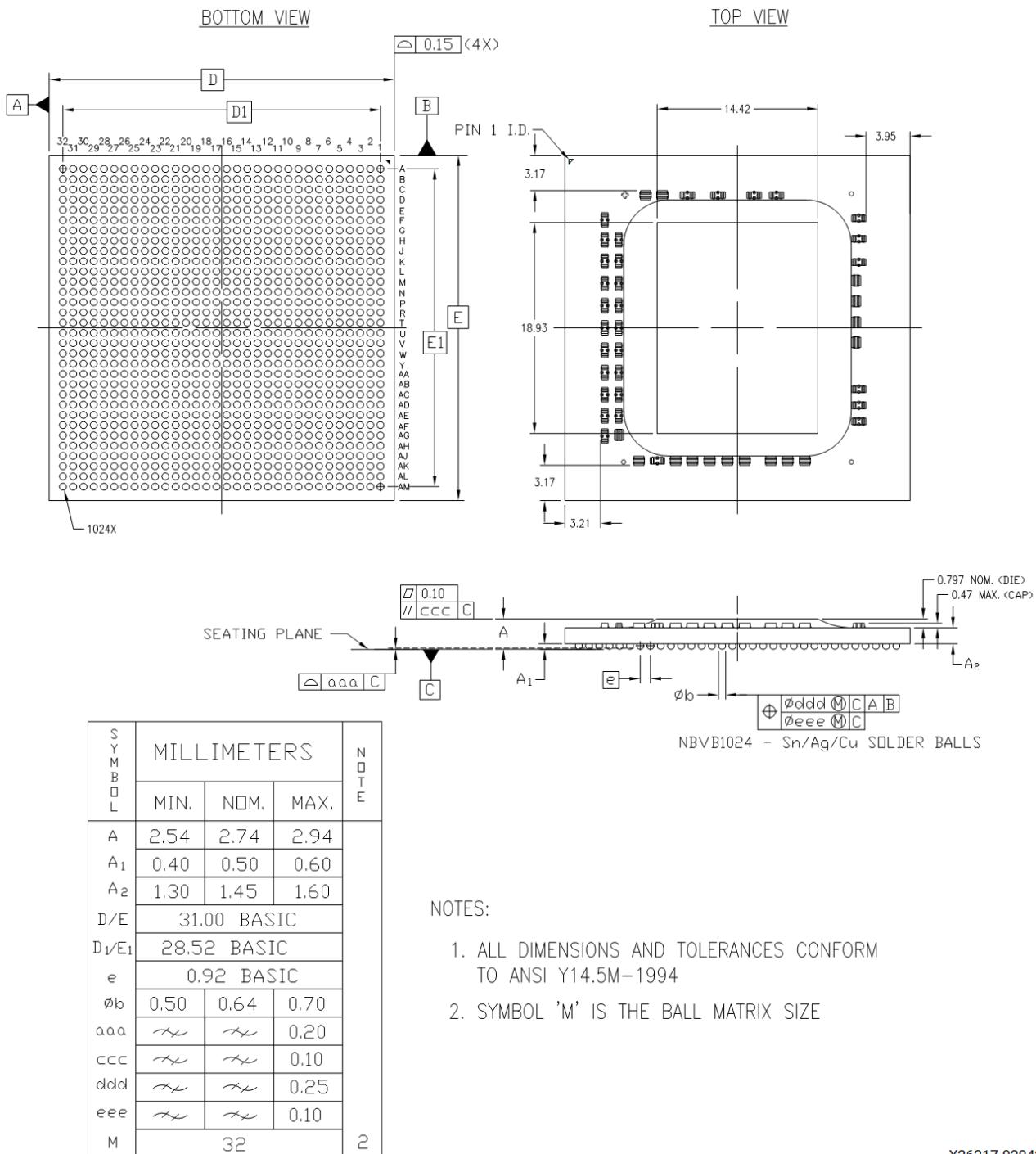
SFVA784 Mechanical—VM1102, VE2202, and VE2302

Figure: Package Dimensions for SFVA784 (VM1102, VE2202, and VE2302)



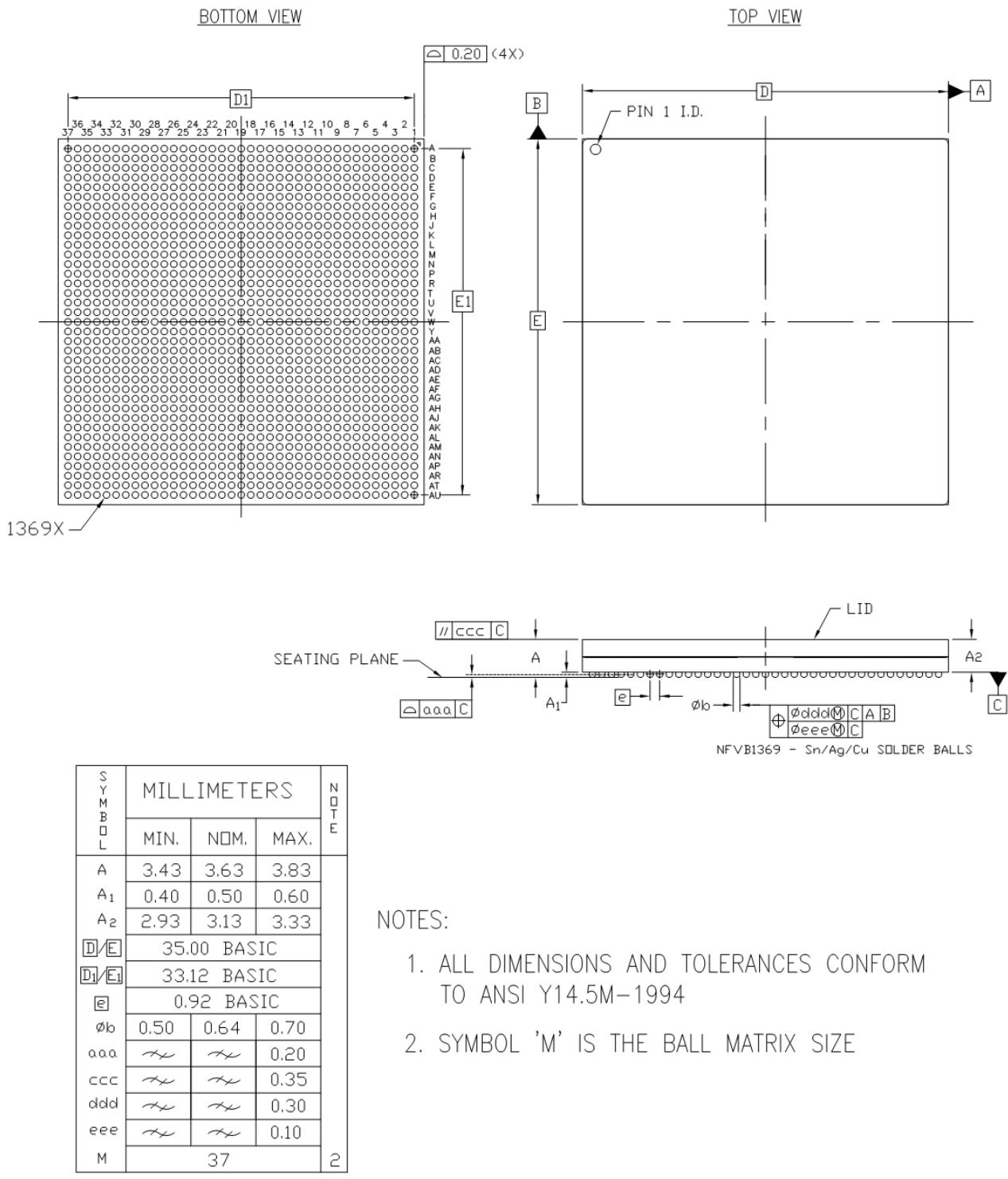
NBVB1024 Mechanical–VM1302 and VM1402

Figure: Package Dimensions for NBVB1024 (VM1302 and VM1402)



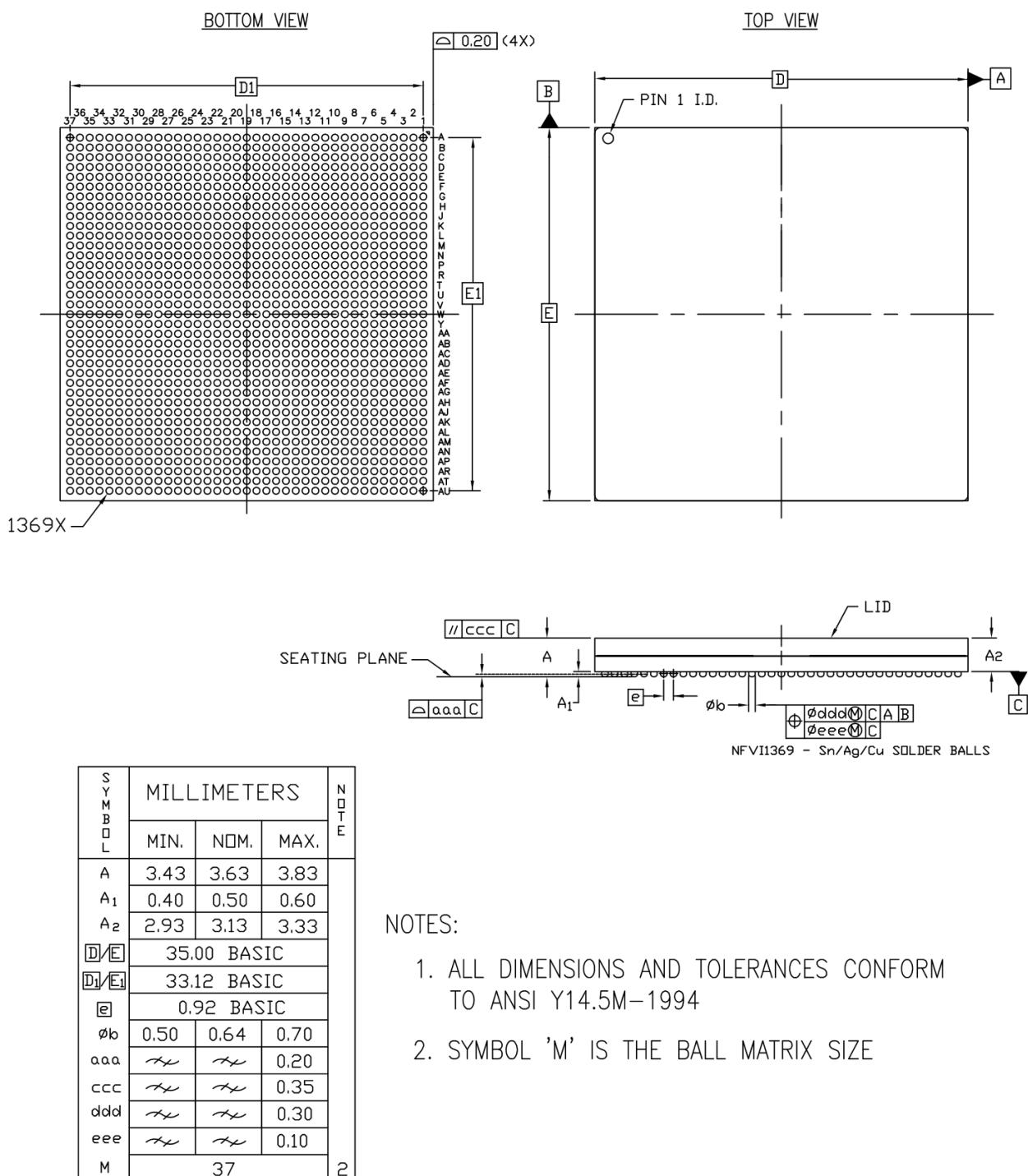
NFVB1369 Mechanical-VM1502

Figure: Package Dimensions for NFVB1369 (VM1502)



NFVI1369 Mechanical—VP1002 and VP1052

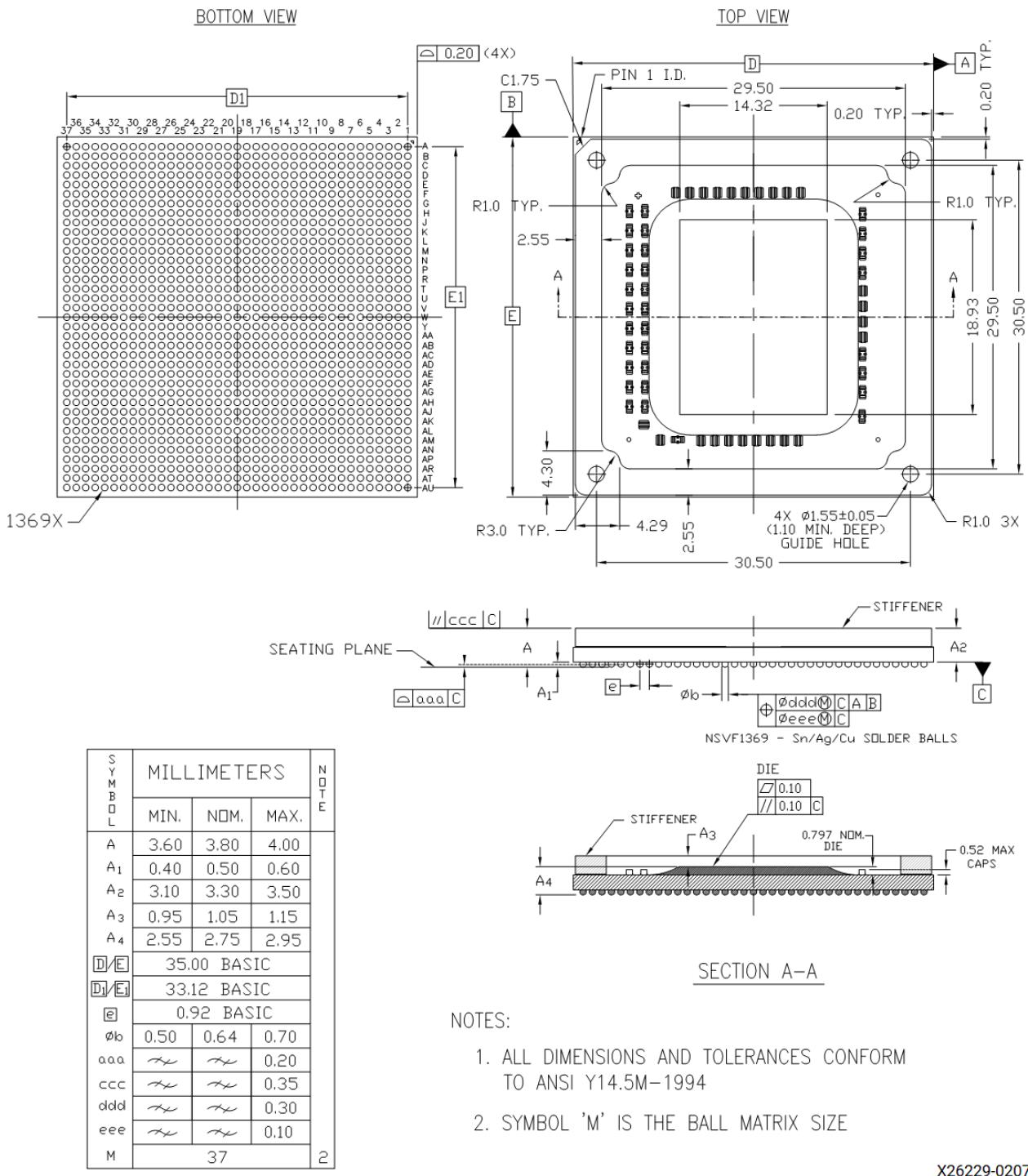
Figure: Package Dimensions for NFVI1369 (VP1002 and VP1052)



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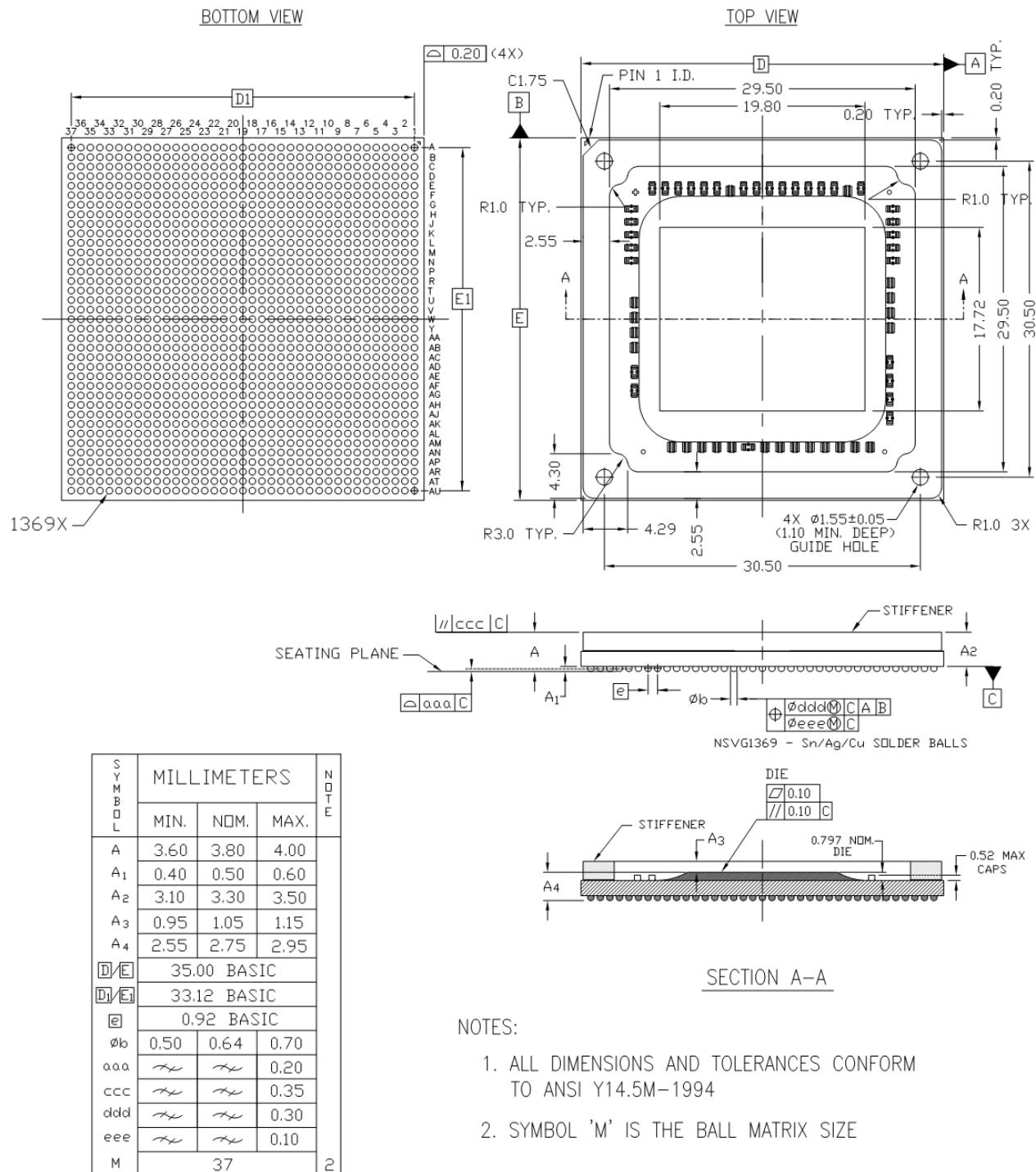
NSVF1369 Mechanical—VM1302 and VM1402

Figure: Package Dimensions for NSVF1369 (VM1302 and VM1402)



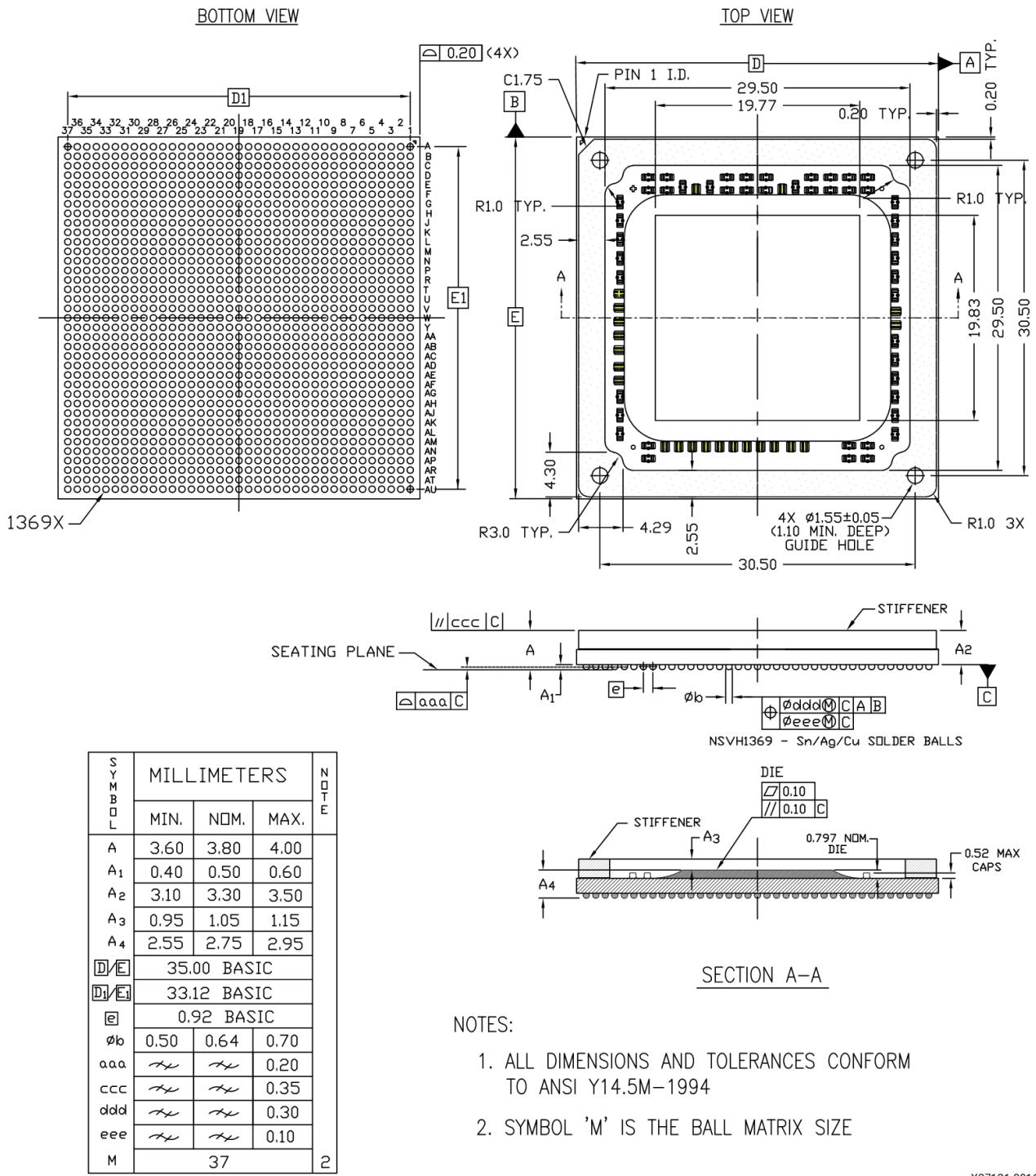
NSVG1369 Mechanical—VC1502, VC1702, and VE1752

Figure: Package Dimensions for NSVG1369 (VC1502, VC1702, and VE1752)



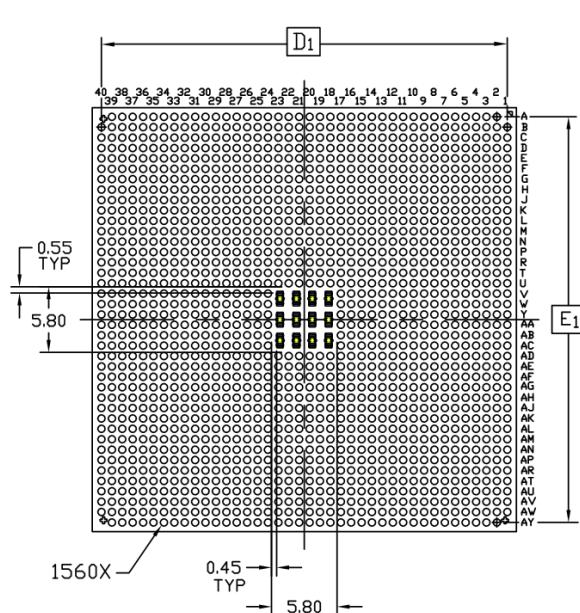
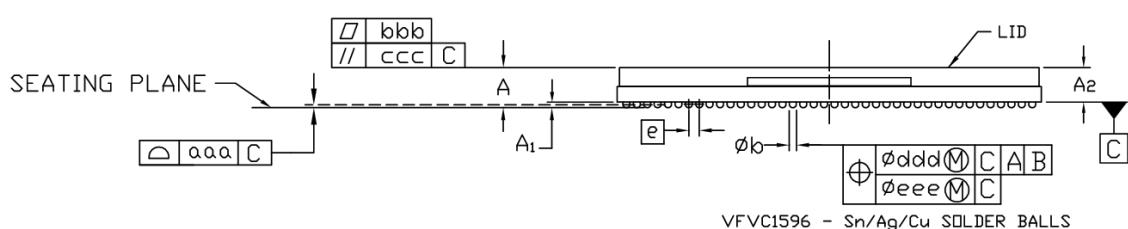
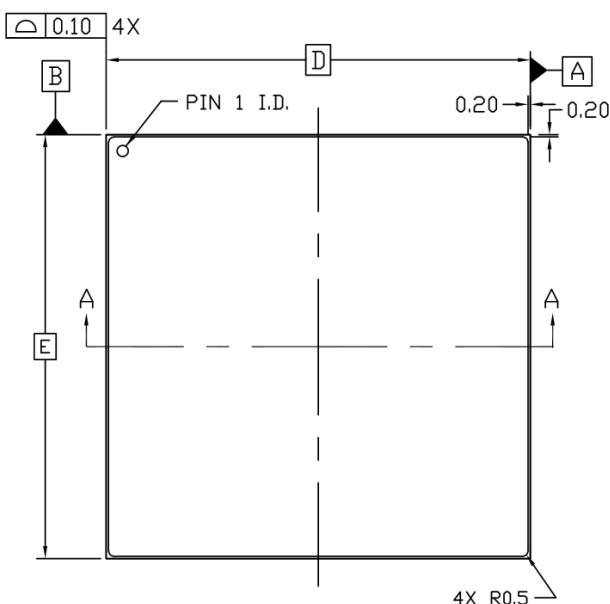
NSVH1369 Mechanical–VC2602, VC2802, VE2602, and VE2802

Figure: Package Dimensions for NSVH1369 (VC2602, VC2802, VE2602, and VE2802)



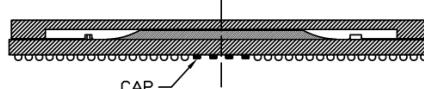
VFVC1596 Mechanical—VM1302 and VM1402

Figure: Package Dimensions for VFVC1596 (VM1302 and VM1402)

BOTTOM VIEWTOP VIEW

VFVC1596 - Sn/Ag/Cu SOLDER BALLS

SYMBOL	MILLIMETERS			NOTE
	MIN.	NOM.	MAX.	
A	3.35	3.55	3.75	
A ₁	0.40	0.50	0.60	
A ₂	2.85	3.05	3.25	
D/E	37.50 BASIC			
D/E ₁	35.88 BASIC			
e	0.92 BASIC			
øb	0.50	0.64	0.70	
aaa	xx	xx	0.20	
bbb	xx	xx	0.10	
ccc	xx	xx	0.10	
ddd	xx	xx	0.25	
eee	xx	xx	0.10	
M	40			2



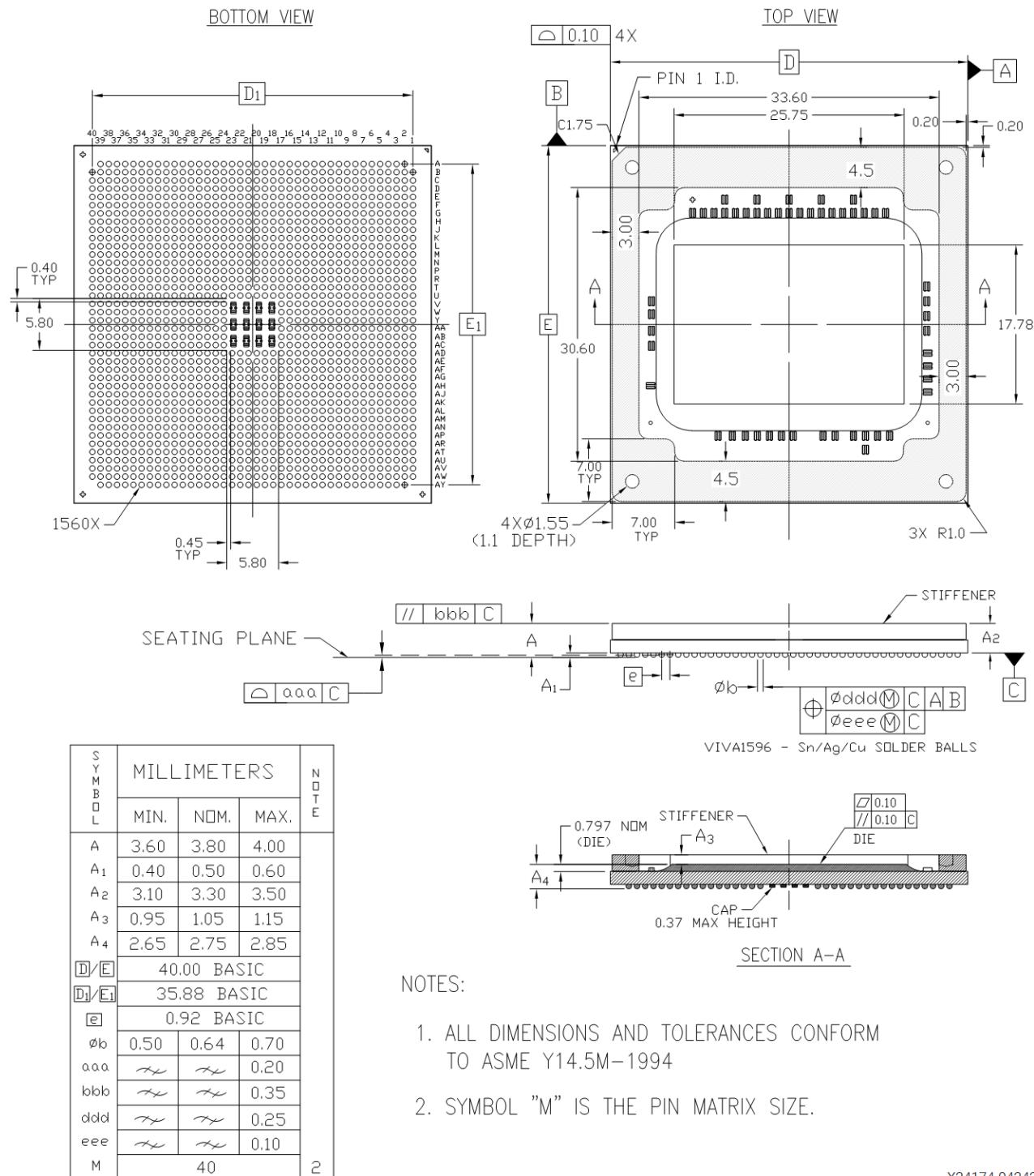
NOTES:

1. ALL DIMENSIONS AND TOLERANCES CONFORM TO ASME Y14.5M-1994
2. SYMBOL "M" IS THE PIN MATRIX SIZE.

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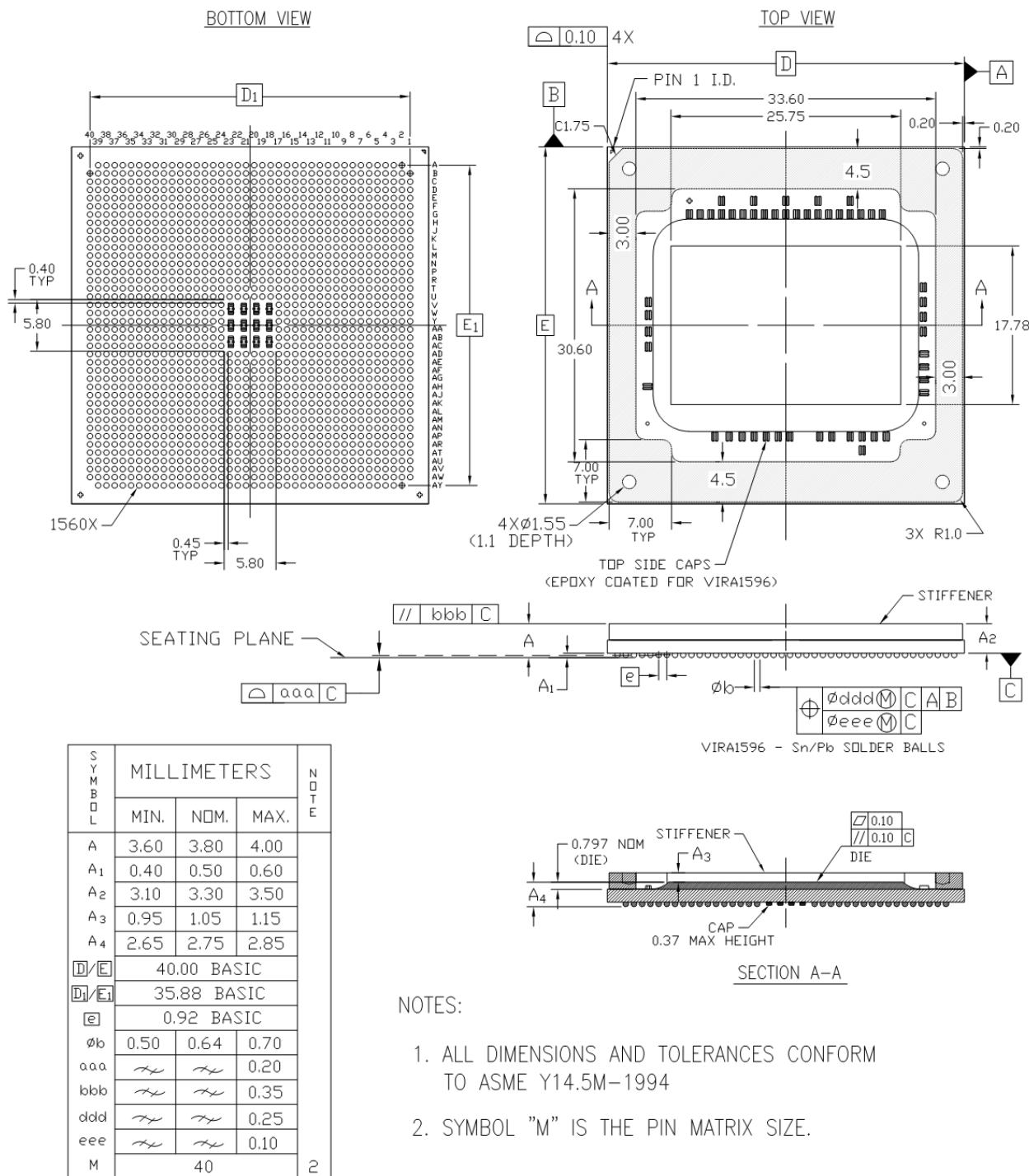
VIVA1596 Mechanical–VC1802 and VC1902

Figure: Package Dimensions for VIVA1596 (VC1802 and VC1902)



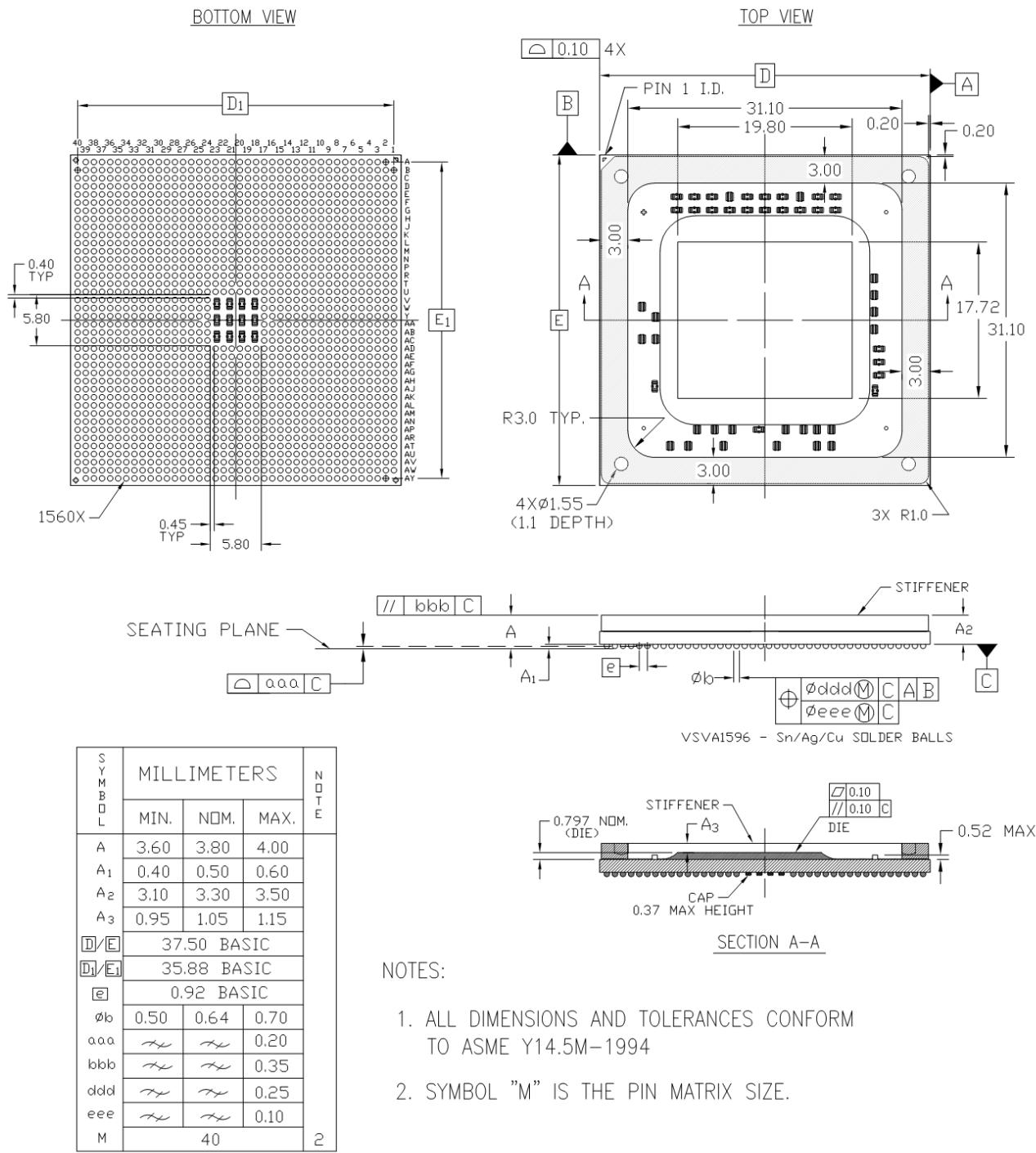
VIRA1596 Mechanical–XQVC1902 and XQVM1802

Figure: Package Dimensions for VIRA1596 (XQVC1902 and VQVM1802)



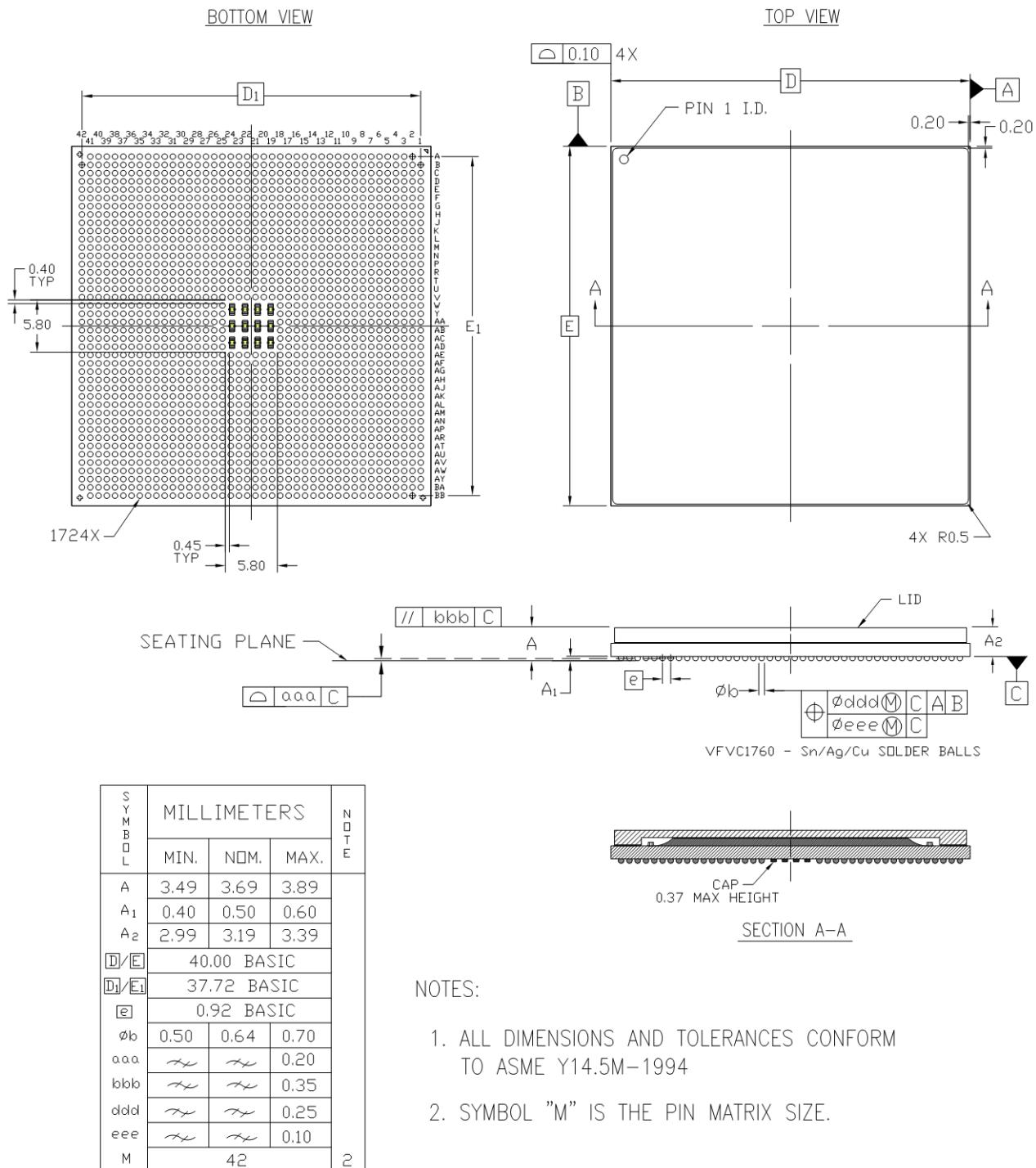
VSVA1596 Mechanical—VC1502, VC1702, and VE1752

Figure: Package Dimensions for VSVA1596 (VC1502, VC1702, and VE1752)



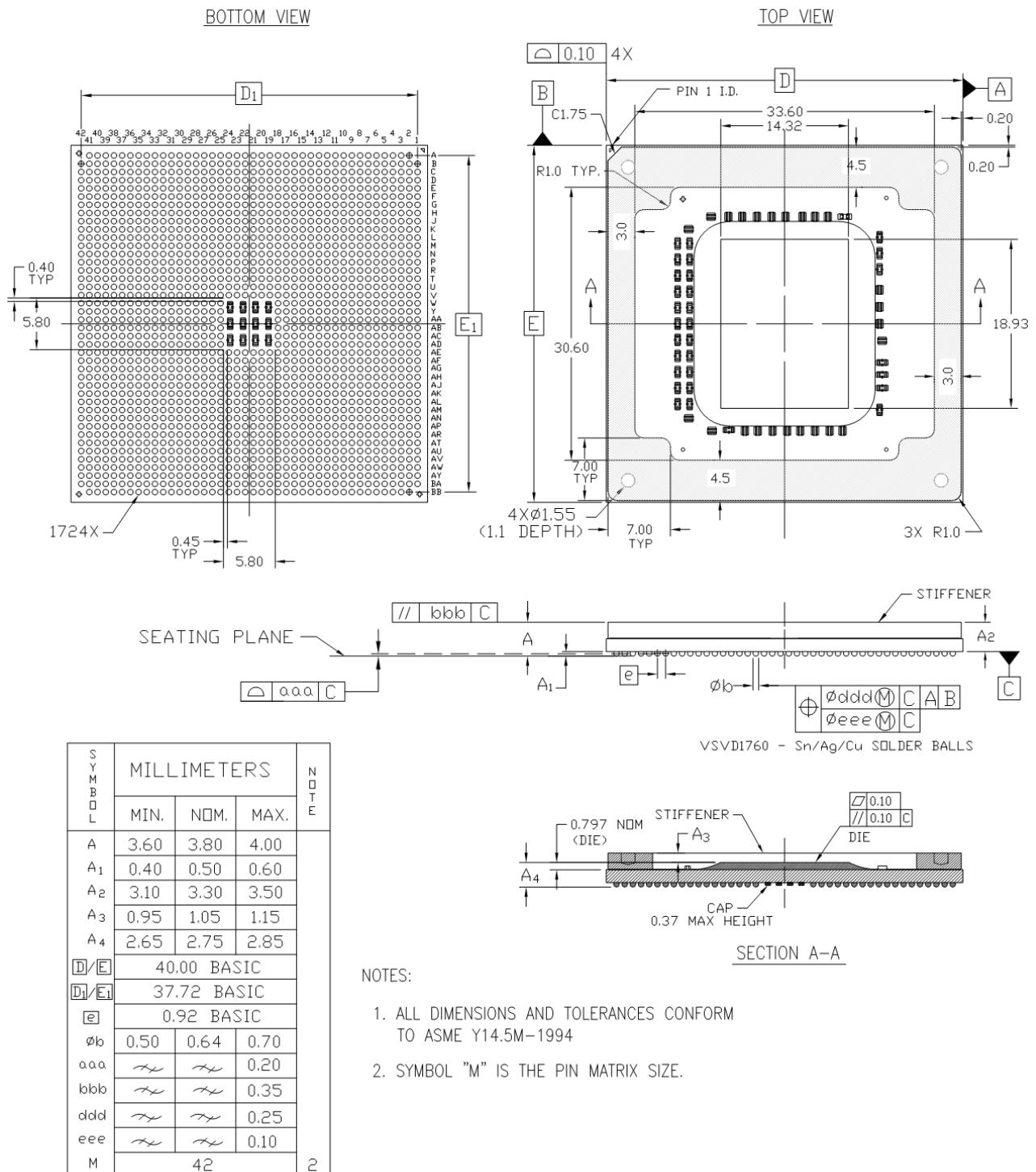
VFVC1760 Mechanical—VM1502 and VM1802

Figure: Package Dimensions for VFVC1760 (VM1502 and VM1802)



VSVD1760 Mechanical–VM1302, VM1402

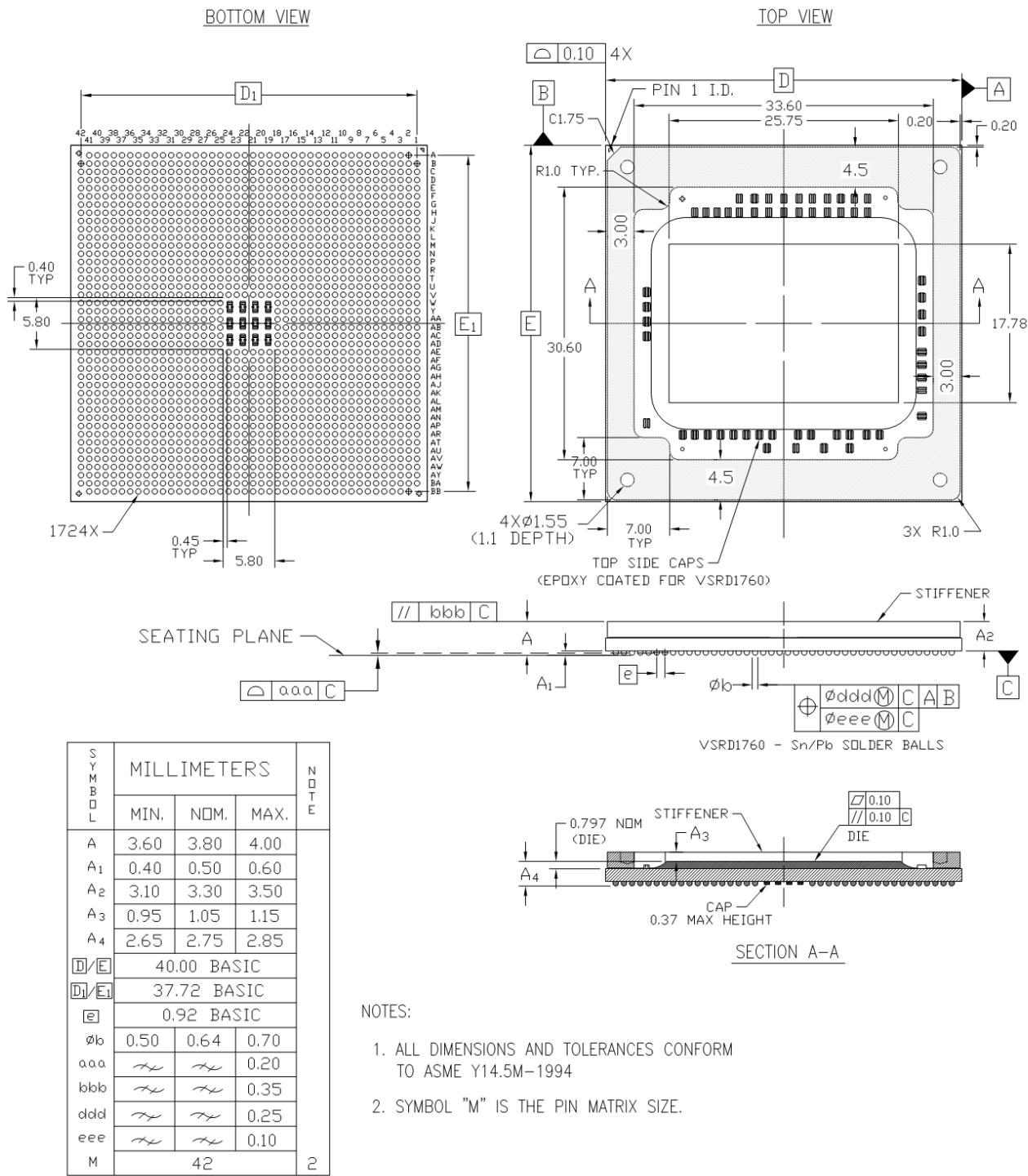
Figure: Package Dimensions for VSVD1760 (VM1302, VM1402)



X26215-042522

VSRD1760 Mechanical—XQVC1902 and XQVM1802

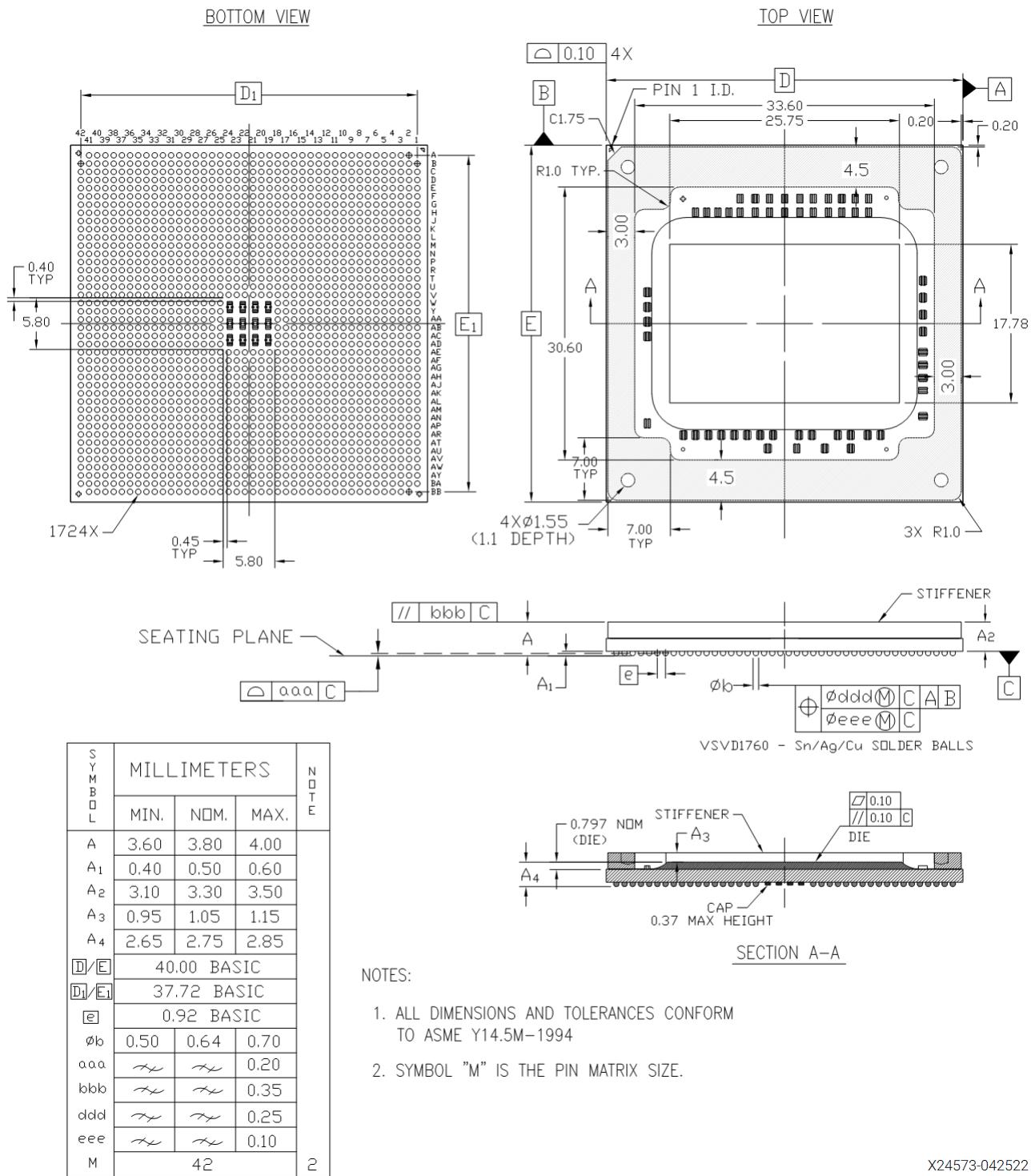
Figure: Package Dimensions for VSRD1760 (XQVC1902 and XQVM1802)



X26580-042422

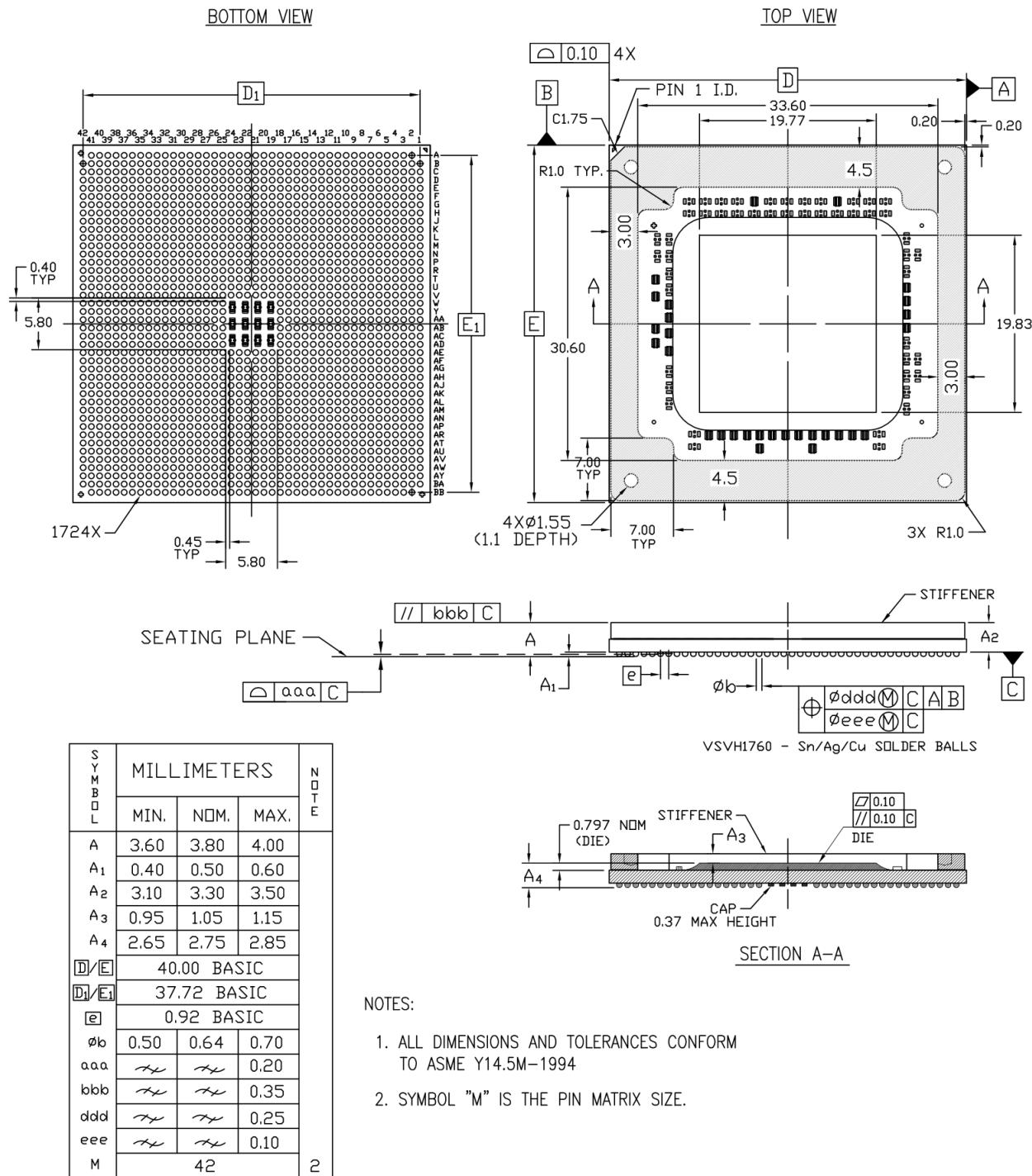
VSVD1760 Mechanical—VC1802, VC1902, and VM1802

Figure: Package Dimensions for VSVD1760 (VC1802, VC1902, and VM1802)



VSVH1760 Mechanical–VC2602, VC2802, VE2602, and VE2802

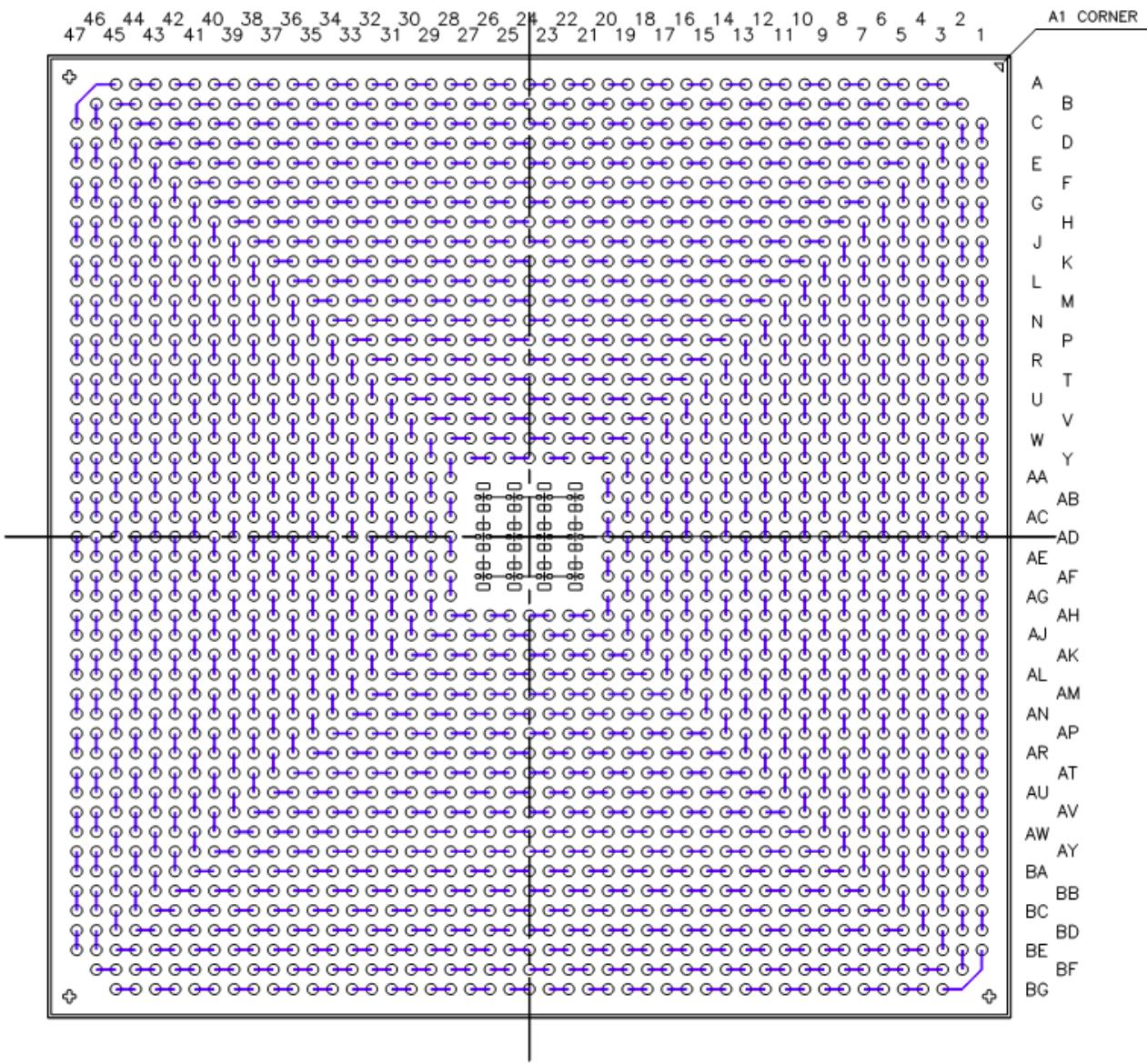
Figure: Package Dimensions for VSVH1760 (VC2602, VC2802, VE2602, and VE2802)



X27122-091622

XCDAISY-VSVA2197 and XQDAISY-VSRA2197 Daisy Chain Land Pattern

Figure: XCDAISY-VSVA2197 and XQDAISY-VSRA2197



XCDAI SY-VSVA2197 and XQDAI SY-VSRA2197 Daisy Chain Netlist

Table: XCDAISY-VSVA2197 and XQDAISY-VSRA2197 Daisy Chain Netlist

D C A C 1 0 1 0 8 2 4 3 5 8 0 C 0 N 1 0 9 2 0 2 3 0 1 0 9 1 4 0 1 0 5 4 5 1 2 C 0 1 4 2 1 0 8 3 4 5 1 2 0 1 0 6 5 8 2 1 2 1 0 4 1 0 2 1 0 3 4 0 1 0 8 2 0 0 4 1 1 0 8 1 0 2 2 8

D A C A S T R O B I X D E C E N T R A L E C O M M U N I C A T I O N S A N D K A P I T A L I S M

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D. GOMBERG AND C. H. WILSON / JOURNAL OF POLYMER SCIENCE: PART A: POLYMERS CHEMISTRY 33: 937-944 (1995)

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ДАННЫЙ ЗАПИСЬ ПРОВЕРЯЛСЯ ОДИН ВЪДѢВЪ СЪЮЗА И ПРОЧЕМЪ

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Р. СЕМЕНОВ. МИССИЯ ВОЛОНТЕРА В ПРОФЕССИОНАЛЬНОМ РАЗВИТИИ АДАПТИВНЫХ ДЕТЕЙ И ЮНОШЕСТВА

Раздел 2. Основные понятия и методы социальной работы

В соответствии с пунктом 1 статьи 177 Трудового кодекса Российской Федерации работодатель обязан выплатить компенсацию за неиспользованный отпуск в размере

D. GÖTTSCHE, S. HANKE, AND M. KÜPPER / THE BOUNDARY OF THE STABILITY REGION

В. Стартует и продолжается гонка с преследованием соперника с места в группе с преследованием

Рекомендации по применению антибиотиков в практике зоотерапии

Разрешение на право пользования материалами из базы данных Российской Академии Наук

В соответствии с пунктом 1 статьи 125 настоящего Кодекса о налогах и сборах

Документы, поданные в суд в порядке исключения, должны быть направлены в суд в течение пяти дней с момента подачи иска.

D:\COURSES\SEMESTER 2\CS225\COMPUTER GRAPHICS\PROJECTS\PROJECT 2

D. G. BROWN, J. D. COOPER, R. E. HARRIS, R. L. KELLY, R. L. MCGOWAN, R. J. MCNAUL, C. J. O'LEARY, R. A. PEARCE, R. J. SAWYER, R. J. SPENCER, R. J. TAYLOR, R. J. THOMAS, R. J. WILSON, AND R. J. WILSON

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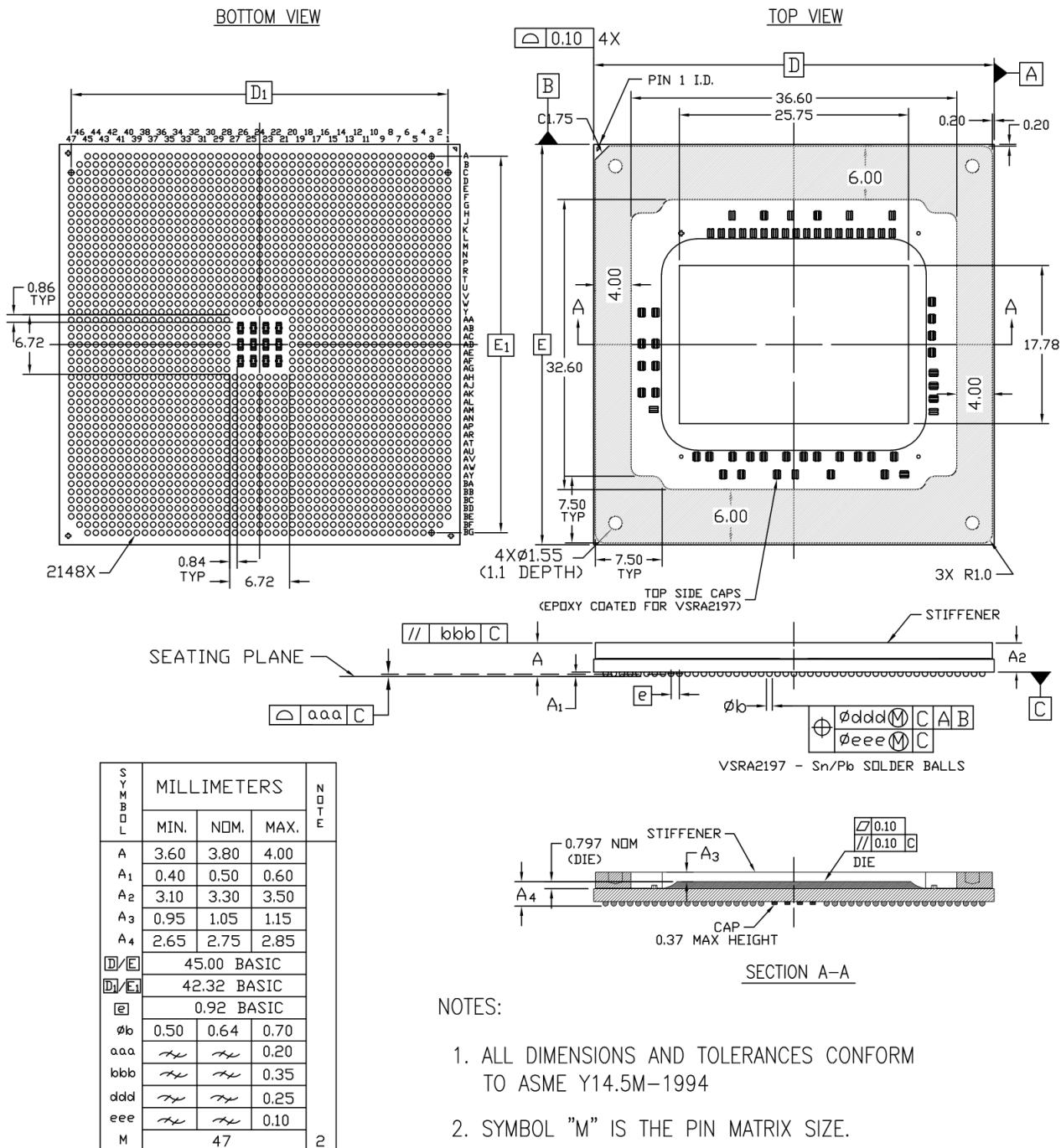
Раздел 2. Установка и настройка базы данных PostgreSQL

D. GÖTTSCHE LOWE / THE STONE AGE / 1998 / 100 x 100 cm / oil on canvas / collection of the artist

NIBBLE PAIR	
D	0A1D1C0A2B0C028C0B5D6A0A39Y0A50C0H1C0A39C0A0A3E3C0A0A3E8X0A0B62F0A29
D	0A0B1C0A2B0C0308C0B4C2A0A39Y0A48C0F08X0A63X0A11C0F3D3E088C0A0X21A29
D	0C01078A0A2B0C0B9C0BAC0A0A3515048C0E0B5A0E2C90A10C0A3E6C88C0A0X21A29
D	0C010D9A0A2B0C030C0A0A39Y0A48C0F08X0A419C0A10C0A3E6C88C0A0X21A29
D	0C010D9A0A2B0C030C0A0A39Y0A48C0F08X0A419C0A10C0A3E6C88C0A0X21A29
D	0C010D9A0A2B0C030C0A0A39Y0A48C0F08X0A419C0A10C0A3E6C88C0A0X21A29

VSRA2197 Mechanical – XQVC1902 and XQVM1802

Figure: Package Dimensions for VSRA2197 (XQVC1902 and XQVM1802)

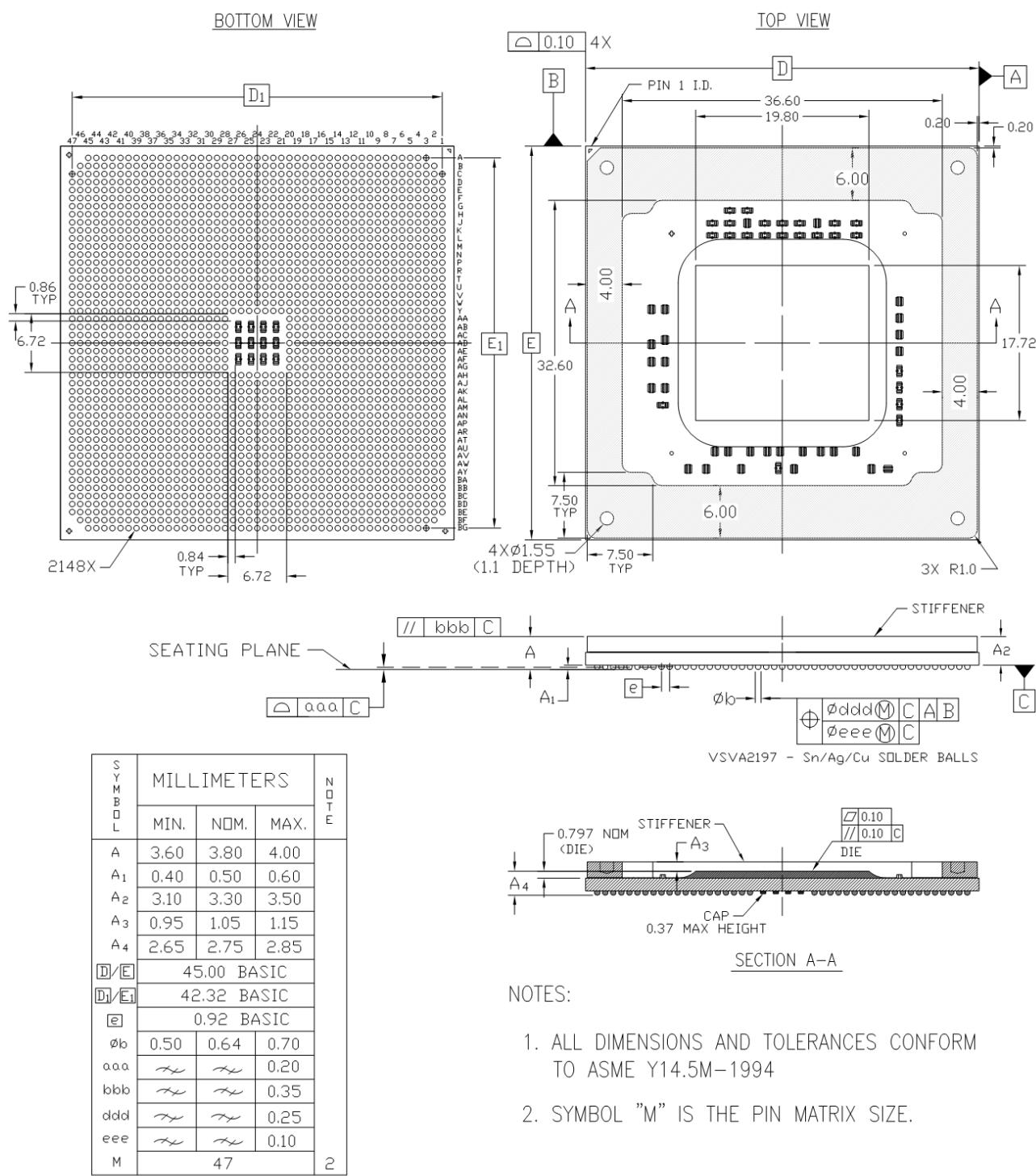


X27594-011123

!! Important: The material used for the stiffener ring is stainless steel, which is electrically conductive and not connected to ground (GND) in the package. The stiffener ring should be externally connected to system ground to avoid collecting charges in space environments. If attaching a heat spreader on the stiffener ring, use an electrically conductive adhesive (such as silver-filled epoxy).

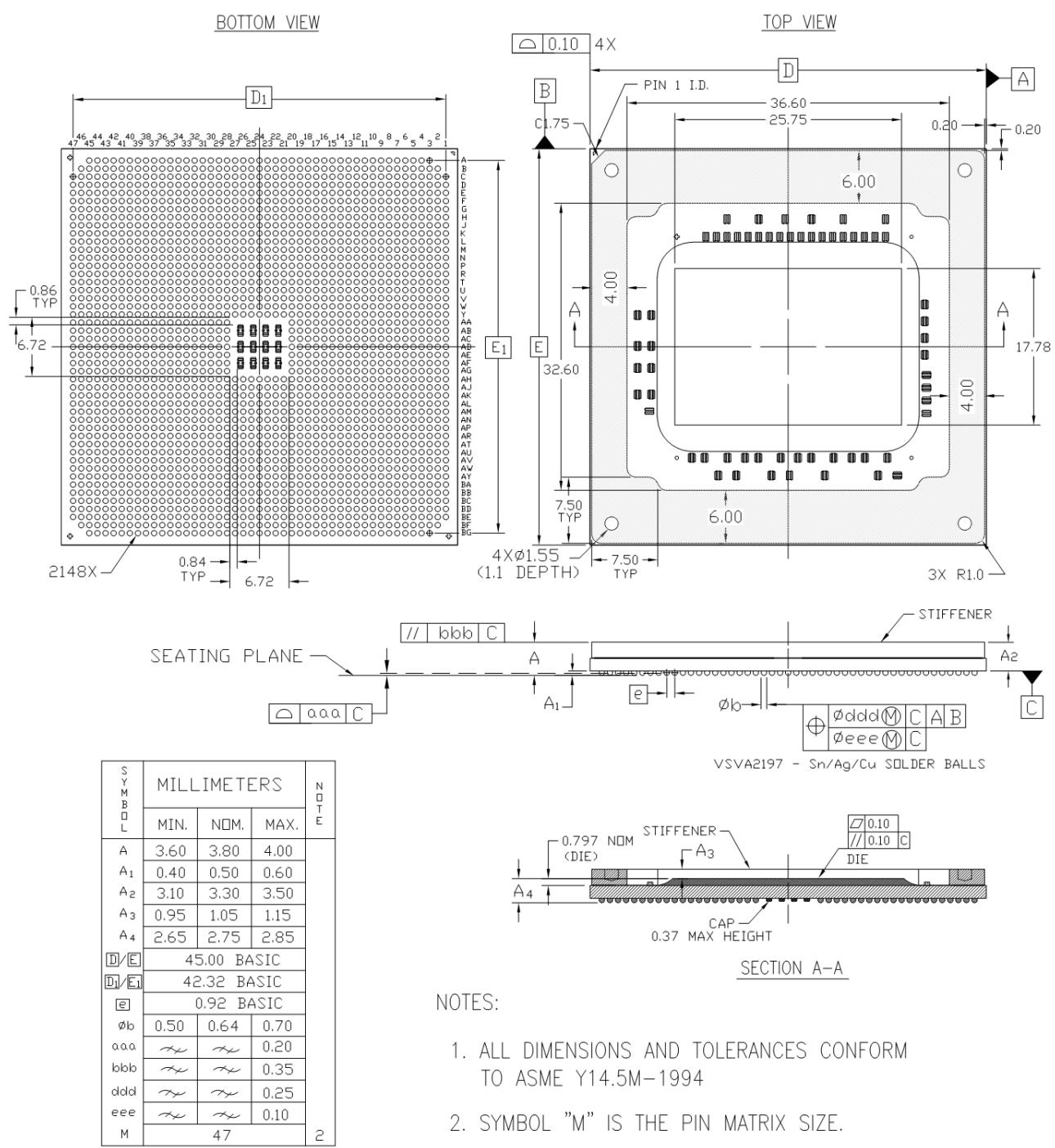
VSVA2197 Mechanical–VC1502, VM1502, VC1702, and VE1752

Figure: Package Dimensions for VSVA2197 (VC1502, VM1502, VC1702, and VE1752)



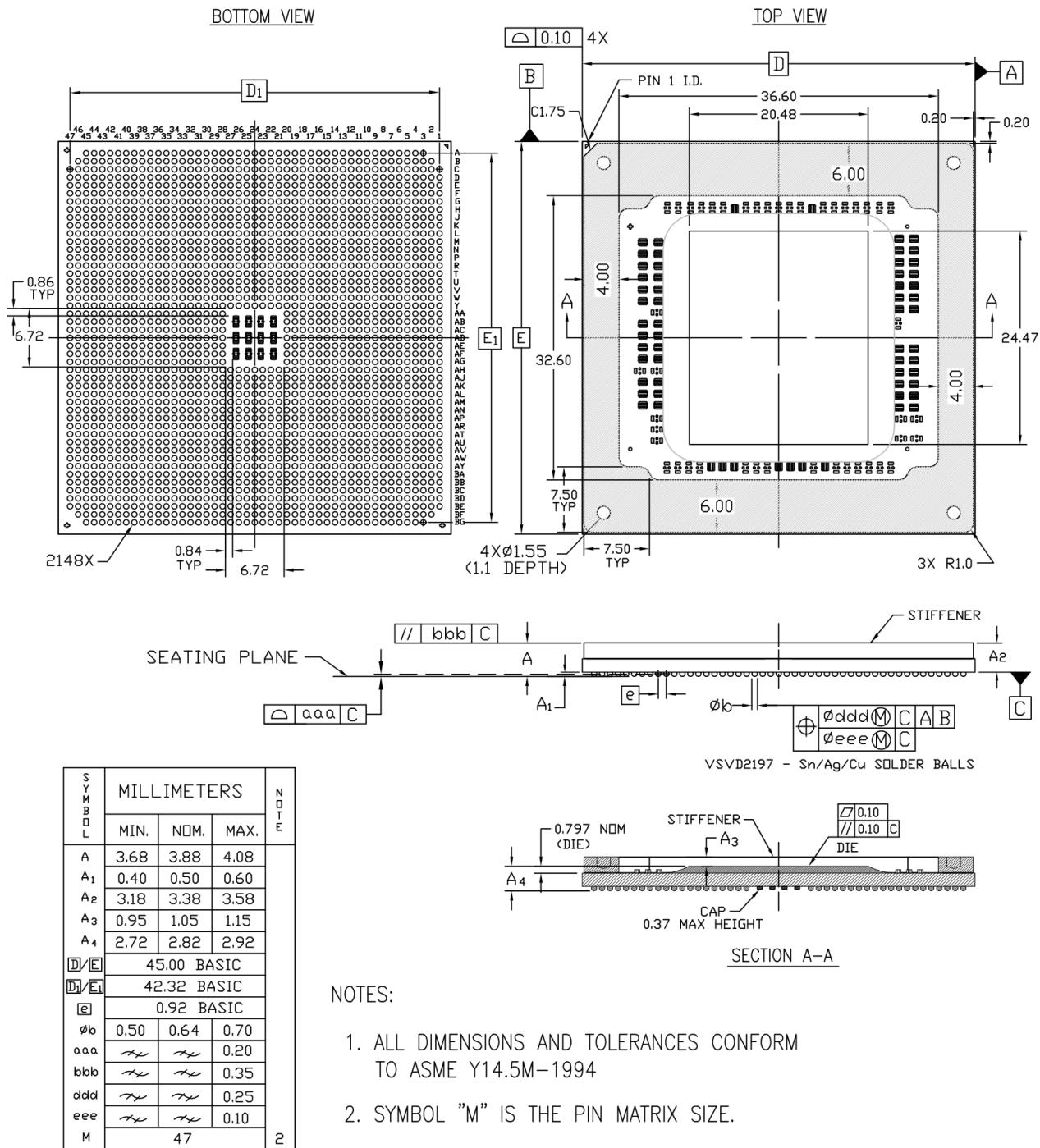
VSVA2197 Mechanical—VC1802, VC1902, and VM1802

Figure: Package Dimensions for VSVA2197 (VC1802, VC1902, and VM1802)



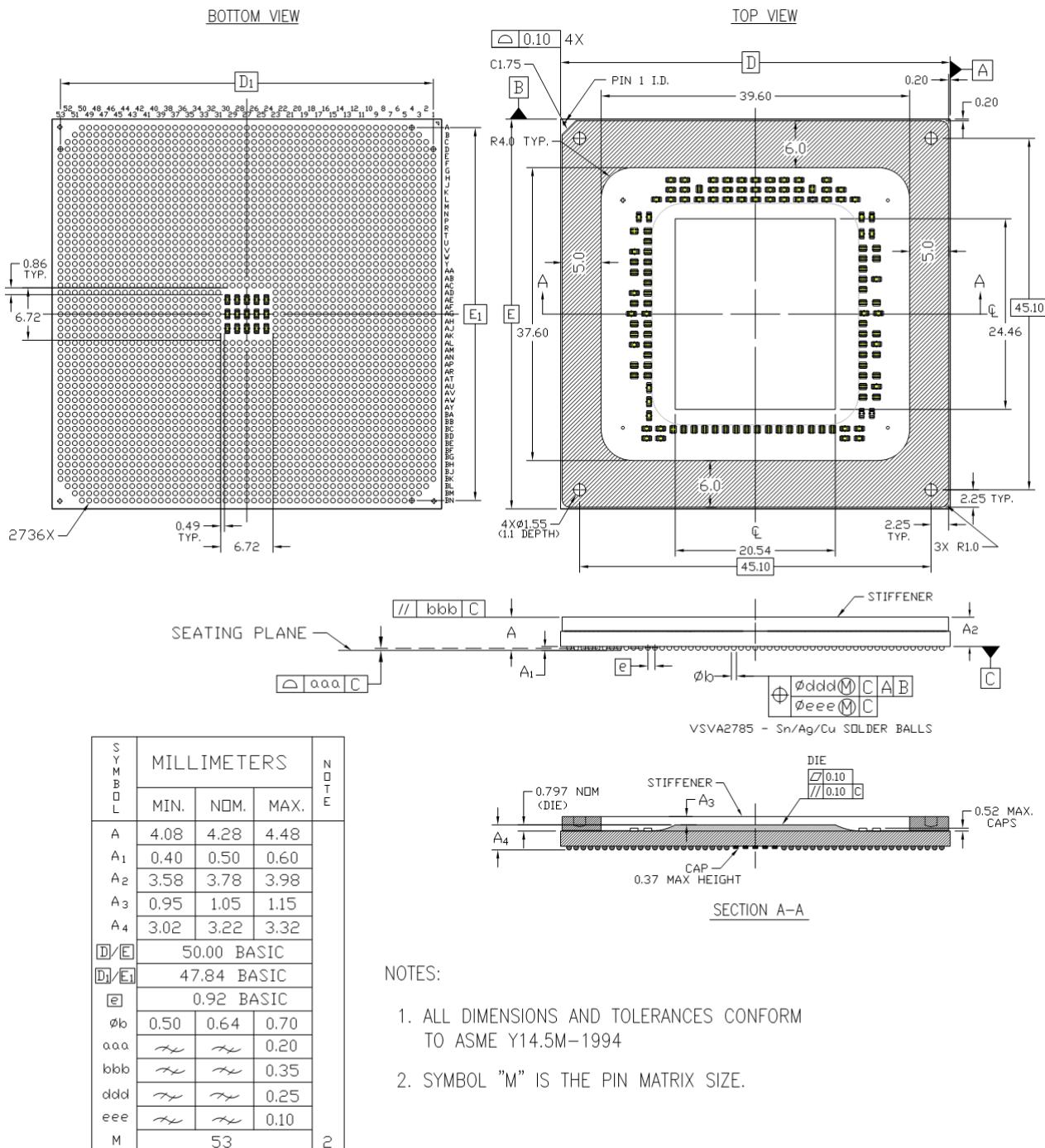
VSVD2197 Mechanical – VP1402

Figure: Package Dimensions for VSVD2197 (VP1402)



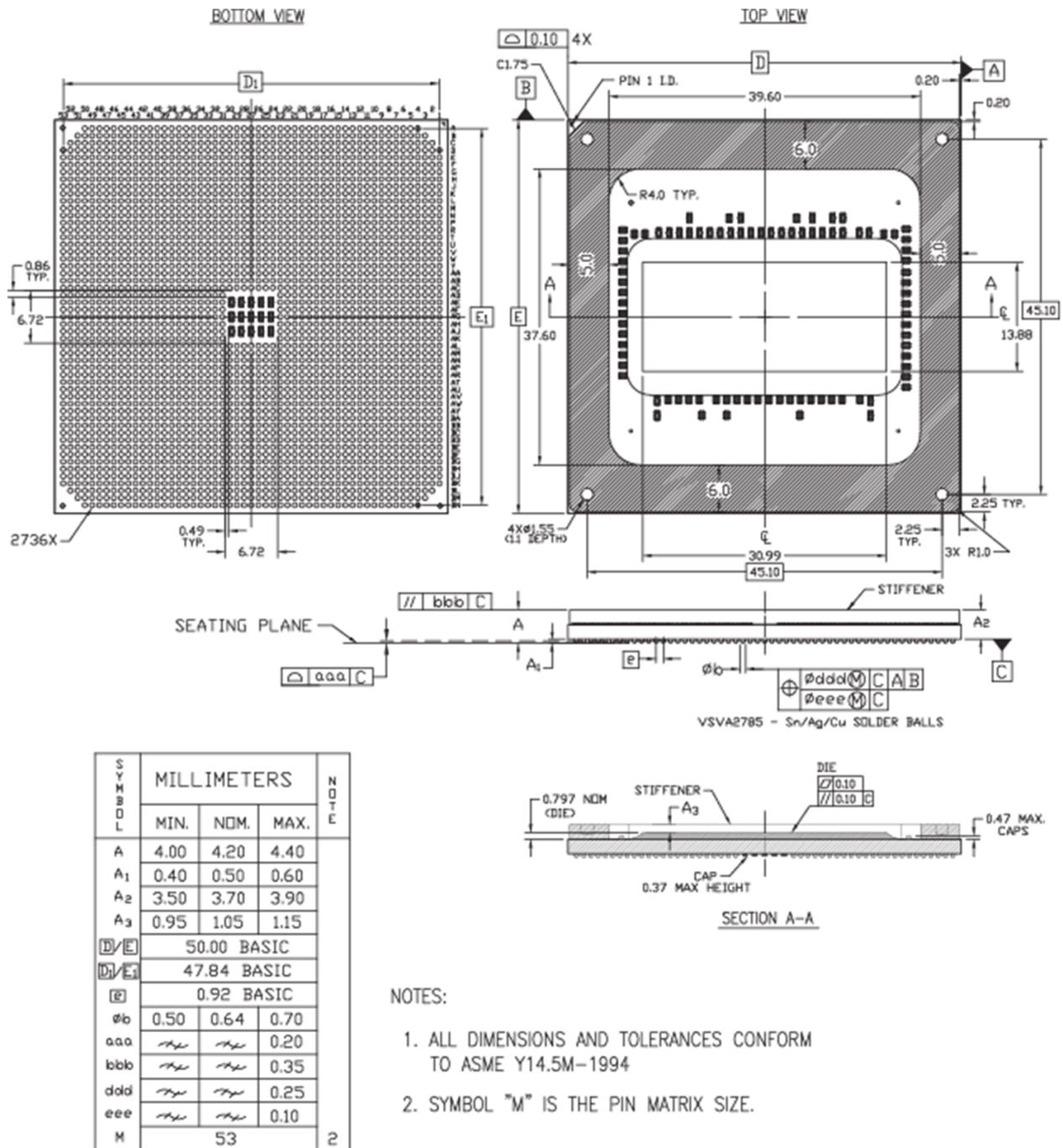
VSVA2785 Mechanical—VP1102

Figure: Package Dimensions for VSVA2785 (VP1102)



VSVA2785 Mechanical–VP1202

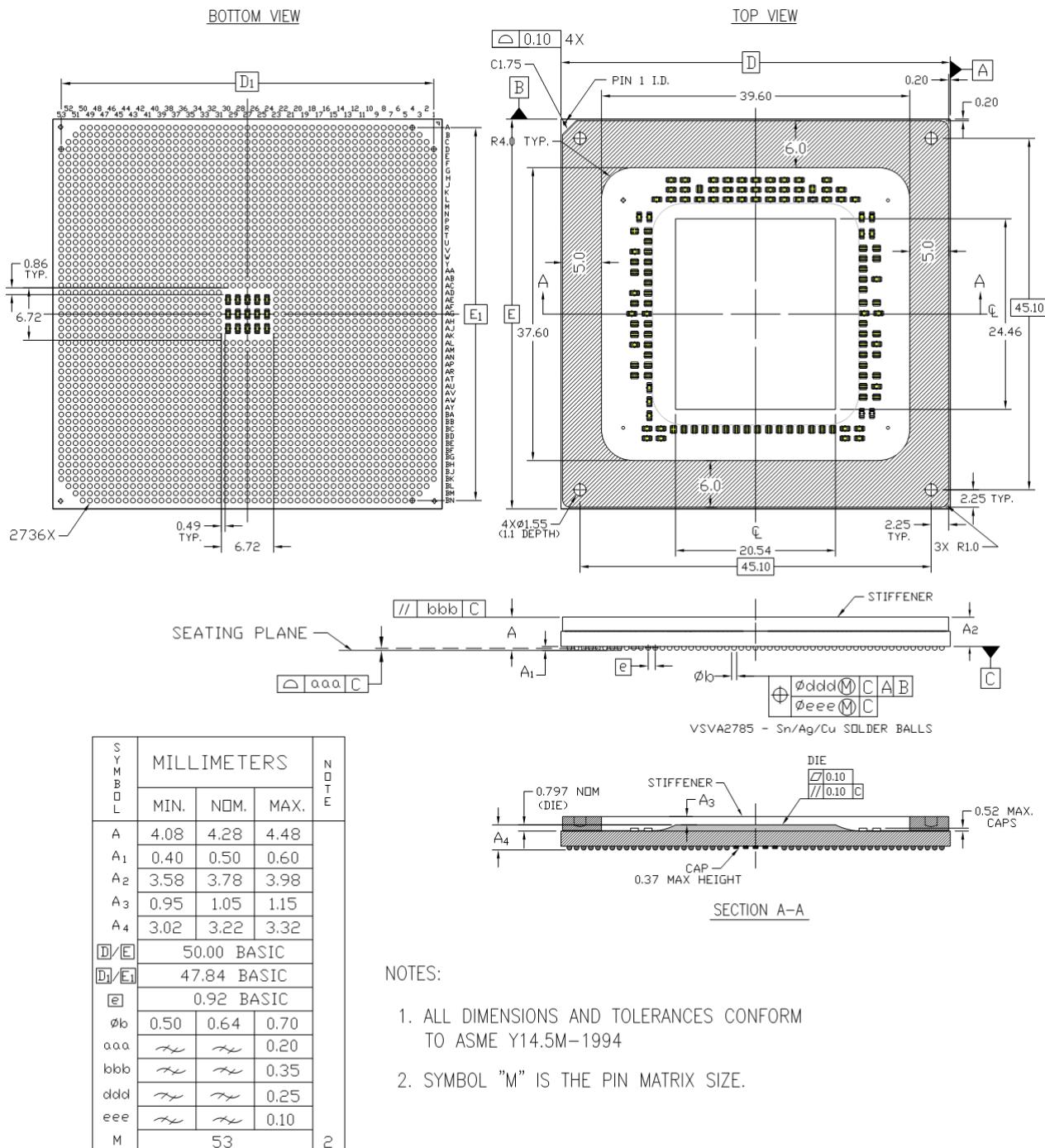
Figure: Package Dimensions for VSVA2785 (VP1202)



X26216-061322

VSVA2785 Mechanical—VP1402

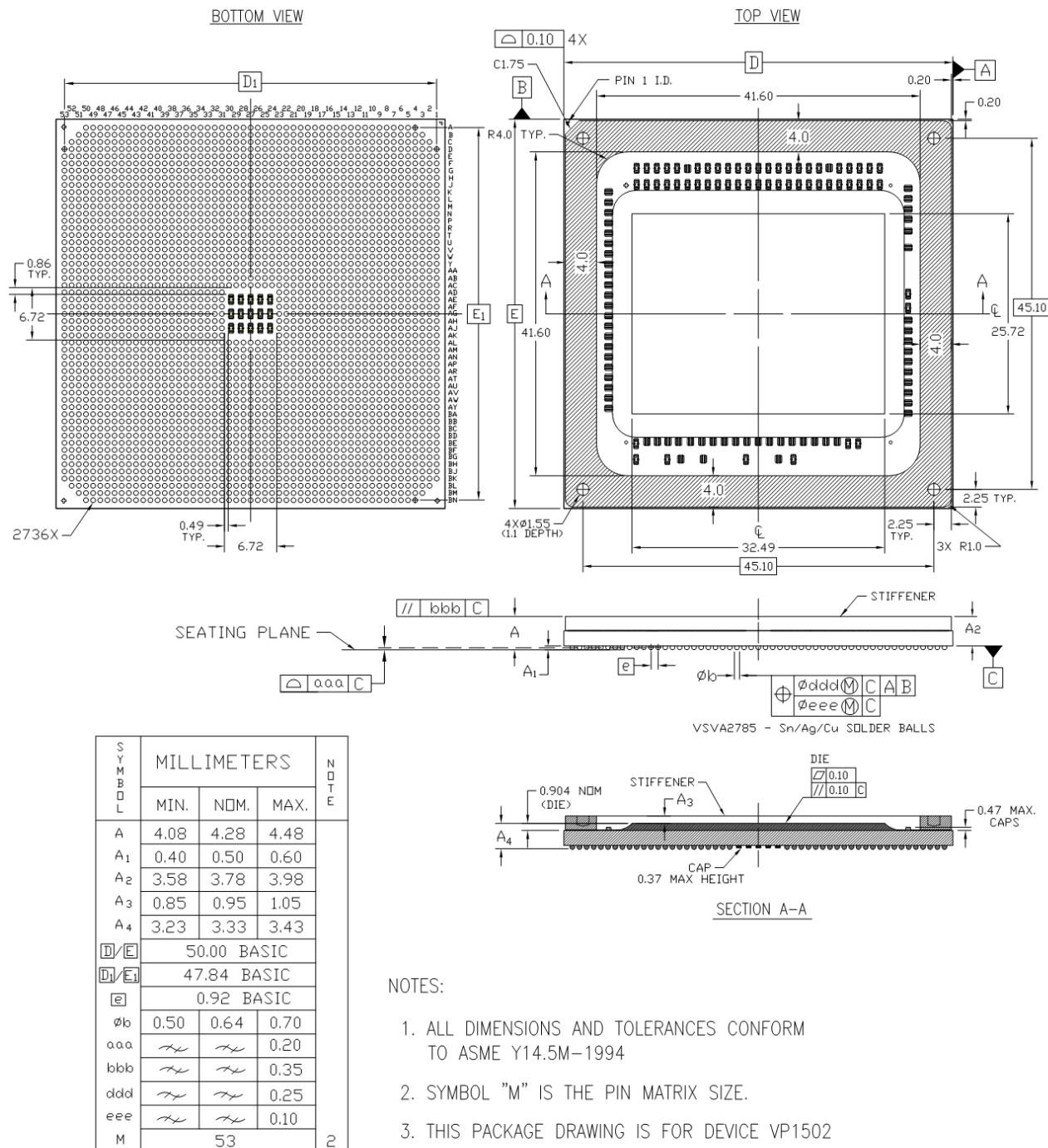
Figure: Package Dimensions for VSVA2785 (VP1402)



X26809-061522

VSVA2785 Mechanical—VP1502

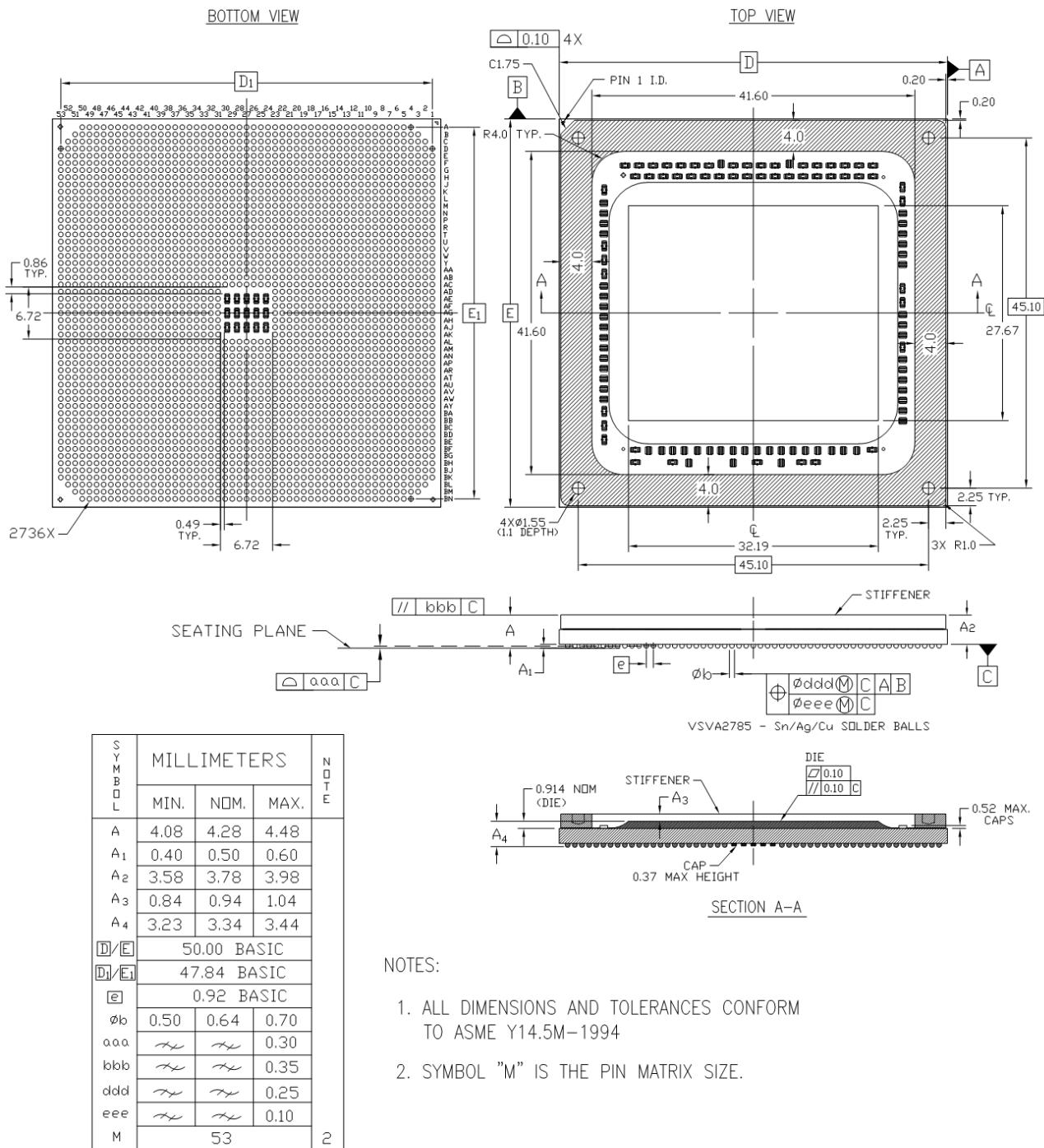
Figure: Package Dimensions for VSVA2785 (VP1502)



X26218-061322

VSVA2785 Mechanical—VP1552

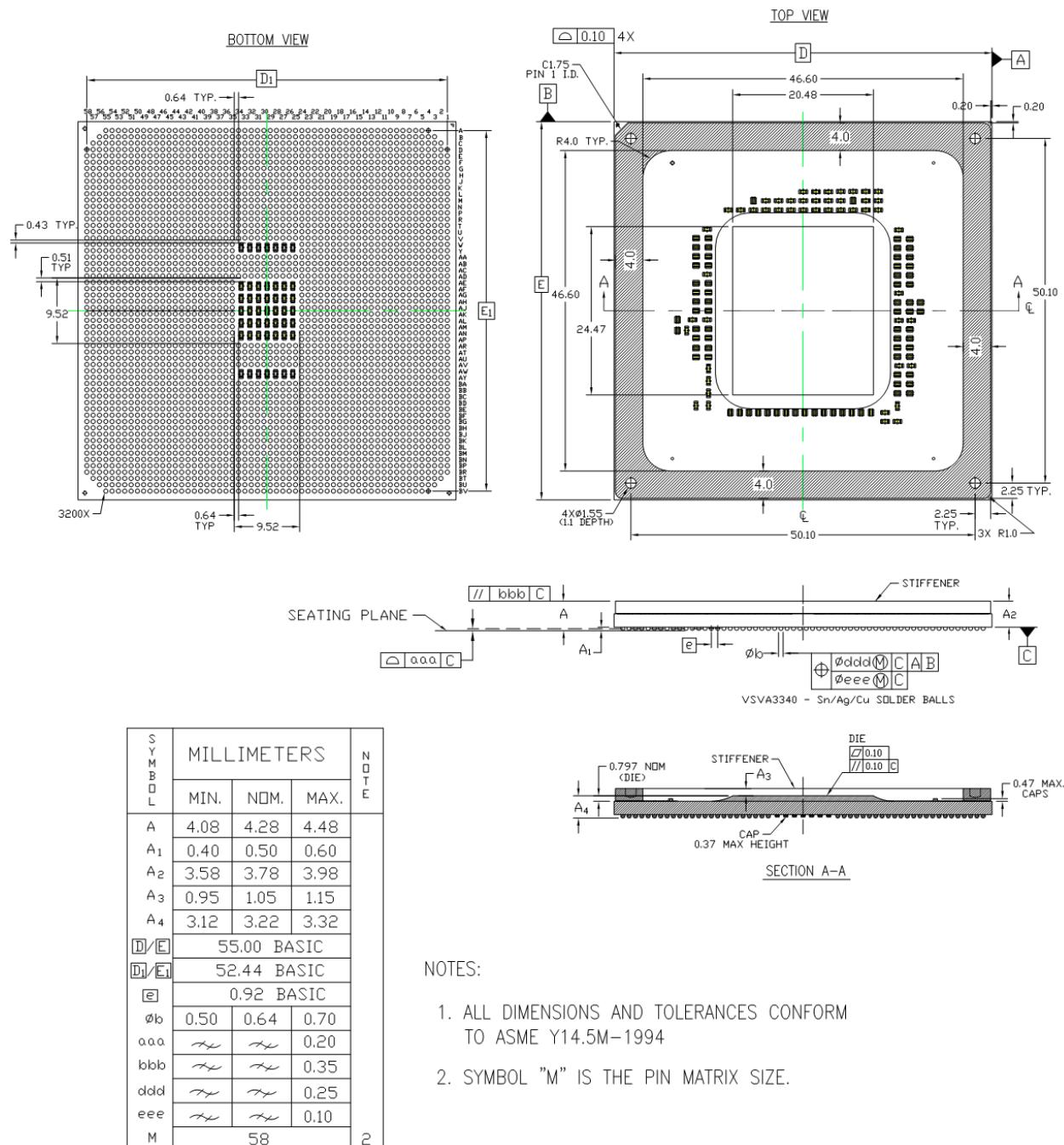
Figure: Package Dimensions for VSVA2785 (VP1552)



X26239-061322

VSVA3340 Mechanical—VP1402

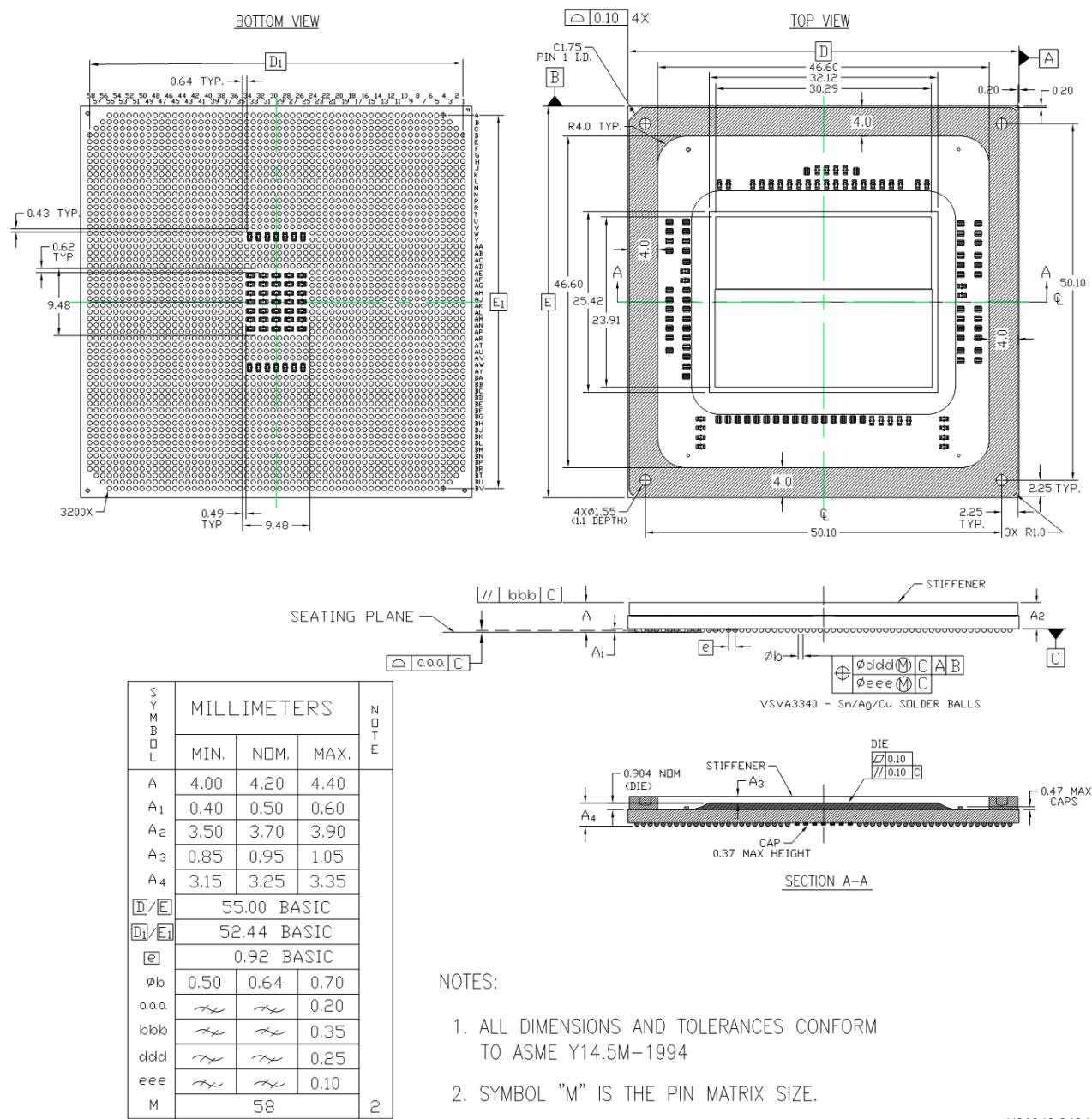
Figure: Package Dimensions for VSVA3340 (VP1402)



X26810-061522

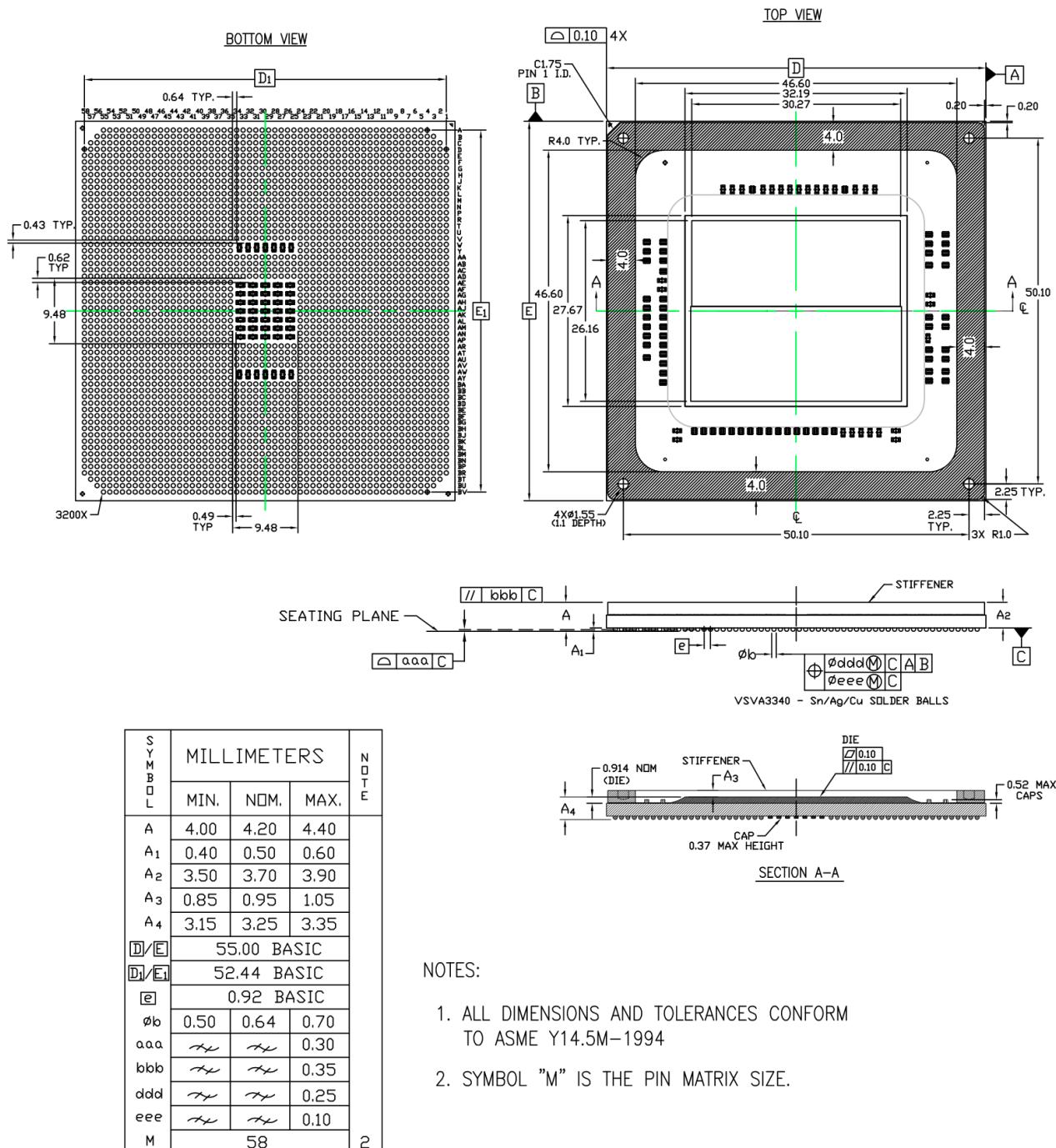
VSVA3340 Mechanical—VP1502

Figure: Package Dimensions for VSVA3340 (VP1502)



VSVA3340 Mechanical—VP1552

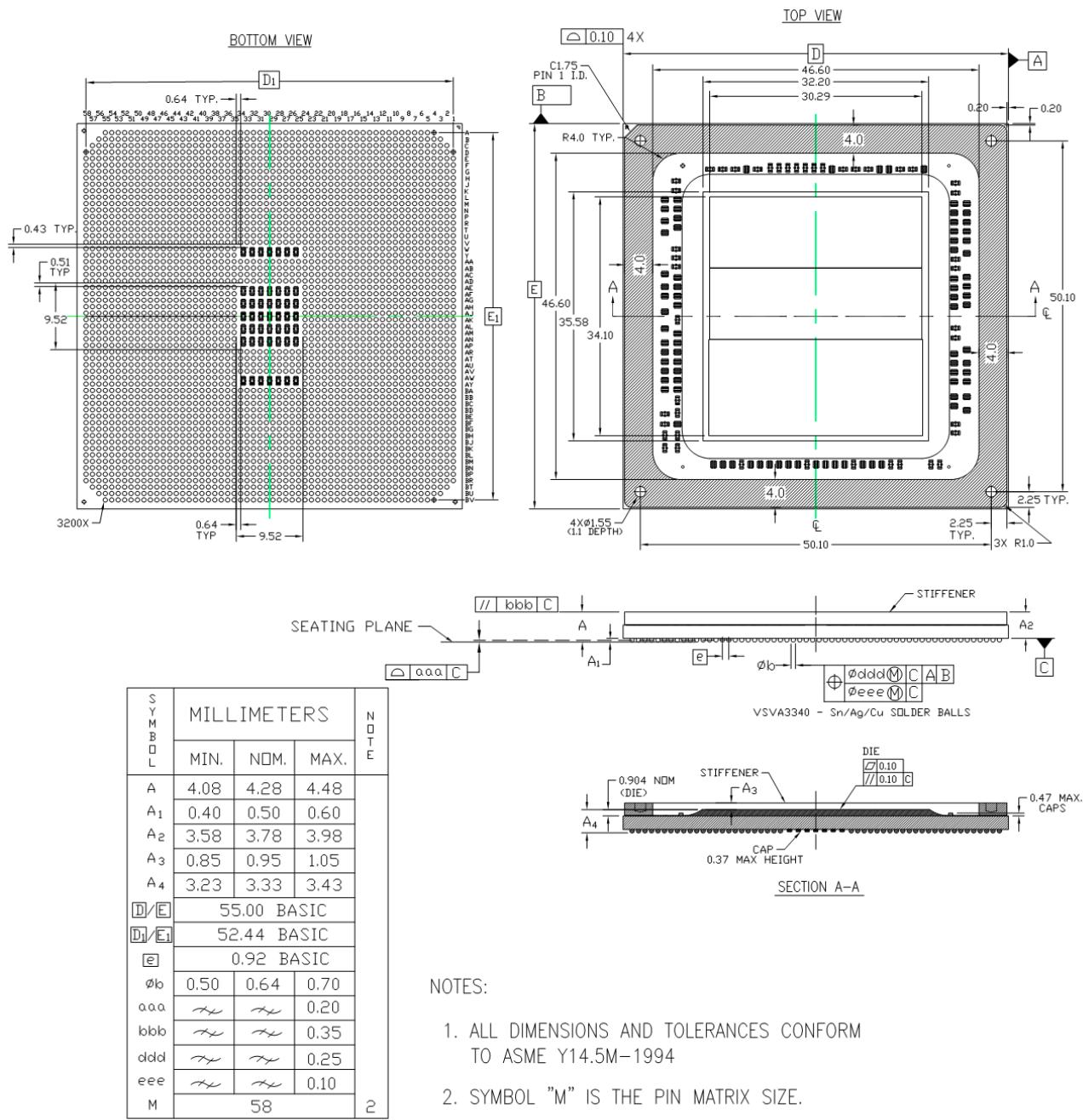
Figure: Package Dimensions for VSVA3340 (VP1552)



X27185-092722

VSVA3340 Mechanical—VP1702

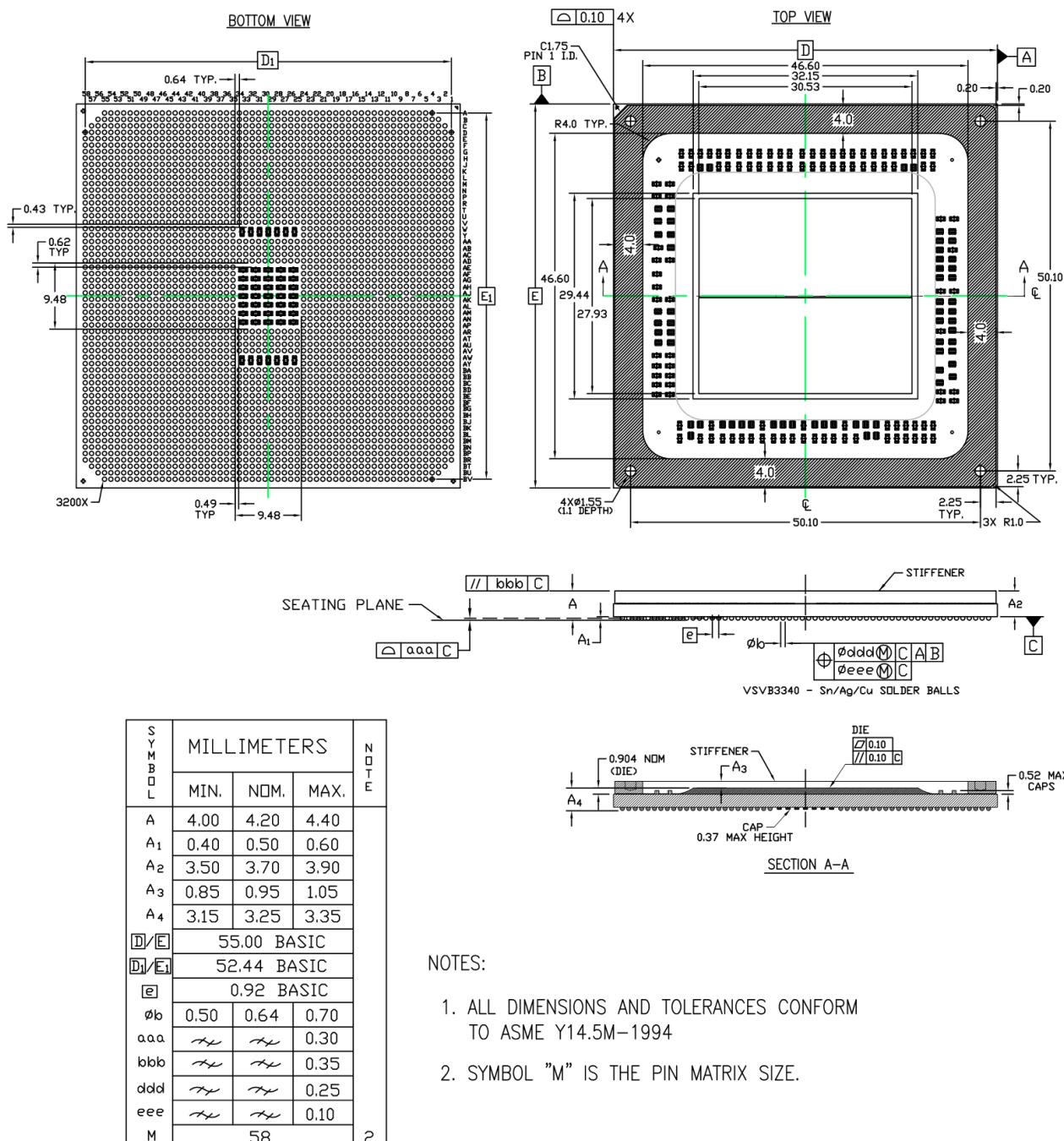
Figure: Package Dimensions for VSVA3340 (VP1702)



X26242-042422

VSVB3340 Mechanical—VP2502

Figure: Package Dimensions for VSVB3340 (VP2502)



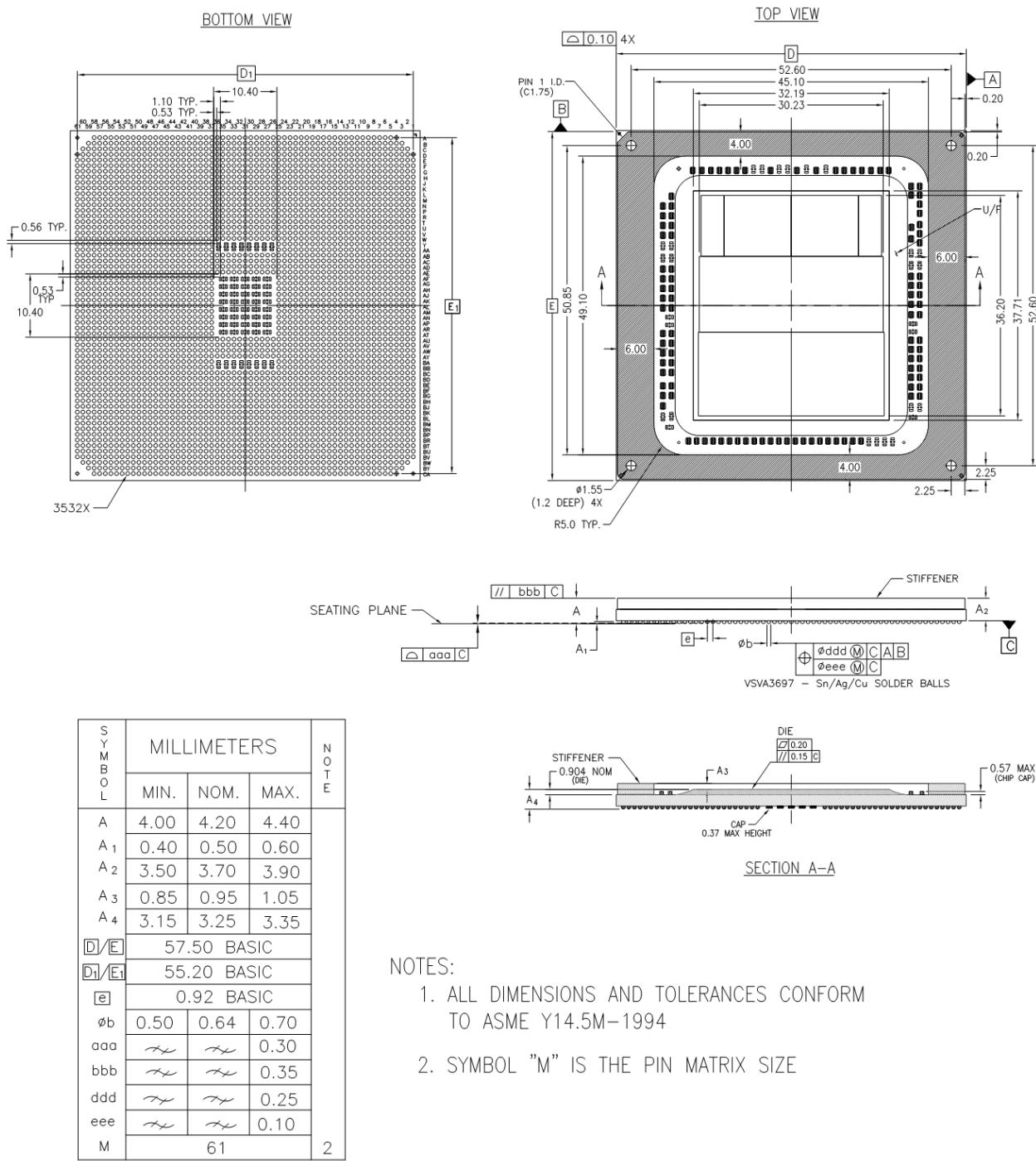
NOTES:

1. ALL DIMENSIONS AND TOLERANCES CONFORM TO ASME Y14.5M-1994
2. SYMBOL "M" IS THE PIN MATRIX SIZE.

X27194-092822

VSVA3697 Mechanical—VH1522, VH1542, and VH1582

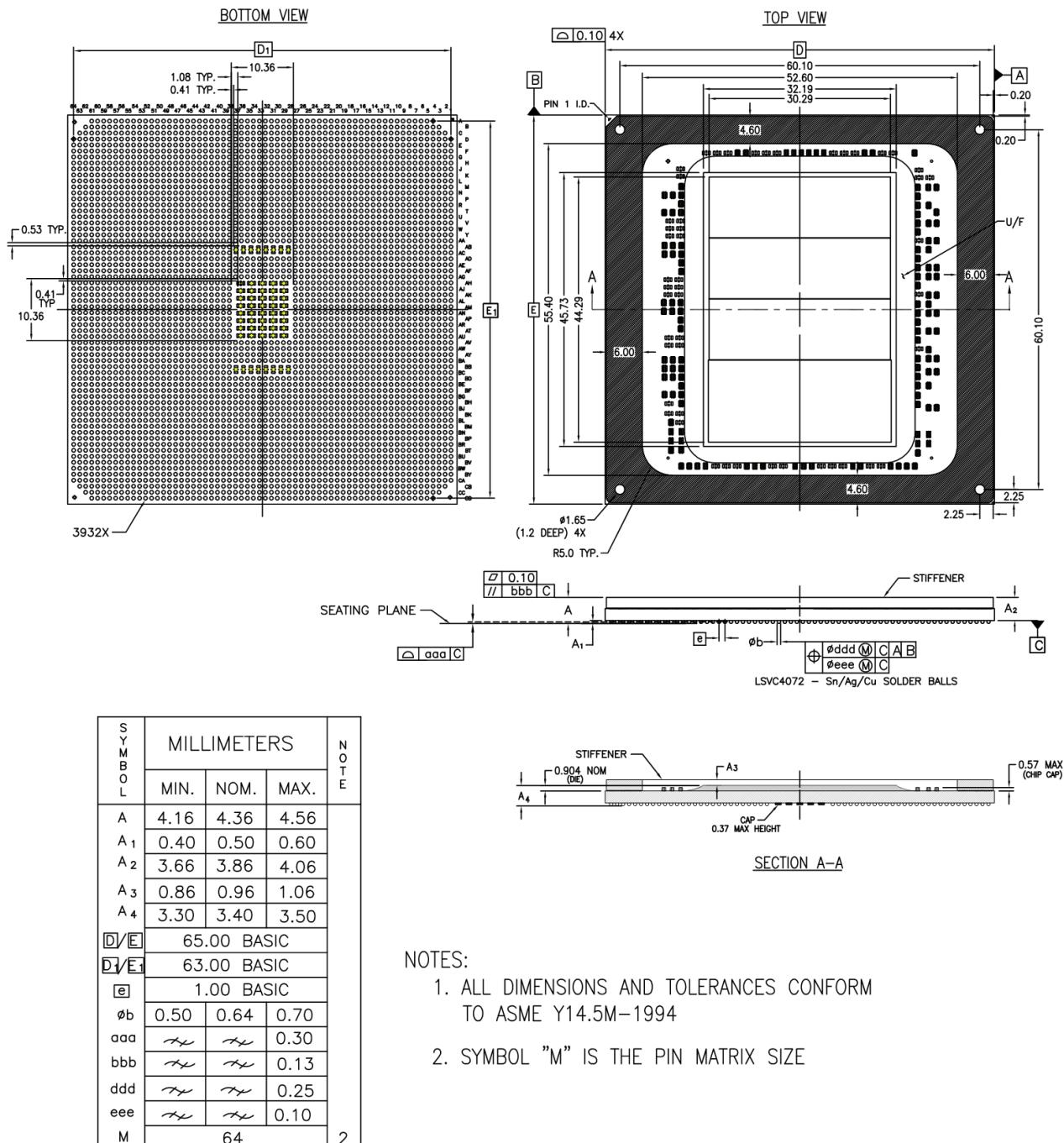
Figure: Package Dimensions for VSVA3697 (VH1522, VH1542, and VH1582)



X26235-020722

LSVC4072 Mechanical—VP1802

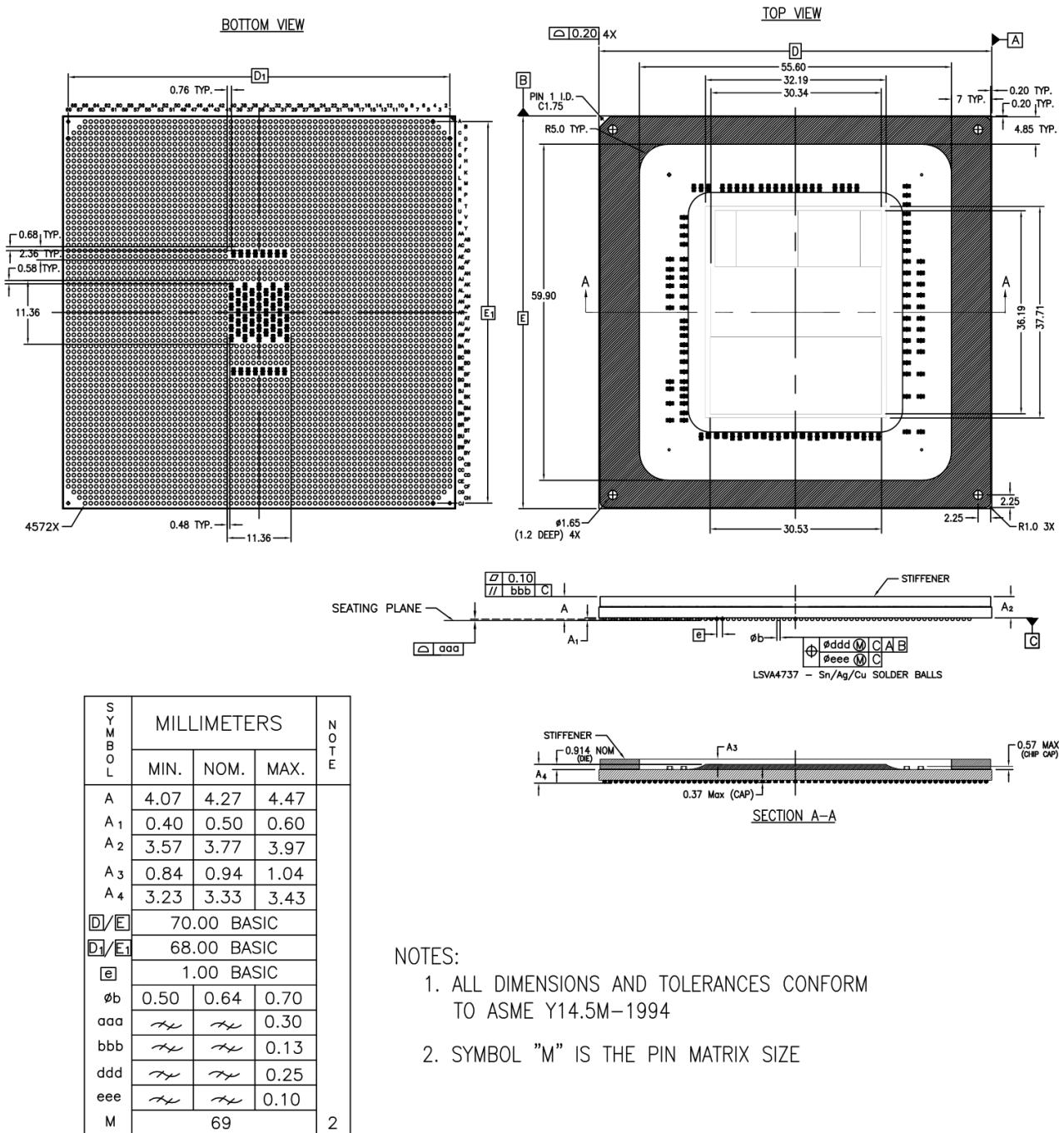
Figure: Package Dimensions for LSVC4072 (VP1802)



X27371-111022

LSVA4737 Mechanical—VH1542 and VH1582

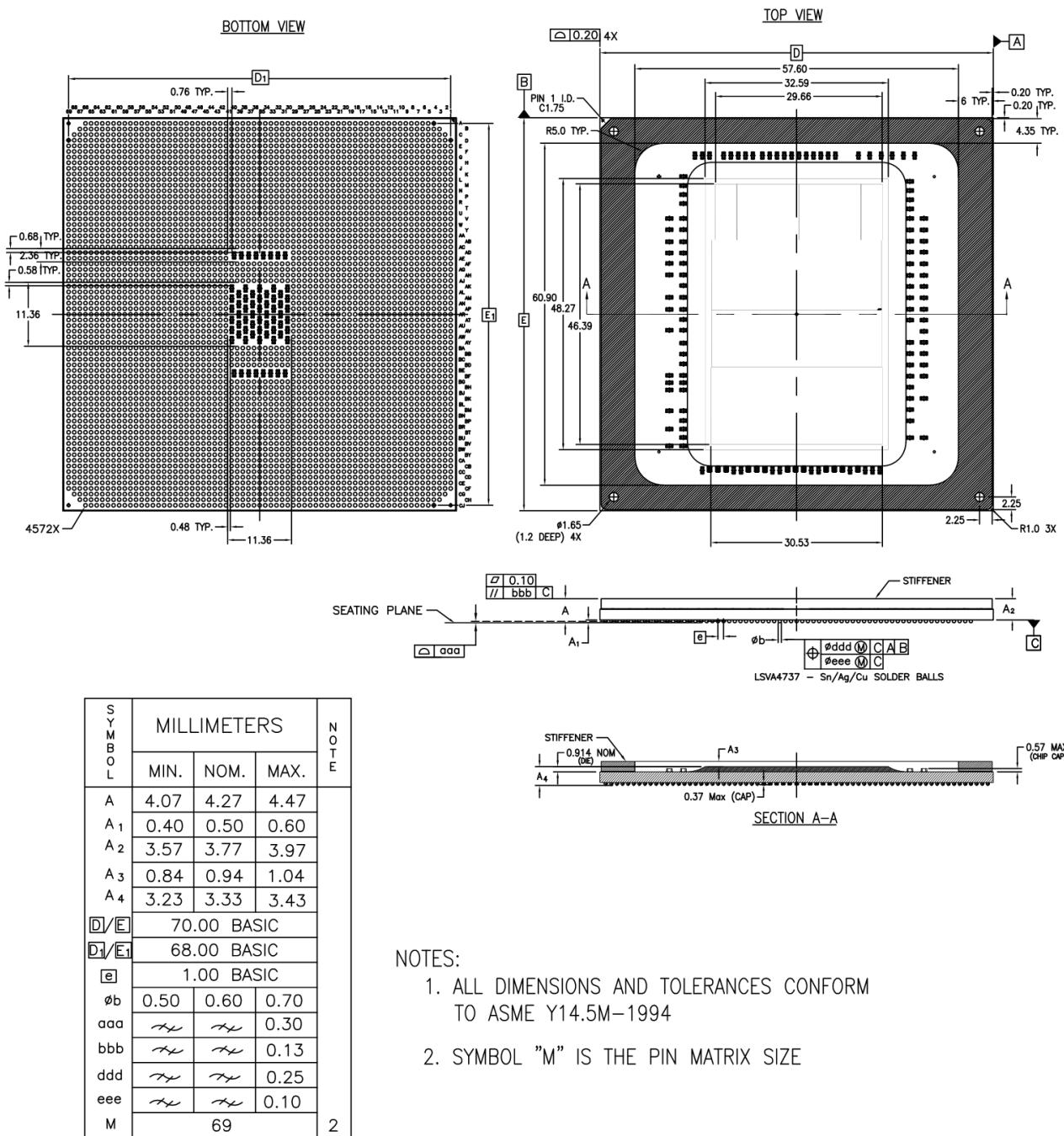
Figure: Package Dimensions for LSVA4737 (VH1542 and VH1582)



X27369-111022

LSVA4737 Mechanical–VH1742 and VH1782

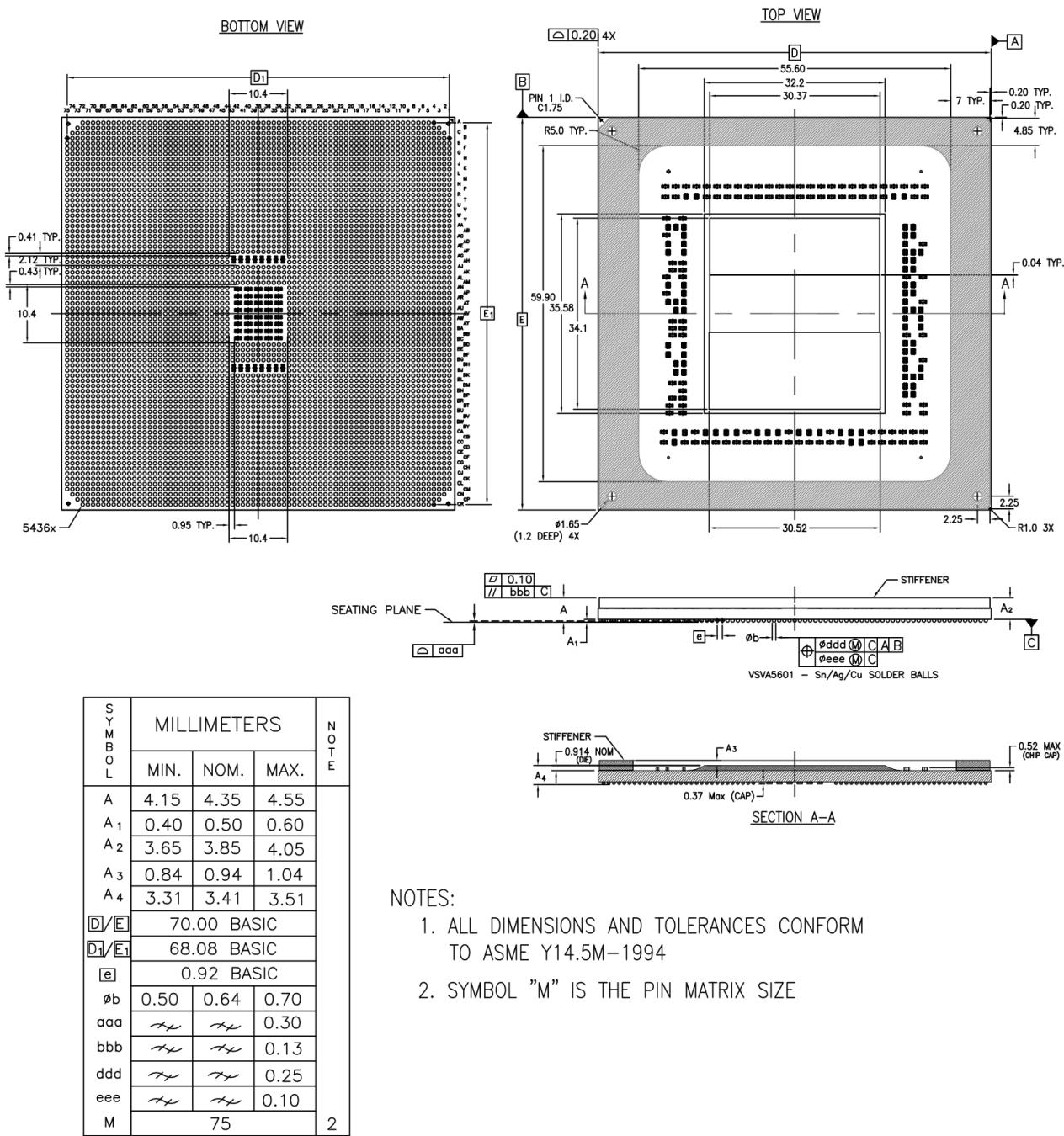
Figure: Package Dimensions for LSVA4737 (VH1742 and VH1782)



X27370-111022

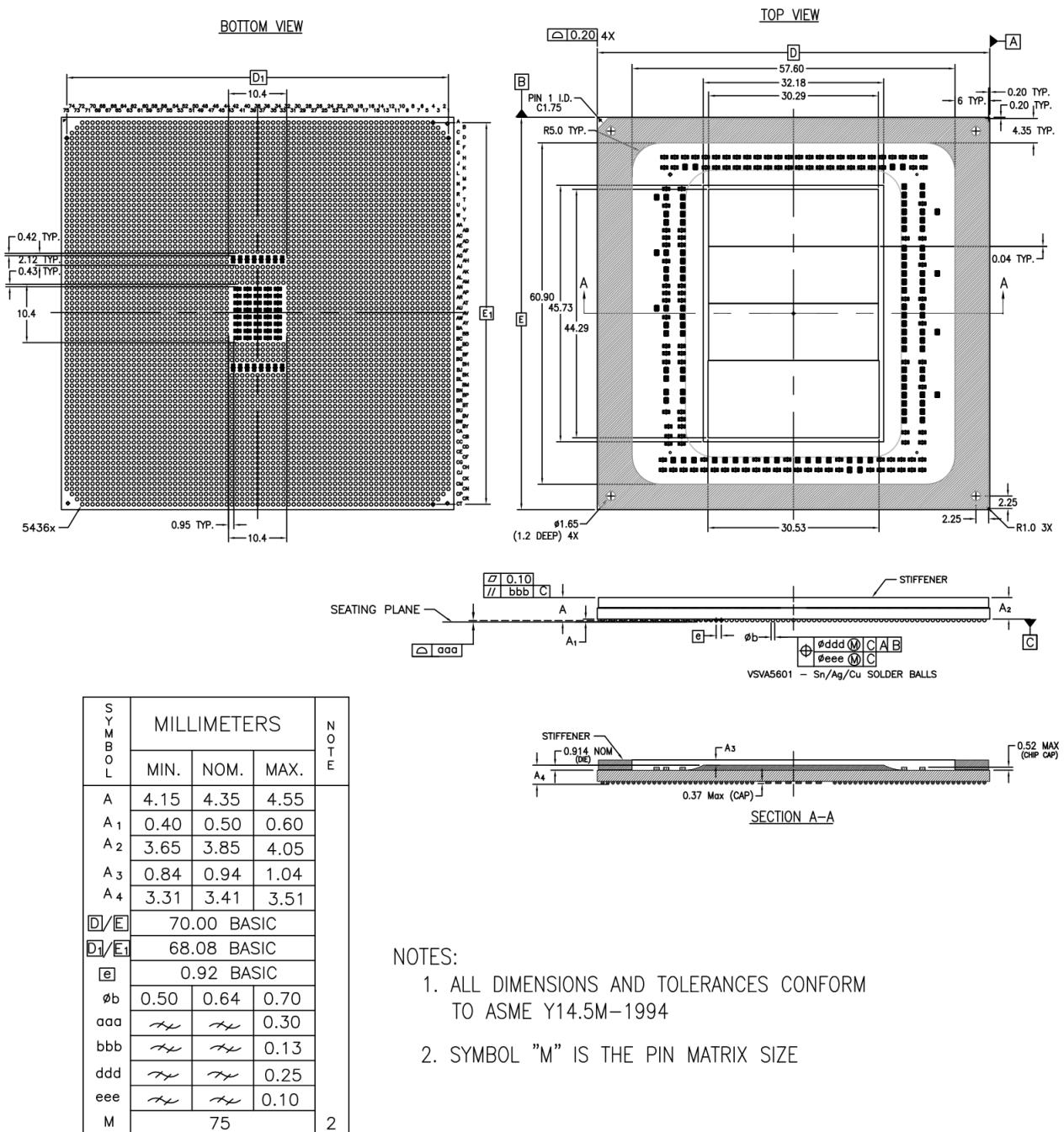
VSVA5601 Mechanical–VP1702

Figure: Package Dimensions for VSVA5601 (VP1702)



VSVA5601 Mechanical—VP1802

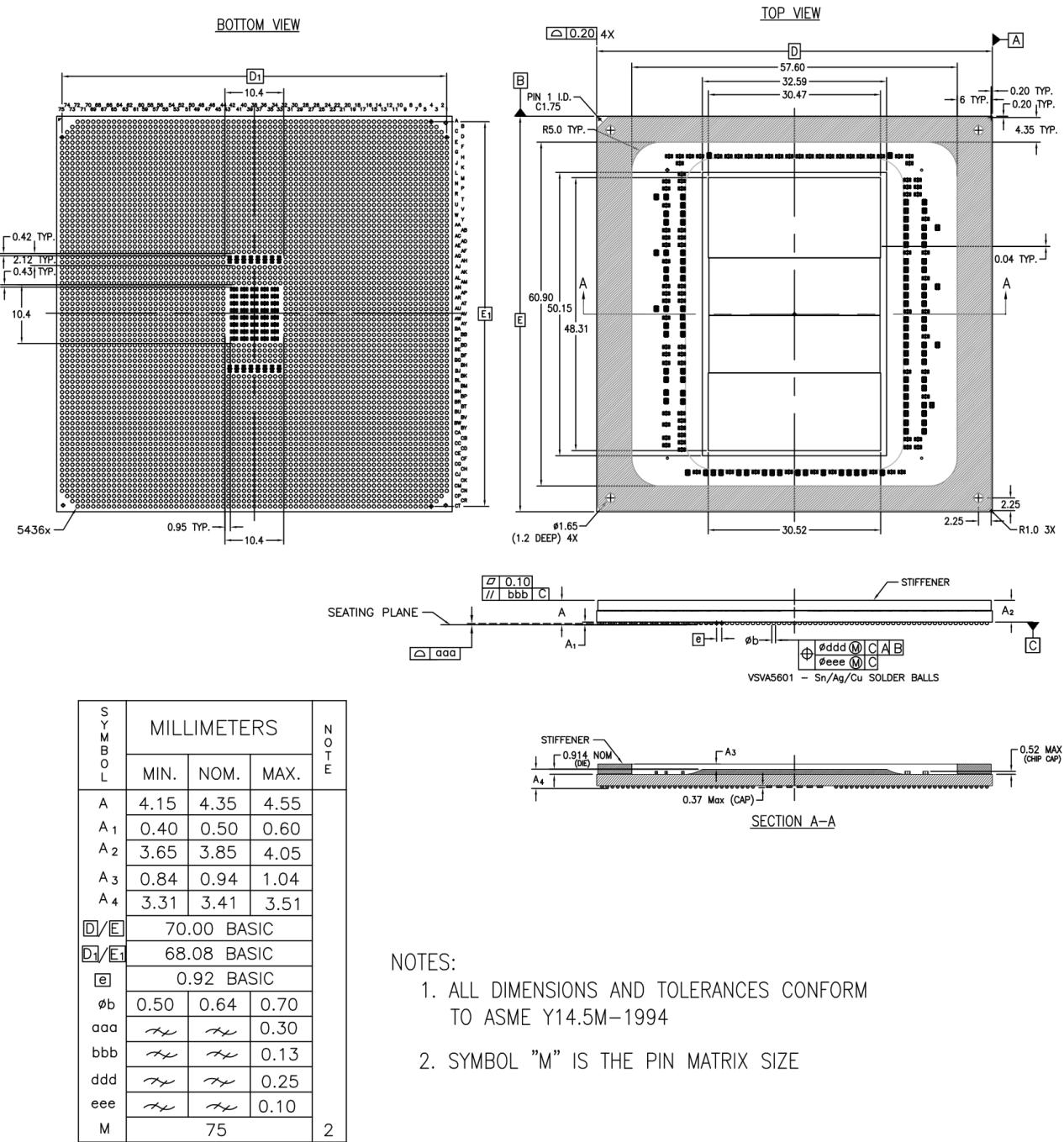
Figure: Package Dimensions for VSVA5601 (VP1802)



X27388-111522

VSVA5601 Mechanical—VP2802

Figure: Package Dimensions for VSVA5601 (VP2802)



X27389-111522