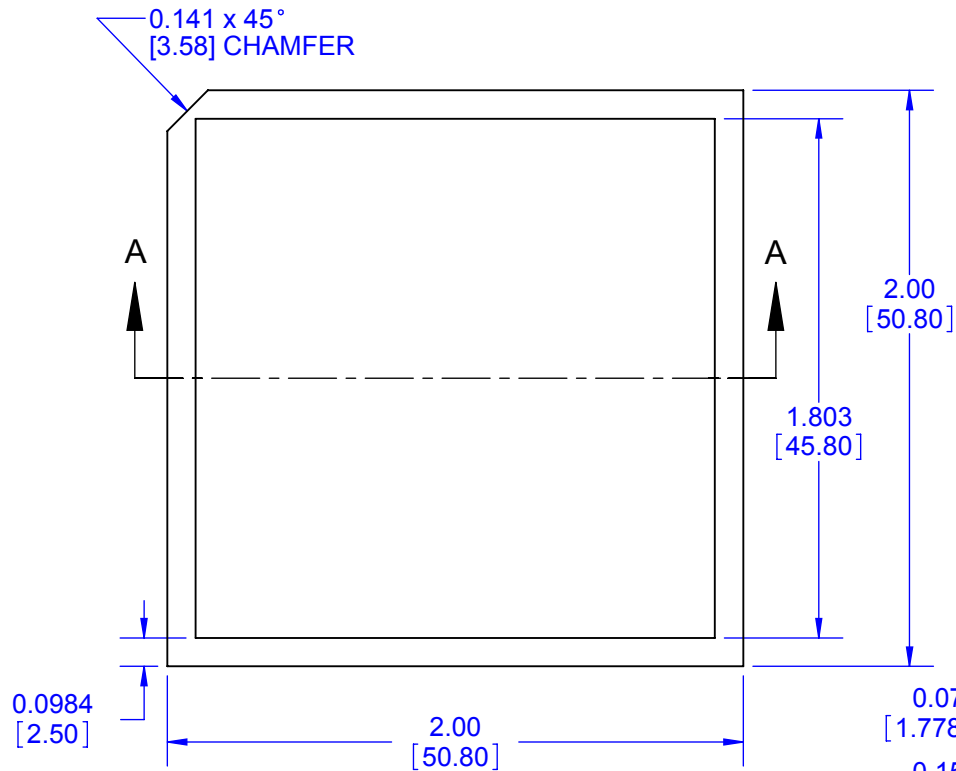
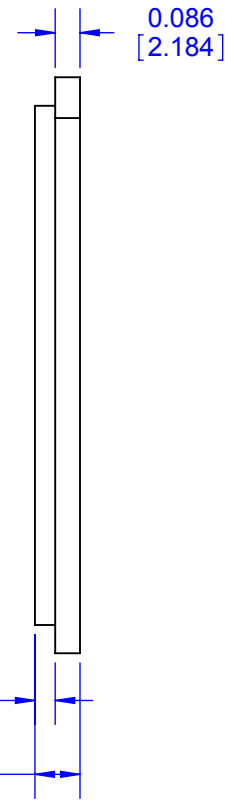


PIN-PACK™ OUTLINE

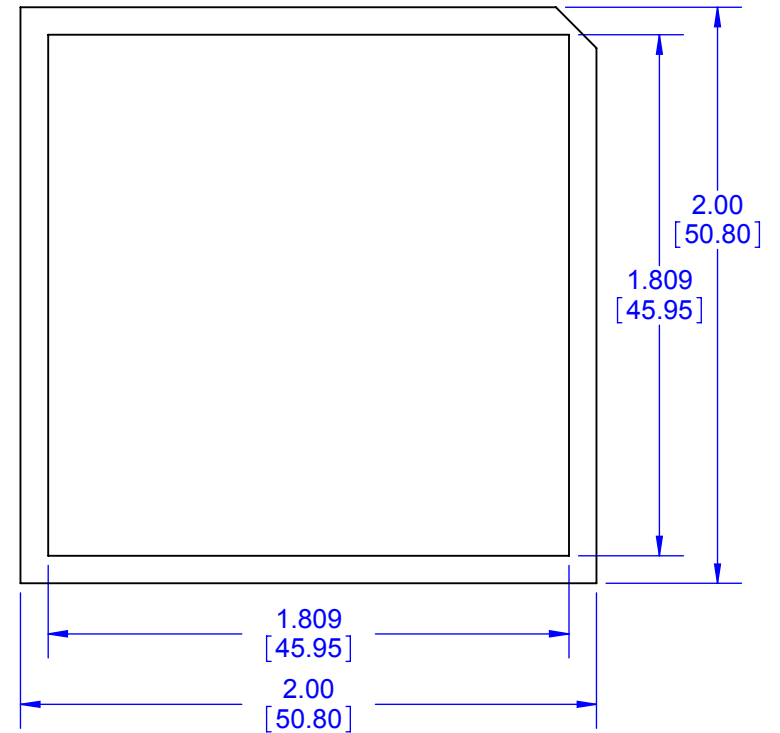
BOTTOM VIEW



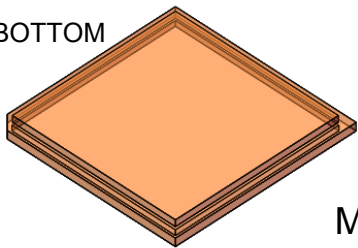
SIDE



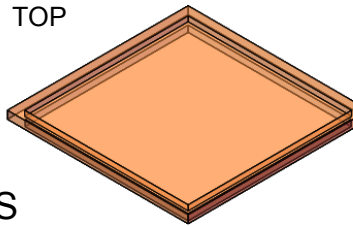
TOP VIEW



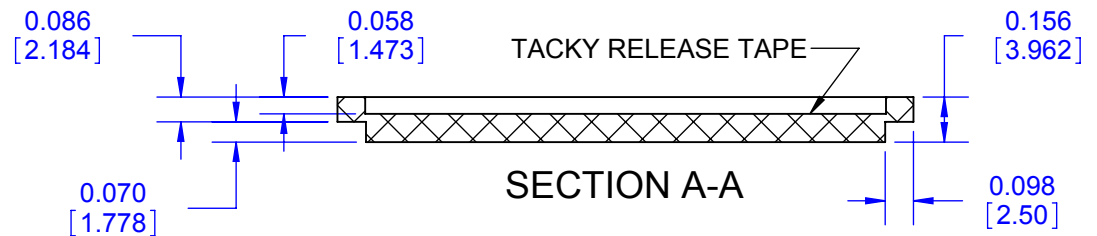
BOTTOM



TOP



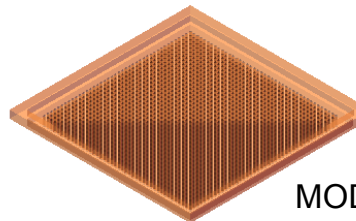
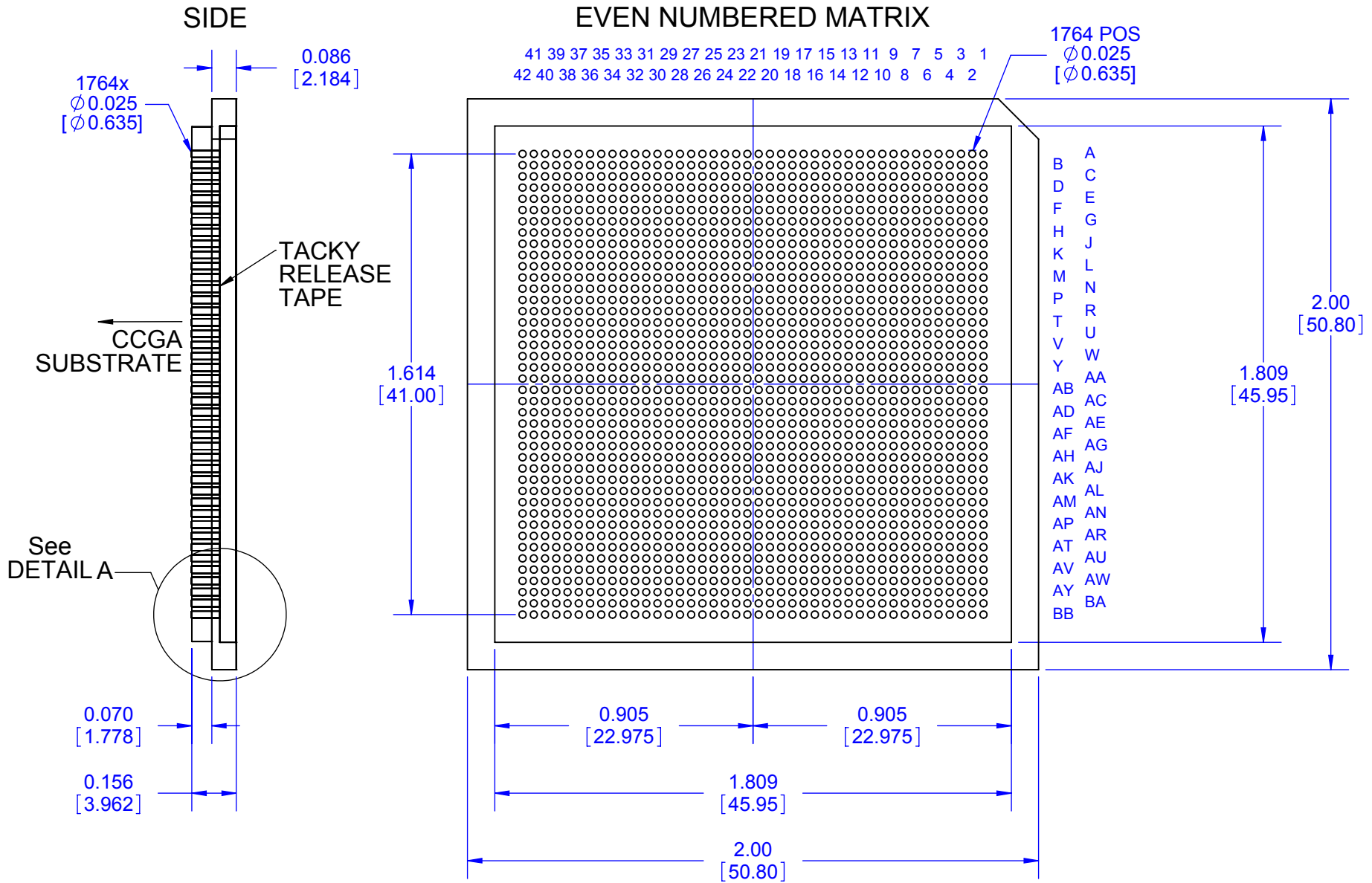
MODELS



- NOTES:
1. DIMENSIONS INCHES [MM].
 2. SHOWN WITHOUT HOLES FOR CLARITY.
 3. PIN-PACK™ IS TRADEMARK OF TOPLINE.

APPROVALS	DATE	TopLine®			
DRAWN T.Au	09/22/14				
ENG M. Hart	09/22/14	TITLE PIN-PACK™ CCGA COLUMN CARRIER			
MFG		SCALE	SIZE	DRAWING NO.	REV
QA		3:2	A	001002	A
CUST		DO NOT SCALE DRAWING			SHEET 1 OF 12
REVISED					

TOP VIEW EVEN NUMBERED MATRIX

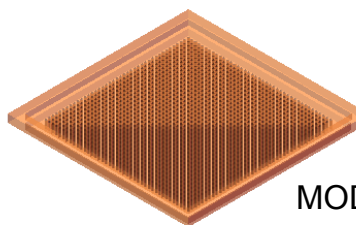
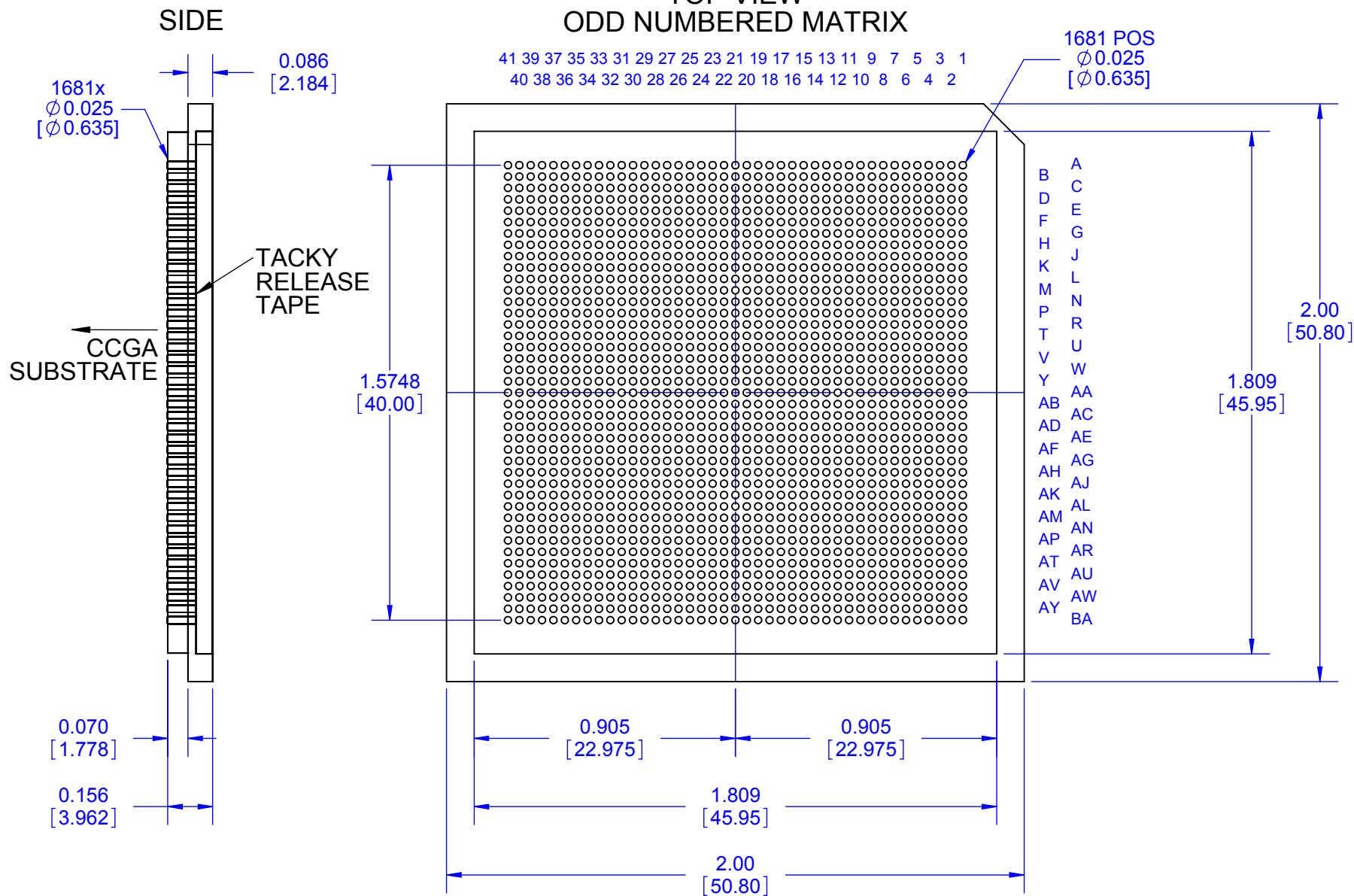


MODEL

NOTES:
1. DIMENSIONS INCHES [MM].
2. SHOWN WITH MAXIMUM ARRAY.

TopLine®			
TITLE PIN-PACK™ CCGA COLUMN CARRIER			
SCALE 2:1	SIZE A	DRAWING NO. 001002	REV A
DO NOT SCALE DRAWING			SHEET 2 OF 12

TOP VIEW ODD NUMBERED MATRIX

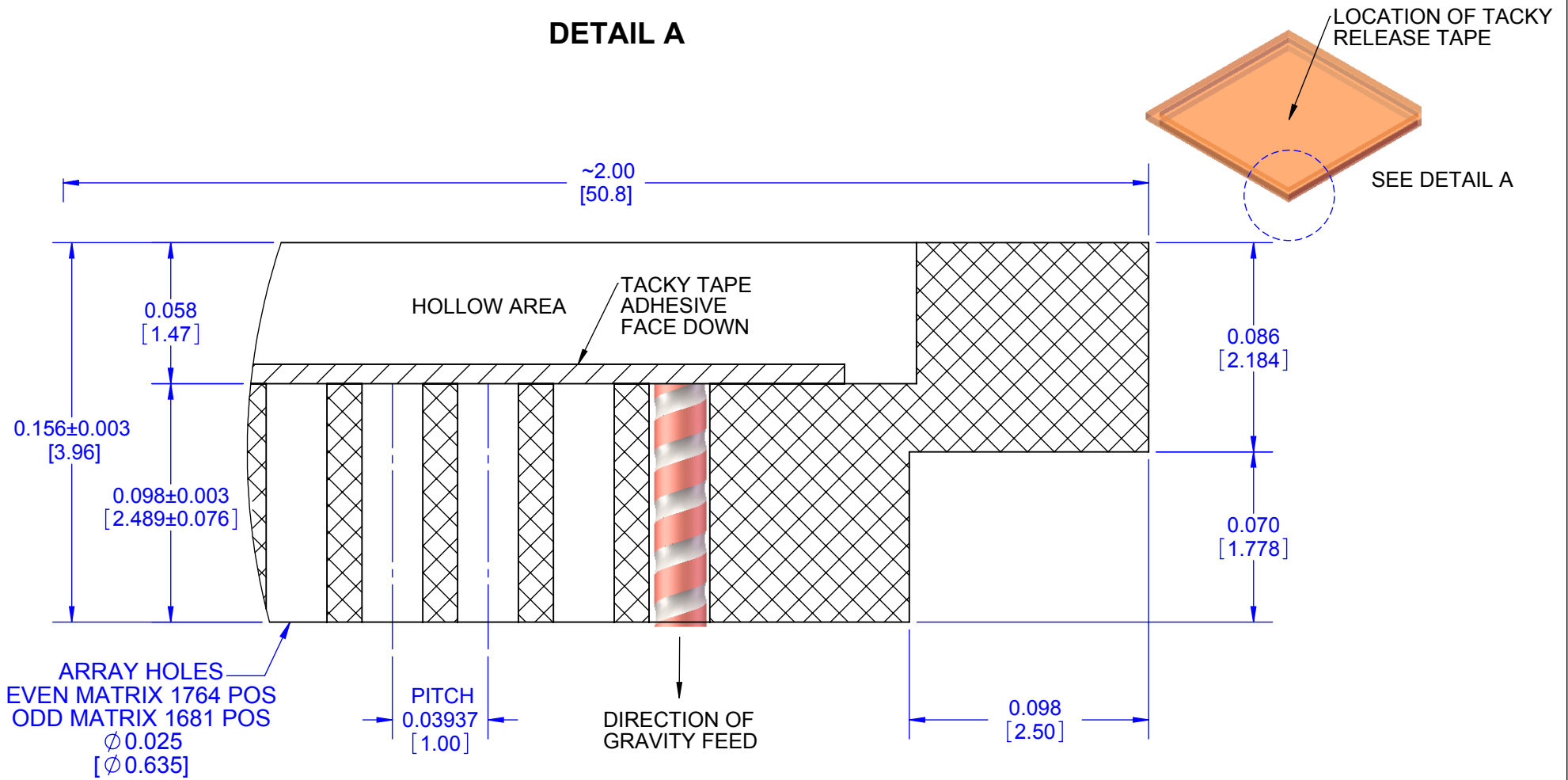


MODEL

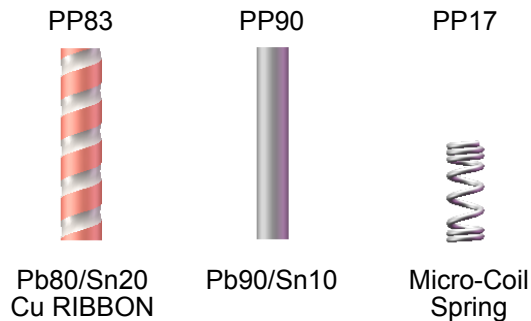
NOTES:
1. DIMENSIONS INCHES [MM].
2. SHOWN WITH MAXIMUM ARRAY.

TopLine®			
TITLE		PIN-PACK™ CCGA COLUMN CARRIER	
SCALE	SIZE	DRAWING NO.	REV
2:1	A	001002	A
DO NOT SCALE DRAWING			SHEET 3 OF 12

DETAIL A



EXAMPLES OF COLUMNS



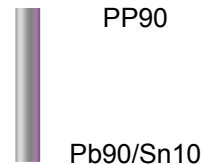
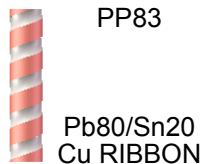
NOTES:
1. DIMENSIONS INCH [MM].

TopLine®			
TITLE		PIN-PACK™ CCGA COLUMN CARRIER	
SCALE	SIZE	DRAWING NO.	REV
16:1	A	001002	A
DO NOT SCALE DRAWING			SHEET 4 OF 12

PART NUMBER TABLE (PARTIAL LIST)

PIN-PACK™	Pins	Pitch	Matrix	COLUMN				Empty DWG	Filled DWG#
				Alloy	Construction	∅ Dia	Length		
PP83C483E20x100A PP90U483E20x100A PP17P483E20x50A	483	1.0mm	22x22	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.51mm	2.54mm 2.54mm 1.27mm	001220	831220 901220 171220
PP83C517F22x100A PP90U517F20x100A PP17P517F20x50A	517	1.27mm	23x23	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.56mm 0.51mm 0.51mm	2.54mm 2.54mm 1.27mm	002230	832230 902230 172230
PP83C624F22x100A PP90U624F20x100A PP17P624F20x50A	624	1.27mm	25x25	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.56mm 0.51mm 0.51mm	2.54mm 2.54mm 1.27mm	002250	832250 902250 172250
PP83C717F22x100A PP90U717F20x100A PP17P717F20x50A	717	1.27mm	27x27	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.51mm	2.54mm 2.54mm 1.27mm	002270	832270 902270 172270
PP83C896E20x100A PP90U896E20x100A PP17P896E20x50A	896	1.0mm	30x30	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.51mm	2.54mm 2.54mm 1.27mm	001300	831300 901300 171300
PP83C1140E20x100A PP90U1140E20x100A PP17P1140E20x50A	1140	1.0mm	34x34	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.51mm	2.54mm 2.54mm 1.27mm	001340	831340 901340 171340
PP83C1144E20x100A PP90U1144E20x100A PP17P1144E20x50A	1144	1.0mm	34x34	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.51mm	2.54mm 2.54mm 1.27mm	001341	831341 901341 171341
PP83C1148E15x100A PP90C1148E15x100A	1148	1.0mm	34x34	Pb80 Pb90	Cu Ribbon Cu Ribbon	0.38mm	2.54mm 2.54mm	001347	831347 901347
PP83C1152E20x100A PP90U1152E20x100A PP17P1152E20x50A	1152	1.0mm	34x34	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.51mm	2.54mm 2.54mm 1.27mm	001342	831342 901342 171342
PP83C1152E15x100A PP90C1152E15x100A	1152	1.0mm	34x34	Pb80 Pb90	Cu Ribbon Cu Ribbon	0.38mm	2.54mm 2.54mm	001343	831343 901343

EXAMPLES OF COLUMNS



TopLine®

TITLE PIN-PACK™
CCGA COLUMN CARRIER

SCALE 10:1	SIZE A	DRAWING NO. 001002	REV A
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DO NOT SCALE DRAWING

SHEET 5 OF 12

PART NUMBER TABLE (PARTIAL LIST)

PIN-PACK™	Pins	Pitch	Matrix	COLUMN				Empty DWG	Filled DWG#
				Alloy	Construction	∅ Dia	Length		
PP83C1272E20x100A PP90U1272E20x100A PP17P1272E20x50A	1272	1.0mm	36x36	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.51mm	2.54mm 2.54mm 1.27mm	001360	831360 901360 171360
PP83C1509E20x100A PP90U1509E20x100A PP17P1509E20x50A	1509	1.0mm	39x39	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.51mm	2.54mm 2.54mm 1.27mm	001394	831394 901394 171394
PP83C1657E20x100A PP90U1657E20x100A PP17P1657E20x50A	1657	1.0mm	41x41	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.51mm	2.54mm 2.54mm 1.27mm	001410	831410 901410 171410
PP83C1752E20x100A PP90U1752E20x100A PP17P1752E20x50A	1752	1.0mm	42x42	Pb80 Pb90 MCS	Cu Ribbon Plain Micro Coil	0.51mm	2.54mm 2.54mm 1.27mm	001420	831420 901420 171420

Note 1: Other PIN-PACK™ configurations available.

EXAMPLES OF COLUMNS

PP83



Pb80/Sn20
Cu RIBBON

PP90



Pb90/Sn10

PP17



Micro-Coil
Spring

TopLine®

TITLE PIN-PACK™
CCGA COLUMN CARRIER

SCALE 10:1	SIZE A	DRAWING NO. 001002	REV A
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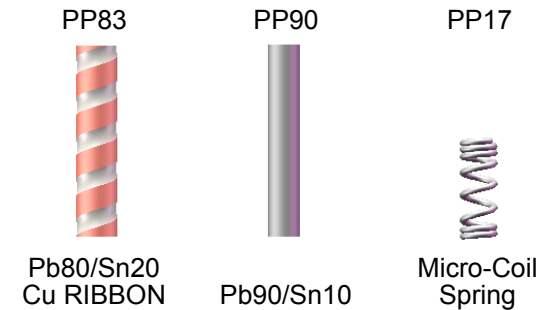
DO NOT SCALE DRAWING

SHEET 6 OF 12

PIN-PACK™ PART NUMBERING SYSTEM

PP	8	3	C	1152	E	20	X	100	A																																																																																		
SERIES		CONSTRUCTION		NBR PINS		Ø DIAMETER		LENGTH	VERSION																																																																																		
PP = Pin-Pack Filled PN = Empty Pin-Pack		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>0</td><td>Plain Wire</td></tr> <tr><td>3</td><td>Cu Ribbon</td></tr> <tr><td>7</td><td>Micro-Coil</td></tr> <tr><td colspan="2" style="text-align: center;">Under Development</td></tr> <tr><td>4</td><td>Cu Shield</td></tr> </tbody> </table>	Code	Description	0	Plain Wire	3	Cu Ribbon	7	Micro-Coil	Under Development		4	Cu Shield		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Pins</th> <th>Matrix</th> </tr> </thead> <tbody> <tr><td>484</td><td>22x22</td></tr> <tr><td>624</td><td>25x25</td></tr> <tr><td>896</td><td>30x30</td></tr> <tr><td>1140</td><td>34x34</td></tr> <tr><td>1144</td><td>34x34</td></tr> <tr><td>1152</td><td>34x34</td></tr> <tr><td>1272</td><td>36x36</td></tr> <tr><td>1657</td><td>41x41</td></tr> <tr><td>1752</td><td>42x42</td></tr> <tr><td colspan="2">Other Available</td></tr> </tbody> </table>	Pins	Matrix	484	22x22	624	25x25	896	30x30	1140	34x34	1144	34x34	1152	34x34	1272	36x36	1657	41x41	1752	42x42	Other Available			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Pitch</th> </tr> </thead> <tbody> <tr><td>Ø 6 MIL</td><td>0.15mm</td></tr> <tr><td>Ø 8 MIL</td><td>0.20mm</td></tr> <tr><td>Ø 10 MIL</td><td>0.25mm</td></tr> <tr><td>Ø 12 MIL</td><td>0.30mm</td></tr> <tr><td>Ø 15 MIL</td><td>0.38mm</td></tr> <tr><td>Ø 16 MIL</td><td>0.40mm</td></tr> <tr><td>Ø 18 MIL</td><td>0.45mm</td></tr> <tr><td>Ø 20 MIL</td><td>0.51mm</td></tr> <tr><td>Ø 24 MIL</td><td>0.61mm</td></tr> <tr><td>Ø 30 MIL</td><td>0.76mm</td></tr> <tr><td>Ø 35 MIL</td><td>0.89mm</td></tr> </tbody> </table>	Code	Pitch	Ø 6 MIL	0.15mm	Ø 8 MIL	0.20mm	Ø 10 MIL	0.25mm	Ø 12 MIL	0.30mm	Ø 15 MIL	0.38mm	Ø 16 MIL	0.40mm	Ø 18 MIL	0.45mm	Ø 20 MIL	0.51mm	Ø 24 MIL	0.61mm	Ø 30 MIL	0.76mm	Ø 35 MIL	0.89mm		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Length</th> </tr> </thead> <tbody> <tr><td>40 MIL</td><td>1.0mm</td></tr> <tr><td>50 MIL</td><td>1.27mm</td></tr> <tr><td>87 MIL</td><td>2.21mm</td></tr> <tr><td>100 MIL</td><td>2.54mm</td></tr> <tr><td colspan="2">See Note 1</td></tr> </tbody> </table>	Code	Length	40 MIL	1.0mm	50 MIL	1.27mm	87 MIL	2.21mm	100 MIL	2.54mm	See Note 1		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Code</th> <th>Rev</th> </tr> </thead> <tbody> <tr><td>A</td><td>V0</td></tr> <tr><td>B</td><td>V1</td></tr> <tr><td>C</td><td>V2</td></tr> <tr><td>D</td><td>V3</td></tr> <tr><td>E</td><td>V4</td></tr> </tbody> </table>	Code	Rev	A	V0	B	V1	C	V2	D	V3	E	V4
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7	Micro-Coil																																																																																										
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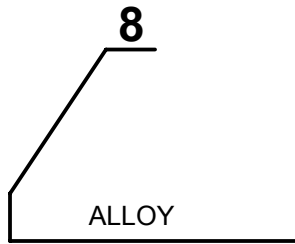
EXAMPLES OF COLUMNS



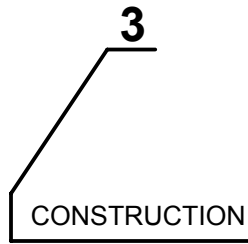
NOTE 1: PP83, PP90 and PP93 REQUIRES TRIMMING TO FINISHED LENGTH.
NOTE 2: COLUMN 2.54mm TO BE TRIMMED TO 2.21mm AFTER ATTACHMENT.

TopLine®			
TITLE PIN-PACK™ CCGA COLUMN CARRIER			
SCALE 10:1	SIZE A	DRAWING NO. 001002	REV A
DO NOT SCALE DRAWING			SHEET 7 OF 12

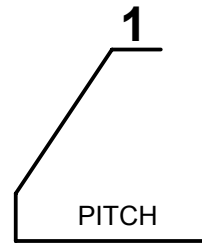
PIN-PACK™ DRAWING NUMBERING SYSTEM



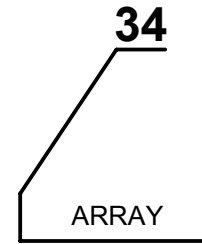
Code	Description
00	Empty
1	Micro-Coil
8	Pb80/Sn20
9	Pb90/Sn10
2~7	To be Assigned



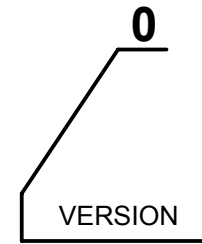
Code	Description
0	Plain Wire
3	Cu Ribbon
7	Micro-Coil
Under Development	
4	Cu + Sn60/Pb40
5	Cu + SAC
6	Sn60/Pb40
1	TBA
2	TBA
8	TBA



Code	Pitch
0	Special
1	1.0mm
2	1.27mm
3	2.54mm
4	0.4mm
5	0.5mm
6	0.65mm
7	0.75mm
8	0.8mm
9	Other

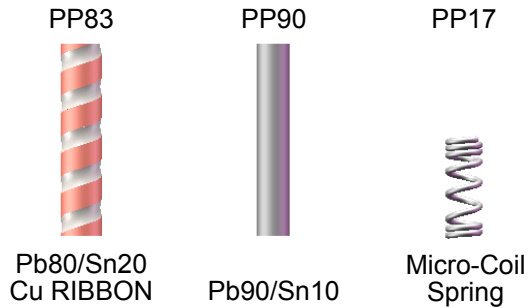


Code	Matrix
22	22x22
25	25x25
27	27x27
28	28x28
30	30x30
32	32x32
34	34x34
36	36x36
41	41x41
42	42x42
51	51x51
Other Available	

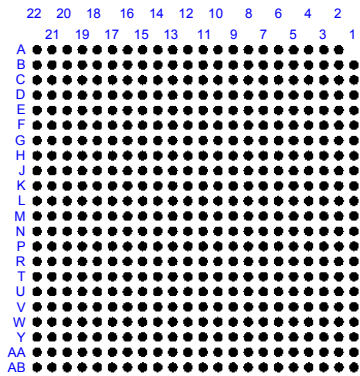


Matrix
0
1
2
3
4

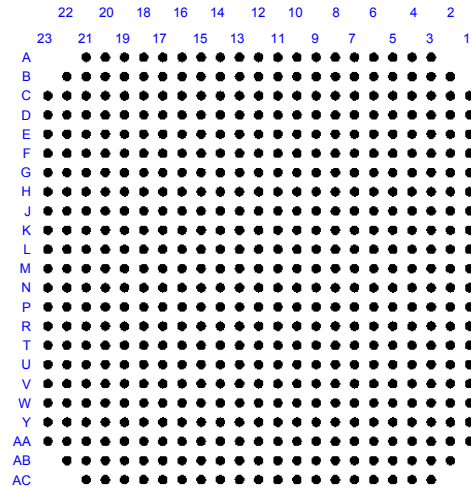
EXAMPLES OF COLUMNS



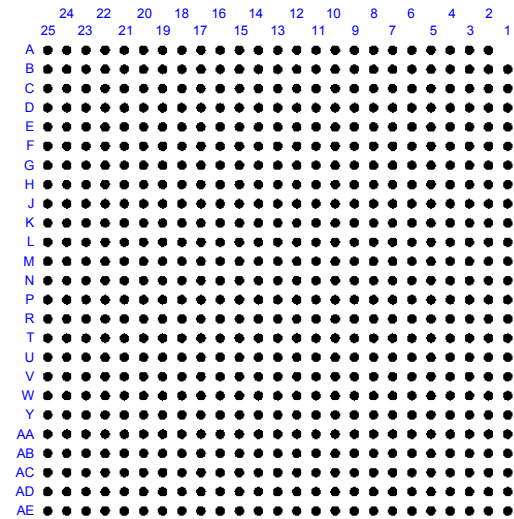
TopLine®			
TITLE PIN-PACK™ CCGA COLUMN CARRIER			
SCALE 10:1	SIZE A	DRAWING NO. 001002	REV A
DO NOT SCALE DRAWING			SHEET 8 OF 12



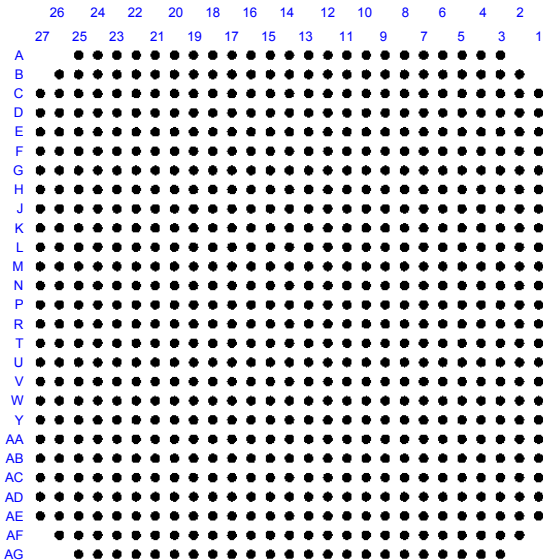
DWG 001220
483 Pins - 22x22
Pitch 1.0mm - 23x23mm



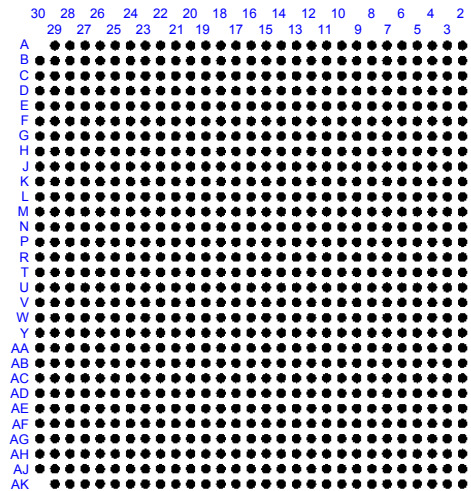
DWG 002230
517 Pins - 23x23
Pitch 1.27mm - 31x31mm



DWG 002250
624 Pins - 25x25
Pitch 1.27mm - 32.5x32.5mm

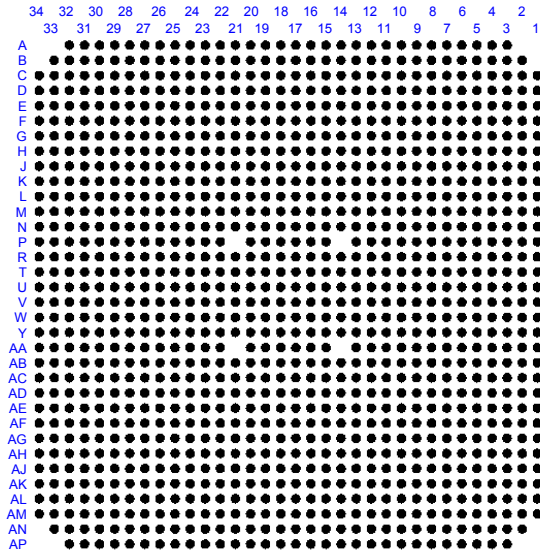


DWG 002270
717 Pins - 27x27
Pitch 1.27mm - 35x35mm

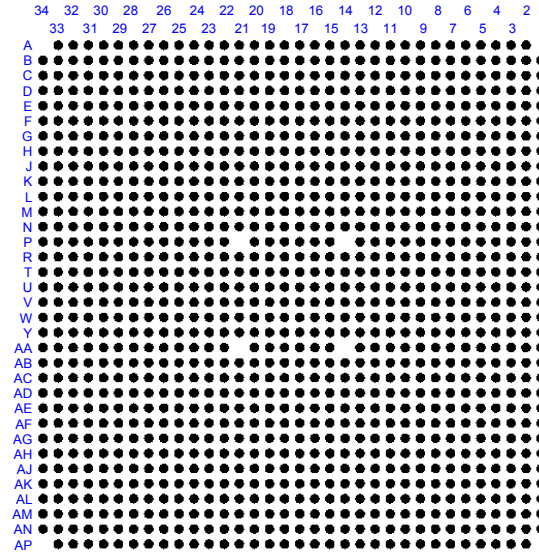


DWG 001300
896 Pins - 30x30
Pitch 1.0mm - 31x31mm

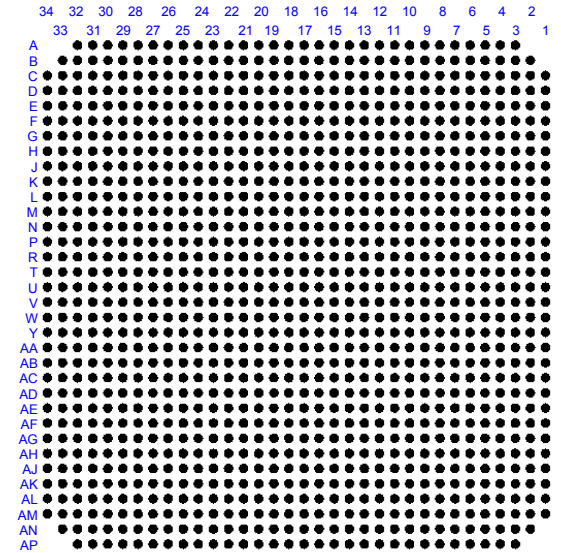
TopLine [®]			
TITLE		PIN-PACK™ CCGA COLUMN CARRIER	
SCALE	SIZE	DRAWING NO.	REV
2:1	A	001002	A
DO NOT SCALE DRAWING			SHEET 9 OF 12



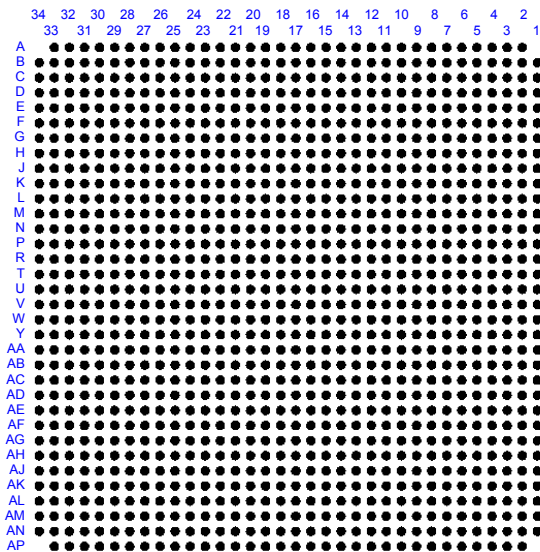
DWG 001340
1140 Pins - 34x34
Pitch 1.0mm - 35x35mm



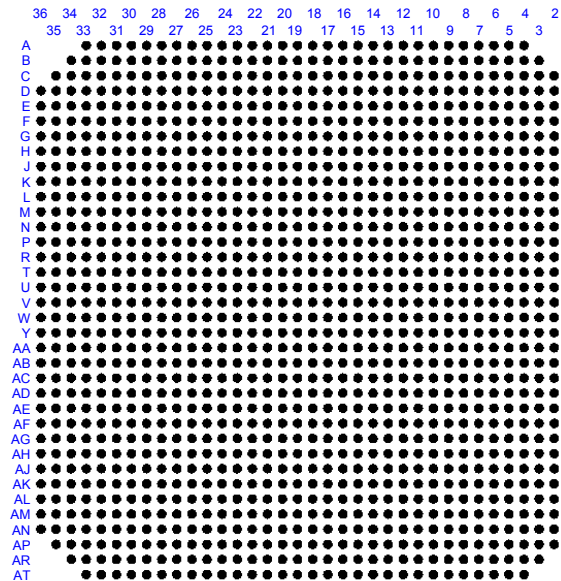
DWG 001347
1148 Pins - 34x34
Pitch 1.0mm - 35x35mm



DWG 001341
1144 Pins - 34x34
Pitch 1.0mm - 35x35mm



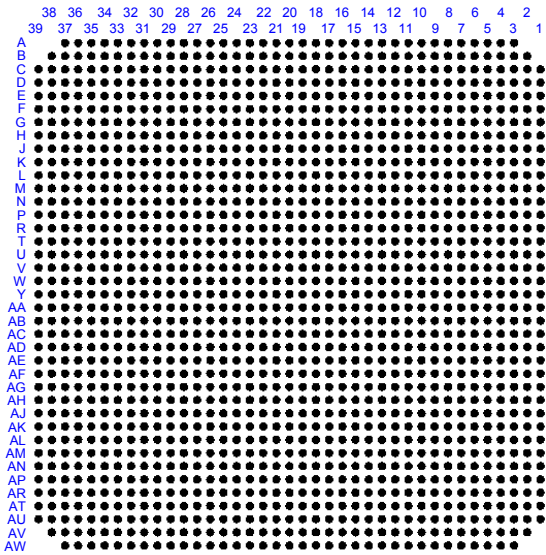
DWG 001342 / 001343
1152 Pins - 34x34
Pitch 1.0mm - 35x35mm



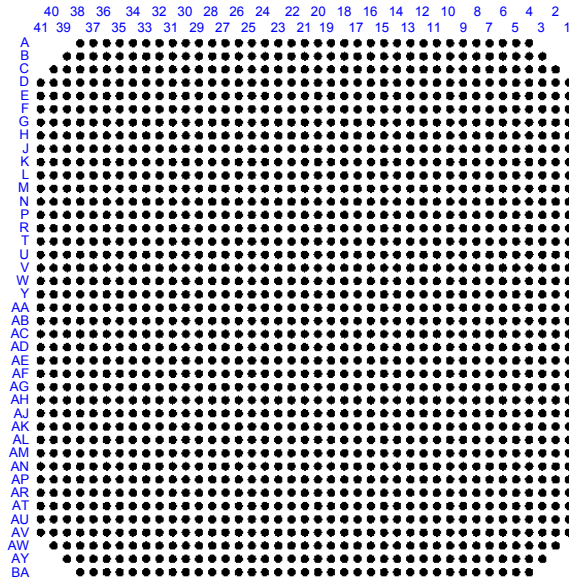
DWG 001360
1272 Pins - 36x36
Pitch 1.0mm - 37.5x37.5mm



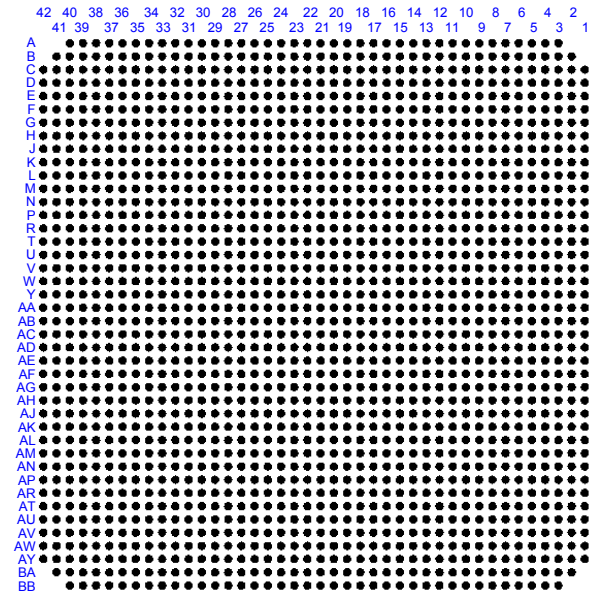
TITLE		PIN-PACK™ CCGA COLUMN CARRIER	
SCALE	SIZE	DRAWING NO.	REV
2:1	A	001002	A
DO NOT SCALE DRAWING			SHEET 10 OF 12



DWG 001394
 1509 Pins - 39x39
 Pitch 1.0mm - 40x40mm



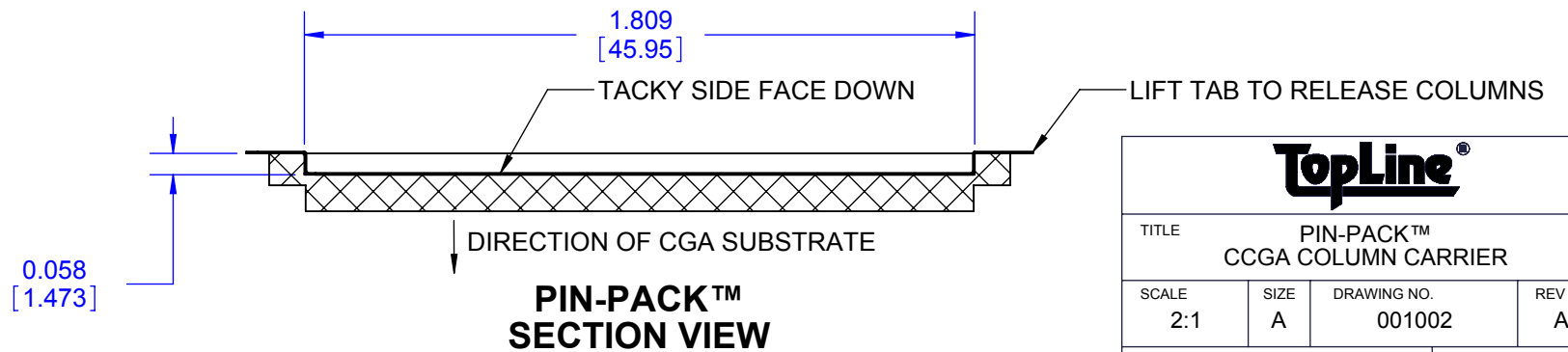
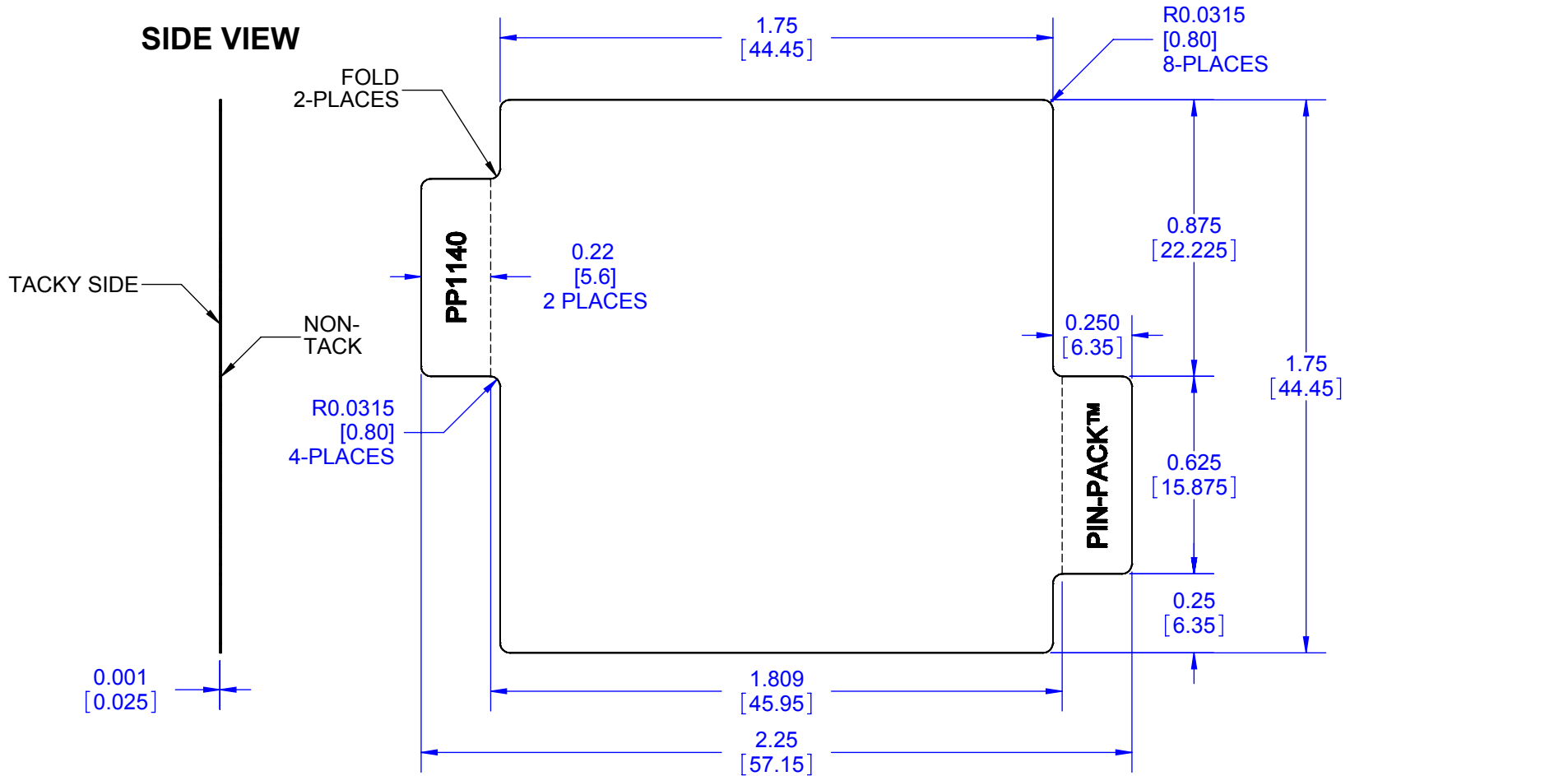
DWG 001410
 1657 Pins - 41x41
 Pitch 1.0mm - 42.5x42.5mm



DWG 001420
 1752 Pins - 42x42
 Pitch 1.0mm - 45x45mm

TopLine®			
TITLE		PIN-PACK™ CCGA COLUMN CARRIER	
SCALE	SIZE	DRAWING NO.	REV
1.75:1	A	001002	A
DO NOT SCALE DRAWING			SHEET 11 OF 12

TACKY RELEASE TAPE TOP VIEW



TopLine®			
TITLE PIN-PACK™ CCGA COLUMN CARRIER			
SCALE 2:1	SIZE A	DRAWING NO. 001002	REV A
DO NOT SCALE DRAWING			SHEET 12 OF 12