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11. ELECTRICAL TEST: CONTINUITY SHORT AND OPEN TESTING ON ALL AVAILABLE EXPOSED TERMINAL PADS USING IPC-D-356A NETLIST DATA. CONTINUITY TEST SHALL BE AT 5 OHMS MAX. SHORTS TESTING SHALL BE PERFORMED AT 250V. MINIMUM ISOLATION OF 20M OHMS.
10. BOW AND TWIST: SHALL NOT EXCEED .007 IN PER INCH
9. SILKSCREEN: BOTH SIDES WITH WHITE NON-CONDUCTIVE EPOXY INK. LANDS AND EXPOSED PLATED AREAS TO BE FREE OF INK.
8. SOLDER MASK: PHOTO-IMAGED LIQUID POLYMER, GREEN COLOR, ON BOTH SIDES OF BOARD IN ACCORDANCE WITH IPC-SM-840, TYPE B, CLASS 2, OVER BARE COPPER.
7. FABRICATION TOLERANCES: END PRODUCT TRACE WIDTHS AND LANDS SHALL NOT VARY MORE THAN THE SMALLER OF .002 IN OR 10% OF THE TRACE WIDTH FROM THE GERBER DATA.
6. ALL HOLES SPECIFIED IN THE DRILL CHART ARE FINISHED HOLE DIAMETERES. HOLE TOLERANCE +/- 0.002 IN FOR NON-PLATED HOLES AND +/- 0.003 IN FOR PLATED HOLES.
5. SURFACE FINISH TO BE ELECTROLESS NICKEL/IMMERSION GOLD (ENIG) PLATING PER IPC-6013. ALL PLATED HOLES AND CONDUCTIVE SURFACES SHALL BE PLATED WITH 0.001 IN COPPER MINIMUM. ALL Ni/Au PLATED AREA SHOULD HAVE MIMIMUM THICKNESS 0.0001 IN FOR Ni AND 0.000002 IN FOR Au.
4. MATERIAL: .062 IN (+/- 10%) THICK GLASS EPOXY, NATURAL COLOR, LAMINATED ISOLA 370HR.
3. FABRICATE AND INSPECT PER IPC-6012 CLASS 2, TYPE 3.
2. THIS DOCUMENT AND RELATED ARTWORK ARE COMPUTER GENERATED. CHANGES ARE TO BE PERFORMED ON THE ORIGINAL DATABASE IN SECTION 383.
1. THE FINISHED PRINTED WIRING BOARD SHALL MEET THE REQUIREMENTS OF IPC-A-600-X (LATEST REVISION).

NOTES: UNLESS OTHERWISE SPECIFIED

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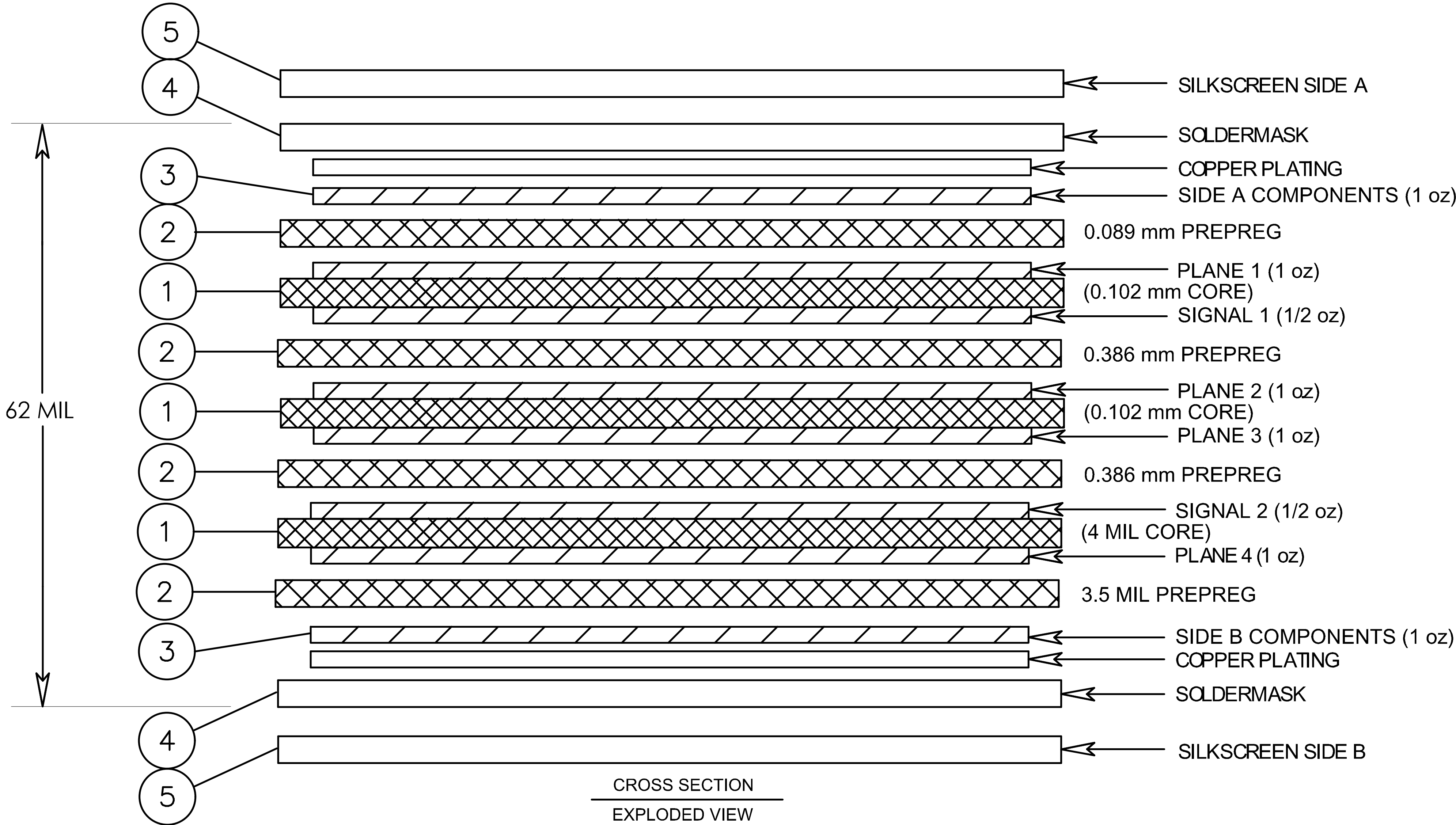
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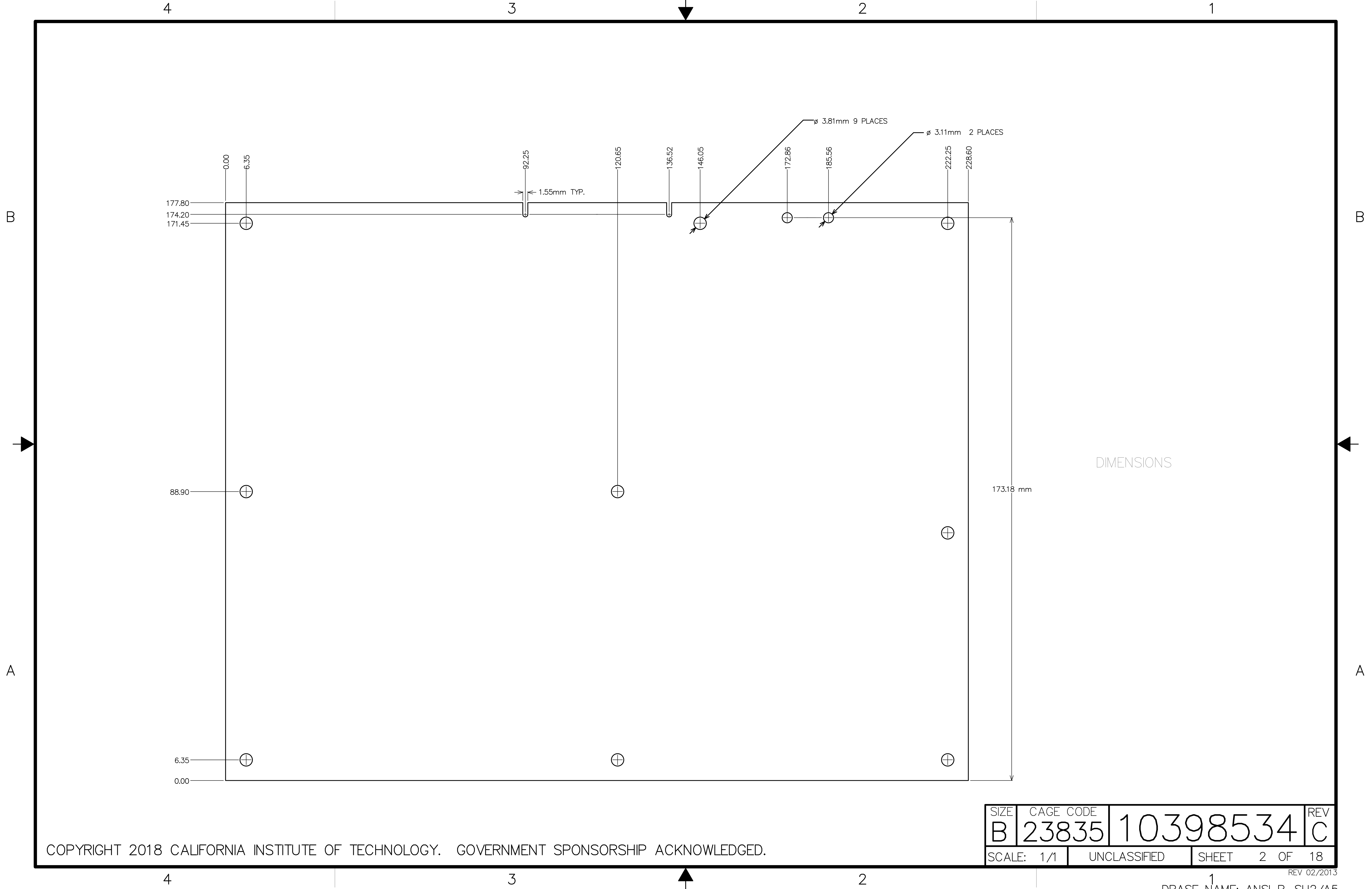
REVISION HISTORY														
LTR	DESCRIPTION			DWN	CHK	STRUCT	MATL	THRM CONT			ENGR	DSGN SUPV	DATA MGT	RELEASE DATE
A	_____ INITIAL RELEASE _____			CAT II	SEE JPL DATA MANAGEMENT SYSTEM FOR APPROVAL SIGNATURES AND DATES									
B	CORRECTED R79 & R97. PREPARED FOR UNLIMITED RELEASE.			II										
C	CHANGE FROM CONCERTO TO DELFINO SUPPORT. ADDED DIFFERENTIAL CURRENT SENSE AND ENCODER OPTIONS.			II										



	AR	5			ETHONE 50-100R CATALYST 9	INK, WHITE EPOXY	IPC-4781	9
	AR	4			PROBIMER 52 OR TAIYO PSR-4000	SOLDERMASK, LPI	IPC-SM-840 CL A	8
	AR	3			3 CU E3	COPPER FOIL, 1 OZ.	IPC-4562	
	AR	2			370HR	GLASS BASE EPOXY RESIN PREPREG, B-STAGE	IPC-4104/26	
	AR	1			370HR	GLASS BASE EPOXY RESIN CU CLAD 1 OZ / 1 OZ	IPC-4104/26	
	-1	ITEM NO	REF DES	CAGE CODE	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	MATERIAL OR NOTE
QTY REQD								

10398535	TMT
NEXT ASSEMBLY	USED ON
APPLICATION	

MATERIAL:		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		CONTRACT NO		JET PROPULSION LABORATORY				
MATERIAL PER SPECIFICATION		LINEAR TOLERANCES:		APPD	DATE	CALIFORNIA INSTITUTE OF TECHNOLOGY				
		0-6 OVER 6-30 OVER 30-120 OVER 120-315 OVER 315-1000 OVER 1000		DWN	SEE JPL DATA MANAGEMENT SYSTEM FOR APPROVAL SIGNATURES AND DATES	PASADENA, CA 91109				
				CHK		FABRICATION, M1 ACTUATOR DRIVER PWB				
				STRUCT						
				MATL						
				THRM CONT						
THIRD ANGLE PROJECTION		ANGULAR TOLERANCES: ±0.5°		ENGR	DSGN SUPV	SIZE				
		MACHINE FINISH				CAGE CODE				
		DO NOT SCALE DRAWING				10398534				
		INTERPRET DWG PER ASME Y14.100				REV				
						B				
						SCALE: 1/1				
						UNCLASSIFIED				
						SHEET 1 OF 18				



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SIZE	CAGE CODE	REV
B	23835	10398534
SCALE:	1/1	UNCLASSIFIED
SHEET	2	OF 18

DBASE NAME: ANSI_B-SH2/A5

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TABLE A / ARTWORK FILE DESIGNATION

SH NO.	FILE:	LOGICAL LAYER	PHYSICAL LAYER	DESCRIPTION
1	10398534_C.GM2	—	—	FABRICATION SHEET 1
2	10398534_C.GM4	—	—	FABRICATION SHEET 2
3	10398534_C.GM5	—	—	PLOT CONFIGURATION
4	10398534_C.GTP	—	OUTER LAYER 1	PASTE MASK SIDE A
5	10398534_C.GTO	—	OUTER LAYER 2	OVERLAY SIDE A
6	10398534_C.GTS	—	OUTER LAYER 3	SOLDER MASK SIDE A
7	10398534_C.GTL	COPPER SIDE A	OUTER LAYER COPPER	COMPONENTS SIDE A
8	10398534_C.GP1	COPPER LAYER 2	INNER LAYER	PLANE — GND
9	10398534_C.G1	COPPER LAYER 3	INNER LAYER	SIGNAL 1
10	10398534_C.GP2	COPPER LAYER 4	INNER LAYER	PLANE — +5V SPLIT
11	10398534_C.GP3	COPPER LAYER 5	INNER LAYER	PLANE — GND
12	10398534_C.G2	COPPER LAYER 6	INNER LAYER	SIGNAL 2
13	10398534_C.GP4	COPPER LAYER 7	INNER LAYER	PLANE — VS/3V3
14	10398534_C.GBL	COPPER SIDE B	OUTER LAYER COPPER	COMPONENTS SIDE B
15	10398534_C.GBS	—	OUTER LAYER	SOLDER MASK SIDE B
16	10398534_C.GBO	—	OUTER LAYER	OVERLAY SIDE B
17	10398534_C.GBP	—	OUTER LAYER	PASTE MASK SIDE B
18	10398534_C.GD1	—	DRILL X,Y LOCATIONS	DRILL DRAWING

TABLE B / APERTURE SIZES

SH NO.	FILE:	APERTURE TYPE	EMBEDDED D—CODE
1	10398534_C.GM2	RS274—X STANDARD	YES
2	10398534_C.GM4	Δ	YES
3	10398534_C.GM5		YES
4	10398534_C.GTP		YES
5	10398534_C.GTO		YES
6	10398534_C.GTS		YES
7	10398534_C.GTL		YES
8	10398534_C.GP1		YES
9	10398534_C.G1		YES
10	10398534_C.GP2		YES
11	10398534_C.GP3		YES
12	10398534_C.G2		YES
13	10398534_C.GP4		YES
14	10398534_C.GBL		YES
15	10398534_C.GBS		YES
16	10398534_C.GBO		YES
17	10398534_C.GBP		YES
18	10398534_C.GD1	▽	YES

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SIZE

CAGE CODE

10398534

REV

B

23835

C

SCALE: 1/1

UNCLASSIFIED

SHEET 3 OF 18

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REV 02/2013

DBASE NAME: ANSI_B—SH2/A5

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B

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PASTEMASK – SIDE A

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A

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SIZE	CAGE CODE	REV
B	23835	10398534 C
SCALE: 1/1	UNCLASSIFIED	SHEET 4 OF 18

REV 02/2013

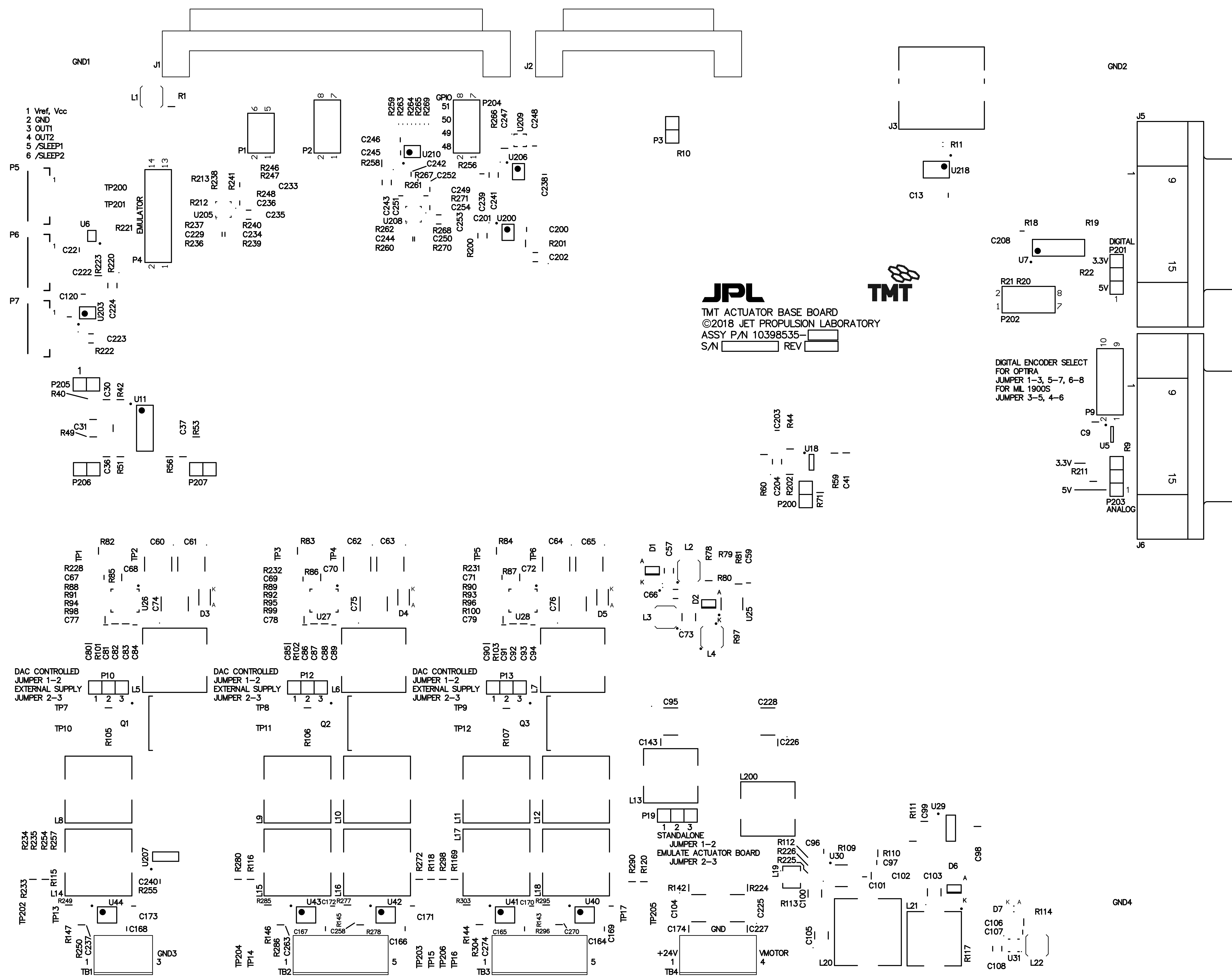
DBASE NAME: ANSI_B–SH2/A5

B

B

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A



SILKSCREEN – SIDE A

JPL
TMT ACTUATOR BASE BOARD
©2018 JET PROPULSION LABORATORY
ASSY P/N 10398535
S/N REV

TMT

SIZE	CAGE CODE	REV
B	23835	C
SCALE: 1/1	UNCLASSIFIED	SHEET 5 OF 18

4

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B

B

SOLDERMASK – SIDE A

A

A

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SIZE	CAGE CODE	REV
B	23835	10398534 C
SCALE: 1/1	UNCLASSIFIED	SHEET 6 OF 18

REV 02/2013

DBASE NAME: ANSI_B-SH2/A5

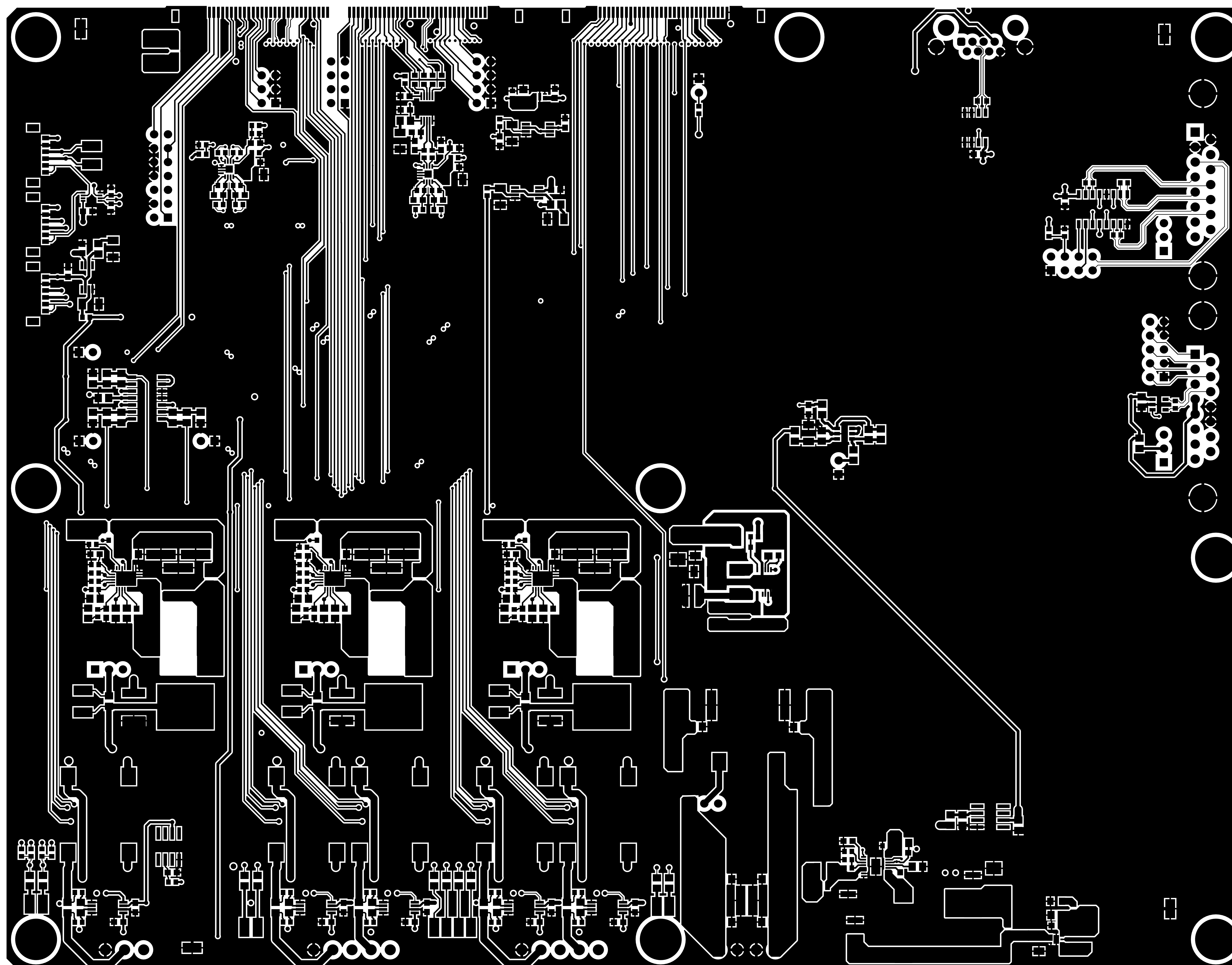
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B



COPPER LAYER 1 - SIDE A

B

A

A

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SIZE	CAGE CODE	REV
B	23835	10398534 C
SCALE: 1/1	UNCLASSIFIED	SHEET 7 OF 18

4

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DBASE NAME: ANSI_B-SH2/A5

REV 02/2013

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B

B

PLANE 1 — GND

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SIZE	CAGE CODE	REV
B	23835	10398534 C
SCALE: 1/1	UNCLASSIFIED	SHEET 8 OF 18

REV 02/2013

DBASE NAME: ANSI_B—SH2/A5

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B

B

SIGNAL LAYER 1

A

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SIZE	CAGE CODE	REV
B	23835	10398534 C
SCALE: 1/1	UNCLASSIFIED	SHEET 9 OF 18

REV 02/2013

DBASE NAME: ANSI_B-SH2/A5

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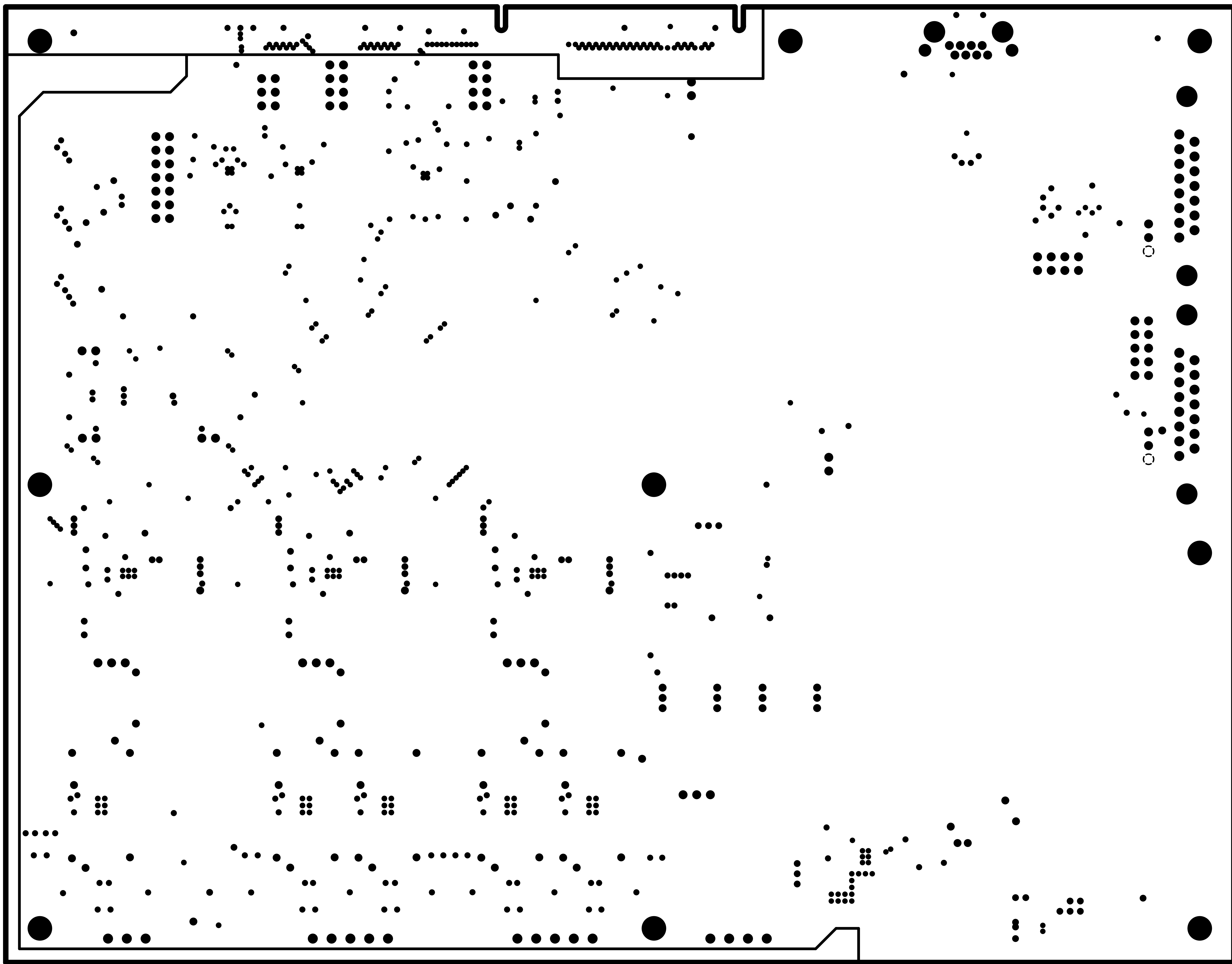
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B

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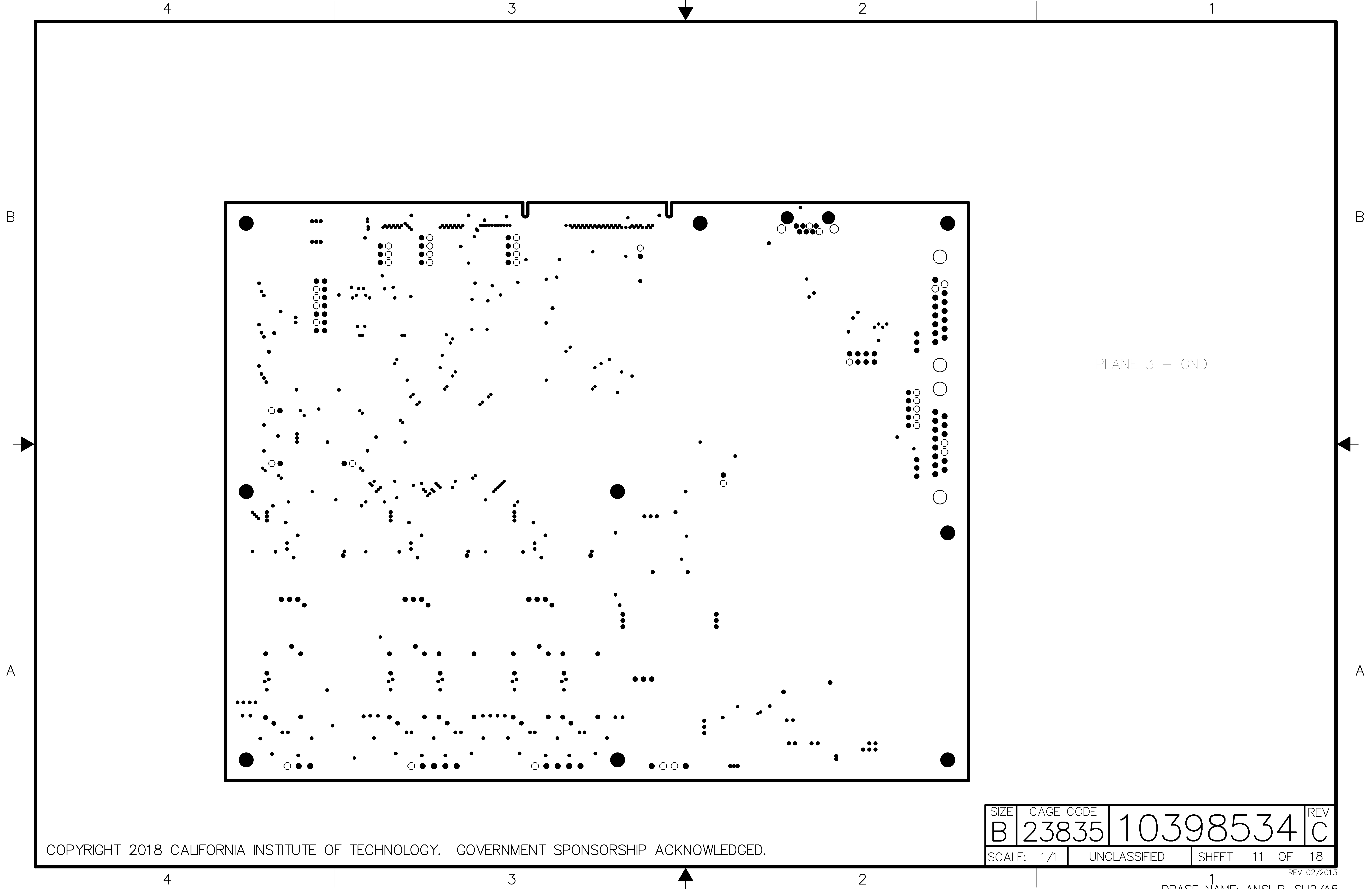
PLANE 2 - +5V SPLIT

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SIZE	CAGE CODE	REV
B	23835	C
SCALE: 1/1	UNCLASSIFIED	SHEET 10 OF 18

DBASE NAME: ANSI_B-SH2/A5

REV 02/2013



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B

B

SIGNAL LAYER 2

A

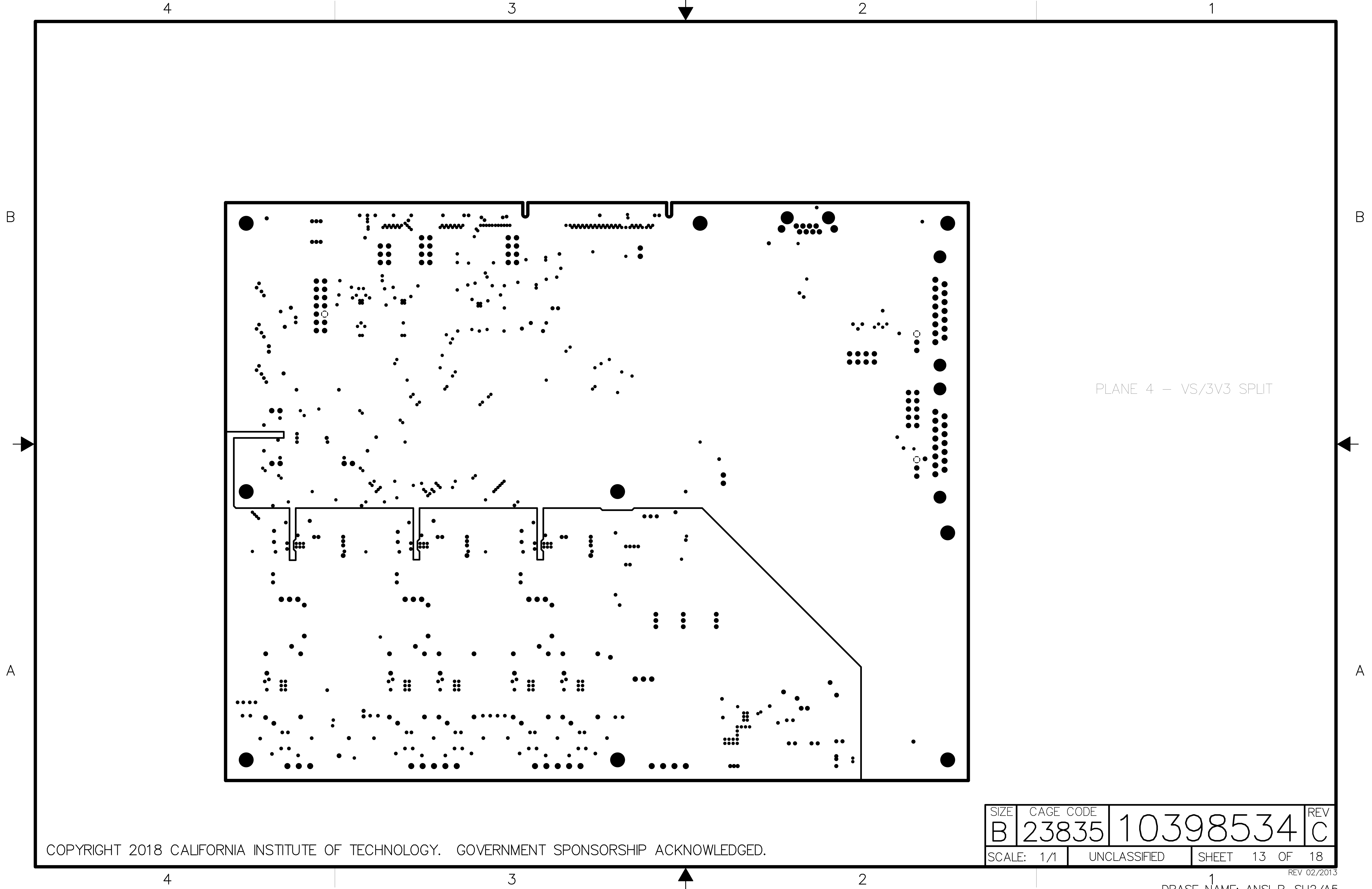
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SIZE	CAGE CODE	REV
B	23835	10398534 C
SCALE: 1/1	UNCLASSIFIED	SHEET 12 OF 18

REV 02/2013

DBASE NAME: ANSI_B-SH2/A5



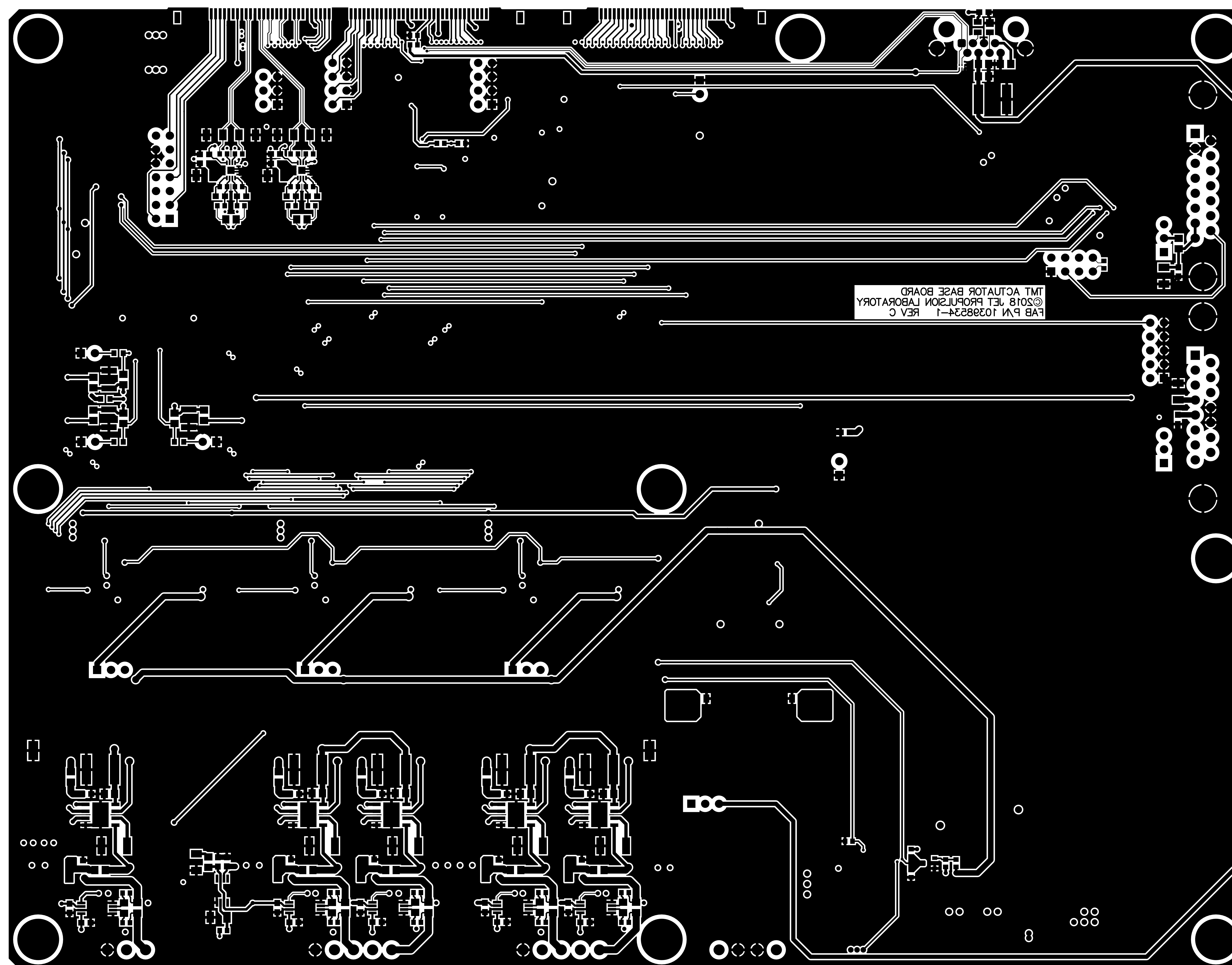
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B



COPPER LAYER 8 - SIDE B

B

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SIZE	CAGE CODE	10398534	REV
B	23835		C
SCALE:	1/1	UNCLASSIFIED	SHEET 14 OF 18

REV 02/2013

DBASE NAME: ANSI_B-SH2/A5

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B

B

SOLDERMASK - SIDE B

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A

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SIZE	CAGE CODE	REV
B	23835	10398534 C
SCALE: 1/1	UNCLASSIFIED	SHEET 15 OF 18

REV 02/2013

DBASE NAME: ANSI_B-SH2/A5

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REV 02/2013

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DBASE NAME: ANSI B-SH2/A5

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B

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SIZE	CAGE CODE				REV
B	23835	10398534			C
SCALE: 1/1		UNCLASSIFIED	SHEET 17 OF		18

REV 02/2013

1
DBASE NAME: ANSI B-SH2/A5

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Symbol	Hit Count	Finished Hole Size	Plated	Hole Type
D	2	62.99mil < 1.600mm	PTH	Round
E	2	127.95mil < 3.250mm	NPTH	Round
☆	4	125.00mil < 3.175mm	PTH	Round
F	9	150.00mil < 3.810mm	PTH	Round
O	47	43.31mil < 1.100mm	PTH	Round
I	63	28.00mil < 0.711mm	PTH	Round
◎	74	11.81mil < 0.300mm	PTH	Round
▣	89	19.69mil < 0.500mm	PTH	Round
□	90	35.43mil < 0.900mm	PTH	Round
◇	181	14.76mil < 0.375mm	PTH	Round
M	258	10.00mil < 0.254mm	PTH	Round
	819 Total			

SIZE B	CAGE CODE 23835	10398534		REV C
SCALE: 1/1		UNCLASSIFIED	SHEET 18 OF	18

REV 02/2013

REV 02/2013

1

DBASE NAME: ANSI B-SH2/A5