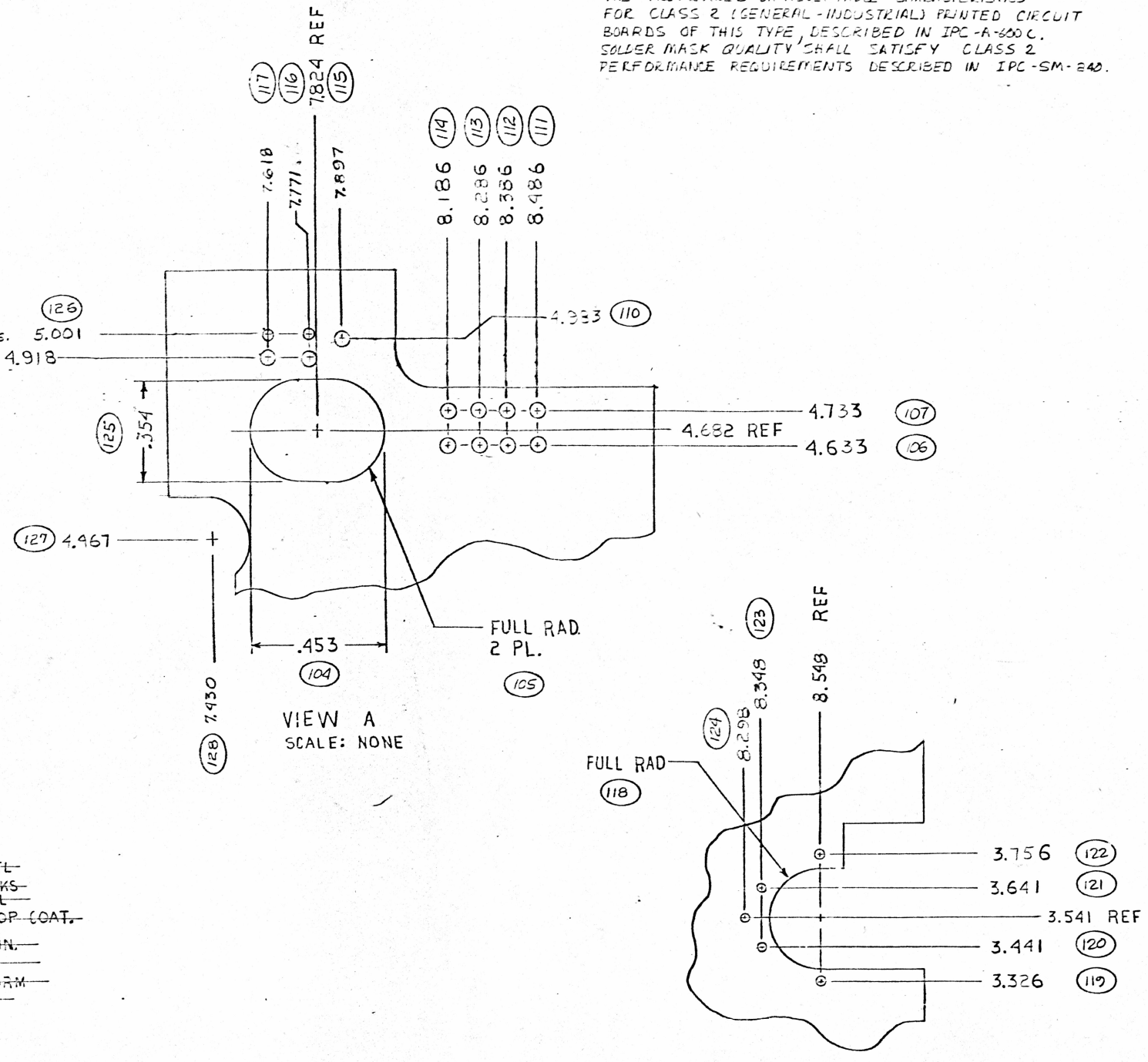


- NOTES: UNLESS OTHERWISE SPECIFIED
- 01. EXTERNAL TOOLING HOLE DIMENSIONS:
 - 02. MINIMUM ANNULAR RING .001 EXCEPT BREAK-OUT PERMITTED ON TRIMMED PADS.
 - 03. MAX. INTERNAL RADIUS .031 MAX. EXTERNAL RADIUS .031.
 - 04. NO DEBURR REQUIRED.
 - 05. CRAZING AND DELAMINATION WITHIN A MAX. OF .030 BOARD PERIMETER SHALL BE ACCEPTABLE.
 - 06. HOLE LOCATION (A-B) 014 (REF) OR (A-B) 010 (IMMOT)
 - 07. ALL HOLES NOT DIMENSIONED ARE ON .025 INCH GRID INCREMENTS IN RELATION TO DATUM O.
 - 08. DECIMAL HOLE DIAMETERS AND HOLE TOLERANCES GOVERN HOLE SIZE. NUMBERS IN PARENTHESES ARE FOR REFERENCE ONLY.
 - 09. FINISHED ARTWORK CONDUCTOR WIDTH AND SPACING TO BE $.012 \pm .004$.
 - 10. BOARD WARP OR TWIST SHALL NOT EXCEED .010 INCH PER INCH LENGTHWISE AND SHALL NOT EXCEED .010 INCH PER INCH CROSSWISE.
 - 11. NO CLEARANCE REQUIRED FROM CONDUCTOR TO EDGE OF BOARD AND SLOTS, AND UNSUPPORTED HOLES.
 - 12. MATERIAL SHALL BE .031 THK NEMA GRADE FR-4 OR G-10 WITH ONE OZ. COPPER BOTH SIDES.
 - 13. PROCESSES: TIN LEAD 60/40 PLATE, .0001 THK MIN. TO .0003 THK MAX. PER QQ-5-511. "REFLOWED" BEFORE SOLDER MASK IS APPLIED.
 - 14. SOLDER MASK SHALL BE SCREENED ON BOTH SIDES USING PG 401 OR QUALIFIED SUBSTITUTE. COLOR TO BE GREEN.
 - 15. SOLDER MASK IS PERMITTED TO BLEED ON PADS OF CONDUCTOR SIDE WHERE PADS ARE TRIMMED AND ON COMPONENT SIDE OF BOARD.
 - 16. MARK PER ANSI Y32-16-1069, METHOD SILK SCREEN, HEIGHT PER ARTWORK PROVIDED, COLOR CONTRASTING (P400, METHOD 4, CLASS 4).
 - 17. REGISTRATION MARKS TO BE USED FOR POSITIONING MARKING AT HOLES SHOWN.
 - 18. THIS PWB IS AN UL RECOGNIZED COMPONENT AND, SUCH AS, MUST DISPLAY THE VENDORS MARK RECOGNIZED BY UL IN THE AREA OF THE PWB INDICATED.
 - 19. SOLDER MASK ALLOWED TO BLEED A MAX. OF .005 ONTO THE PAD.
 - 20. NO ANNULAR RING REQUIREMENTS ON OVAL PADS.
 - 21. SOLDER MASK PERMITTED TO COVER TIN LEAD PLATED COPPER AREAS GREATER THAN .250 INCH.
 - 22. ALL HOLES TO BE WITHIN 0.014-INCH TRUE POSITION OF DATUM O WHEN PINNED TO PLANE [A].
 - 23. ELECTROLESS NICKEL PLATE PER CL 1, CLASS 3 (F-30, METHOD 2) THICKNESS TO BE .0003 MIN. OR ELECTROPLATE A LOW STRESS NICKEL .0002 MIN. THK. FREE FROM VISIBLE BLISTERS, PITS, NODULES, CRACKS OR OTHER DEFECTS. IPC TAPE TEST SHOW NO SEPARATION OF NICKEL FROM COPPER, NO COHESIVE FAILURE OR NO SEPARATION OF SUBSEQUENT TOP COAT.
 - 24. ELECTROPLATE GOLD PER MIL-G-45204, CL II OR F-34, CL 2 .000015 MIN. THK. MIN. GOLD PLATING THICKNESS ON FINISHED PCB SHALL BE .000005 GOLD SHALL BE ADHERENT (IPC TAPE TEST), HAVE UNIFORM COVERAGE AND GOLD COLOR WITH NO EVIDENCE OF POROSITY.

- 25. USE CONDUCTOR SIDE ONLY FOR DIGITIZING.
- 26. NO CLEARANCE REQUIRED TO REDUCE HEATING ON PLATED-THRU HOLES TIED TO GROUND PLANE.
- 27. SOLDER MASK ALLOWED TO COVER FEED-THRU HOLES.
- 28. GOLD PLATING ONLY IN THIS AREA.

- 29. ALL BOARDS ARE TO BE MARKED WITH AN IDENTIFYING CAVITY NUMBER.
- 30. BREAKOUT ALLOWED ON FEEDTHRU HOLES, COMPONENT HOLES AND INTERNAL INDEXING HOLES.
- 31. NO ASSY. NO. REQUIRED.
- 32. THE QUALITY OF THIS PRODUCT SHALL SATISFY ALL OF THE PREFERRED OR ACCEPTABLE CHARACTERISTICS FOR CLASS 2 (GENERAL-INDUSTRIAL) PRINTED CIRCUIT BOARDS OF THIS TYPE, DESCRIBED IN IPC-A-600C. SOLDER MASK QUALITY SHALL SATISFY CLASS 2 PERFORMANCE REQUIREMENTS DESCRIBED IN IPC-SM-240.



ZONE/LTR		REVISIONS	DATE	APPROVED
		DESCRIPTION		
A	ECN 103961	Wiffing Ed 9-13-83	9/13/83	
B	ECN 105154	Wiffing Ed 1-10-83	1/10/83	
C	ECN 105592	Wiffing Ed 3-17-83	3/17/83	
D	ECN 106849	Wiffing Ed 4-25-83	4/25/83	
E	ECN 106827	Wiffing Ed 4-26-83	4/26/83	
F	ECN 107190	Wiffing Ed 4/6/83	4/6/83	
G	ECN 107196	Wiffing Ed 6/30/83	7/6/83	
H	ECN 105552	Wiffing Ed 2/11/83	2/11/83	
J	ECN 107920	Wiffing Ed 2-19-83	2/19/83	

SEE SHEET 2

LTR	FINISHED HOLE DIA	REMARKS
E	.046 ± .006 / .002	
D	.039 ± .002	
C	.031	
B	.125 ± .006 / .002	INTL TOOLING
A		EXTL TOOLING
		UNUNSUPPORTED PLATED THRU
		UNSUPPORTED PLATED THRU
		REMARKS

HOLE SCHEDULE

INVENTORY CONTROL NUMBER	1	2	3	3	4	4	4	4
THIS DRAWING	-	A	B	C	D	E	F	G
HOLE CONFIGURATION	-	A	B	C	D	E	F	G
DRILL DECK								
LAYER 1 (COMP. SIDE)	-	A	B	C	D	E	F	G
LAYER 2 (COND. SIDE)	-	A	B	C	D	E	F	G
MARKING								
CONDUCTOR SIDE								
SOLDER MASK								
COMPONENT SIDE								
SOLDER MASK								

REVISION LEVEL CONTROL

DIMENSION IDENTIFIERS	
LAST USED	NOT USED
(128)	101, 103, 108, 09, 123-200

UNLESS OTHERWISE SPECIFIED
 * DIMENSIONS ARE IN INCHES
 * TOLERANCES
 ANGLES ± 5°
 3 PLACE DECIMALS ± 010
 2 PLACE DECIMALS ± 02
 * DIMENSIONING IN ACCORDANCE WITH ANSI Y14.5

DWN W. DEPERMIN 2 DATE 5-11-82
 CHK B
 ELECT ENG
 TOOLING ENG
 MFGS ENG
 PRODUCT ENG
 DESIGN ACTIVITY RELEASE
 7-6-83

TEXAS INSTRUMENTS
 INCORPORATED
 CALCULATOR PRODUCTS DIVISION

PROCESSOR PRINTED CIRCUIT BOARD, PRODUCT 477

SUP DWG MP GL SIZE D DRAWING NO 1052902

SCALE NONE REV LTR SHEET 3 OF 3

CLASS CODE: 22

B
 2062501
 D

A

8

7

6

5

4

3

1052902 3

1

D

D

C

C

B

B

A

A

301 1.320 ± .003

DATUM O

DATUM O

302 3.040 ± .003

 TEXAS INSTRUMENTS	DATE	8-7-43	DRAWING NO.	D	ISSUE NO.	1052902
	ISSUE DATE		DRAWING TITLE		SHEET	3

DIMENSION IDENT NUMBER	
USED	NOT USED
301-302	