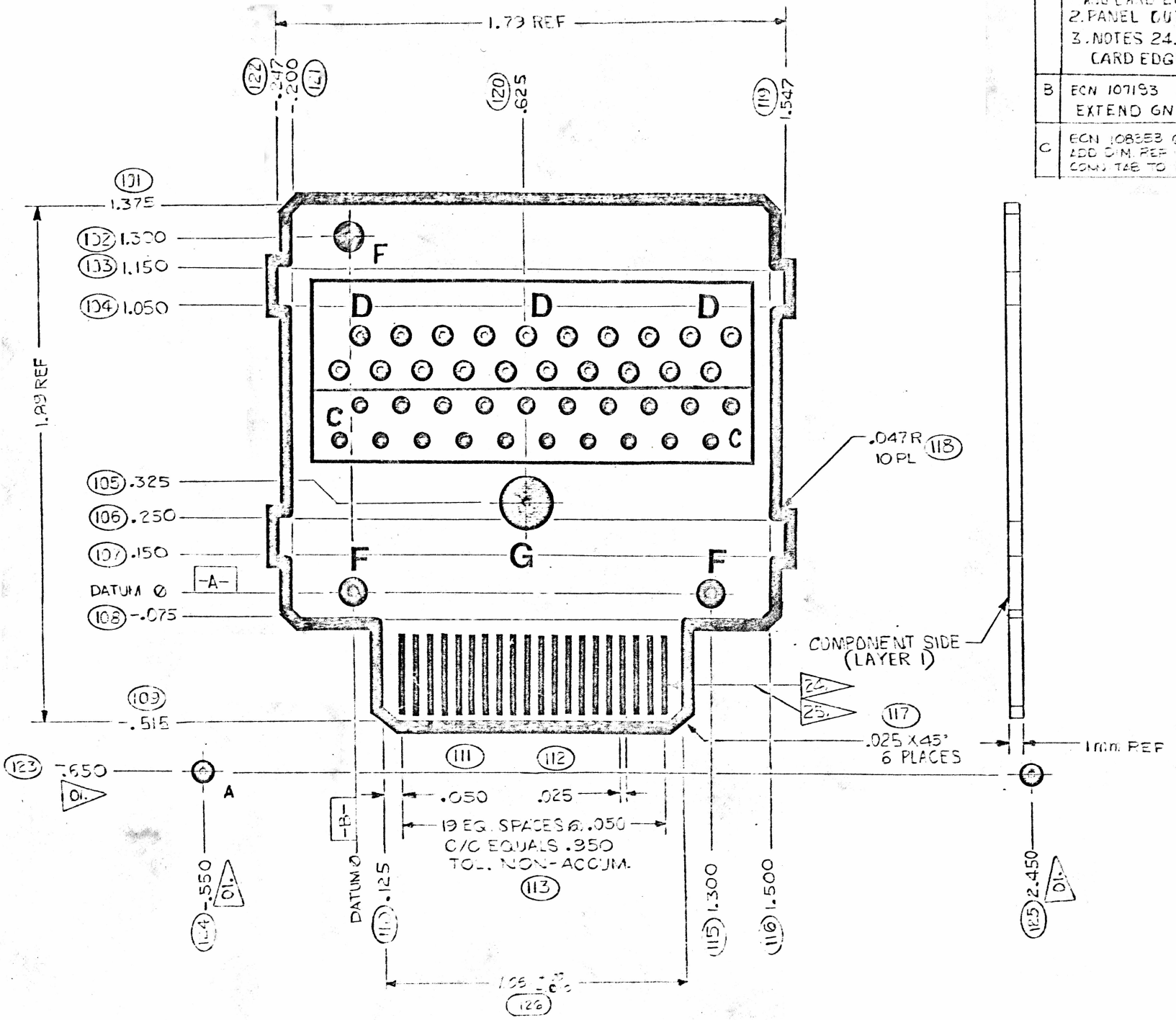


NOTES: UNLESS OTHERWISE SPECIFIED

01. EXTERNAL TOOLING HOLE DIMENSIONS.
02. MINIMUM ANNULAR RING .001, EXCEPT BREAK-OUT PERMITTED ON TRIMMED PADS.
03. MAX. INTERNAL RADIUS .063. MAX. EXTERNAL RADIUS .063.
04. NO DEBURR REQUIRED.
05. CRAZING AND DELAMINATION WITHIN A MAX. OF .030 BOARD PERIMETER SHALL BE ACCEPTABLE.
06. HOLE LOCATION TO A B, D, F, H, J, L, N, P, R, T, V, X, Z OR C, E, G, I, K, M, Q, S, U, W, Y, AA, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.
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 AS SHOWN ON MASTER PATTERN ± .004.
10. BOARD WARP OR TWIST SHALL NOT EXCEED .020 INCH PER INCH LENGTHWISE AND SHALL NOT EXCEED .018 INCH PER INCH CROSSWISE.
11. NO CLEARANCE REQUIRED FROM CONDUCTOR TO EDGE OF BOARD AND SLOTS.
12. MATERIAL SHALL BE 1.0 THK NEMA GRADE FR-4 OR G-10 WITH ONE OZ. COPPER EACH SIDE.
13. PROCESSES: TIN LEAD 60/40 PLATE, .0002 THK MIN. PER SQ INCH. REFLOWED BEFORE SOLDER MASK IS APPLIED.
14. SOLDER MASK SHALL BE SCREENED ON BOTH SIDES USING PC 401 OR APPROVED EQUIVALENT. 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 Y32.18-1968 METHOD SILK SCREEN. HEIGHT PER ARTWORK PROVIDED. COLOR CONTRASTING (100% METHOD 1, CLASS 1).
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 .004 INCH TRUE POSITION TO DATUM A WHEN PINNED TO PLANE -A- AND PLANE -B-.
23. ASSEMBLY NUMBER NOT REQUIRED ON THIS BOARD.
24. ELECTROLESS NICKEL PLATE PER CL. I, CLASS B (F-38, METHOD 2) THICKNESS TO BE .0003 MIN. OF ELECTROPLATE A LOW STRESS NICKEL .0002 MIN. THK. FREE FROM VISIBLE BLISTERS, PITS, NODULES CRACKS OR OTHER DEFECTS. IPC TAPE TEST SHOWS NO SEPARATION OF NICKEL FROM COPPER. NO COHESIVE FAILURE OR NO SEPARATION OF SUBSEQUENT TOP COAT.
25. ELECTROPLATE GOLD PER MIL-G-45204, CL. II OR F-34, CL. 2. .00015 MIN. THK. MIN. GOLD PLATING THICKNESS ON FINISHED PCB. .000005 GOLD SHALL BE ADHERENT (IPC TAPE TEST) HAVE UNIFORM COVERAGE AND GOLD COLOR WITH NO EVIDENCE OF POROSITY.



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		ECN 105897 Rev. 3-25-83 1. BOARD OUTLINE IS CHANGED, AND CARD EDGE IS EXTENDED. 2. PANEL OUTLINE IS CHANGED. 3. NOTES 24 AND 25. USE FOR CARD EDGE FINGERS ONLY.	3/25/83	[Signature]
B		ECN 107193 Wiffing Bl. 5-27-83 EXTEND GND TO TOP EDGE	5/27/83	[Signature]
C		ECN 108323 Gen. Rev. 9/22/83 ADD DIM. REF. 28 AND CHG. DIM. ON CON. TAB TO 1.05	9/22/83	[Signature]

TR	FINISHED HOLE DIA	REMARKS
G	.200 ± .002	
F	.052 ± .002	INTL TOOLING
E	.048 ± .002	
D	.039 ± .002	
C	.033	
B	.125 ± .002	INTL TOOLING
A	SHOP OPTION	EXTL TOOLING
	UNSUPPORTED ± .001	PLATED THRU ± .003
	FINISHED HOLE DIA	REMARKS

SAME AS D HOLES. 20

INVENTORY CONTROL NUMBER		THIS DRAWING		HOLE CONFIGURATION		DRILL BOOK	
1-1-2-1		1-1-2-1		1-1-2-1		1-1-2-1	
LAYER 1 (COMP. SIDE)		LAYER 2 (COND. SIDE)		MARKING		CONDUCTOR SIDE	
A B E		A A A		A A A		A A A	
SOLDER MASK		COMPONENT SIDE		SOLDER MASK		SOLDER MASK	
A A A		E E E		A A A		E E E	
REVISION LEVEL CONTROL				REVISION LEVEL CONTROL			

DIMENSION IDENTIFIERS	
LAST USED	NOT USED
101-126	

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

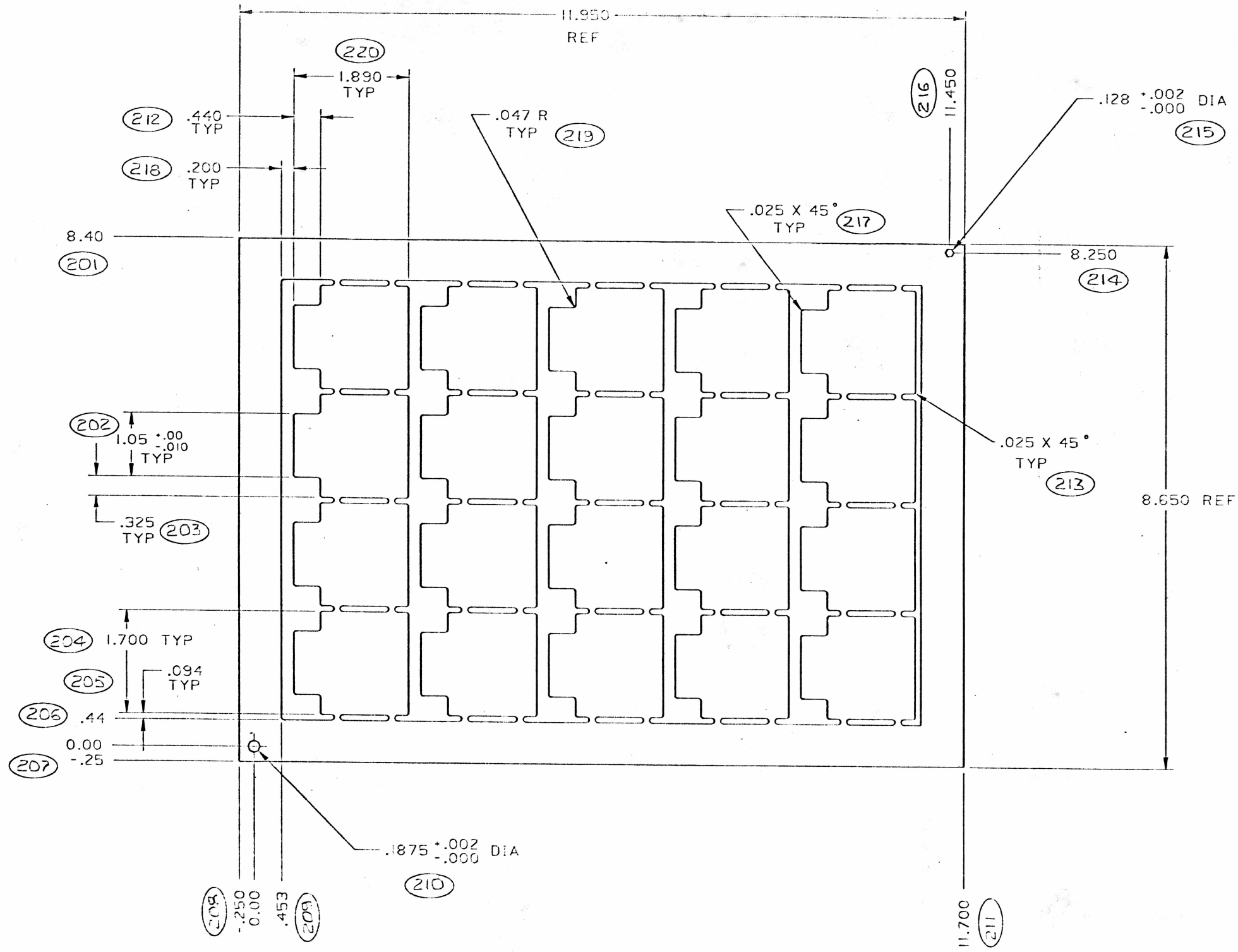
DATE	DATE	DATE	DATE
1-17-83	1-27-83	2-1-83	2-21-83

BOARD TYPE, II

TEXAS INSTRUMENTS  
 INCORPORATED  
 CALCULATOR PRODUCTS DIVISION

PRINTED WIRING BOARD,  
 PRODUCT 477

SIZE: DRAWING  
 D, MP105562.4



DIMENSION IDENTIFICATION NUMBERS	
USED	NOT USED
201 - 220	