MP8-E
memory parity
engineering drawings

digital equipment corporation · maynard, massachusetts

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE

PARITY OPTION FOR 32K	B_DD_MP8_E_Ø
XY DRIVERS & CURRENT SOURCE	E_CS_G227_Ø_1
PARITY SENSE INHIBIT	E_CS_G1Ø5_Ø_1
PLANAR STACK BD	E_CS_G619_Ø_1
PARITY OPTION FOR 32K	E_UA_MP8_E_Ø
MEMORY STACK (H22Ø)	D_UA_H22Ø_Ø_Ø
MEMORY STACK (H22Ø)	A_PL_H22Ø_Ø_Ø
ACCESSORY LIST	A-AL-MP8-E-4
ENGINEERING SPEC	A-SP-MP8-E-1
ACCEPTANCE PROCEDURE	A-SP-MP8-E-3

SEQUENCE

MFG SET

ENGINEERING SPEC	A_SP_MP8_E 1
MFG TEST PROCEDURE	A-SP-MP8-E-2
ACCEPTANCE PROCEDURE	A_SP_MP8 E_3

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE: MP8_E
MP8_E	PARITY OPTION FOR 32K	X

REVISIONS

REV	CHG. NO.	DATE
A	MP8E-1	11-11-72

USED ON OPTION/MODEL: PDP 8/E

DRN R. Rudik DATE 1-21-72
CHKD. [signature] DATE 2-2-72
PROJ ENG. [signature] DATE 2-1-72
PROD. [signature] DATE 3-13-72
FIELD SERV [signature] DATE 3-17-72

TITLE: PARITY OPTION FOR 32K

SIZE B | CODE DD | NUMBER MP8_E | REV A

SHEET 1 OF 2

DIST 6

DRB 106

DEC 16—(325)—1062—1—N871

ELECTRICAL

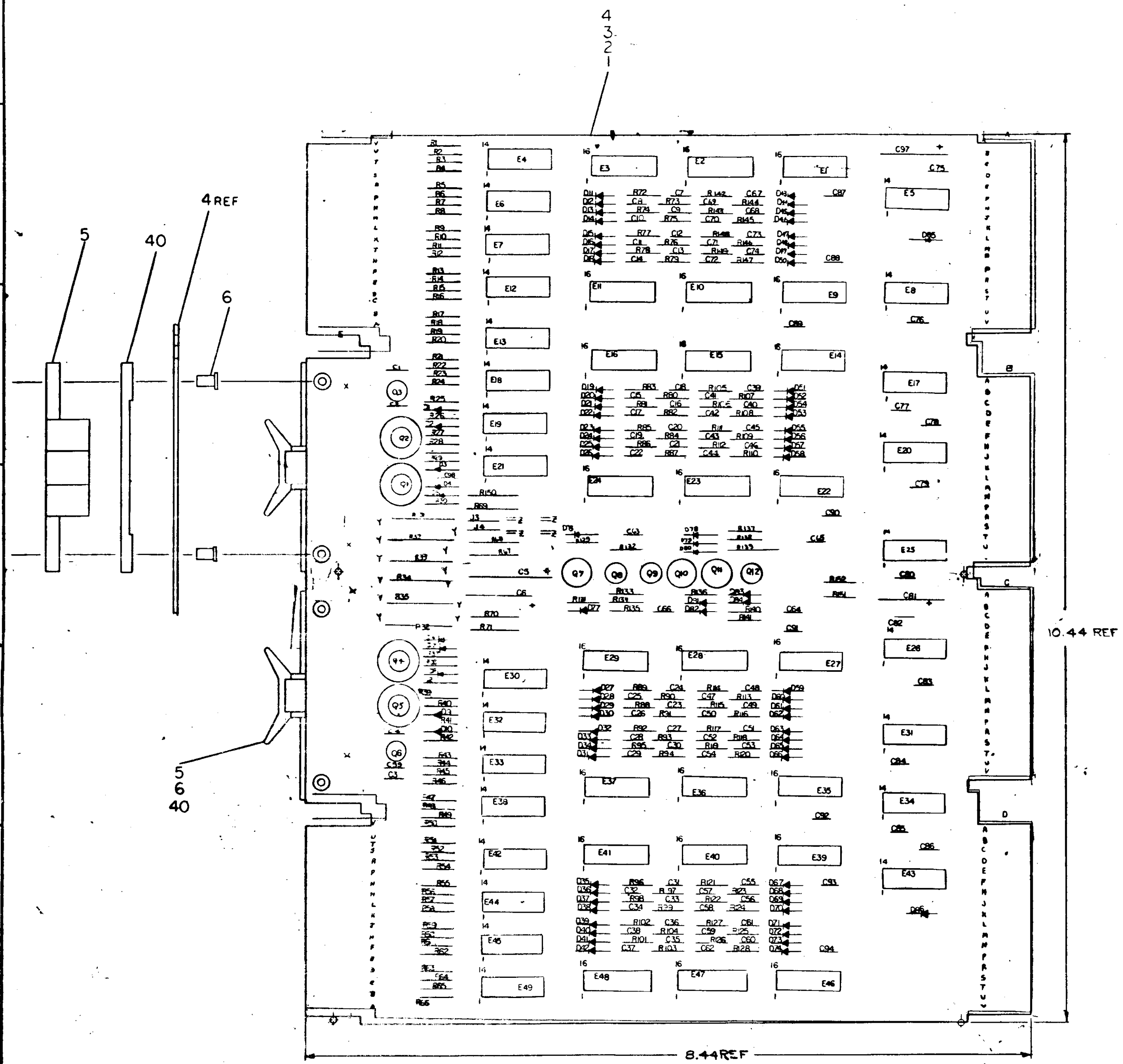
CUSTOMER PRINT SET MP8_E	DEPOT SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X	X	1	A_SP_MP8_E_1	*	4	ENGINEERING SPEC	
	X		ASPMP8-E-2		3	MFG TEST PROCEDURE	
X	X		A_SP_MP8_E_3	*	4	ACCEPTANCE PROCEDURE	
X			A-AL-MP8-E-4		1	ACCESSORY LIST	
X		2	E_CS_G619_Ø_1	#	2	PLANAR STACK BD	
			3009334			4K X 12 BIT MEMORY STACK SPEC	
X		3	E_CS_G227_Ø_1	#	2	X_Y DRIVER & CURRENT SOURCE	
X		4	E_CS_G1Ø5_Ø_1	#	2	PARITY SENSE INHIBIT	

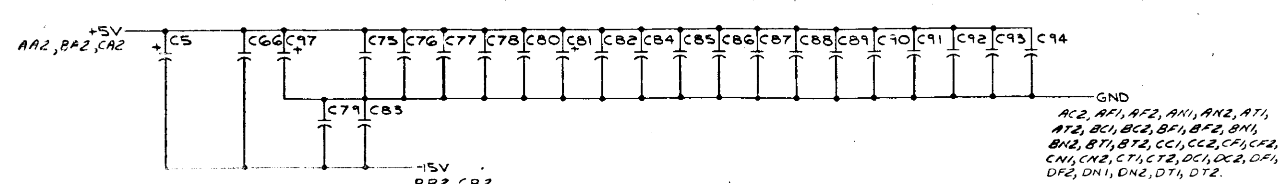
MECHANICAL

CUSTOMER PRINT SET MP8_E	DEPOT SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X		1	E_UA_MP8_E_Ø		1	PARITY OPTION FOR 32K	
X		2	D_UA_H22Ø_Ø_Ø	#	1	MEMORY STACK (H22Ø)	
X			A_PL_H22Ø_Ø_Ø	#	1	MEMORY STACK (H22Ø)(PL)	
			C_MD_5509025_Ø_Ø		1	COVER PLATE	
			5009037		1	ETCHED CIRCUIT BOARD	
			E_AH_G619_Ø_5		1	ASSY/DRILLING HOLE LAYOUT	
			B_MH_G619_Ø_6		1	MODULE HISTORY LIST	
			K_CO_G619_Ø_4		1	X_Y COORDINATE HOLE LOC.	
		3	5008832		1	ETCHED CIRCUIT BOARD	
			B_MH_G227_Ø_6		1	MODULE HISTORY LIST	
			E_AH_G227_Ø_5		1	ASSY/DRILLING HOLE LAYOUT	
			K_CO_G227_Ø_4		1	X_Y COORDINATE HOLE LOC.	
		4	5009742		1	ETCHED CIRCUIT BOARD	
			B_MH_G1Ø5_Ø_6		1	MODULE HISTORY LIST	
			E_AH_G1Ø5_Ø_5		1	ASSY/DRILLING HOLE LAYOUT	
			K_CO_G1Ø5_Ø_4		1	X_Y COORDINATE HOLE LOC.	
		5	B_UA_H851_Ø_Ø		1	H851 EDGE CONNECTOR	
			A_PL_H851_Ø_Ø		1	H851 EDGE CONNECTOR (PL)	
			B_MD_5509071_1_0		1	RECEP 36 PIN REWORKED	
			D_IA_5008903_0_0		1	ETCH BOARD (851)	
			PC_5008903		1	PC ETCH PATTERN	
			C_AH_5008903_0_5		1	ASSY/DRILLING HOLE LAYOUT	
			D_MD_1402230		1	GLASS EPOXY BOARD	

TITLE		SIZE	CODE	NUMBER	REV
PARITY OPTION FOR 32K	SHEET 2 OF 2	B	DD	MP8_E	A

NOTES





QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
4		SPLIT LUGS	9006735	48
16	R1, R3, R5, R7, R9, R12, R14, R15, R52, R54, R56, R58, R60, R61, R64, R66	RES. 180 1/4W 5%	1301322	47
20	R2, R4, R6, R8, R10, R11, R13, R16, R51, R53, R55, R57, R59, R62, R63, R65, R132, R137, R138, R141	RES. 330 1/4W 5%	1300295	46
66	C2, C3, C7-C62, C67-C74	CAP. 680 PF, 100V, 5% MICA	1000026	45
4		HEAT SINK	1210001	44
1	R140	RES 68 1/4W, 5%	1300219	43
1	R139	RES 470 1/2W, 5%	1300315	42
4	R25, R28, R39, R42	RES 680 1/4W, 5%	1301424	41
2		SPACER (CABLE CLAMP)	1202704	40
A/R		WIRE #22AWG STRD TEF INS	0735055	39
8	E1, E9, E14, E22, E27, E35, E39, E46	I.C. DEC 8251	1909594	38
4	E5, E20, E26, E43	I.C. DEC6380	1909971	37
1	E25	I.C. DEC 74H11	1909267	36
4	E8, E17, E31, E34	I.C. DEC 74H10	1909057	35
16	E2, E3, E10, E11, E15, E16, E23, E24, E28, E29, E36, E37, E40, E41, E47, E48	PULSE TRANSFORMER	1609651	34
16	E4, E6, E7, E12, E13, E18, E19, E21, E30, E32, E33, E38, E42, E44, E45, E49	TRANSISTOR DEC4008	1510015	33
4	Q1, Q2, Q4, Q5	TRANSISTOR DEC 3762	1509649	32
2	Q3, Q6	TRANSISTOR DEC 4258	1505321	31
2	Q8, Q12	TRANSISTOR DEC 6534B	1503409-01	30
1	Q9	TRANSISTOR DEC 3009	1503100	29
3	Q7, Q10, Q11	TRANSISTOR DEC 1008	1502155	28
4	R32-R35	RES. 16.9, 6W, 1% BERYLLIUM	1310032	27
1	R67	RES. 34.8K, 1/8W, 1% MF	1303156	26
1	R68	RES. 14.7K, 1/8W, 1% MF	1302941	25
6	R26, 27, 40, 41, 134, 135	RES. 4.7K, 1/4W, 5%	1300447	24
~~4~~	~~R26, R27, R40, R41~~	~~RES. 3.9K, 1/4W, 5%~~	~~1300444~~	23
5	R29, R30, R37, R38, R131	RES. 1.5K, 1/4W, 5%	1300391	22
2	R31, R36	RES. 750, 1W, 5%	1302385	21
~~37~~	~~R1-R16, R51-R66, R132, R137, R138, R141~~	~~RES. 330, 1/4W, 5%~~	~~1300295~~	20
1	R151	RES. 220, 1/4W, 5%	1300271	19
81	R17-R24, R43-R50, R72-R99, R101-R129, R142-R149	RES. 150, 1/4W, 5%	1300250	18
3	R133, R136, R152	RES. 100, 1/4W, 5%	1300229	17
4	R69-R71, R150	RES. 10, 1/2W, 5%	1300168	16
9	D1-D3, D8-D10, D75, D77, D81	DIODE D672	1105275	15
76	D4-D7, D11-D74, D78-D80, D82-D86	DIODE D664	1100114	14
1	C5	CAP. 20UF, 50V, -10-75% ELEC	1002839	13
22	C64-C66, C75-C80, C82-C94.	CAP. .01UF 100V, 20% DISC	1001610	12
3	C6, C81, C97	CAP. 39UF, 10V, 10% S.TANT	1000076	11
3	C63, C98, C99	CAP. .047UF, 16V, 15-20% DISC	1009678	10
~~2~~	~~C2, C3~~	~~CAP. 560PF, 100V, 5%~~	~~1000025~~	9
~~66~~	~~C2, C3, C7-C62, C67-C74~~	~~CAP. 680 PF, 100V, 5% DISC~~	~~1010312~~	8
2	C1, C4	CAP. 39PF, 100V, 5% D.M.	1000010	7
4		EYELET #G54-11 STIMPSON	9006750	6
2		HANDLE FLIP CHIP GREEN	900337-01	5
1		ETCHED CIRCUIT BOARD	5008832	4
REF		MODULE HISTORY LIST	B-MH-G227-0-6	3
REF		ASSY/DRILLING HOLE LAYOUT	J-AH-G227-0-5	2
REF		X-Y COORDINATE HOLE LOC	K-CO-G227-0-4	1

PARTS LIST

IC TYPE	GND	+5V
DEC6380	1	8
DEC8251	8	16

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTFULLY EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

ITEM NO	AWG	FROM PT	TO PT
39	22	J4-A	J4-B
39	22	J3-A	J3-B
39	22	J2-A	J2-B
39	22	J1-A	J1-B

JUMPER LIST

REV	CHANGE NO	
H	G227-00006	B REGAN 6-21-72
F	G227-00005	BRUCE TARPLAY 10/14/71
E	G227-00004	VOGELSANG
D	G227-00003	VOGELSANG
C		
B	ORIGINATED	

REVISIONS

DEC NO.	EIA NO.
DEC 3762	—
DEC4258	2N4258
DEC6534B	MPS6534
DEC3009	2N 3646
DEC 1008	NONE
DEC D672	1N3653
DEC D664	1N 3606

SEMICONDUCTOR CONVERSION CHART

REV COLUMN: E

PRINTED CIRCUIT BOARD REVISION

CIRCUIT SCH REVISION

DRN. DATE
CHK'D. DATE
ENG. DATE
PROJ. ENG. DATE
PROD. DATE

FIRST USED ON: D-UA-MM8-E-0

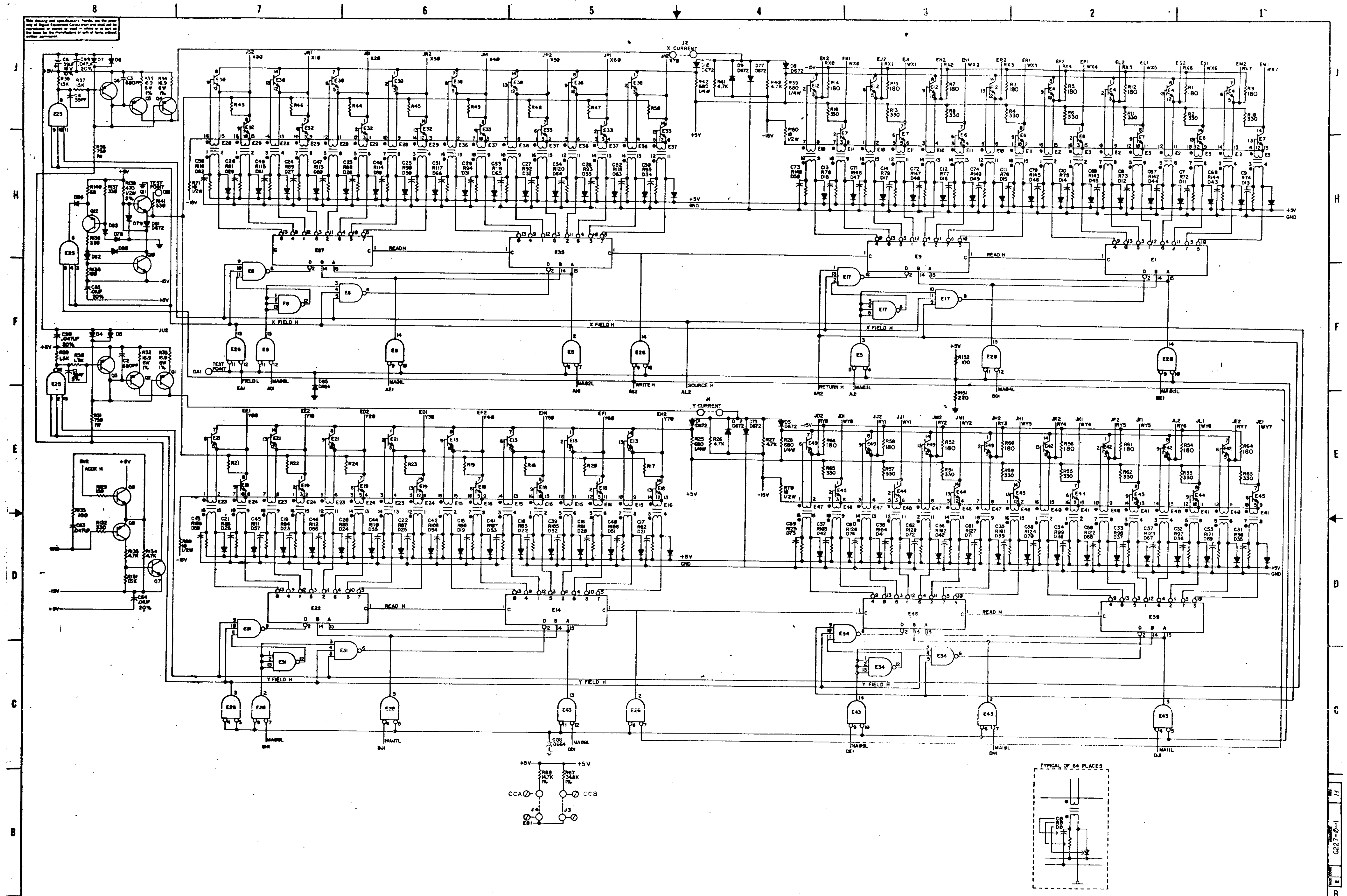
SCALE 2/1

SHEET 1 OF 2

EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
XY DRIVER & CURRENT SOURCE

SIZE: E CODE: CS NUMBER: G227-0-1 REV.: H



QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

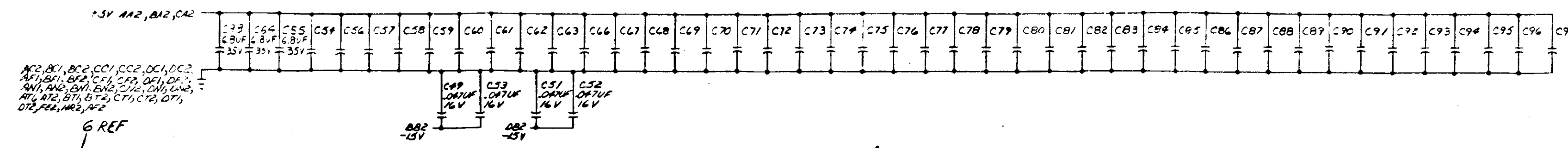
DRN. | DATE
CHK'D. | DATE
ENG. | DATE
PROD. ENG. | DATE
PROD. | DATE

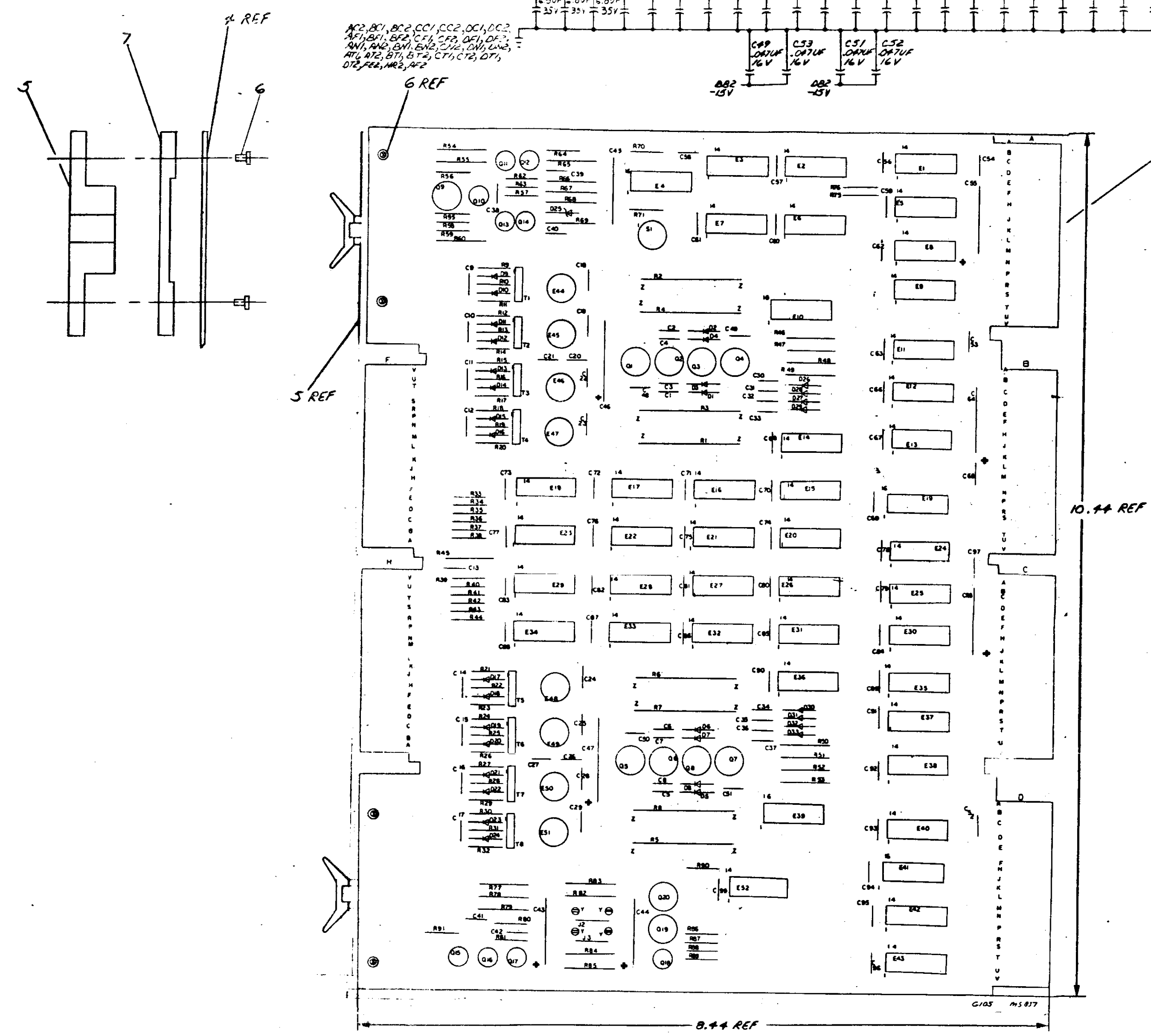
SCALE
SHEET 2 OF 2

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
X Y DRIVER AND CURRENT SOURCE

SIZE E | CODE CS | NUMBER G227-0-1 | REV.





QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
1	R84	RES. 2.74K 1/8W 1% 100MFP	1304868	67
A/R		WIRE #22 AWG SOLID BUS	9107560-01	66
8	C9-C12, C14-C17	CAP 33PF 100V 5% DM	1000009	65
8	C30-C37	CAP 1000PF 100V 5% MICA	1000042	64
8	C1-C8	CAP 1500PF 200V 10% DISC.	1000054	63
6	C43, C44, C45, C55, C64, C98	CAP 6.8UF 35V 20% S.TANT	1000067	62
2	C46, C47	CAP 47UF 20V 20% S.TANT	1000079	61
48	C38, C40-C42, C54-C63, C65-C97, C99	CAP .01UF 100V 20% DISC.	1001610	60
20	C13, C18-C29, C39, C49, C51-C53, C48, C50	CAP .047 UF 16V 15-20%	1009678	59
8	D26-D33	DIODE D664	1100114	58
24	D1-D24	DIODE D672	1105275	57
1	D25	ZENER 6.8V 1/4 W	1109991	56
1	E4	DELAY LINE	1610033	55
8	R1-R8	RES 16.9 6W 1% W.W	1309679	54
8	R46-R53	RES 68 1/2 W 5%	1309405	53
1	R69	RES 68.1K 1/8W 1% MFP	1305252	52
1	R67	RES 5.62K 1/8W 1% MFP	1305128	51
1	R68	RES 348 1/8W 1% MFP	1304858	50
2	R54, R77	RES 4.64K 1/8W 1% MFP	1304856	49
1	R78	RES 9.09K 1/8W 1% MFP	1304855	48
3	R60, R65, R85	RES 1.96K 1/8W 1% MFP	1304833	47
3	R55, R79, R82	RES 1K 1/8W 1% MFP	1303114	46
1	R83	RES 1.21K 1/8W 1% MFP	1302871	45
18	R32, R45, R66, R9, R11, R12, R14, R15, R17, R18, R20, R21, R23, R24, R26, R27, R29, R30	RES 100 1/8W 1% MFP	1302858	44
1	R95	RES 10 1/4 W 10%	1300170	43
11	R33, R34, R35, R39, R42, R43, R44, R76, R38, R90, R91	RES 680 1/4 W 5%	1301424	42
3	R58, R63, R80	RES 10K 1/4 W 5%	1300479	41
3	R56, R86, R89	RES 4.7K 1/4 W 5%	1300447	40
2	R64, R75	RES 1K 1/4 W 5%	1300365	39
11	R10, R13, R16, R19, R22, R25, R28, R31, R57, R62, R81	RES 330 1/4 W 5%	1300295	38
1	R71	RES 220 1/4 W 5%	1300271	37
4	R36, R37, R40, R41	RES 150 1/4 W 5%	1300250	36
1	R59	RES 100 1/4 W 5%	1300229	35
2	R87, R88	RES 47 1/4 W 5%	1300202	34
1	R70	RES 33 1/4 W 5%	1300197	33
1	S1	ROTARY SWITCH	1210043	32
2	E10, E39	PULSE TRANSFORMER	1609996	31
8	T1-T8	TRANSFORMER 1725	1609478	30
1	Q9	TRANSISTOR DEC 2219	1501881	29
8	Q1-Q8	TRANSISTOR DEC 3734	1510062	28
2	Q19, Q20	TRANSISTOR DEC 3762	1509649	27
9	Q10-Q18	TRANSISTOR DEC 6534B	1503409-01	26
8	E44-E51	IC DEC 1540	1905521	25
2	E3, E40	IC DEC 7474	1905547	24
4	E18, E23, E29, E34	IC DEC 7400	1905575	23
4	E16, E21, E27, E32	IC DEC 7450	1905580	22
4	E14, E15, E31, E36	IC DEC 74H40	1905586	21
4	E17, E22, E28, E33	IC DEC 7401	1905590	20
1	E52	IC DEC 7402	1909004	19
5	E2, E6, E8, E30, E37	IC DEC 74H00	1909056	18
5	E1, E5, E12, E38, E43	IC DEC 380	1909485	17
1	E9	IC DEC 384	1909486	16
2	E19, E41	IC DEC 8251	1909594	15
2	E24, E25	IC DEC 74H74	1909667	14
2	E20, E26	IC DEC 7404	1909686	13
1	E13	IC DEC 314	1909704	12
1	E35	IC DEC 8881	1909705	11
2	E11, E42	IC DEC 74180	N/S	10
1	E7	IC DEC 74H11	1909267	9
4		SPLIT LUGS	9006735	8
2		SPACER (CABLE CLAMP)	1202704	7
4		EYELET	9006750	6
2		HANDLE, FLIPCHIP - GREEN	9008337-01	5
1		ETCHED CIRCUIT BOARD	5009742	4
REF		MODULE ECO HISTORY	B-MH-G105-Ø-6	3
REF		ASSY/DRILLING HOLE LAYOUT	J-AH-G1Ø5-Ø-3	2
REF		X-Y COORDINATE HOLE LOCATION	K-CØ-G105-Ø-4	1

PARTS LIST

ETCH BOARD REV D

IC TYPE	GND	+5V
DEC 8251	8	16
DEC 1540	7	2
DEC 384	1	8
DEC 380	1	8
DEC 314	1	8

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

ITEM NO.	AWG	FROM PT	TO PT
66	22	J3-A	J3-B
66	22	J2-A	J2-B
66	22	J1-A	J1-B

JUMPER LIST

DEC FORM NO. DRE 104

DEC NO.	EIA NO.
DEC 2219	2N2219
DEC 3734	SAME
DEC 3762	SAME
DEC 6534B	MPS6535
[illegible]	1N4099
D672	1N3653
D664	1N3606

SEMICONDUCTOR CONVERSION CHART

REVISIONS: REV E — G105-00002 — H. TARPLEY; REV D — G105-00001 — B. TARPLEY 6-9-72

DRN [illegible] DATE 1/9/72
CHK'D [illegible] DATE 1-14-72
ENG. [illegible] DATE 2-1-72
PROJ ENG [illegible]
PROD. [illegible] DATE 3-23-72

NEXT HIGHER ASSY E-UA-MP8-E-Ø

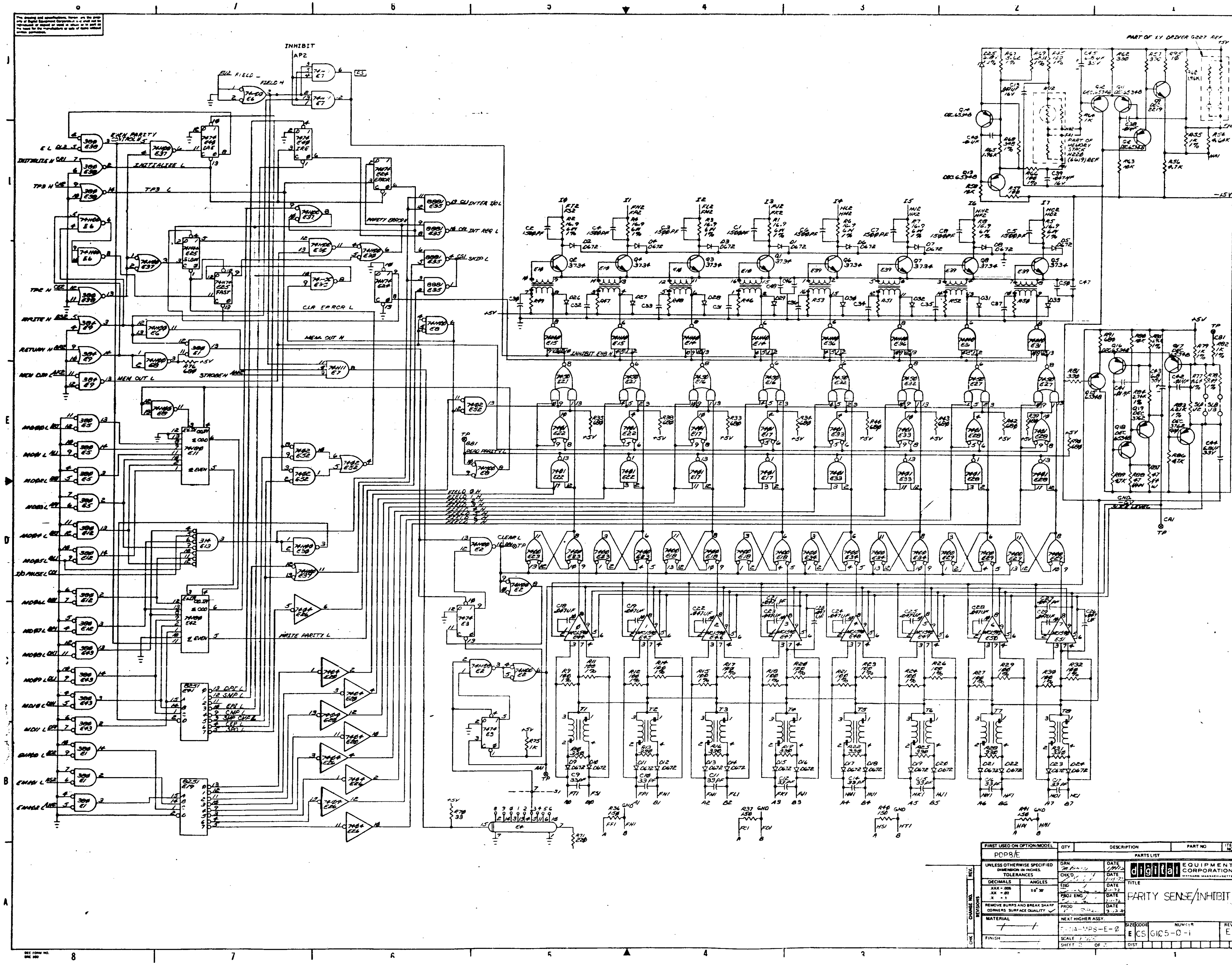
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PARITY SENSE/INHIBIT

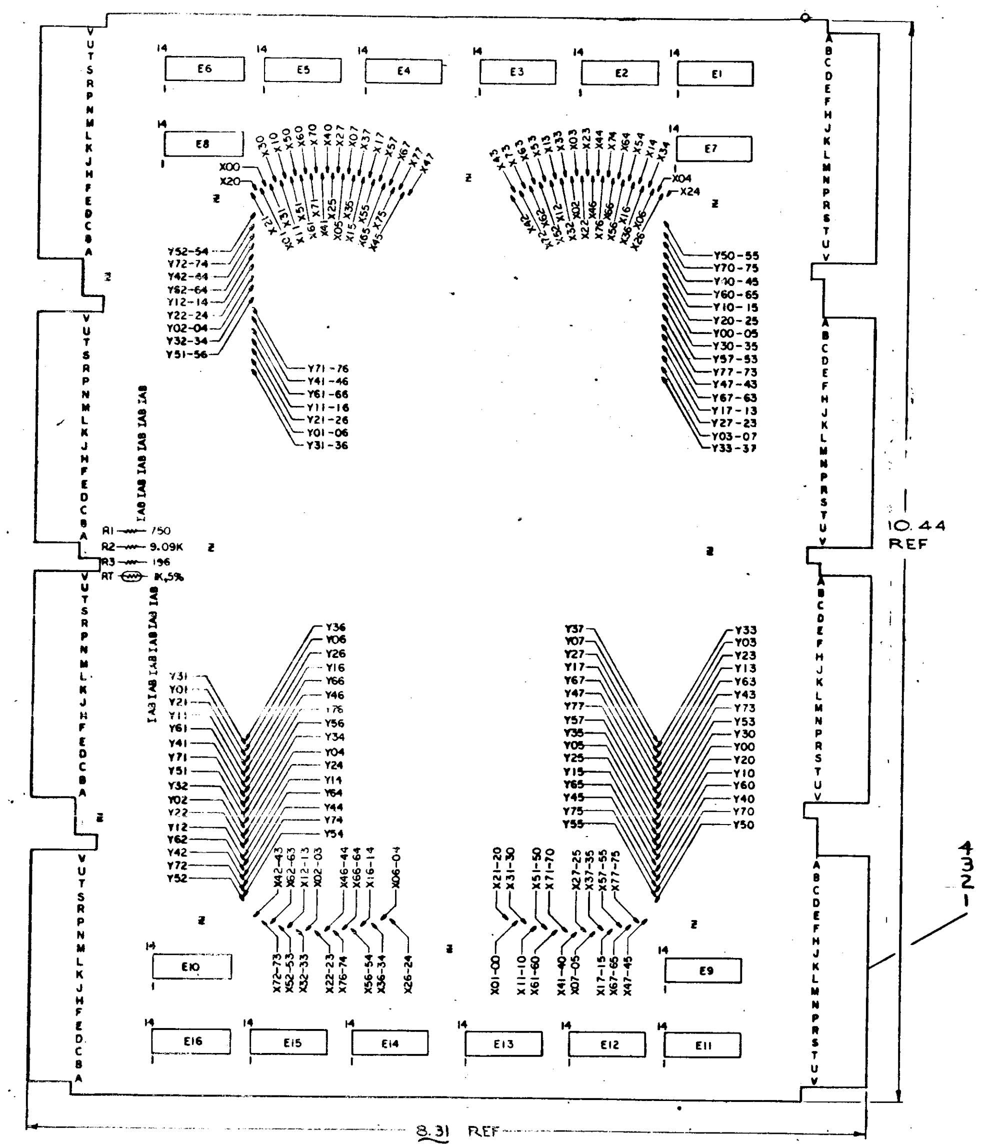
SIZE E CODE CS NUMBER G1Ø5-Ø-1 REV. E

SCALE

SHEET 1 OF 2



INHIBIT
PART OF XY DRIVER G227 REF
INITIALIZE L
TP3 L
STROBE H
MEM OUT L
WRITE PARITY L
CLR ERROR L
INHIBIT EN8 H
PARITY ERROR
FIRST USED ON OPTION/MODEL
PDP8/E
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES.
TOLERANCES
DECIMALS
ANGLES
.XXX = .005
.XX = .02
.X = .1
±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY
MATERIAL
FINISH
QTY.
DESCRIPTION
PART NO
ITEM NO.
PARTS LIST
DRN.
CHK'D.
ENG
PROJ. ENG.
PROD
DATE
digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
TITLE
PARITY SENSE/INHIBIT
NEXT HIGHER ASSY.
SCALE
SHEET 2 OF 2
SIZE
CODE
NUMBER
REV.
E
CS
G105-0-1
E
DIST
REVISIONS
CHANGE NO.
REV.
CHK



NOTES:

1. UNLESS OTHERWISE INDICATED:
   GND=AC2, AF1, AF2, AN1, AN2, AT1, AT2, BC1, BC2, BF1, BF2, BN1, BN2, BT1, BT2, CC1, CC2, CF1, CF2, CN1, CN2, CT1, CT2, DC1, DC2, DF1, DF2, DN1, DN2, DT1, DT2
2. DIODE ARRAYS WILL BE MOUNTED BY STACK VENDOR. DIODE ARRAYS ARE DEC25Ø1
3. THERMISTOR (RT) 1.ØK, 1% AT 25°C
4. 2501-01 MAY BE USED INTERCHANGEABLY WITH ITEM 9.

SEE NOTE 4

QTY.	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
16	E1-E16	I.C. DEC 2501	1910010	9
1	RT	RES. 1K THERMISTOR 1%	1310071	8
1	R2	RES 9.09 1/8W 1% MF	1304885	7
1	R3	RES. 196 1/8W 1% MF	1302956	6
1	R1	RES. 750 1/8W 1% MF	1302955	5
1		ETCHED CIRCUIT BOARD	5009037	4
REF		MODULE HISTORY LIST	B-MH-G619-Ø-6	3
REF		ASSY./DRILLING HOLE LAYOUT	E-AH-G619-Ø-5	2
REF		X-Y COORDINATE HOLE LOC	K-CO-G619-Ø-4	1

PARTS LIST

REV COLUMN

PRINTED CIRCUIT BOARD REVISION

CIRCUIT SCH REVISION

DRN.	DATE
CHK'D.	DATE
ENG.	DATE
PROJ. ENG.	DATE
PROD.	DATE
FIRST USED ON	D-UA-H220-Ø-Ø
SCALE	
SHEET	OF 2

DIGITAL EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE
PLANAR STACK BOARD G619

SIZE	CODE	NUMBER	REV.
E	CS	G619-Ø-1	A

DIST.

REVISIONS: W COATES — CHANGE NO — REV A

DEC NO | EIA NO

SEMICONDUCTOR CURVE CHART

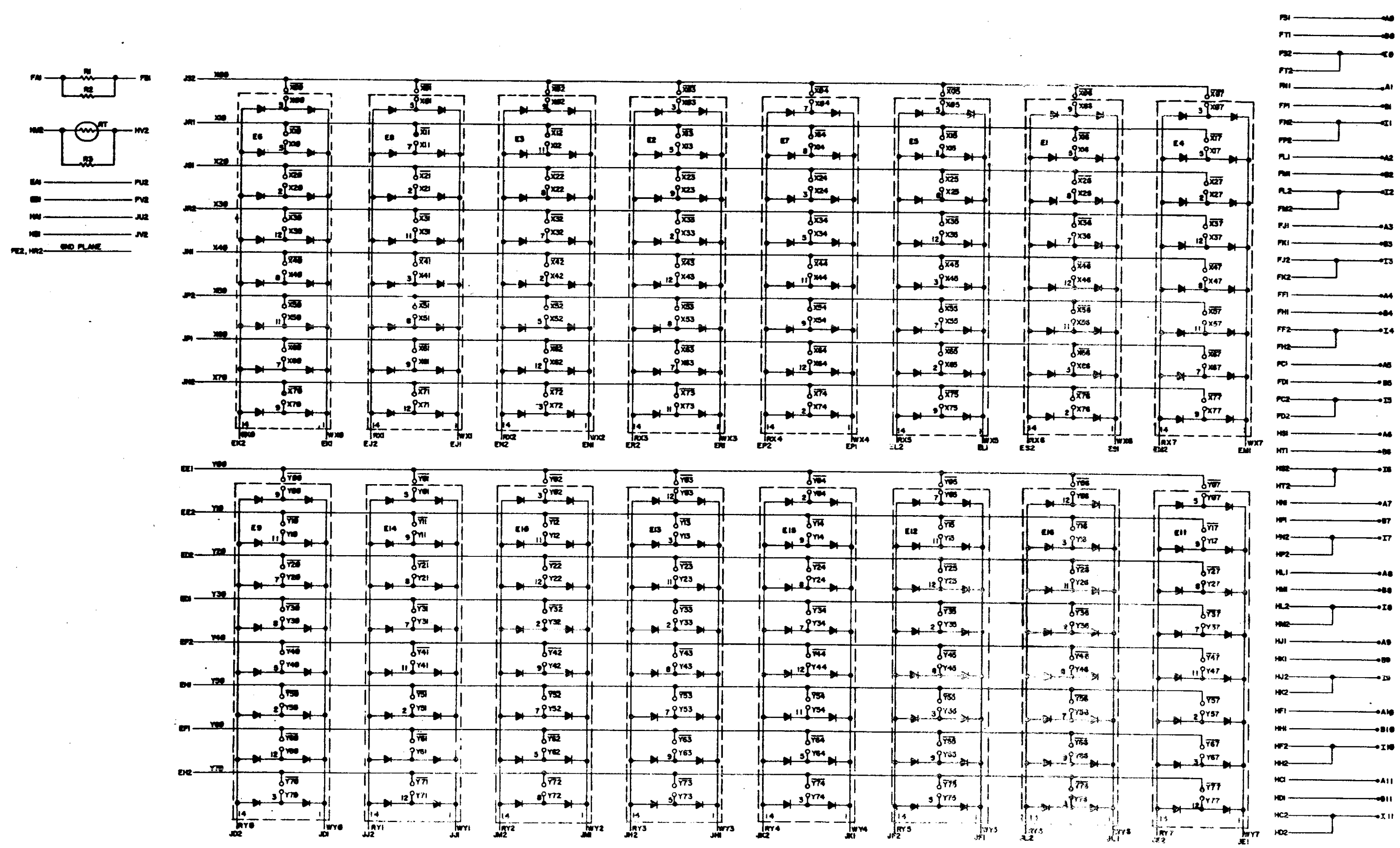
IC TYPE | GND | +5V

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE

IC PIN LOCATIONS

ITEM NO | AWG | FROM PT | TO PT

JUMPER LIST



QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	JEANNE FRENCH	DATE 7/13/70
CHK'D.	R. VOGELSANG	DATE 7/28/70
ENG.	R. VOGELSANG	DATE 7/28/70
PROJ. ENG.		DATE
PROD.		DATE

SCALE

SHEET 2 OF 2

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

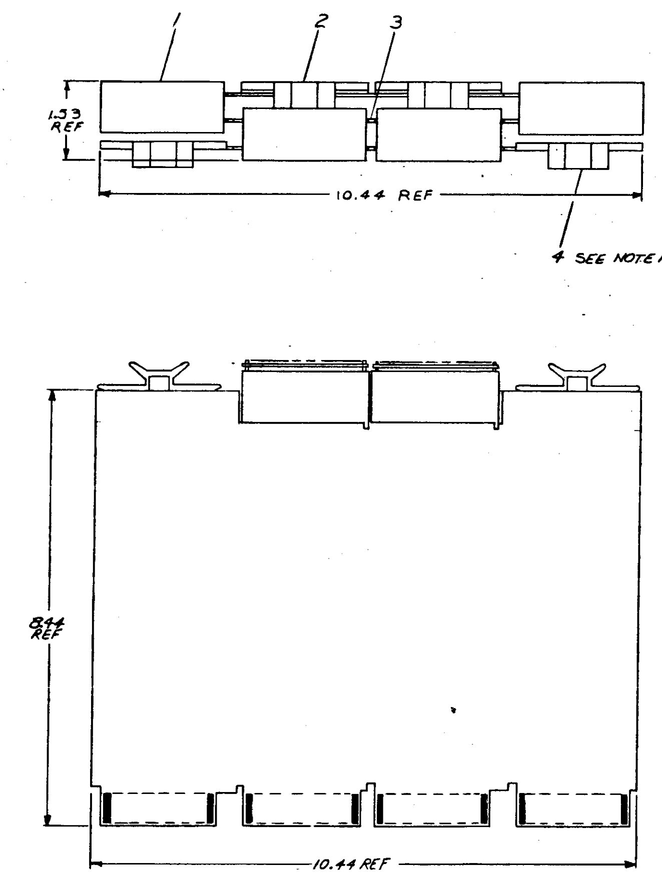
TITLE
PLANAR STACK BOARD

SIZE	CODE	NUMBER	REV.
E	CS	G619-0-1	A

DIST. A

NOTES:

1. ITEM NO. 4 (PARITY SENCE INHIBIT SIDS BOARD) MUST ALWAYS BE FACEING THE FRONT OF THE MACHINE.



QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	PARITY SENSE/INHIBIT	C-CS-G103-0-1	4
1	MEMORY STACK (H220)	D-UA-H220-0-0	3
1	XY DRIVER	E-CS-G227-0-0	2
4	H851 EDGE CONNECTOR	B-UA-H851-0-0	1

PARTS LIST

FIRST USED ON OPTION/MODEL: PDP 8/E

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS: .XXX ± .005, .XX ± .02, .X ± .1
ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL: —
FINISH: —

DRN — DATE 11/19/71
CHK'D — DATE 1-12-72
ENG — DATE 7-1-72
PROJ. ENG. — DATE 7-1-72
PROD. — DATE
NEXT HIGHER ASSY. B-DD-MP8-E
SCALE —
SHEET OF

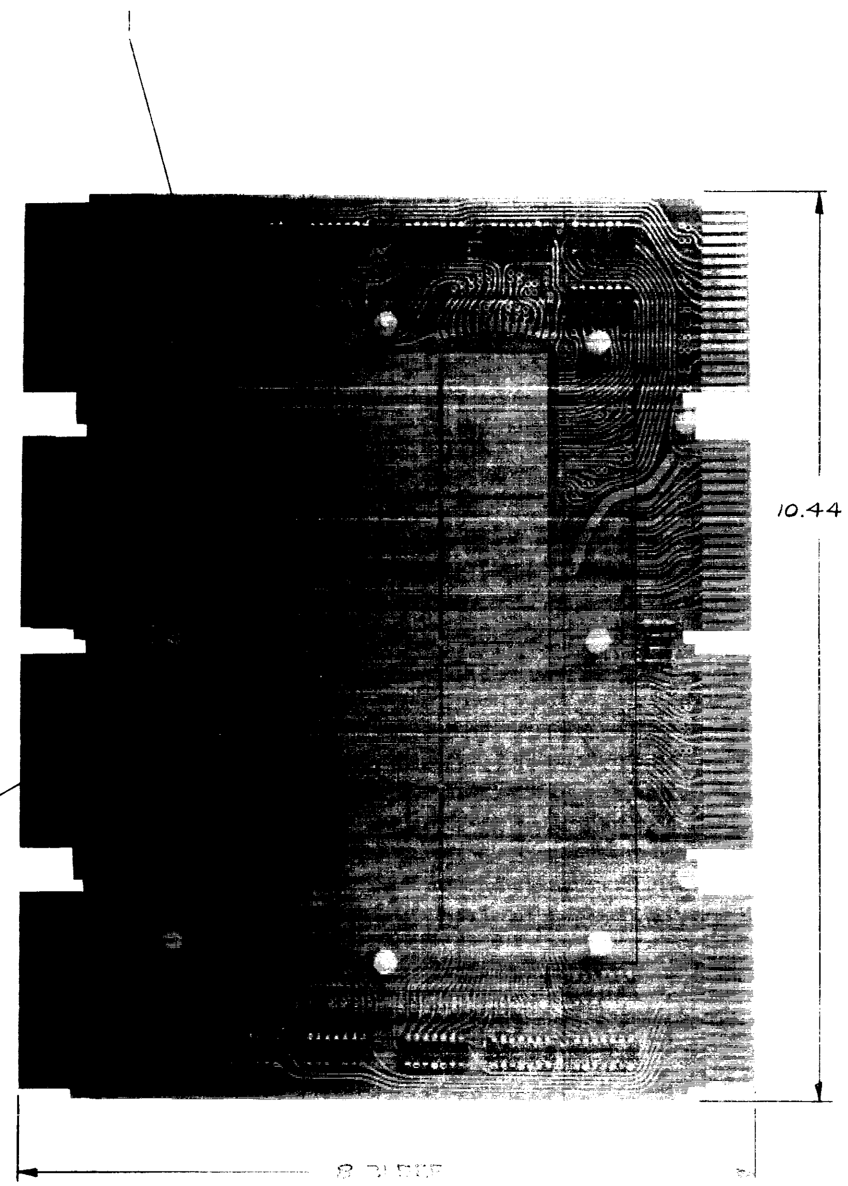
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: PARITY OPTION FOR 32K

SIZE: E CODE: UA NUMBER: MP8-E-0 REV.

REVISIONS | CHANGE NO. | REV. | C-HK

UA MP8-E-0



QTY.	DESCRIPTION	PART NO.	ITEM NO.

PARTS LIST

FIRST USED ON OPTION/MODEL: PDP 8/E

DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS / FRACTIONS / ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL: —
FINISH: —

DR. R. — DATE 7/29/70
CHKD. — DATE
ENG. — DATE 7/29/70
PROJ. ENG. — DATE 1/12/71
PROD. — DATE 1/13/71

NEXT HIGHER ASSY: D-UA-MM8-E-Ø
SCALE: NONE
SHEET 1 OF 1

EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE: MEMORY STACK (H22Ø)

SIZE: D | CODE: UA | NUMBER: H22Ø-Ø-Ø | REV.:

DIST. 5 … 1

REVISIONS: REV. | CHANGE NO. | CHK

DEC FORM NO. 100

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

PARTS LIST

MADE BY R. THELLEN DATE 7-29-70	CHECKED KEN GULICK DATE 12-28-70	SECTION 1
ENG Reino Vogelsang DATE 1/12/71	PROD Larry Layton DATE 1/13/71	ISSUED SECT. 1

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION H22Ø-Ø-Ø
REF	3009834	4K x 12 BIT MEMORY STACK-SPEC.	-
1	E-CS-G619-Ø-1	PLANAR STACK BD	1
2	C-MD-5509025-0-0	COVER PLATE	1
*		SCR PAN HD SLOT 4-40 x 7/16 NYLON	8
*		SPACER 4-40 THD x ¼ OD x 3/16 LG NYLON	8
*		NUT HEX 4-40 NYLON	8
*		CORE MATS 64 x 64	12
		* (ASTERICK) INDICATES ITEMS ARE SUPPLIED BY VENDOR	

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.	ECO NO.
MEMORY STACK (H22Ø)	D-UA-H22Ø-Ø-Ø	A	PL	H22Ø-Ø-Ø		
	SHEET 1 OF 1	DIST.	G			

DEC FORM NO. 15 1031
DRB 11C

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ACCESSORY LIST

MADE BY R.Allen **DATE** March 9, 1972	CHECKED R. Rudolph DATE 3-17-72	SECTION
ENG B. Tarpley **DATE** 3-17-72	PROD R. S. Allen DATE 3-20-72	ISSUED SECT.

LEGEND
D DOCUMENT
DN DOCUMENT CHANGE NOTICE
PA PAPER TAPE ASCII
PB PAPER TAPE BINARY
PM PAPER TAPE READ-IN-MODE

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION MP8-E
1	B-DD-MP8-E	PRINT SET	1
1	LIBKIT-8E-MP8E	LIBRARY KIT	1
1	DEC 8E-HR2B-D-MP8E	MAINTENANCE MANUAL*	1
		*IF MAINTENANCE MANUAL NOT AVAILABLE SHIP	
		ENGINEERING SPEC INSTEAD A-SP-MP8-E-1	

KIT CHECK BY _____ DATE _____
INSTALLATION CHECK BY _____ DATE _____

TITLE	ASSY. NO.	SIZE	CODE	NUMBER	REV.	ECO NO
MP8-E ACCESSORY SHIP LIST	SHEET 1 OF 1	A	A1	MP8-E-4		
		DIST.				

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 6/21/72

TITLE PDP8/E MEMORY PARITY - MP8-E

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	APPD	SIZE	CODE	NUMBER	REV
Bruce Tarpley		A	SP	MP8-E-1	

DEC FORM NO. DRA 107

1.0 General Description

The MP8-E provides memory parity for up to 32K of PDP8/E memory. Parity is automatically checked and parity errors may be reported using interrupt or under program control using the skip function.

2.0 Physical

The MP8-E consists of three quad boards, which plug directly into the OMNIBUS. The G105, H220, and the G227 are interconnected using four H851 edge connectors and may be placed with either the G105 or G227 towards the front of the machine.

3.0 Environmental Specifications

Temperature: Ø degrees to 50 degrees C (Operating)
Humidity: 10% to 90% non-condensing (Operating)
Storage: -15 degrees to 85 degrees C

4.0 Principles of Operation

4.1 System:

The MP8-E uses the same X/Y Driver and Current Source module, the G227, as the MM8-E, the standard 4K PDP8/E memory, and the same twelve 4096 bit memory stack, the H220. The G105 uses the same type of circuitry as the G104, the MM8-E's Sense Inhibit Board, except that it is only 8 bits wide and also contains the parity sensing circuitry. The MP8-E provides the thirteenth bit for each 12 bit word in the 32K of memory. Parity is computed using the parity bit and the 12 MD lines which contain the word being written into memory.

4.2 Parity Sense Inhibit Board - G105

The G105 contains the circuitry necessary for a sense and inhibit functions of the core memory. More detailed discussion of the Sense function may be found in the PDP8/E Maintenance Manual, Volume 1, Section 3.27.9. A further discussion of the Inhibit function may be found in the PDP8/E Maintenance Manual, Volume 1, Section 3.27.12.

SIZE	CODE	NUMBER	REV
A	SP	MP8-E-1	

DEC FORM NO 16-1022 DRA 108

Each of the eight bits on the G105 contain 4096 individual locations, which correspond to the same address in a specific data field of the PDP8/E's memory. The eight bits therefore are the parity bits for eight fields of memory or 32K. The EMA bits are decoded and the bit corresponding to the selected field is enabled to the parity checker. The other seven bits are also read, but are always rewritten without modification. The selected bit is fed, along with the 12 MD bits into the parity checking network and the parity of the 13 bits is computed. If this parity is odd, no error is signaled, and the same parity bit is rewritten into the parity stack. The selected bit is rewritten in a state determined by either the parity checking network or by the bit which was just read, depending on the state of MD DIR. If MD DIR is high, the contents of the MB are on the MD lines and the parity bit is determined by the parity checking network. If MD DIR is low, the output of the sense amplifiers is on the MD lines and the parity bit which was just read will be rewritten. There are two flip-flops which sense a parity error, one for fast cycles and one for slow cycles. For slow cycles, parity may be checked at the leading edge of TP2, but for fast cycles it must be checked at RETURN time of the write cycle. The outputs of these flip-flops are ORed and set the error flop and may cause an interrupt. The error flip-flop enables a skip and latches the error condition which must be cleared by an IOT. A more complete discussion of the parity checking and error detection circuits may be found in the MP8-E section of the PDP8/E Maintenance Manual, Volume 2.

4.3 Planar Stack Board - H220

The Stack board is the same 12 x 4096 bit stack used in the MM8-E 4K memory. Eight of the twelve bits are used by the MP8-E. A complete discussion of the H220 and of memory theory may be found in the PDP8/E Maintenance Manual Volume 1, Section 3.25.

4.4 X/Y Driver and Current Source - G227

The X/Y board is the same as the one used on the MM8-E. It addresses the proper cores and generates the currents necessary to create the signal sensed by the G105. A complete discussion of the addressing and current sources may be found in the PDP8/E Maintenance Manual, Volume 1, Section 3.26.

5.0 Programming

The MP8-E may be run under interrupt or skip control; the method of operation determined by IOT. Below is a list of the MP8-E's instruction set. More detailed information on the programming of the MP8-E is available in the 1972 PDP8/E and PDP8/M Small Computer Handbook, page 7-21.

6100	DRI	Disable Memory Parity Error Interrupt
6101	SMP	Skip on No Memory Parity Error
6103	EPI	Enable Memory Parity Error Interrupt
6104	CMP	Clear Memory Parity Error Flag
6105	SMP, CMP	Skip on No Memory Parity Error and Clear Memory Parity Error Flag
6106	CEP	Check for Even Parity
6107	SPO	Skip on Memory Parity Option

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 6/21/72

TITLE MP8-E ACCEPTANCE PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE

ENG	APPD	CODE	SIZE	NUMBER	REV
Bruce Tarpley		SP	A	-MP8-E-3	

1.0 Scope

1.1 This procedure defines the minimum criteria necessary for shipment of an MP8-E, Memory Parity Option.

2.0 Set Up

2.1 Remove the four (4) H851 edge connectors from the tops of the G105, H220, and G227 modules.

2.2 Inspect the G105, H220, and G227 modules for conformance to "Final Inspection Procedure for Flip Chip Modules" (A-SP-7665039-0-0) and "Module Rework Standard" (A-SP-7605845-0-0).

2.3 Check the G105 and G227 modules to insure the circuit and etch revisions are up to current ECO levels.

2.4 Make sure power in the PDP8/E is turned off.

2.5 Insert the G105, H220, G227 modules into the OMNIBUS. Adhere to the "Recommended OMNIBUS Assignment List " (A-SP-PDP8-E-0-4). Connect the modules together using the four (4) H851 edge connectors. The G105 should be in front, the H220 in the middle, and the G227 in the rear.

3.0 Electrical Test

3.1 Turn power on to the PDP8/E.

3.2 Follow the loading procedure for MP8-E Extended Memory Parity Checkerboard (MAINDEC-8E- DHMPA).

3.3 Run the MP8-E Parity diagnostic following the instructions in the write-up for ten minutes without error.

3.4 At the completion of 3.3, halt the PDP8/E and turn off power to the PDP8/E.

3.5 Remove the two edge connectors between the G105 and the H220. Remove the G105 and turn the strobe switch one position clockwise from the position set during MP8-E test.

3.6 Reconnect the G105 and H220 and power up the PDP8/E.

3.7 Repeat 3.3.

3.8 At the completion of 3.7, halt the PDP8/E and turn off power to the PDP8/E.

3.9 Remove the two edge connectors between the G105 and the H220. Remove the G105 and turn the strobe switch one position counterclockwise from the position set during MP8-E test.

3.10 Reconnect the G105 and H220 and power up the PDP8/E.

3.11 Repeat 3.3.

3.12 At the completion of 3.12, halt the PDP8/E and turn off power to the PDP8/E.

3.13 Remove the two edge connectors from the G105 and the H220. Remove the G105 and reset the strobe switch to the original position set during MP8-E test.

3.14 Reconnect the G105 and H220 and power up the PDP8/E.

3.15 Run the MP8-E parity diagnostic for ten minutes for each 4K of memory in the system without error.

4.0 Failure Classification

4.1 Mechanical Failure

4.1.1 Any module which does not meet the criterion outlined in 2.2 and 2.3 will be classified as a failure.

4.1.2 The acceptance supervisor has the option of waivering the failure or returning the defective MP8-E to the Memory Test Area for repair.

4.2 Electrical Failure

4.2.1 Any MP8-E which while performing 3.3, 3.7, 3.11, or 3.15 halts, generates error printouts, or runs other than continuous and as specified in the diagnostic write-up will be classified defective and the entire MP8-E returned to the Memory Test Area for repair.