MOTOROLA® MICROPROCESSOR COMPONENTS LIBRARY

Packaged Parts

March 1986

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OVERVIEW

This manual and the three Motorola Microprocessor Packaged Parts Diskettes comprise the P-CAD Motorola Microprocessor Packaged Parts Library. The library has been developed at the request of our users, and we welcome any suggestions for improvements or additions.

The library diskettes contain the following files for use with the PC-CARDS printed circuit board (PCB) layout program:

- Component files
- Layer structure files, LAYS.PRT and LAYS.PCB
- Standard-size drawing sheet files, ASIZE.PCB through ESIZE.PCB
- MOTOROLA.FIL and MOTOROLA.LIB files

  MOTOROLA.FIL is a sample test file used as input into PREPACK to create the binary file MOTOROLA.LIB that contains packaging information for PC-PACK. Both MOTOROLA.FIL and MOTOROLA.LIB contain all the components in the Motorola Microprocessor Library. Normal usage is to extract only those components used in a design and put them in a new .FIL file for input to PREPACK.

- Padstack and special symbol files (<filename>.PS and <filename>.SSF)

  The padstacks and special symbol files are samples of what can be used in the PC-CARDS environment. Refer to the PC-CARDS User's Manual for more information on how to use padstacks and special symbol files.

FILE MANAGEMENT

The complete Motorola Microprocessor Parts Library includes more than 900 KB of files. If you are loading the library on the hard disk of your stand-alone computer, you should omit any of the components that you will not need in order to conserve disk space. This is especially important if you are using a 10 MB hard disk.

If your hard disk space is very limited, you may remove individual unneeded parts from the library. Each part is contained in a separate DOS file, and individual parts may be erased using the DOS erase command. Refer to your IBM DOS Manual or the "DOS Reference" chapter included with your PC-CAPS or PC-CARDS User's Manuals for instructions on listing and erasing files.

P-CAD recommends a specific directory structure for efficient system operation. Your library parts are normally placed in a specific subdirectory to make it easy to manage these files. The directory structure is described in your P-CAD Installation Guide.

CREATING A DESIGN

To use the library in a design, run PC-CARDS. Instructions are given in the "Using PC-CARDS" chapter of your PC-CARDS User's Manual. When the menu is displayed, select FILE/LOAD and load the layer structure. You can load LAYS.PCB or one of the standard-size drawing sheet files, ASIZE.PCB through ESIZE.PCB.

Layer Structure

Two layer structure files are included with this library, LAYS.PRT and LAYS.PCB. There is no difference between LAYS.PRT and LAYS.PCB other than the active state of the layers.

The following layer structure, LAYS.PRT, is a standard P-CAD layer structure and is recommended when creating library components.

Table 1. LAYS.PRT Layer Structure

Layer	Name	Pen	Status	Use
1	PADCOM	7	ON	Graphic component pads
2	FLCOMP	7	OFF	Flash component pads
3	PADSLD	8	OFF	Graphic solder pads
4	FLSOLD	8	OFF	Flash solder pads
5	PADINT	9	OFF	Graphic internal pads
6	FLINT	9	OFF	Flash internal pads
7	GNDCON	10	OFF	Graphic internal ground connections
8	FLGCON	10	OFF	Flash internal ground connections
9	CLEAR	12	OFF	Graphic universal clearance
10	FLCLER	12	OFF	Flash universal clearance
11	PWRCON	13	OFF	Graphic internal power connections
12	FLPCON	13	OFF	Flash internal power connections

Table 1 Continued

Layer	Name	Pen	Status	Use
13	SLDMSK	14	OFF	Graphic solder mask relief
14	FLSMSK	14	OFF	Flash solder mask
15	DRILL	15	OFF	Graphic drill template
16	FLDRLL	15	OFF	Flash drill template
17	PIN	4	ABL(A)	Graphic pin connections
18	BRDOUT	4	OFF	Board outline
19	FLTARG	4	OFF	Flash alignment targets
20	SLKSCR	6	ABL	Silkscreen paint
21	DEVICE	5	ABL	Device names
22	ATTR	6	OFF	Attributes
23	REFDES	6	OFF	Reference designators
24	COMP	1	OFF	Component side traces
25	SOLDER	2	OFF	Solder side traces
26	INT1	3	OFF	Internal layer traces

The following layer structure, LAYS.PCB, is a standard P-CAD layer structure and is recommended when creating printed circuit board layouts.

Table 2. LAYS.PCB Layer Structure

Layer	Name	Pen	Status	Use
1	PADCOM	7	ON	Graphic component pads
2	FLCOMP	7	OFF	Flash component pads
3	PADSLD	8	OFF	Graphic solder pads
4	FLSOLD	8	OFF	Flash solder pads
5	PADINT	9	OFF	Graphic internal pads
6	FLINT	9	OFF	Flash internal pads
7	GNDCON	10	OFF	Graphic internal ground connections
8	FLGCON	10	OFF	Flash internal ground connections
9	CLEAR	12	OFF	Graphic universal clearance
10	FLCLER	12	OFF	Flash universal clearance
11	PWRCON	13	OFF	Graphic internal power connections

Table 2 Continued

Layer	Name	Pen	Status	Use
12	FLPCON	13	OFF	Flash internal power connections
13	SLDMSK	14	OFF	Graphic solder mask relief
14	FLSMSK	14	OFF	Flash solder mask
15	DRILL	15	OFF	Graphic drill template
16	FLDRLL	15	OFF	Flash drill template
17	PIN	4	ON	Graphic pin connections
18	BRDOUT	4	ON	Board outline
19	FLTARG	4	OFF	Flash alignment targets
20	SLKSCR	6	ON	Silkscreen paint
21	DEVICE	5	ON	Device names
22	ATTR	6	OFF	Attributes
23	REFDES	6	ON	Reference designators
24	COMP	1	ABL (A)	Component side traces
25	SOLDER	2	ABL	Solder side traces
26	INT1	3	OFF	Internal layer traces

Drawing Sheets

The standard-size drawing sheet files, ASIZE.PCB through ESIZE.PCB, were created using the LAYS.PCB layer structure. When loaded, they provide the correct layer structure for the library plus a standard-size drawing sheet border.

Components

When you have loaded the layer structure or drawing sheet file, you can enter the components, wires, text, instances, and net names. Complete instructions are given in the "Using PC-CARDS" chapter of your PC-CARDS User's Manual. Each PC-CARDS component contains the electrical "intelligence" required to extract data and lay out a printed circuit board.

GENERAL INFORMATION

This library was created using Motorola's Single-Chip Microcomputer Data Book, Motorola's 8-Bit Microprocessor and Peripheral Data Book, and individual data sheets for specific parts. Additional references include Hitachi's Microcomputer Data Book, Intel's Memory Components Handbook, Rockwell's 1984 Data Book, Signetics' MOS Microprocessor Data Manual, and Fairchild's MicroProcessor Products Data Book.

Due to system limitations regarding filename length, two filenames are truncated versions of the component names; 1468705F2 and 1468705G2 were shortened to 1468705F and 1468705G, respectively.

Some components come in more than one package. To distinguish components that come in more than one package, we have used the following filenaming conventions:

68-pin LCC - The filename ends in L; for example, 68000L.PRT.

PGA - The filename ends in P; for example, 68000P.PRT.

24-pin skinny-dip - The filename ends in SK; for example, 3447SK.PRT.

If a device comes only in a PGA package, then the filename always ends in P.

NAMING CONVENTIONS

In this library, all the signal names are drawn exactly as shown in the Motorola data sheets except where the abbreviation of the signal name is required due to the length of the name. For example, VCC STANDBY may be shortened to VCCSTBY. In addition, some names in the data sheets may contain an illegal character such as a slash (/). In such cases as these, the characters are either omitted or replaced with a dash (-). The actual signal names for the symbols are given in the pinlists in this manual.

The following signal naming conventions are used in the components library.

Table 3. Signal Naming Conventions

Signal Name	Convention
CLOCK	CLK
R/W'	R-W
VCC STANDBY	VCCSTBY

PIN NUMBERS

The numbering scheme used by Motorola for the pin grid arrays (PGA) packages is incompatible with P-CAD software, so it was necessary to adopt the numbering scheme used by Hitachi.

Table 4. 68-pin Pin Grid Array Cross Reference

P-CAD Pin Number	Motorola Pin Number	P-CAD Pin Number	Motorola Pin Number
1	A1	35	A3
2	B1	36	A2
3	C1	37	B2
4	D1	38	C2
5	E1	39	D2
6	F1	40	E2
7	G1	41	F2
8	H1	42	G2
9	J1	43	H2
10	K1	44	J2
11	K2	45	J3
12	K3	46	J4
13	K4	47	J5
14	K5	48	J6
15	K6	49	J7
16	K7	50	J8
17	K8	51	J9
18	K9	52	H9
19	K10	53	G9
20	J10	54	F9
21	H10	55	E9
22	G10	56	D9
23	F10	57	C9
24	E10	58	B9
25	D10	59	B8
26	C10	60	B7
27	B10	61	B6
28	A10	62	B5
29	A9	63	B4
30	A8	64	B3
31	A7	65	C3
32	A6	66	H3
33	A5	67	H8
34	A4	68	C8

Table 5. 84-pin Pin Grid Array Cross Reference

P-CAD Pin Number	Motorola Pin Number	P-CAD Pin Number	Motorola Pin Number
1	A1	43	H2
2	B1	44	J2
3	C1	45	J3
4	D1	46	J4
5	E1	47	J5
6	F1	48	J6
7	G1	49	J7
8	H1	50	J8
9	J1	51	J9
10	K1	52	H9
11	K2	53	G9
12	K3	54	F9
13	K4	55	E9
14	K5	56	D9
15	K6	57	C9
16	K7	58	B9
17	K8	59	B8
18	K9	60	B7
19	K10	61	B6
20	J10	62	B5
21	H10	63	B4
22	G10	64	B3
23	F10	65	C3
24	E10	66	D3
25	D10	67	E3
26	C10	68	F3
27	B10	69	G3
28	A10	70	H3
29	A9	71	H4
30	A8	72	H5
31	A7	73	H6
32	A6	74	H7
33	A5	75	H8
34	A4	76	G8
35	A3	77	F8
36	A2	78	E8
37	B2	79	D8
38	C2	80	C8
39	D2	81	C7
40	E2	82	C6
41	F2	83	C5
42	G2	84	C4

Table 6. 114-pin Pin Grid Array Cross Reference

P-CAD Pin Number	Motorola Pin Number	P-CAD Pin Number	Motorola Pin Number
1	A1	40	A10
2	B1	41	A9
3	C1	42	A8
4	D1	43	A7
5	E1	44	A6
6	F1	45	A5
7	G1	46	A4
8	H1	47	A3
9	J1	48	A2
10	K1	49	B2
11	L1	50	C2
12	M1	51	D2
13	N1	52	E2
14	N2	53	F2
15	N3	54	G2
16	N4	55	H2
17	N5	56	J2
18	N6	57	K2
19	N7	58	L2
20	N8	59	M2
21	N9	60	M3
22	N10	61	M4
23	N11	62	M5
24	N12	63	M6
25	N13	64	M7
26	M13	65	M8
27	L13	66	M9
28	K13	67	M10
29	J13	68	M11
30	H13	69	M12
31	G13	70	L12
32	F13	71	K12
33	E13	72	J12
34	D13	73	H12
35	C13	74	G12
36	B13	75	F12
37	A13	76	E12
38	A12	77	D12
39	A11	78	C12

Table 6 Continued

P-CAD Pin Number	Motorola Pin Number	P-CAD Pin Number	Motorola Pin Number
79	B12	97	L3
80	B11	98	L4
81	B10	99	L5
82	B9	100	L6
83	B8	101	L7
84	B7	102	L8
85	B6	103	L9
86	B5	104	L10
87	B4	105	L11
88	B3	106	G11
89	C3	107	C11
90	D3	108	C10
91	E3	109	C9
92	F3	110	C8
93	G3	111	C7
94	H3	112	C6
95	J3	113	C5
96	K3	114	C4

COMPONENT LIST BY SEQUENCE

The component filename is the component number plus the extension .PRT; for example, 6800.PRT. "Plot Number" refers to the plots in the last section of this manual.

COMPONENT	DISK NUMBER	PLOT NUMBER
2670	1	1
2671	1	1
2672	1	1
2673A	1	1
2673B	1	1
2674	1	1
2675	1	1
2716	1	1
2732	1	1
2764	1	1
3440	1	1
3441	1	1
3443	1	1
3446	1	1
3447	1	1
3447SK	1	1
3448	1	1
3870	1	1
6172	1	2
6173	1	2
6800	1	2
6801	1	2
6801U4	1	2
6802	1	2
6802NS	1	2
6803	1	2
6803E	1	2
6803U4	1	2
6804J2	1	2
6804P2	1	2
68HC04P2	1	2
68HC04P3	1	2
6805K2	1	2
6805K3	1	2
6805P2	1	3
6805P4	1	3
6805P6	1	3
6805R2	1	3
6805R3	1	3
6805S2	1	3

COMPONENT	DISK NUMBER	PLOT NUMBER
6805T2	1	3
6805U2	1	3
6805U3	1	3
68HC05C4	1	3
6808	1	3
6809	1	3
6809E	1	3
68HC09E	1	3
6810	1	3
6821	1	3
6822	1	3
6829	1	4
68HC34	1	4
6835	1	4
6836E16	1	4
6836R16	1	4
6839	1	4
6840	1	4
6843	1	4
6844	1	4
6845	1	4
6846	1	4
6847	1	4
6847Y	1	4
6850	1	4
68HC51	1	4
6852	1	4
68HC53	1	5
6854	1	5
6859	1	5
6860	1	5
6875	1	5
6875A	2	5
6880	2	5
6882A	2	5
6882B	2	5
6883	2	5
6885	2	5
6886	2	5
6887	2	5
6888	2	5
6889	2	5
6890	2	5
27128	2	5
27256	2	5
68000	2	5

COMPONENT	DISK NUMBER	PLOT NUMBER
68000L	2	6
68000P	2	6
68008	2	6
68010	2	6
68010P	2	6
68012P	2	6
68020P	2	6
68120	2	6
68121	2	6
68153	2	6
68230	2	6
68430	2	6
68440	2	7
68440P	2	7
68450	2	7
68450P	2	7
68451	2	7
68451L	2	7
68451P	2	7
68452	2	7
68465	2	7
68486	2	7
68487	2	8
68488	2	8
68561	2	8
68564	2	8
68652	2	8
68653	2	8
68661	2	8
68681	2	8
68701	2	8
68701U4	2	8
68705P3	2	8
68705P5	2	8
68705R3	2	8
68705R5	2	8
68705U3	2	8
68705U5	2	8
68802	2	8
68881P	2	8
68901	2	9
146805E2	2	9
146805E3	2	9
146805F2	2	9
146805G2	2	9

COMPONENT	DISK NUMBER	PLOT NUMBER
146805H2	2	9
146818	2	9
146818A	2	9
146823	3	9
1468705F2	3	9
1468705G2	3	9

COMPONENT LIST BY FUNCTION

The component filename is the component number plus the extension .PRT; for example, 6800.PRT.

A/D CONVERTERS

6890	8-Bit MPU D/A converter

ADDRESS MULTIPLEXERS

6883	Synchronous address multiplexer

BUFFERS

6882A	Octal buffer/latch with inverted outputs
6882B	Octal buffer/latch with noninverted outputs
6885	Hex address buffer
6886	Hex address buffer
6887	Hex address buffer
6888	Hex address buffer

BUS CONTROL MODULES

68153	Bus interrupter module
68452	Bus arbitration module

BUS TRANSCEIVERS

3440	Quad interface bus transceiver
3441	Quad interface bus transceiver
3443	Quad interface bus transceiver
3446	Quad bidirectional bus transceiver
3447	Octal GPIB transceiver
3447SK	Octal GPIB transceiver in a 24-pin skinny dip
3448	Quad GPIB transceiver
6880	Quad bus transceiver
6889	Quad bus transceiver

CLOCK GENERATORS

6875	Two-phase clock generator
6875A	Two-phase clock generator

COMMUNICATION CIRCUITS

6172	Digital modulator
6173	Digital demodulator
6854	Advanced data-link controller
6860	Digital modem
68561	Multi-protocol communications controller
68564	Serial input/output
68652	Multi-protocol communications controller
68681	Dual asynchronous receiver and transmitter
68802	Local network controller

COPROCESSORS

68881P	HCMOS floating point coprocessor in a 68-pin PGA package

DIRECT MEMORY ACCESS CONTROLLERS

6844	Direct memory access controller
68440	Dual-channel direct memory access controller
68440P	Dual-channel direct memory access controller in a 68-pin PGA package
68450	Direct memory access controller
68450P	Direct memory access controller in a 68-pin PGA package

DISK CONTROLLERS

6843	Floppy disk controller
68465	Double-density floppy disk controller

INTERFACE/ADAPTERS

6821	Peripheral interface adapter
6822	Industrial interface adapter
6850	Asynchronous communications interface adapter
68HC51	Asynchronous communications interface adapter
6852	Synchronous serial data adapter
68HC53	Asynchronous communications interface adapter
68120	Intelligent peripheral interface
68121	Intelligent peripheral interface
68230	Parallel interface/timer
68430	Direct memory access interface

INTERFACE/ADAPTERS (Continued)

68488	General purpose interface bus adapter
68661	Enhanced programmable communications interface
146823	CMOS parallel interface

KEYBOARD CONTROLLERS

2671	Programmable keyboard and communications controller

MEMORY MANAGEMENT UNITS

6829	Memory management unit
68HC34	Dual-port memory unit
68451	Memory management unit
68451L	Memory management unit in a 68-pin LCC package
68451P	Memory management unit in a 68-pin PGA package

MICROCOMPUTERS

6801	8-Bit microcomputer
6801U4	8-Bit microcomputer
6804J2	8-Bit microcomputer
6804P2	8-Bit microcomputer
68HC04P2	8-Bit HCMOS microcomputer
68HC04P3	8-Bit HCMOS microcomputer
6805K2	8-Bit microcomputer with serial peripheral interface and two timers
6805K3	8-Bit microcomputer with A/D converter, serial peripheral interface, and two timers
6805P2	8-Bit HMOS 1K microcomputer
6805P4	8-Bit HMOS 2K microcomputer
6805P6	8-Bit microcomputer
6805R2	8-Bit microcomputer
6805R3	8-Bit microcomputer
6805S2	8-Bit microcomputer with A/D converter, serial peripheral interface, and three timers
6805T2	8-Bit HMOS 2K microcomputer with PLL
6805U2	8-Bit microcomputer
6805U3	8-Bit microcomputer
68HC05C4	8-Bit HCMOS microcomputer
68701	8-Bit microcomputer with EPROM

MICROCOMPUTERS (Continued)

68701U4	8-Bit microcomputer with EPROM
68705P3	8-Bit microcomputer with EPROM
68705P5	8-Bit microcomputer with EPROM
68705R3	8-Bit microcomputer with EPROM
68705R5	8-Bit microcomputer with EPROM
68705U3	8-Bit microcomputer with EPROM
68705U5	8-Bit microcomputer with EPROM
146805F2	8-Bit CMOS microcomputer
146805G2	8-Bit CMOS microcomputer
146805H2	8-Bit CMOS microcomputer
1468705F	8-Bit microcomputer with EPROM (1468705F2)
1468705G	8-Bit microcomputer with EPROM (1468705G2)

MICROCONTROLLERS

3870	8-Bit single-chip microcontroller

MICROPROCESSORS

6800	8-Bit Microprocessor unit
6802	8-Bit microprocessor with clock and optional RAM
6802NS	8-Bit microprocessor with clock and optional RAM
6803	8-Bit microprocessor unit
6803E	8-Bit microprocessor unit
6803U4	8-Bit microprocessor unit
6808	8-Bit microprocessor with clock
6809	8-Bit microprocessor unit
6809E	8-bit microprocessor unit
68HC09E	8-Bit HCMOS microprocessor unit
68000	16/32-Bit microprocessor unit
68000L	16/32-Bit microprocessor unit in a 68-pin LCC package
68000P	16/32-Bit microprocessor unit in a 68-pin PGA package
68008	8/32-Bit microprocessor unit with an 8-bit data bus
68010	16/32-Bit virtual memory microprocessor
68010P	16/32-Bit virtual memory microprocessor in a 68-pin PGA package
68012P	16/32-Bit virtual memory microprocessor in an 84-pin PGA package

MICROPROCESSORS (Continued)

68020P	32-Bit microprocessor in a 114-pin PGA package
146805E2	8-Bit CMOS microprocessor unit
146805E3	8-Bit CMOS microprocessor unit

PERIPHERALS

68901	Multi-function peripheral

POLYNOMIAL GENERATOR CHECKER

68653	Polynomial generator checker and character comparator

RAM

6810	128x8 Bit Static RAM

ROM/EPROM

2716	2Kx8 EPROM
2732A	4Kx8 EPROM
2764	8Kx8 EPROM
27128	16Kx8 EPROM
27256	32Kx8 EPROM
6836E16	128K combination ROM/EPROM memory
6836R16	128K combination ROM/EPROM memory
6839	Floating-point ROM
6846	ROM-I/O-timer

SECURITY DEVICES

6859	Data security device

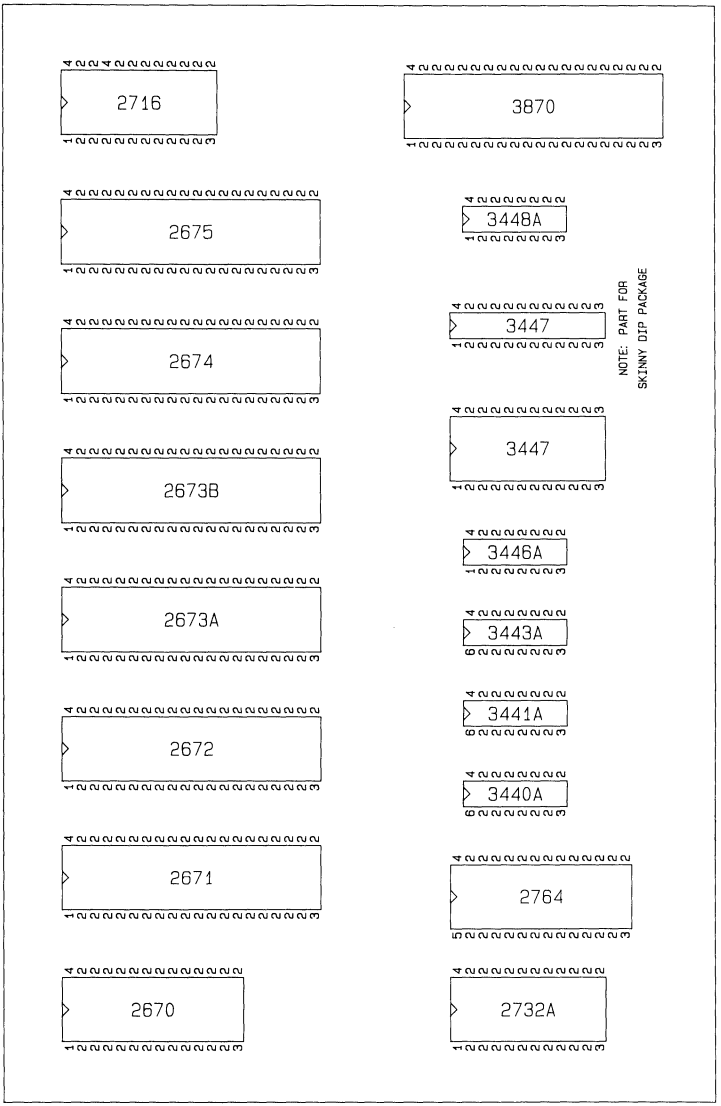
TIMERS/CLOCKS

6840	Programmable timer
146818	Real-time clock with RAM
146818A	Real-time clock with RAM

VIDEO DISPLAY GENERATORS/CONTROLLERS

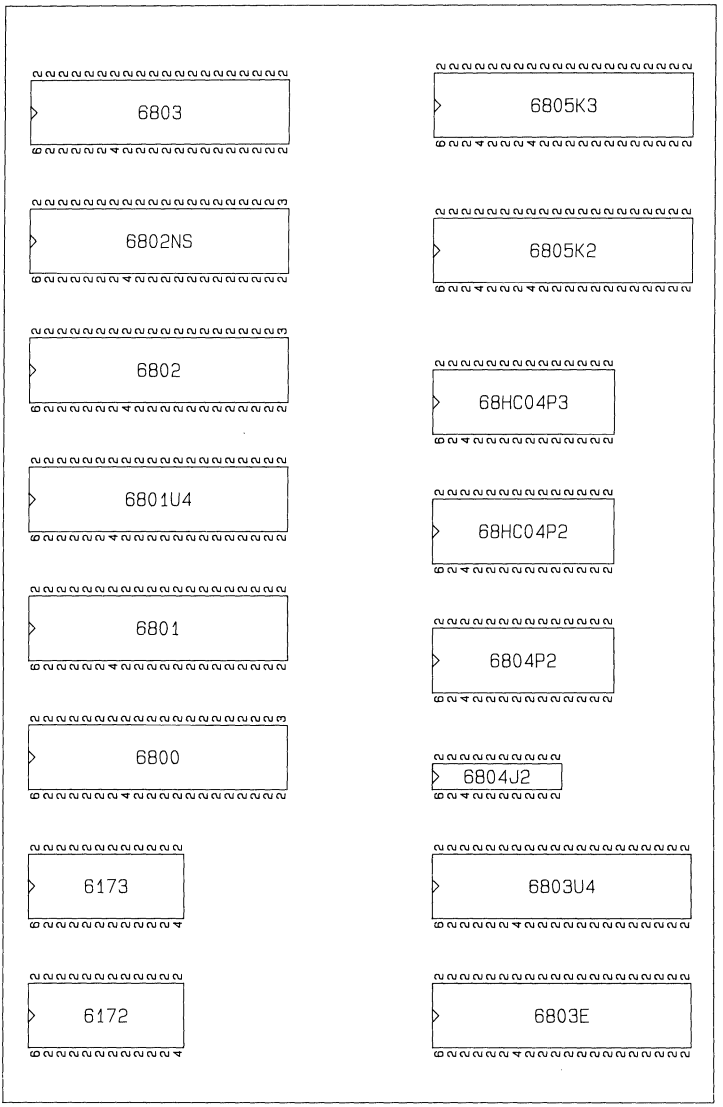
2670	Display character and graphics generator
2672	Programmable video timing controller
2673A	Video attributes controller with light pen strike-through
2673B	Video attributes controller with graphics control
2674	Advanced video display controller
2675	Color/monochrome attributes controller
6835	Mask programmed CRT controller
6845	CRT controller
6847	Video diplay controller
6847Y	Video display controller with interlace
68486	Raster memory interface
68487	Raster memory controller

COMPONENT PLOTS Plot 1



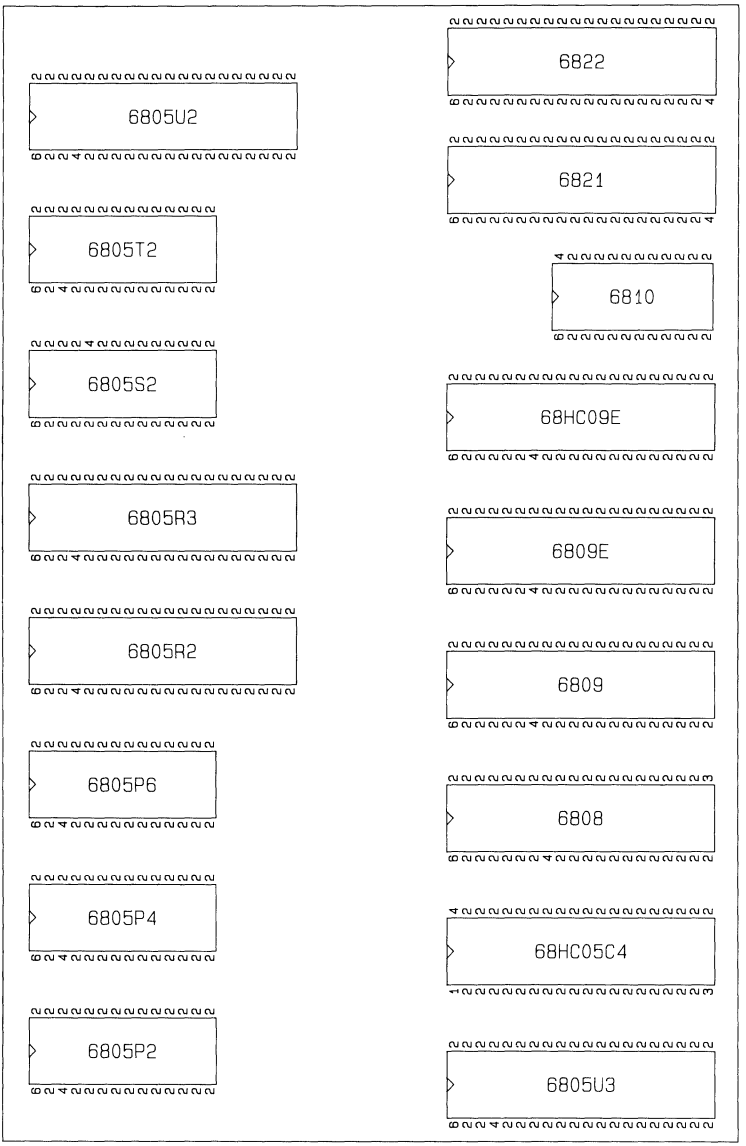
COMPONENT PLOTS

Plot 2



COMPONENT PLOTS

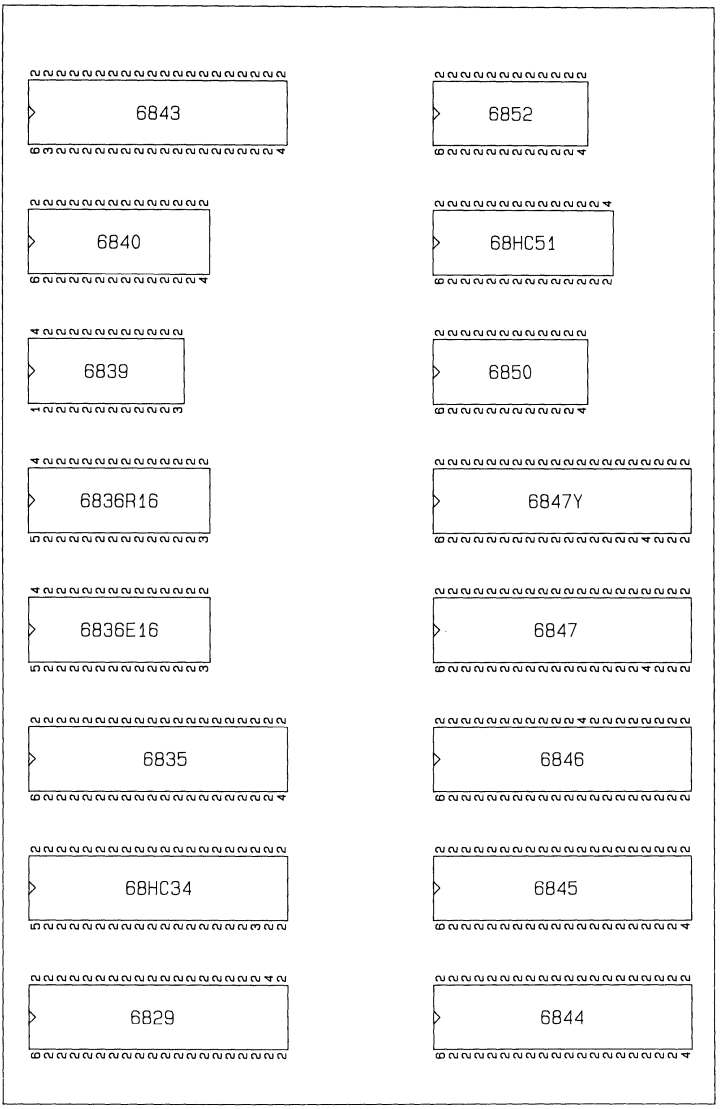
Plot 3



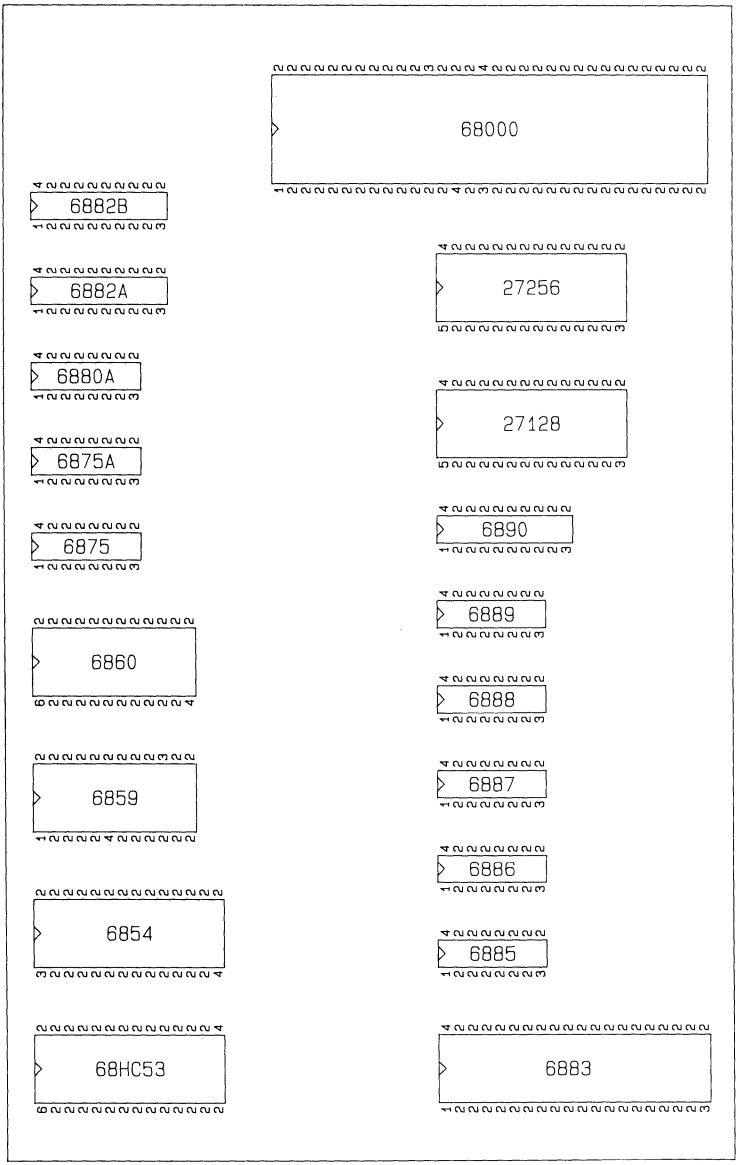
PLOT NO. 3

COMPONENT PLOTS

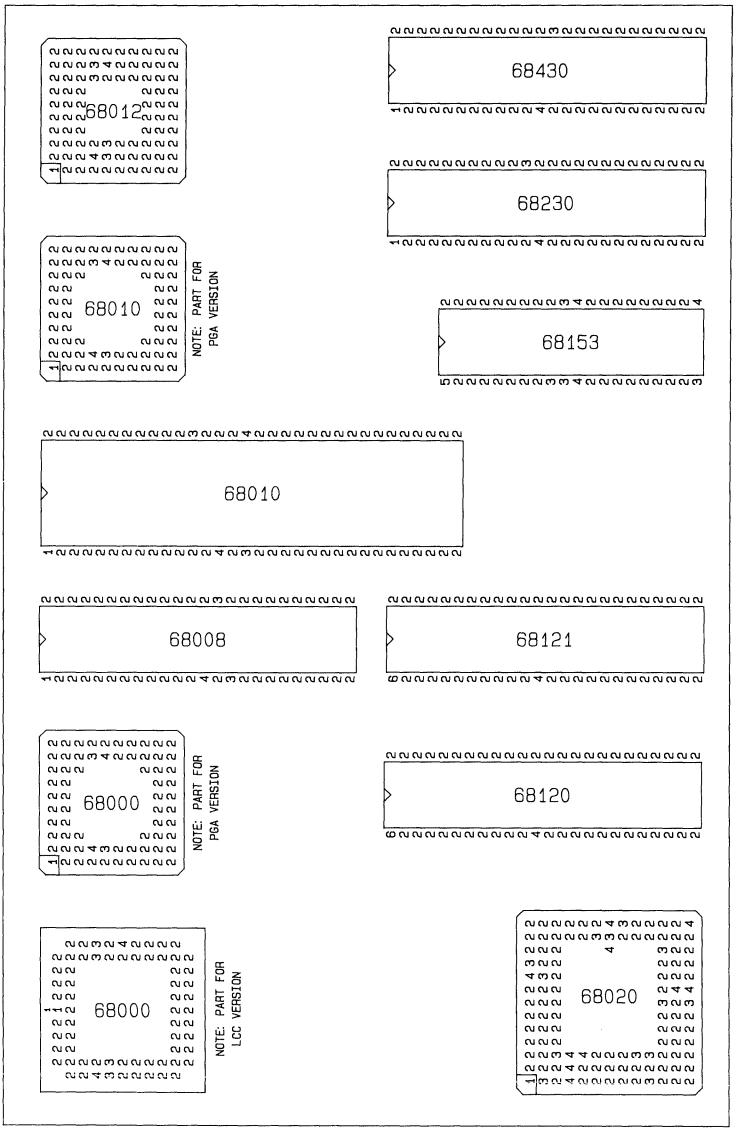
Plot 4



COMPONENT PLOTS **Plot 5**

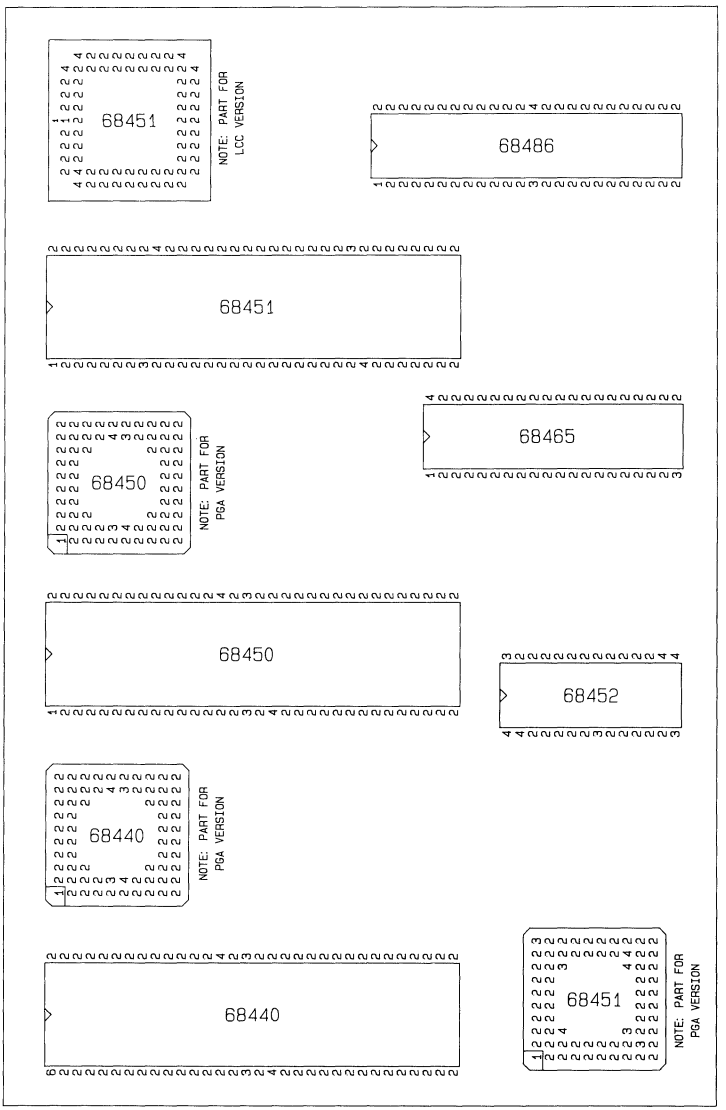


COMPONENT PLOTS **Plot 6**

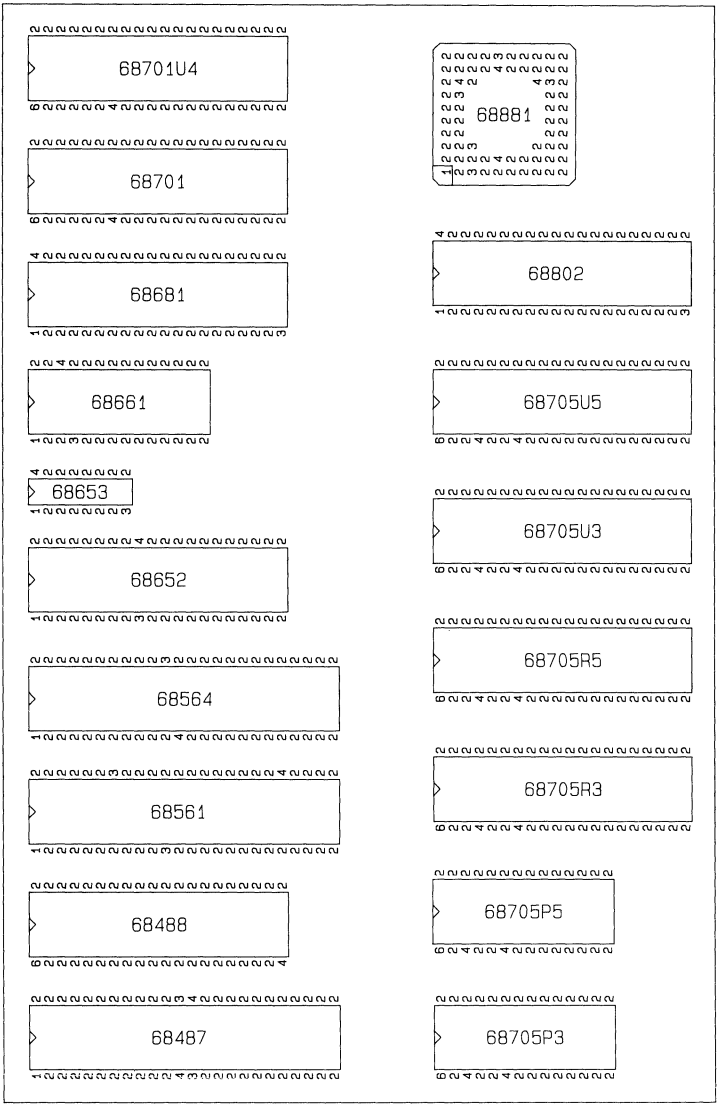


COMPONENT PLOTS

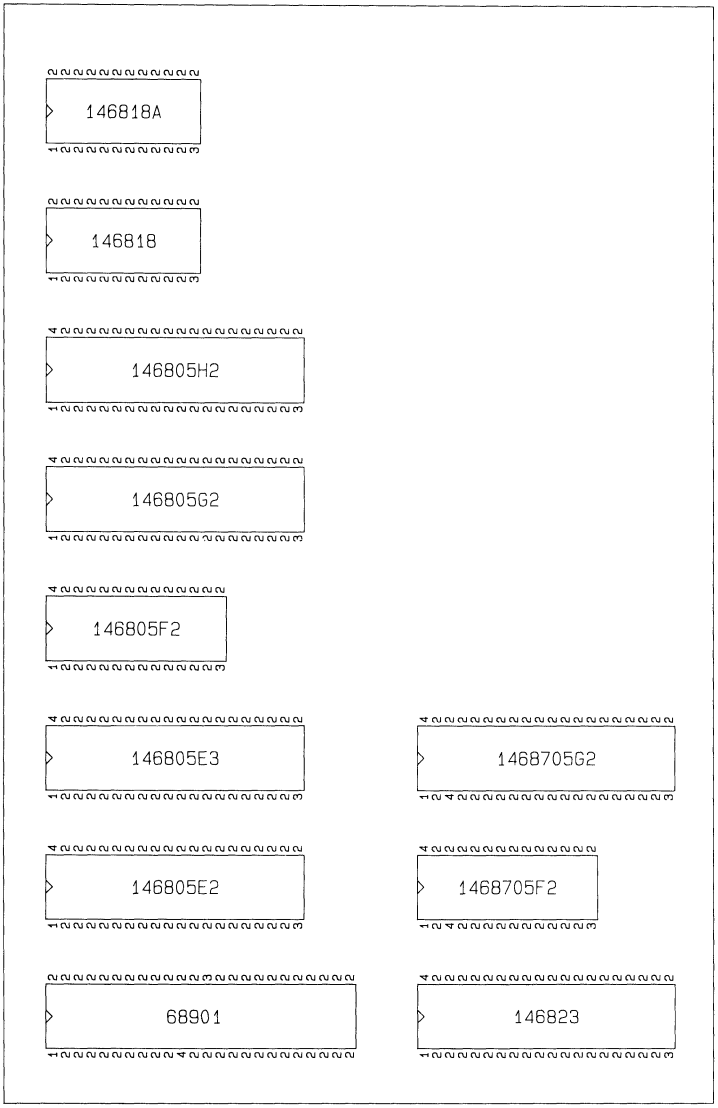
Plot 7



COMPONENT PLOTS **Plot 8**



COMPONENT PLOTS **Plot 9**



GERBER PHOTOPLOTTER APERTURE CHART

LOAD MULTI.PCB	TYPE 0 V50R28C.PS	TYPE 2 (N/C) 60R32C.PS	TYPE 3 (N/C) 60R32G.PS	TYPE 4 (N/C) 60R32P.PS
PADCOM	.050 Circle	.060 Circle	.060 Circle	.060 Circle
FLCOMP	Aperture 15	Aperture 9	Aperture 9	Aperture 9
PADSLD	.050 Circle	.060 Circle	.060 Circle	.060 Circle
FLSOLD	Aperture 15	Aperture 9	Aperture 9	Aperture 9
PADINT	.050 Circle	.060 Circle	.060 Circle	.060 Circle
FLINT	Aperture 15	Aperture 9	Aperture 9	Aperture 9
GNDCON	.020 Ring .060 Inner Diam .100 Outer Diam	.020 Ring .060 Inner Diam .100 Outer Diam	Aperture 9 .025 Width X	.020 Ring .060 Inner Diam .100 Outer Diam
FLGCON	Aperture 8	Aperture 8	Aperture 22	Aperture 8
CLEAR1	.100 Circle Solid Circle	.125 Circle Solid Circle	.125 Circle Solid Circle	.125 Circle Solid Circle
FLCLER	Aperture 20	Aperture 21	Aperture 21	Aperture 21
PWRCON	.020 Ring .060 Inner Diam .100 Outer Diam	.020 Ring .060 Inner Diam .100 Outer Diam	.020 Ring .060 Inner Diam .100 Outer Diam	Aperture 9 .025 Width X
FLPCON	Aperture 8	Aperture 8	Aperture 8	Aperture 22
SLDMSK	.060 Circle	.070 Circle	.070 Circle	.070 Circle
FLSMSK	Aperture 9	Aperture 11	Aperture 11	Aperture 11
DRILL	+28	+32	+32	+32
FLDRLL	Aperture 23 Text 28	Aperture 23 Text 32	Aperture 23 Text 32	Aperture 23 Text 32
PIN*	.050	.050	.050	.050

* The pin layer reflects connectivity (C) with a solid circle or no connectivity (N) with a hollow circle.

GERBER PHOTOPLOTTER APERTURE CHART (Continued)

LOAD MULTI.PCB	TYPE 1 (N/C) 60S32C.PS	TYPE 5 (N/C) 60S32P.PS	TYPE 6 (N/C) 60S32G.PS
PADCOM	.060 Square	.060 Square	.060 Square
FLCOMP	Aperture 10	Aperture 10	Aperture 10
PADSLD	.060 Square	.060 Square	.060 Square
FLSOLD	Aperture 10	Aperture 10	Aperture 10
PADINT	.060 Circle	.060 Circle	.060 Circle
FLINT	Aperture 9	Aperture 9	Aperture 9
GNDCON	.020 Ring .060 Inner Diam .100 Outer Diam	.020 Ring .060 Inner Diam .100 Outer Diam	Aperture 9 .025 Width X
FLGCON	Aperture 8	Aperture 8	Aperture 22
CLEAR	.125 Circle Solid Circle	.125 Circle Solid Circle	.125 Circle Solid Circle
FLCLER	Aperture 21	Aperture 21	Aperture 21
PWRCON	.020 Ring .060 Inner Diam .100 Outer Diam	Aperture 9 .025 Width X	.020 Ring .060 Inner Diam .100 Outer Diam
FLPCON	Aperture 8	Aperture 22	Aperture 8
SLDMSK	.070 Square	.070 Square	.070 Square
FLSMSK	Aperture 12	Aperture 12	Aperture 12
DRILL	+32	+32	+32
FRDRLL	Aperture 23 Text 32	Aperture 23 Text 32	Aperture 23 Text 32
PIN*	.050	.050	.050

* The pin layer reflects connectivity (C) with a solid circle or no connectivity (N) with a hollow circle.