

CAPABILITIES



No.	FEATURE	VARIABLES	VALUES		REMARKS
			STANDARD PRODUCIBILITY	REDUCED PRODUCIBILITY	
FABRICATION DRAWING FEATURES - ALL PWB'S					
1	BASE MATERIALS		N/A	IF PRESENT	STANDARD MATERIALS ARE EPOXY "GF"(ARLON 45N), POLYIMIDE "GI"(ARLON 85N), Isola Epoxy and polyimide, POLYIMIDE FILM "KAPTON" (DUPONT AP, LF, FR), and Panasonic RF-775.
2	LAYER COUNT FLEX, MAX		24 LYRS	32 LYRS And Higher	TOTAL CONDUCTIVE LAYERS
3	LAYER COUNT RIGID, MAX.		24 LYRS	30 LYRS And Higher	TOTAL CONDUCTIVE LAYERS
4	BASE CU WT		.5 OZ - 1 OZ	< .25OZ, > 4 OZ	
5	PLATED SUBS (E.G. BLIND OR BURIED VIAS)	SQUENTIAL LAMINATION CYCLES	2 Sequential Cycles	4 SEQUENTIAL CYCLES	SUBS PROCESSED IN PARALLEL COUNT AS 1 CYCLE
6	NON-PLATED SUBS (E.G. BONDED BUT NON-PLATED FLEX SUB)	LAMINATION CYCLES	2	4	LAM CYCLES
7	LONGEST DIMENSION, MAX.		34"	80"	22" MAX WIDTH/ For parts larger than 16 X 22 inches, consult Applications Engineer For Guidance on all Producibility Details; Rigid- flex parts up to 22 x 34 (and possibly longer) inches are supported. UP to 22" inches in length.
8	PROFILE TOLERANCE (Rigid Board)		+/- .010	+/- .005	UP to 22" inches in length.
8.5	PROFILE TOLERANCE (Flex & Rigid-Flex)		+/- .015	+/- .010	UP to 22" inches in length.
9	OVERALL THICKNESS, MAX.		0.16	0.25	
10	THICKNESS TOLERANCE		+/-10%	+/-5%	
11	ASPECT RATIO, MAX		8:1	10:1 And Higher	DRILL SIZE:BOARD THICKNESS
12	HOLE SIZE (MECHANICAL DRILL), MIN DIAMETER (Multilayer)		0.0135	0.009	DRILL SIZE (BEFORE PLATING)
13	LASER MICROVIA	HOLE SIZE, ASPECT RATIO	.006 Hole / .012 Pad	<.004, >1:1 .010 Pad or Smaller	.5:1 Aspect ratio strongly reccomened for most robust microvia
14	REGISTRATION TOLERANCE, LYR/LYR, MAX ALLOWABLE		0.014	0.01	
15	HOLE FILL, MIN HOLE SIZE	HOLE SIZE	0.02 Hysol .015 Other Fill Matls.	.008 - 0.01	FINISHED HOLE SIZE AFTER PLATING
16	NON STANDARD SURFACE FINISH	TYPE, THICKNESS	N/A	NI > .001; AU > 200 MICROINCHES (plated)	STD FINISHES - HASL, ENIG; ENIPIG; NON-STD WHITE TIN, IMMERSION SILVER, HARD/SOFT GOLD.
17	SELECTIVE SOLDER STRIP & FUSE		N/A	IF PRESENT	ALLOWANCE FOR .010 EXPOSED CU OR SOLDERMASK OVERLAP
18	CONTROLLED IMPEDANCE -SINGLE ENDED	TOLERANCE	+/-10%	+/-5%	
19	CONTROLLED IMPEDANCE - DIFFERENTIAL		+/-10%	+/-7%	
20	FEATURE LOCATION TOLERANCE - DRILL TO ARTWORK		0.01	0.005	DIAMETER TRUE POSITION
21	PLATED HOLE SIZE TOLERANCE		+/- .003	+/- .002	Up to .089 Thick
22	ETCHBACK TOLERANCE		+/- .001	+/- .0005	
23	DIELECTRIC - PREPREG		0.005	0.0045	TO MEET .0035 MIN DIELECTRIC



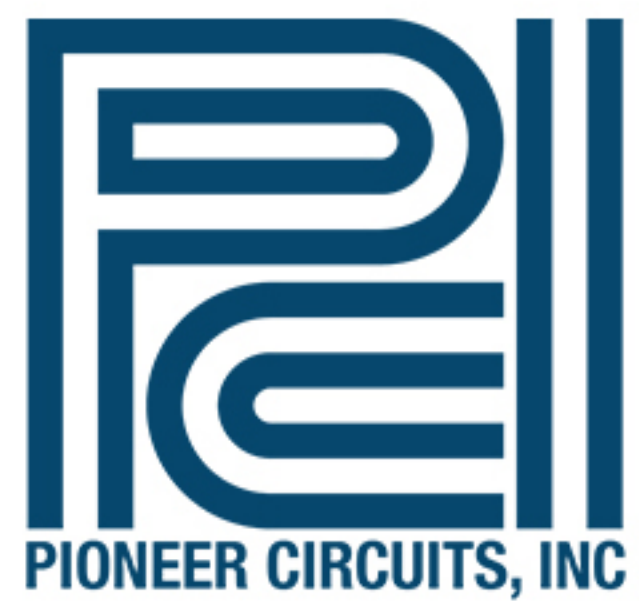
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			STANDARD PRODUCIBILITY	REDUCED PRODUCIBILITY	
FABRICATION DRAWING FEATURES - FLEX PWB'S ONLY					
24	BOOKBINDER		N/A	> .75"	ASSUMES NO BONDED FLEX LAYERS (3 Layers or above)
25	CROSSING FLEX LEGS		N/A	IF PRESENT	(Plated holes overlapping other flex layers count as sequential laminations)
26	DOUBLE-SIDED CAP CORE (1/2) CONSTRUCTION		N/A	IF PRESENT	1/0 STRONGLY PREFERRED ALL CASES; 1/2 ONLY W/ADHESIVELESS FLEX
27	LASER - DEPTH CONTROL		N/A	IF PRESENT	
29	MECHANICAL DRILL - DEPTH CONTROL		(+ / - .005)		
30	FLEXIBLE PROFILE DIMENSIONS	LAMINATION CYCLES	<+/- .010	<+/- .006	STEEL RULE DIES ARE +/- .005; ETCHED DIES OR +/- .002

ARTWORK (GERBER DATA) FEATURES - ALL PWB'S (Up to 22" Max Length)

No.	FEATURE	VARIABLES	VALUES		REMARKS
			STANDARD PRODUCIBILITY	REDUCED PRODUCIBILITY	
31	LINE/SPACE, MIN. ON .5 OZ CU Outer Layers		.004/.006	.003/.006	NOMINAL DIM. BEFORE ETCH COMPENSATION (add + .001/ +.001 if subs are present) - Outer Layers
31	LINE/SPACE, MIN. ON .5 OZ CU		.004/.005	.003/.004	NOMINAL DIM. BEFORE ETCH COMPENSATION (add + .001/ +.001 if subs are present)
32	LINE/SPACE, MIN. ON 1 OZ CU		.005/.006	.004/.005	NOMINAL DIM. BEFORE ETCH COMPENSATION; (add + .001/ +.001 if subs are present)
33	LINE/SPACE, MIN. ON 2 OZ CU		.005/.010	.004/.008	NOMINAL DIM. BEFORE ETCH COMPENSATION; (add + .001/ +.001 if subs are present)
34	PAD SIZE, MIN. - FOR MIL-SPEC ANNULAR RING (.005 EXTERNAL/.002 INTERNAL)		DRILL + .020	DRILL + .014	ASSUMES FINISHED SIZE IS DRILL MINUS .006; ADD .006 to PAD DIAMETER FOR EACH SEQ LAM
35	PAD SIZE, MIN. - FOR IPC ANNULAR RING (.002 EXTERNAL/.001 INTERNAL)		DRILL + .016	Drill + .010	ASSUMES FINISHED SIZE IS DRILL MINUS .006; ADD .004 to PAD DIAMETER FOR EACH SEQ LAM
36	CONDUCTOR TO PTH MIN		0.014	0.012	APPLYS TO PADLESS HOLES
37	GROUND PLANE CLEARANCE, MIN	.010 CLEARANCE	.006 Hole / .012 Pad	0.005 CLEARANCE	CLEARANCE AROUND PADS (for .5 oz Cu / .007 for 2 oz Cu)
28	HOLE TO PART EDGE, MIN DISTANCE	RIGID-FLEX	0.050 Min.	0.030 Min.	Add .020 to these minimums if BOOKBINDER
38	HOLE TO PART EDGE, MIN DISTANCE		0.05.	0.025	EDGE OF HOLE TO EDGE OF PART
38	A/W FEATURE TO PART EDGE, MIN DISTANCE		0.02	0.01	EDGE OF FEATURE TO EDGE OF PART (Refer to (28) for rigid-flex
39	SOLDERMASK - MIN WEB LPI		0.006	0.004	
40	SOLDERMASK - MIN WEB DRYFILM		0.008	0.005	
41	SOLDERMASK - MIN CLEARANCE AROUND FEATURES		.005 PER SIDE	< 0025 PER SIDE	NOMINAL DIM. BEFORE ETCH COMPENSATION



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ARTWORK (GERBER DATA) FEATURES - FLEX PWB'S ONLY					
42	PLATED HOLE TO R/F INTERFACE, MIN DISTANCE		< .125	< .075	EDGE OF HOLE TO EDGE OF RIGID BOARD
43	COVERCOAT CLEARANCE AROUND PADS, MIN.		ADHESIVE THICKNESS	CLEARANCE DIAMETER < .010 OVER PAD DIAMETER	FOR UP TO .003 ADHESIVE; TO ALLOW FOR ADHESIVE SQUEEZEOUT & COVERCOAT REGISTRATION.
ARTWORK (GERBER DATA) FEATURES - SILVER EPOXY SHIELDING					
44	SHIELD TIE OPENING IN COVER TO ACCESS CONDUCTOR BELOW		.060" DIA. MIN MULTIPLE LOCATIONS ALONG GND CONDUCTOR	.030" DIA. MIN MIN. (3) LOCATIONS AT EACH END TERMINATION	(MIN CONDUCTOR WIDTH BELOW SHIELD TIE IS >.010" LARGER THAN SHIELD TIE DIAMETER)
45	(STANDARD / NON 360 DEGEREE) SILVER EPOXY EDGE TO FLEX PROFILE		.060" SILVER EPOXY EDGE TO FLEX PROFILE EDGE, MIN., PER SIDE (FLEX WIDTH WIDTH TO BE .060" MIN. GREATER THAN SILVER EPOXY WIDTH)	.040" SILVER EPOXY EDGE TO FLEX PROFILE EDGE, MIN., PER SIDE (FLEX WIDTH WIDTH TO BE .040" MIN. GREATER THAN SILVER EPOXY WIDTH)	SILVER EPOXY TO OVERLAP CONDUCTORS BELOW BY +.050" PER SIDE. Verify design approach for cables longer than 22". Typical final requirement is .005" min. spacing: silver epoxy to flex edge.
46	(NON- STANDARD / 360 DEGEREE WRAP) SILVER EPOXY EDGE TO FLEX PROFILE		.080" SILVER EPOXY EDGE TO FLEX PROFILE EDGE, MIN., PER SIDE (FLEX WIDTH WIDTH TO BE .080" MIN. GREATER THAN SILVER EPOXY WIDTH)	.050" SILVER EPOXY EDGE TO FLEX PROFILE EDGE, MIN., PER SIDE (FLEX WIDTH WIDTH TO BE .060" MIN. GREATER THAN SILVER EPOXY WIDTH)	SILVER EPOXY TO OVERLAP CONDUCTORS BELOW BY +.050" PER SIDE. Verify design approach for cables longer than 22". Typical final requirement is .005" min. spacing: silver epoxy to flex edge.