

PIONEER CIRCUITS, INC PWB PRODUCIBILITY GUIDELINES

No.	FEATURE	VARIABLES	VALUES		REMARKS
			STANDARD PRODUCIBILITY	REDUCED PRODUCIBILITY	
FABRICATION DRAWING FEATURES - ALL PWB'S					
1	BASE MATERIALS		N/A	IF PRESENT	STANDARD BASE MATERIALS ARE EPOXY/GLASS "GF"(ARLON 45N), POLYIMIDE/GLASS "GI"(ARLON 85N), POLYIMIDE FILM "KAPTON" (DU PONT AP, LF,VR,FR). ALL OTHERS ARE NON-STANDARD
2	LAYER COUNT FLEX, MAX		20 LYRS	32 LYRS	TOTAL CONDUCTIVE LAYERS
3	LAYER COUNT RIGID, MAX.		20 LYRS	30 LYRS	TOTAL CONDUCTIVE LAYERS
4	BASE CU WT		.5 OZ - 1 OZ	< .25OZ, > 4 OZ	
5	PLATED SUBS (E.G. BLIND OR BURIED VIAS)	SEQUENTIAL LAMINATION CYCLES	N/A	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.		22"	60"	22" MAX WIDTH
8	PROFILE TOLERANCE		+/- .010	+/- .005	
9	OVERALL THICKNESS, MAX.		0.16	0.25	
10	THICKNESS TOLERANCE		+/-10%	+/-5%	
11	ASPECT RATIO, MAX		8:1	10:01	DRILL SIZE:BOARD THICKNESS
12	HOLE SIZE (MECHANICAL DRILL), MIN DIAMETER		0.0135	0.009	DRILL SIZE (BEFORE PLATING)
13	LASER MICROVIA	HOLE SIZE, ASPECT RATIO	N/A	<.004, >1:1	
14	REGISTRATION TOLERANCE, LYR/LYR, MAX ALLOWABLE		0.014	0.01	
15	HOLE FILL, MIN HOLE SIZE	HOLE SIZE	0.02	0.01	FINISHED HOLE SIZE AFTER PLATING
16	NON STANDARD SURFACE FINISH	TYPE, THICKNESS	N/A	NI > .001; AU > 200 MICROINCHES	STD FINISHES - HASL, ENIG; NON-STD WHITE TIN, IMMERSION SILVER, 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		+/-15%	+/-7%	
20	FEATURE LOCATION TOLERANCE - DRILL TO ARTWORK		0.01	0.005	RADIAL TRUE POSITION
21	PLATED HOLE SIZE TOLERANCE		+/- .003	+/- .002	
22	ETCHBACK TOLERANCE		+/- .001	+/- .0005	
23	DIELECTRIC - PREPREG		0.005	0.0045	TO MEET .0035 MIN DIELECTRIC
FABRICATION DRAWING FEATURES - FLEX PWB'S ONLY					
24	BOOKBINDER	BOOKBINDER HEIGHT	N/A	> .75"	ASSUMES NO BONDED FLEX LAYERS
25	CROSSING FLEX LEGS		N/A	IF PRESENT	

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26	DOUBLE-SIDED CAP CORE (1/2) CONSTRUCTION	BASE MATL - ACRYLIC "LF" VS. ADHESIVELESS "AP"	N/A	IF PRESENT	1/0 STRONGLY PREFERRED ALL CASES; 1/2 ONLY W/ADHESIVELESS FLEX
27	LASER - DEPTH CONTROL		N/A	IF PRESENT	
28	FLEXIBLE PROFILE DIMENSIONS		<+/- .010	<+/- .006	STEEL RULE DIES ARE +/- .005; ETCHED DIES OR +/- .002
ARTWORK (GERBER DATA) FEATURES - ALL PWB'S					
29	LINE/SPACE, MIN. ON .5 OZ CU		.004/.005	.003/.004	NOMINAL DIM. BEFORE ETCH COMPENSATION
30	LINE/SPACE, MIN. ON 1 OZ CU		.005/.006	.004/.005	NOMINAL DIM. BEFORE ETCH COMPENSATION
31	LINE/SPACE, MIN. ON 2 OZ CU		.005/.010	.004/.008	NOMINAL DIM. BEFORE ETCH COMPENSATION
32	PAD SIZE, MIN. - FOR MIL-SPEC ANNULAR RING (.005 EXTERNAL/.002 INTERNAL)		DRILL + .020	DRILL + .014	ASSUMES FINISHED SIZE IS DRILL MINUS .006
33	PAD SIZE, MIN. - FOR IPC ANNULAR RING (.002 EXTERNAL/.001 INTERNAL)		DRILL + .016	Drill + .010	ASSUMES FINISHED SIZE IS DRILL MINUS .006
34	CONDUCTOR TO PTH MIN		0.01	0.0075	APPLYS TO PADLESS HOLES
35	GROUND PLANE CLEARANCE, MIN		.010 CLEARANCE	0.005 CLEARANCE	CLEARANCE AROUND PADS
36	HOLE TO PART EDGE, MIN DISTANCE		0.05	0.025	EDGE OF HOLE TO EDGE OF PART
37	A/W FEATURE TO PART EDGE, MIN DISTANCE		0.02	0.01	EDGE OF FEATURE TO EDGE OF PART
38	SOLDERMASK - MIN WEB LPI		0.006	0.004	
39	SOLDERMASK - MIN WEB DRYFILM		0.008	0.005	
40	SOLDERMASK - MIN CLEARANCE AROUND FEATURES		.005 PER SIDE	< .0025 PER SIDE	NOMINAL DIM. BEFORE ETCH COMPENSATION
ARTWORK (GERBER DATA) FEATURES - FLEX PWB'S ONLY					
41	PLATED HOLE TO R/F INTERFACE, MIN DISTANCE		< .125	< .075	EDGE OF HOLE TO EDGE OF RIGID BOARD
42	COVERCOAT CLEARANCE AROUND PADS, MIN.	ADHESIVE THICKNESS	CLEARANCE DIAMETER < .020 OVER PAD DIAMETER	CLEARANCE DIAMETER < .010 OVER PAD DIAMETER	FOR UP TO .003 ADHESIVE; TO ALLOW FOR ADHESIVE SQUEEZEOUT & COVERCOAT REGISTRATION.