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## PRODUCTION CAPABILITIES FOR RF / MICROWAVE PCBs

Sr. No.	Parameters	Standard		Complex	
<b>A.</b>	<b>MATERIAL</b>				
	1. Rogers	RT/duroid 5870 / 5880 / 6002 / 6006 / 6010 / RO 3000 / TMM10i			
	2. Others	Arlon / Neltec / Taconic / Polyfon			
	3. Material Details	Random Glass ,Thermoset polymer, woven glass ceramic fillers,			
		PTFE with ceramic fillers, LCP , CIC			
	4. Copper Foils (RA or Ed )	0.25oz (9um) / 0.33oz.(12um) / 0.5oz.(18um) / 1oz.(35um) / 2oz.(70um)			
	5. Copper back up	0.50mm. / 1.0mm. / 2.0mm. / 3.0mm.			
	6. Hybrid Construction	Rogers materials with Fr-4 materials			
<b>B.</b>	<b>BOARD DIMENSIONS</b>	<b>MM</b>	<b>INCH</b>	<b>MM</b>	<b>INCH</b>
	1. Max. standard panel size	457 x 610	18 x 24		
	2. Min. standard Panel size	101 x 152	4 x 6		
	3. Large format capability	100 x 787	4 x 31		
	4. Large Antenna capability	100 x 1016	4 x 40		
	5. Minimum laminate thickness	0.127	0.005		
	6. Max. Board Thickness	3.50	0.138		
				Other oversized boards are to be assessed after the Gerber verification	
<b>C.</b>	<b>CIRCUIT CAPABILITY</b>				
	1. Min. Trace and Space ( 0.25 oz / 9 um )	50 um	0.002		
	2. Min. Trace and Space ( 0.5 oz / 18 um )	75 um	0.003		
	3. Min. Trace and Space ( 1.0 oz / 35 um )	125 um	0.005		
	4. Min. Trace and Space ( 2.0 oz / 70 um )	150 um	0.006		
<b>D</b>	<b>PAD - DRILLED REGISTRATION</b>				
	Standard & Complex	+/- 50 um	+/- 0.002	+/-30 um	+/-0.0011
<b>E</b>	<b>MINIMUM ANNAULAR RING</b>				
	Standard & Complex	100 um	0.004	50 um	0.002
<b>F</b>	<b>IMAGE REGISTRATION</b>				
	Standard & Complex	+/- 45 um	+/- 0.0018	+/- 25 um	+/- 0.001
<b>G</b>	<b>DRILL CAPABILITIES</b>				
	1. Finish Hole Diameter Tolerance				
	Plated	+/-0.075	0.002	+/-0.05	0.002
	Non- plated	+/-0.05	0.001	+/-0.05	0.002
	2. Cu Thickness in Through Hole	>0.025	0.001	>0.025	0.001
<b>H.</b>	<b>MECHANICAL DRILLING</b>				
	1. Aspect Ratio	10:1		11:1	
	2. Aspect Ratio with metal back up	8:1		10:1	
	3. Min. Drilled Micro via Diameter	0.20	0.008	0.15	0.006
	4. Min. Drilled dia. with metal back up	0.60	0.024	0.5	0.020
	5. Min. Hole- edge-to-Hole edge ( depend on Board Thick. And Drill Bit )	0.35	0.014	0.30	0.01
<b>I</b>	<b>MECHANICAL MACHINING &amp; TOLERANCE</b>				
	1. Min. internal radii ( metal back up)	0.50	0.020	0.40	0.016
	2. Min. route Dimensional Tolerance	+/-0.10	+/-0.004	+/-0.05	+/-0.002
	3. "Z" axis depth control	+/-0.15	0.006	+/-0.13	0.005
<b>J</b>	<b>CAVITY DESIGN</b>				
	1. Cavity in Inner layers - minimum core thickness	0.50	0.020	0.40	0.016
	2. Cavity in outer layers (with/without cu. back up)	0.50	0.020	0.40	0.016
<b>K</b>	<b>PLASMA ETCHING</b>				
	1. Min. Etched Micro via Diameter	0.25	0.010	0.20	0.008
<b>L</b>	<b>SODIUM TREATMENT</b>				
	1. Min. Etched Micro via Diameter	0.25	0.010	0.20	0.008
<b>M</b>	<b>SOLDER MASK</b>				
	Type : Electra EMP110				
	Colour : Green, Blue, Red, white , Black, Transparent				
	Hardness : 6H				
	Min. clearance	0.10	0.004	0.08	0.003
	Micro Via Hole	Covered		Covered	
	Component Hole	0.13	0.005	0.10	0.00
	Minimum soldermask Dam	0.20	0.008	0.15	0.006
<b>N</b>	<b>PEELABLE SOLDER MASK</b>				
	Type : Peters ink 2955				
	Minimum thickness	0.30	0.012	0.20	0.008
	Colour : Green / Red				
<b>O</b>	<b>SURFACE FINISH</b>				
	1. Electrolytic pure Soft Gold Direct on Copper	Yes		Yes	
	Gold Thickness ( Gold wire bonding )	> 0.5 to 5.0 um		> 0.5 to 5.0 um	
	Gold Over hang Controlled to	< 10 um		5 to 7 um	
	2. Electrolytic Pure Gold on Nickel barroir	Yes		Yes	
	3. Electrolytic Hard Gold on Nickel barroir	Yes		Yes	
	4. Electroless Nickel & Immersion Gold (ENIG)	Yes		Yes	
	a. Nickel Thickness	>3.8um		>3.8um	
	b. Immersion Gold Thickness	0.05-0.1um		0.05-0.1um	
	5. ENEPIG				
	6. EPAG				
	7. Selective Hard Gold with ENIG Finish	0.5 to 3.0um		0.5 to 3.5 um	
	8. Selective Hard Gold with Hal Finish	0.5 to 3.0um		0.5 to 3.5 um	
	9. Selective ENIG / HAL Combination	Yes		Yes	
	10. HASL / LFHAL Solder Thickness	4 to 8 um		4 to 8 um	
	11. Immersion Silver	yes		yes	
	12. Immersion Tin	yes		yes	