

	Prototron			
	Tucson		Redmond	
	Double-Sided	Multi-Layer	Double-Sided	Multi-Layer
Material Types:				
Standard & Lead Free Compatible FR4	UL & MIL-PRF-55110G	UL & MIL-PRF-55110G	UL	UL
Polyimide	MIL-PRF-55110G	MIL-PRF-55110G		
Hybrid Lamination of FR4 & other specialty materials. Rogers 3000 Series, 4000 Series, 5870, 5880, 6002, 6006, Ultra Lam 2000 & TMM	X	X	X	X
Arlon, Getek & Dupont FEP	X	X	X	X
CuFlon & Metal Backed Material	X			
Minimum Core Thickness:				
Standard FR4:	.010	N/A	.005	N/A
Lead Free Compatible FR4:	.010	.003	N/A	.002
Other Materials:	Please Call	Please Call	Please Call	Please Call
Standard Core Thickness with Tolerance: (FR4 Material)				
Thinnest:	N/A	.003 +/- .0007	N/A	.003 +/- .0007
	N/A	.004 +/- .0007	N/A	.004 +/- .0007
	N/A	.005 +/- .001	N/A	.005 +/- .001
	N/A	.010 +/- .0015	N/A	.010 +/- .0015
	N/A	.028 +/- .003	N/A	.028 +/- .003
Number of Conductive Layers:		3 - 24		3-30
Minimum Surface Mount Pitch:				
½ oz.:	.015	.015	.010	.010
1 oz.:	.020	.020	.020	.018
2 oz.:	.025	.025	.025	.022
3 oz.:	.050	.050	.050	.050
Solder Mask Types: TH for Screened Thermal LPI for Liquid Photo Imageable	LPI Standard Thermal Cure for PTFE Materials	LPI Standard Thermal Cure for PTFE Materials	LPI, Standard	LPI, Standard
Misc.:				
Standard Router Bit Diameter:	.093	.093	.093	.093
Routed Hole Tolerance (standard):	+/- .005	+/- .005	+/- .005	+/- .005
Rout Edge to Edge:	+/- .010	+/- .010	+/- .010	+/- .010
Edge to Datum Hole Tolerance:	+/- .005	+/- .005	+/- .005	+/- .005
Minimum Internal Rout Radius:	.010	.010	.010	.010
Minimum Routed Slot Diameter:	.020	.020	.020	.020
Scoring Angle Internal:	60 Degrees	60 Degrees	60 Degrees	60 Degrees
Scoring Angle External:	30 Degrees	30 Degrees	30 Degrees	30 Degrees
Scoring Offset Tolerance:	+/- .010	+/- .010	+/- .010	+/- .010
Scoring Web Tolerance:	+/- .010	+/- .010	+/- .010	+/- .010
Scoring True Position Tolerance:	+/- .010	+/- .010	+/- .010	+/- .010
Minimum Test Continuity Resistance:	10 Meg Ohms	10 Meg Ohms	10 Meg Ohms	10 Meg Ohms
Maximum Test Voltage:	500 VDC	500 VDC	500 VDC	500 VDC
Impedance Tolerance:	10%	10%	10%	10%
Probe Accuracy (DTP)	.003	.003		
Electrical Test Probe Point Pitch:	.008	.008	.007	.007
Final Finishes:	<i>Internal or Out Source</i>	<i>Internal or Out Source</i>	<i>Internal or Out Source</i>	<i>Internal or Out Source</i>
Vertical Hot Air Solder Level:	Internal	Internal	Internal	Internal
Full Gold Body:	Internal	Internal	Out Source	Out Source
Gold Tab Plating:	Internal	Internal	Out Source	Out Source
Immersion White Tin:	Internal	Internal	Out Source	Out Source
Soft Bondable Gold:	Out Source	Out Source	Out Source	Out Source
ENIG:	Internal	Internal	Internal	Internal
Immersion Silver:	Internal	Internal	Out Source	Out Source
Tooling Formats:				
Media Types & Data Transfer:	FTP & E-mail	FTP & E-mail	FTP & E-mail	FTP & E-mail
Film Data Formats:	Gerber 274 X	Gerber 274 X	Gerber 274 X	Gerber 274 X
Drill Data Formats:	Excellon	Excellon	Excellon	Excellon
Rout Data Formats:	Excellon	Excellon	Excellon	Excellon
Electrical Test Formats:	Gerber	Gerber	Gerber	Gerber
Netlist Compare Formats:	CAD/CAM	CAD/CAM	CAD/CAM	CAD/CAM

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A. Minimum Core Thickness	N/A	.003	N/A	.002
B. Minimum Prepreg Thickness	N/A	.0035	N/A	.0035
C. Minimum PTH Annular Ring	.002	.005 Class 2 & .007 Class 3	.002	.001
D. Minimum Pad to Plane Clearance	.015	.015	.007	.007
E. Smallest Finished Plated Hole Size	.005	.005	.005	.005
F. Buried Via Hole Size	N/A	.008 - .015	N/A	.008 - .015
G. Buried Via Annular Ring	N/A	.005 Class 2 & .007 Class 3	N/A	.001
H. Minimum Annular Ring to Tent NPTH/Side	.012	.012	.005	.005
I. Minimum Copper to Edge of Board	.005 Std FR4 Mat	.005 Std FR4 Mat	.005	.005
J. Minimum NPTH to Edge of Board	.050	.050	.020	.020
K. Annular Ring for Pad on NPTH	.010	.010	.010	.010
L. Blind Via Hole Size	N/A	.008 - .015	N/A	.008 - .020
M. Blind Via Annular Ring	N/A	.005 Class 2 & .007 Class 3	N/A	.001
N. Internal Ground Clearance	N/A	.015	N/A	.007
O. Minimum Internal Annular Ring	N/A	.005 Class 2 & .007 Class 3	N/A	.001
P. Minimum Trace Width on 1/2oz copper foil	.004	.004	.003	.003
Q. Minimum Trace – Trace Space	.005	.005	.004	.004
R. Minimum Pad – Trace Space	.005	.005	.004	.004
S. Minimum Trace – NPTH Space	.008	.008	.005	.005
T. Minimum Trace – Edge of Board	.020	.020	.010	.010
U. Minimum Pad – Edge of Board	.020	.020	.010	.010
V. Minimum SMT Width	.010	.010	.008	.008
W. Minimum SMT Web	.005	.005	.004	.004
X. Minimum Mask Annular Ring	.003	.003	.002	.002
Y. Minimum Mask Web	.005	.005	.004	.004
Z. Minimum Mask Clearance to Trace	.005	.005	.004	.004
AA. Legend Width	.007	.007	.004	.004

