

Technology – Rigid-Flex and Multilayer PCBs

General	
Quantities	Prototypes up to Small Serial Production
Number of Layers	1 – 40 Layers
Appointment Options	2-15 Working Days, depending on quantity and capacity utilization
Maximum PCB Size	470 x 575mm, Long-Flex up to 20 Meter x 245mm Larger Dimensions possible after consultation
Minimum PCB Size	No Limitation
Panels	Possible
IPC Standars	According to IPC A-600 Class II / III, Production according to 6013
UL-Certification of the PCB	UL-File E79493
UL-Certification of the PCB Base Material	Available
DIN EN ISO 9001 Zertifizierung	Available
Electrical Test	Standard
Material, Structure and Design	
Base Material Options	All FR4 materials, polyimide grades, Megtron6, PTFE grades from Rogers and Taconic. Other materials on request
Continuous Operating Temperature Maximum	Up to 180°C / 356°F
Material Thickness	0,05 mm – 8 mm
Copper Thickness	9 µm, 12 µm, 18 µm, 35 µm, 70 µm, 105µm, 140 µm, 210 µm, 400 µm, 1 mm, 1,5 mm, 2 mm, 3 mm
Plugging	Possible, e.g. for Via-in-Pad Technique after IPC- 4761 VII
Inner Layers Trace width and trace spacing	75 µm Limit Dimension, Recommended 100 µm
Outer Layers Trace width and trace spacing	75 µm Limit Dimension, Recommended 100 µm
Etching Tolerance of the Conductor width	According to IPC 6012/6013 or by agreement
CNC	
Smallest PTH Drilling	0,10 mm Limit Dimension
Tolerance Hole Diameter PTH	Standard +0.1/-0 mm for chemical surfaces or according to agreement
Smallest Via Hole Dimension	0,1 mm

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Largest aspect ratio for blind holes	1:1
Smallest residual ring for blind holes	0,075 mm
Smallest Hole Blind-Via	0,10 mm Grenzmaß
Tolerance hole diameter Blind-Via	+/- 0,05mm
Possible Drill Sizes	0.10 mm - 6 mm at Intervals of 0.05 mm
Countersink holes	Possible
Blind-Via Drilling in Copper Surfaces	Possible
Minimum hole spacing	0,35 mm Limit Dimension
Milling	From 0.6mm cutter diameter
Contour tolerances	According to DIN ISO 2768-1m or by agreement
Z-axis milling	Possible
Scoring	Possible
Scoring depth	Standard residual ridge 0.4 mm
Syringes	Possible
Lasering	Externally possible
Copper exemption	0,25 Limit Dimension
Minimum hole spacing to the outer contour	0,4 Limit Dimension
Backdrill	Possible
Surfaces and varnishes	
Connector Gold	Possible
Layer thickness chem. Tin	$\geq 1\mu\text{m}$
Layer thickness chem. Nickel Gold (ENIG)	4-7 μm / 0,05-0,1 μm
Layer thickness chem. Nickel Palladium Gold (EPIG)	4 – 8 μm / 0,1-0,3 μm /0,03-0,08 μm
Solder resist paint	Green, Blue, White, Black, Red Other colours on request
Narrowest solder resist round/straight	75 μm / 100 μm
Maximum offset of the solder resist	Corresponds to the measure of exemption
Via- Fill pressure	Possible
Assembly print	Both-Sides

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Font colors	White, Yellow Other colours on request
Narrowest font width	150µm
Surfaces	<p>Gold Containing:</p> <ul style="list-style-type: none"> - ENIG (Chem. Ni/Au) - ENEPIG - EPIG - Electroplated Ni/Hard-gold - Electroplated Ni/Fine-Gold <p>Tin Containing:</p> <ul style="list-style-type: none"> - Chem. Tin - HAL lead-free - HAL SnPb <p>Silver Containing:</p> <ul style="list-style-type: none"> - Chem. Silver - ISIG <p>Other: OSP</p>
3M adhesive foil	Possible