

Hub Circuits Group Ltd.

PCB & PCBA OEM / ODM Service Capability

Description	Capability
Service	Turnkey EMS (electronics manufacturing service) including pcb prototype, compoments sourcing, pcb assembly, pcba conformal coating, box finaly assembly, PCBA function testing, etc.
PCB Assembly Capabilities	
Placement Precision	QFP, SOP, PLCC, BGA
SMT Jointing Capability	1206, 0805, 0603, 0402, 0201,01005
Assembly Service	PCB manufacturing,components sourcing and in-house assembly, whole project management available
	Providing OEM service to all sorts of printed circuit board assembly
Technical Requirement	Professional Surface-mounting and Through-hole soldering Technology
	Various sizes like 1206,0805,0603 components SMT technology
	ICT(In Circuit Test), FCT(Functional Circuit Test) technology
	PCBA Assembly With CE, 3C, Rohs, IATF16949 Approval
	High Temperture reflow soldering technology for SMT
	High Standard SMT& Solder Assembly Line
	High density interconnected board placement technology capacity
Quote&Production Requirement	Gerber File or PCBA File for Bare PCBA Board Fabrication
	Gerber File, Bom (Bill of Material) for Assembly,PNP(Pick and Place file) and Components Position also needed in assembly
	To reduce the quote time, please provide us the full part number for each components, Quantity per board also the quantity for orders.
	Testing Guide & Function Testing method to ensure the quality to reach nearly 0% scrap rate
OEM/ODM/EMS Services	PCBA, PCBA Aassembly: SMT & PTH & BGA
	PCBA and enclosure design
	Components sourcing and purchasing
	Quick prototyping
	Final assembly
	Test: X-ray, AOI, In-Circuit Test (ICT), Functional Test (FCT), ATE, etc
Production equipment: Guarantee for your production	Automatic Printing Machine --SMT Machine - Reflow Soldering Oven - Wave Soldering Oven - Automatic Welding Machine - Automatic Plug-in Machine - PCB Splitting Machine - PCBA Board Washing Machine - Conformal Coating Machine -Potting Machine
Testing equipment: quality control for your products	X-ray Detector for Components--Automatic Stencil Test Machine---Online AOI Detector--X-Ray Detector--Automatic 1st Sample Tester -- Online SPI -- Solder Paste Detector - High & low Temperature Tester - ATE Detector

Hub Circuits Group Ltd.

Rigid-Flex PCB Technical Specification

Layer	1-8 layers
Finish Board Thickness	0.25-6.0mm
Min Pattern Width / Spacing	0.05mm/0.05mm
Max Finish Board Size	230*450mm
Finish Board Thickness Tolerance	±0.05mm
PP Thickness	12.5um/25um/50um
Copper Thickness	12um/18um/36um/70um
Stiffener Material	FR4/PI/PET/SUS/PSA
Surface Treatment	ENIG/Immersion Tin/OSP/Immersion Silver/Plating Gold
Min Mechanical Drilling Hole	0.15mm
Min Laser Drilling Hole	0.1mm
Hole Tolerance	NPTH:±0.05mm PTH:±0.075mm
Cover Film Color	Yellow/Black
PI Thickness	0.5mil/0.7mil/0.8mil/1mil/2mil
Min Finished Size	5*8mm
Min Pad	Inner layer: 5mil Outer layer: 4mil
Stiffener Min Size	4×5mm
Stiffener Max Size	32×32mm
Stiffener Alignment Accuracy	±0.075mm
Cover Min opening size	Steeling Tooling: 0.6×0.6mm Precision Tooling: 0.5×0.5mm
Min Opening Spacing for Covering Film	Precision tooling: 0.5mm Laser Routing: 0.2mm Normal drilling: 0.15mm
Coating Film Overflow Amount (Unilateral)	Normal: 0.08-0.12mm Limitation: 0.03mm
Peel-off Strength	1.4N
Planeness	Before baking<15um After baking< 30um
Thermal Shock	288℃ (3 times within 10 seconds)
W/B Gold Wire Pull	> 6g
Min.Board Thickness	FPCB: 0.1mm/ 4Layers: 0.3mm/ 6Layers: 0.5mm/ 8Layers: 0.6mm/ 10Layers: 0.8mm
Inner packing	Vacuum packing, Plastic bag
Outer packing	Standard carton packing
Standard/ Certificate	ISO9001, ISO14001, IATF 16949, ISO 13485, ROHS,CQC, ANSI/ESD, IPC-A-610, IPC-A-620
Profiling Punching	Routing, V-CUT, Beveling, Chamfer

Hub Circuits Group Ltd.

HDI PCB Technical Specification

Layer	1-40Layers
PCB Material	SY, ITEQ, KB, NOUYA
HDI Construction	1+N+1, 2+N+2, 3+N+3, 4+N+4, 5+N+5, 6+N+6, Anylayer
Construction Order	N+N、N+X+N、1+(N+X+N)+1
Min Pattern Width/Spacing	2mil/2mil
Min Mechanical Drilling Hole	0.15mm
Min Thickness of Core Board	2mil
Laser Drilling Hole	0.075mm-0.1mm
Min Thickness of PP	2mil
Max Diameter of Resin Plug Hole	0.4mm
Electroplating to Fill Holes Size	3-5mil
Laser Drilling Hole Accuracy	0.025mm
Min BGA Pad Center Distance	0.3mm
Plating Hole-filling Sag	≤10um
Back Drilling/countersink Hole Tolerance	±0.05mm
Through-hole Plating Penetration Capacity	16:1
Blind Hole Plating Penetration Capacity	1.2:1
BGA Min PAD	0.2mil
Min Buried Hole(Mechanical Drilling Hole)	0.2mil
Min Buried Hole(Laser Drilling Hole)	0.1mil
Min Blind Hole(Laser Drilling Hole)	0.1mil
Min Blind Hole(Mechanical Drilling Hole)	0.2mil
Min Spacing Between Laser Blind Hole and Mechanical Buried Hole	0.2mil
Min Laser Drilling Hole	0.10(depth≤55um), 0.13(depth≤100um)
Interlaminar Alignment	±0.05mm(±0.002")
Inner Packing	Vacuum packing, Plastic bag
Outer Packing	Standard carton packing
Standard/ Certificate	ISO9001, ISO14001, IATF 16949, ISO 13485, ROHS,CQC, ANSI/ESD, IPC-A-610, IPC-A-620
Profiling Punching	Routing, V-CUT, Beveling, Chamfer

Hub Circuits Group Ltd.

High Frequency PCB Technical Specification

Layer	1-70 layers
Rogers PCB	RO3000 Series: RO3003, RO3006, RO3010, RO3035, RO3203, RO3206, RO3210
	RO4000 Series: RO4003C, RO4350B, RO4360, RO4533, RO4700, RO4835
	RT5000 Series: RT5870, RT5880
	RT6000 Series: RT6002, RT6035, RT6006
Arlon PCB	Diclad, Cuclad, Isoclad, AD Series, CLTE eles
Taconic PCB	TLX, TLY, RF, TLC, TLG Series, CER10 eles
Wanglin Material	F4BK, F4BM, F4B, TP-1/2, TF-1/2, CT330, CT350, CT440, CT615
Finish Copper Thickness	0.5OZ-12OZ
Material Copper Thickness	0.50z-1OZ
Min Finish Board Size	0.5*1.0mm
High Frequerncy Mixed Pressure Layers	4-70layers
Material Mixed Pressure	Rogers/Taconic/Arlon/Wanglin and FR-4
Min Core Thickness	4mil
Max Finish Board Size	RO3000 Series: 590*440mm(Single/Double Side), 580*420mm(Multi-layers)
	RO4000 Series: 1200*430mm(Single/Double Side), 880*600mm(Multi-layers)
	RT5000 Series: 590*440mm(Single/Double Side), 580*420mm(Multi-layers)
	RT6000 Series: 590*440mm(Single/Double Side), 580*420mm(Multi-layers)
	F4BM Series: 1480*430mm(Single/Double Side)
	TP/TF Series: 180*180mm(Single/Double Side)
	CT Series: 1200*430mm(Single/Double Side), 880*600mm(Multi-layers)
Max PTFE Array Size(Thicknesss 0.50mm)	16*18mm
Finish Board Thickness	0.13-8.0mm(Double Side) 0.4-8.0mm(Multi-Layers)
Min PTFE Material Dirlling Hole Size	0.35mm
Dielectric Constant(DK)	1-25
Material Thickness Tolerance	±0.05mm
Finish Board Thickness Tolerance	1.0mm(±10%)<Board thickness≤1.0mm(±0.1)
Min Pattern Width Tolerance	±20um
Min Pattern Width/Spacing	0.076mm
Inner Packing	Vacuum packing, Plastic bag
Outer Packing	Standard carton packing
Standard/ Certificate	ISO9001, ISO14001, IATF 16949, ISO 13485, ROHS,CQC, ANSI/ESD, IPC-A-610, IPC-A-620
Profiling Punching	Routing,V-CUT, Beveling, Chamfer

Hub Circuits Group Ltd.

IC Substrate PCB Technical Specification

Layer	1-16 Layers
Min Pattern Size	25um
Min Pattern Space	25um
Min Pad	80um
Min BGA Center Space	250um
Min Thickness/Core/PP Thickness(um)	2L: 80/30
	4L: 200/50/20
	6L: 240/50/20
	8L: 330/50/20
Solder Mask Color	Green,Black
Solder Resis	EG23A, AUS308, AUS320, AUS410
Surface Finish/Treatment	Soft Gold Plating,Hard Gold Plating,ENIG,OSP
Flatness(um)	5max
Min. Laser Dirrllled Hole Size(um)	50
Inner Packing	Vacuum packing, Plastic bag
Outer Packing	Standard carton packing
Hole Tolerance	PTH:±0.076,NTPH:±0.05
Standard/ Certificate	ISO9001, ISO14001, IATF 16949, ISO 13485, ROHS,CQC, ANSI/ESD, IPC-A-610, IPC-A-620
Profiling Punching	Routing, V-CUT, Beveling, Chamfer

Hub Circuits Group Ltd.

Rigid PCB Technical Specification

Layer	1,2,4,6,up to 32 layers
PCB Material	FR-4, CEM-1, CEM-3, Hight TG, FR4 Halogen Free, FR-1, FR-2, Rohs compliant, MC PCB (Aluminum,Copper) High Frequency PCB S1000-2, Rogers, Isola 370HR, etc
PCB type	Rigid PCB, Flexible PCB, Rigid-flexible PCB
PCB Shape	Any shape: Rectangular, round, slots, cutouts, complex, irregular, etc
Board thickness	0.2mm-8.0mm
Max.finished board size	22inch*22inch or 550mm*550mm LED PCBA Board: 500*1200MM
Min.drilled hole size	0.2mm
Min.line width	0.05mm(2mil)
Min.line spacing	0.05mm(2mil)
Surface finish/treatment	HASL/HASL lead free, Chemical tin, Chemical Gold, Immersion Silver/Gold, OSP, Gold Plating, Golden Finger
Copper thickness	18um-210um(6oz)
Solder mask color	Green/black/white/red/blue/yellow, etc
Inner packing	Vacuum packing, Plastic bag
Outer packing	Standard carton packing
Hole tolerance	PTH:±0.076,NTPH:±0.05
Standard/ Certificate	ISO9001, ISO14001, IATF 16949, ISO 13485, ROHS,CQC, ANSI/ESD, IPC-A-610, IPC-A-620
Profiling Punching	Routing,V-CUT, Beveling, Chamfer

Hub Circuits Group Ltd.

Flex PCB Technical Specification

Layer	1-12 layers
HDI construction	Any layer
Board thickness	0.10mm-3.2mm Min:(double layer: 0.10mm, 4-layers:0.26mm)
Tolerance of board thickness	± 10%
Mechanical drilled hole size	Min: 0.1mm AR: 75mm Accuracy: 50um
Laser drilled hole size	Min: 0.05mm Accuracy: 0.025mm
Min.line width	Standard copper thickness:45um Heavy copper(3OZ) thickness: 150um
Min.line spacing	Standard copper thickness:45um Heavy copper(3OZ) thickness: 150um
Surface finish/treatment	OSP/ENIG/ENEPIG/H.A.L(Forpolyimide ONLY)
Dimension Tolerance	Conductor Width(W): 0.03mm
	Accumulated Pitch(P): 0.05mm
	Outline Dimension(L): 0.05mm
	Conductor(C): 0.075mm

Hub Circuits Group Ltd.

Aluminum PCB Process Capabilities

Board Thickness	0.5mm, 0.8mm, 1.0mm, 1.2mm, 1.5mm, 2.0mm, 3.0mm. The selection of aluminum base mainly considers thermal expansion coefficient, thermal conductivity, strength, hardness, weight, processing conditions, and cost
Copper Thickness	1oz, 2oz, 3oz--12oz
Minimum drilling hole	0.65mm
Min & Max dimensions of finished boards	According to the requirements of single panel, 5 * 5<L<480 * 580 (mm). After splicing, V-cutting is generally used, so the length and width dimensions after splicing need to be greater than 70 * 70mm
Min trace width & space	0.127/0.127mm (with a limit of 0.1/0.1mm).
Technical Requirement	AOI full test+flying needle sampling (free)
Solder Mask Colors	Green, White, Black
Characters Silkscreen	White, Black.
Surface Treatment:	HASL, HAL Leaded, ENIG, Golden plated
Shipping type	Single piece , panel V-CUT/gong edge (minimum gong slot width: 1.6mm), generally not recommended for stamp hole panel assembly (can also be made in special circumstances)
Product coverage	multiple fields such as automotive light panels, bubble lights/corn lights/street light panels, power boards, etc
Multiple options for sheet metal	1-series aluminum, 3-series aluminum, 5-series aluminum, etc
Thermal conductivity coefficient	1-8W
High thermal conductivity and fast conduction; Has good heat dissipation and stability	