Building Partnerships in Innovation

CIRCUIT-TECH INC.
MANUFACTURER OF PRECISION PRINTED CIRCUIT BOARDS

About Us

Circuit-Tech Inc. is a customer focused, quick response, and highly complex technology manufacturer of precision printed circuit boards.

- Established in 1982, is one of the oldest and largest privately-held PCB manufacturer in Canada.

- Servicing both Original Equipment Manufacturer's and Electronic Manufacturing Service companies with prototypes, low and medium production volumes.

- Located outside Toronto in Markham, Ontario Canada. Occupies over 57,000 square feet of factory space with approximately 59 full-time employees.
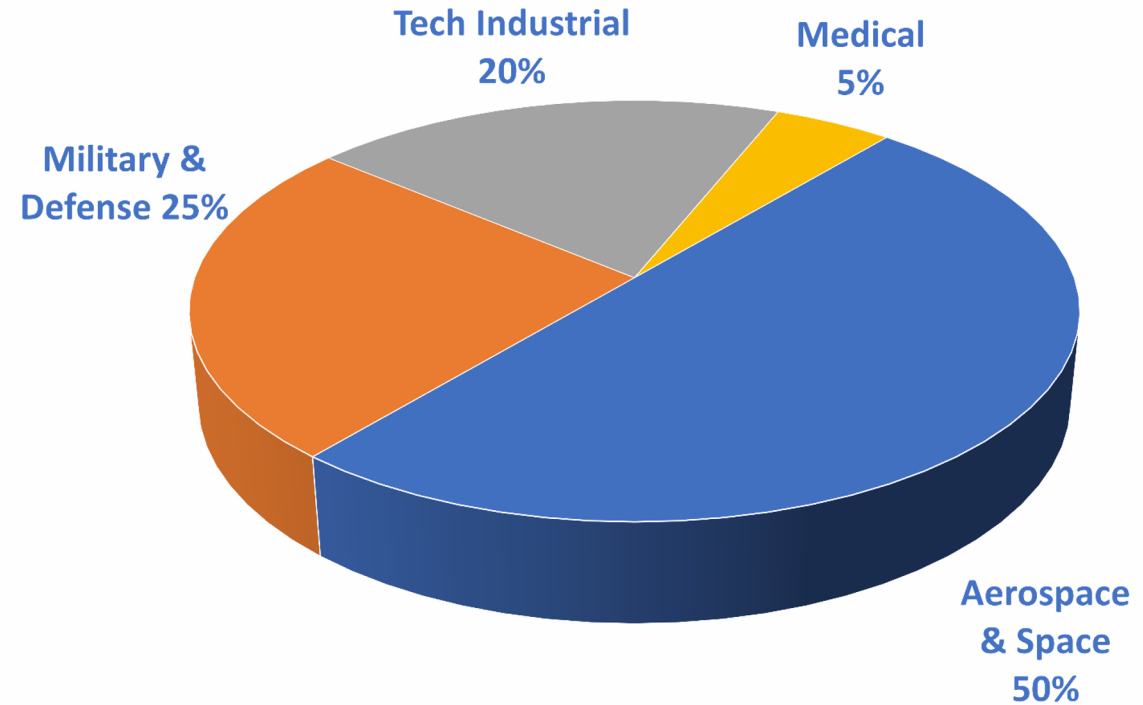

ISO 9001:2015 & AS9100D Certified.

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Our Markets

- Aerospace & Space
- Military & Defense
- Tech Industrial
- Medical

Tech Industrial 20%

Medical 5%

Military & Defense 25%

Aerospace & Space 50%

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Certifications & Accomplishments

- AS9100D & ISO 9001:2015

- MIL-PRF-31032 Certified

- Controlled Goods Program Certified

Certifications & Accomplishments

- ITAR Compliant

- UL Approved

- IPC Member

Certifications & Accomplishments

- RoHS Lead Free / REACH Compliant

- GIDEP Government / Industry Data Exchange Program

- Nadcap

- CMMC / NIST SP-800-171 Cybersecurity Maturity Model Certification

Technology

- Multilayers to 36+ Layers
- Flex Rigid to 18+ Layers
- High Performance Dielectrics
- LDI Laser Direct Imaging
- Blind & Buried Vias
- Micro Via Technology

- Conductive & Non-Conductive Via Fill
- Controlled Impedance
- Heat Sink Bonding
- Metal Core Constructions
- Alternative Surface Finishes
- Cavity and Cut-outs

Multilayer - Rigid Flex 20%

Multilayer - Rigid 40%

HDI 40%
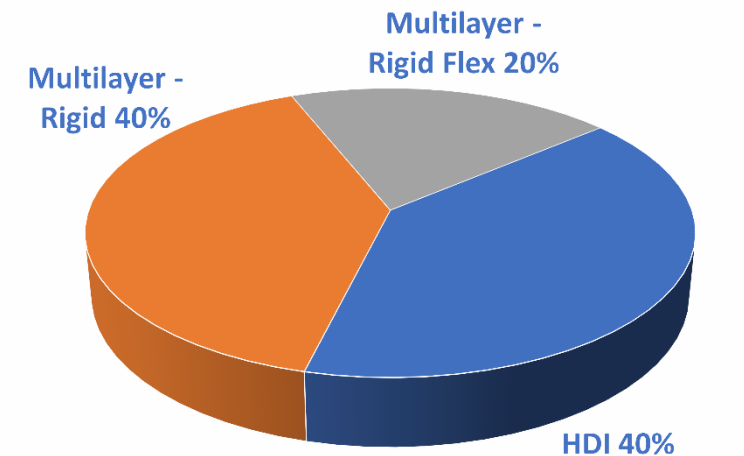
Services & Capabilities

- NPI /Pilot Runs /Prototypes

- Low or Medium (L/M) Volume Productions

- KANBAN and VMI Program

- Impedance Modeling and TDR Testing

- Microsection and Detailed Analysis Reporting

- IST/HATS Analysis

- Electrical Testing (Fixture and Flying Probe)

- IPC-A-600 (Class 2 & 3), IPC 6012E/ES

- Quality Reporting- FAI & AS9102 FAIR

- DFM Seminars

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Technical Support

Engineering Services:

- DRC- Design Rules Check

- DFM- Design for Manufacturability

- Stack-up Data Reporting

- Cost Reduction Solutions- Value Engineering
- Frontline Genesis 2000 CAM Stations
- File Format: ODB++, Gerber, or 274X
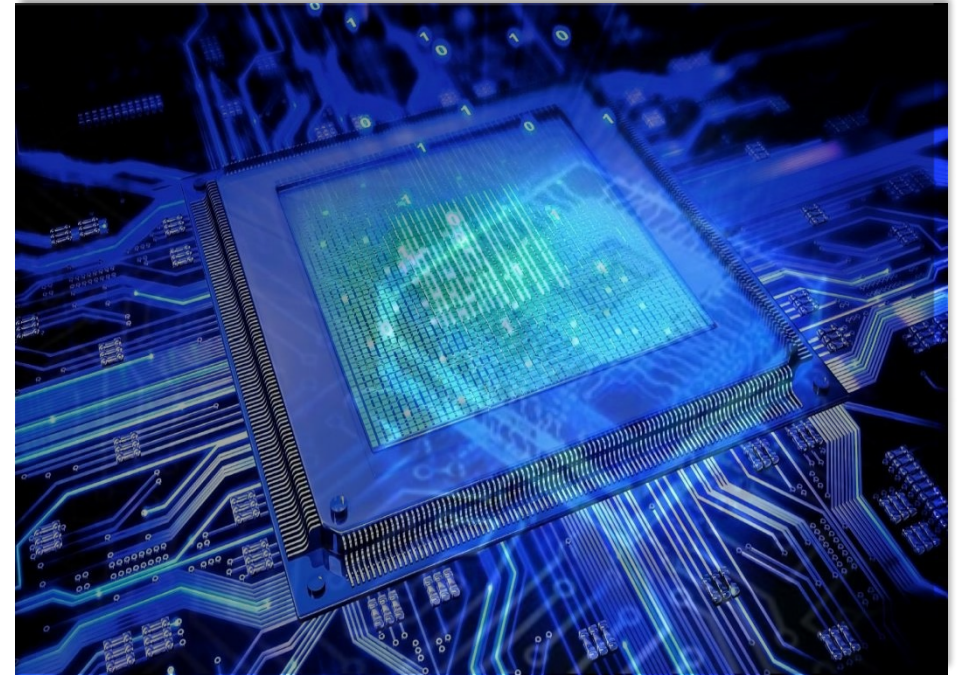
TECHNOLOGY ROADMAP

Attribute	Standard	Advanced	Limited
Line/Space			
½ oz Copper	0.005"/0.005"	0.004"/0.004"	< 0.003"/0.003"
1 oz Copper	0.006"/0.006"	0.005"/0.005"	< 0.004"/0.004"
2 oz Copper	0.008"/0.008"	0.007"/0.007"	< 0.006"/0.006"
Clearances (Plane Layers)			
Anti-Pad	Drill + 0.018"	Drill + 0.016"	<Drill + 0.015"
Split Planes	0.010"	0.008"	< 0.007"
Drilling			
Minimum Hole Diameter	0.008"	0.006"	0.005"
Maximum Hole Diameter	0.255"	--	--
Aspect Ratio (Thickness : Hole Diameter)	10:1	12:1	14:1
Minimum Laser Via Hole	--	--	0.004"
Laser Via Aspect Ratio	--	--	1.5:1
Laser Via Land Size (Diameter Over Drill)	--	--	0.008"
Mechanical Drill Registration	±0.003	±0.002	
Routing			
Board Outline Tolerance	± 0.005"	± 0.004"	±0.003
Land Sizes			
Annular Ring (1-6 Layers)	0.006"	0.005"	< 0.004"
Annular Ring (8-10 Layers)	> 0.006"	0.005"	< 0.004"
Annular Ring (> 12 Layers)	> 0.007"	0.006"	< 0.005"

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TECHNOLOGY ROADMAP

Attribute	Standard	Advanced	Limited
Board Thickness			
Minimum Core Thickness	0.003"	0.002"	0.001"
Minimum Board Thickness	0.008"	0.004"	0.0025"
Maximum Board Thickness	0.125"	0.200"	0.250"
Thickness Tolerance	10%	8%	5%
Maximum Layer Count	28	30	36
Maximum Copper Weight Internal Layers (oz./ft^2)	4	5-6	>6
Maximum Copper Weight External Layers (oz./ft^2)	4	5-6	>6
Board Size			
Maximum Panel Size	18" x 24"	21" x 24"	
Maximum Board Size	16" x 22"	18" x 22"	
Pitch			
SMT	0.039"	0.031"	0.020"
BGA	> 0.020"	0.016"	< 0.015"
Soldermask Dams	0.004"	0.003"	0.002" (LDI Only)
Soldermask Clearance	0.004"	0.003"	0.002"
Plated Through Hole Tolerance	±0.003"	±0.002"	
Non-Plated Hole Tolerance	±0.002"	±0.001"	
Impedance			
Impedance Tolerance	± 10%	± 5%	<± 5%

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Attribute	Standard	Advanced
Via Construction		
Through Hole	Yes	Yes
Blind (Mechanical) Sequential Lamination	Yes	Yes
Buried (Mechanical)	Yes	Yes
Laser Micro-Via	Yes	Yes
Conical Drill	No	Yes
Back Drilling	Yes	Yes
Via Fill		
Non-Conductive Via Fill	Yes	Yes
Conductive Via Fill	Yes	Yes
Copper Fill Laser Drill	Yes	Yes

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TECHNOLOGY ROADMAP

High Tg FR4 > 170ºC			
Isola FR-406 (170ºC Tg)	YES	Yes	Yes
Isola 185HR (180ºC Tg)	Yes	Yes	Yes
Isola IS-410 (180ºC Tg)	Yes	Yes	Yes
Isola 370HR (180ºC Tg)	Yes	Yes	Yes
ITEQ IT-180A (180ºC Tg)	Yes	Yes	Yes
High Temperature Polyimide Materials			
Isola P95 And P96 (260ºC Tg)	Yes	Yes	Yes
Arlon 85N (260ºC Tg)	No	Yes	Yes
Arlon 85NT Thermount (250ºC Tg/426ºC Td)	No	Yes	Yes
Arlon 35N (250°C Tg)	No	Yes	Yes
Arlon 55N (170°C Tg)	No	Yes	Yes
Arlon 55NT (250°C Tg)	No	Yes	Yes
Arlon 33N (250°C Tg)	No	Yes	Yes
High Frequency Materials			
Isola FR408 (180ºC Tg)	Yes	Yes	Yes

TECHNOLOGY ROADMAP

Attribute	Standard	Advanced	Limited
High Frequency Materials			
ITEQ 200LK (200°C Tg)	Yes	Yes	Yes
Isola FR408HR High Tg (190°C)/Low Dk 3.8	Yes	Yes	Yes
Nelco 4000-13 High Tg (210°C) /Low Dk 3.7	Yes	Yes	Yes
Rogers 3000, 4000, 5000 & 6000 Series	Yes	Yes	Yes
Arlon 25 and 49 Series	Yes	Yes	Yes
PTFE/Teflon® and Taconic	Yes	Yes	Yes
Panasonic Megtron4, 6 and 7	Yes	Yes	Yes
Surface Finishes			
ENIG	Yes	Yes	Yes
ENEPIG	--	Yes	Yes
HASL (Eutectic Solder)	Yes	Yes	Yes
Lead-Free HAL (RoHS Approved)	Yes	Yes	Yes
Immersion Silver	Yes	Yes	Yes
Immersion Tin	Yes	Yes	Yes
Electrolytic Nickel/Gold	Yes	Yes	Yes

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TECHNOLOGY ROADMAP

Attribute	Standard	Advanced	Limited
Qualifications			
Underwriters Laboratories, UL Listed 94-V0	Yes	Yes	Yes
MIL–PRF–31032 Certified	Yes	Yes	Yes
Canadian Controlled Goods Certified/ITAR	Yes	Yes	Yes
AS 9100D Certified/ISO 9001:2015 Certified	Yes	Yes	Yes
IPC-A-600 , IPC-6012E/ES	Yes	Yes	Yes

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