Scott Electrokrafts, Inc.

PCBA Capabilities & Limitations

AS9100D | ISO 9001:2015
ITAR Registered | VOSB
CAGE 0AC40

Assembly (SMT / Through-Hole) Capabilities

Minimum component size	0201 and smaller; placement equipment rated to 03015 metric
Fine pitch	15 mil component pitch
Package types	BGA, QFP, fine-pitch devices, double-sided SMT, mixed SMT / through-hole
SMT lines	3 lines
Solder paste print	Panasonic NPM-GP/L, ±3.8 micron positional accuracy, integrated 2D SPI
Placement	Dual Panasonic NPM-W2, ±30 micron (QFP) accuracy, up to 84,000 CPH each
Reflow	Vitronics XPM3, 10 heating + 3 cooling zones, nitrogen capable
3D AOI	Viscom iS6059, 1 orthogonal + 8 angled cameras, closed-loop process control
X-ray	Scienscope X-Scope 2000 for BGA and hidden solder joints
Selective solder	SEHO SelectLine
Polymeric processes	Conformal coat (IPC-CC-830), staking, and underfill, applied per customer drawing
Workmanship	IPC-A-610 and J-STD-001, Class 2 and Class 3; Certified IPC Trainer on staff
Space applications	Certified IPC Trainer (CIT) on staff for the IPC J-STD-001 Space Applications Electronic Hardware Addendum
Traceability	Full lot and process traceability under the AS9100D quality system
Run sizes	High-mix, low-volume: 1-piece prototypes to 10,000-piece production
Related services	Cable and wire harness assembly, electromechanical box build, control panels

Board Design Features Supported

Trace width / air gap	3 mil trace / 3 mil air gap standard; 2 mil trace / 3 mil air gap on high-frequency designs
Via structures	Blind, buried, stacked, and staggered vias; via-in-pad plated over (VIPPO)
Lamination	Sequential lamination, vacuum lamination, 1 to 30 layers
Impedance	Controlled and differential impedance, ±10%, TDR tested

Limitations

- Minimum air gap (conductor spacing) is 3 mil.
- Conformal coat, staking, and underfill are hand-applied; no automated in-line dispensing or coating.
- Trace tolerance of ±0.0005" is subject to design review.
- Maximum 30 layers; heavy copper to 6 oz.
- Production focus is high-mix, low-volume; lots up to 10,000 pieces.

PCB Fabrication: Process Capabilities

Trace tolerance	±0.0005" (based on design review)
Internal drill to copper	0.010"
Pad over finished hole size	0.004" Class 2; 0.005" Class 3
Soldermask clearance over pad	0.002"
Copper to board edge	0.010"
Impedance	±10%
Board thickness	±10%
Layer-to-layer registration	0.004"
Route tolerance	Laser ±0.002"; mechanical ±0.005"
Drill positioning	±0.002"
Inside radius	0.015"
Minimum slot width	0.021"

Design rules

- 3 mil trace width, 3 mil air gap
- 2 mil trace width on high-frequency designs
- IPC Class 2 and Class 3 spacing
- 1 to 30 layers
- Heavy copper to 6 oz

Via structures and lamination

- Blind and buried vias
- Stacked and staggered vias
- Via-in-pad plated over (VIPPO)
- Conductive and non-conductive via fill
- Copper-plate via fill (microvias)
- Sequential lamination, vacuum lamination

Test and inspection

- Flying probe netlist test
- Differential impedance, TDR testing
- Automatic optical inspection

Surface finishes

- ENIG, ENEPIG
- Hard and soft bondable gold
- Immersion silver
- HAL leaded; lead-free solder

Materials

- RF and high-speed materials
- Mixed materials (FR-4 / Teflon)
- DuPont Pyralux
- Metal-backed boards (LED / power distribution)

Mechanical features

- Countersinks and counterbores
- Scoring, route and retain, laser route
- Plated edges, castellations

Quality and compliance

- ISO 9001 / AS9100
- MIL-PRF-31032
- ITAR

Capabilities are confirmed against each design at quote through a manufacturability review. Contact us with drawings or Gerber data for a design-specific assessment.