

# K & F Electronics

Est.  
1972

[www.circuitboards.com](http://www.circuitboards.com)

## Mission

# The Customer

ISO 9001:2008

UL: E71379

RoHS

ITAR

TS16949



Cage Code: 1TQ60

## Website

[www.circuitboards.com](http://www.circuitboards.com)

## Experience

We have over 40 years of experience in printed circuit board manufacturing. We are a company that is committed to total customer satisfaction.

We are an industry leader in prototype and schedule production of single-sided, double sided and multi-layer boards.

Premium delivery is available on a 24 hour, 48 hour, 72 hour or 5 day basis. 3-4 weeks for standard delivery.

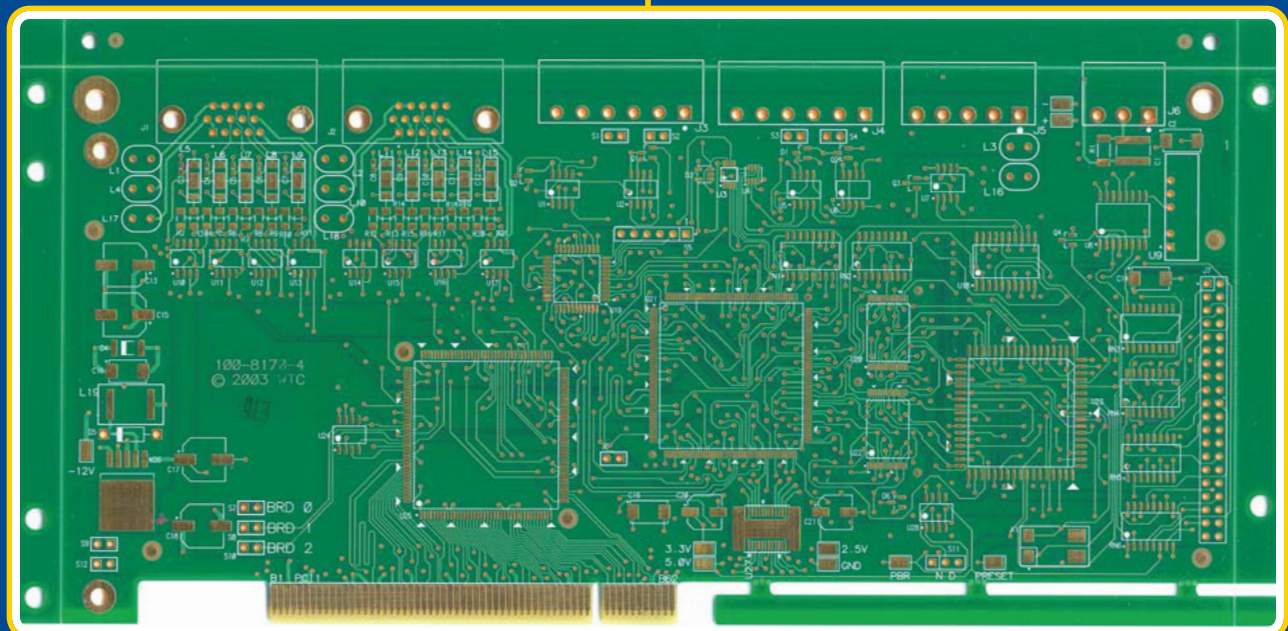
## Location USA

33041 Groesbeck Hwy.  
Fraser, MI 48026-1514

Phone: 586-294-8720

Fax: 586-294-5999

Toll Free: 888-722-5310



## **MANUFACTURING CAPABILITIES**

- TYPES OF BOARDS MANUFACTURED: Single Sided, Double Sided, Multi-Layer
- MANUFACTURING VOLUMES: 1 Piece Prototypes through Production Volumes
- MAXIMUM NUMBER OF LAYERS: 24
- MAXIMUM BOARD SIZE: 17 X 23 Inches
- MAXIMUM FINISHED BOARD THICKNESS: .125"
- BOARD FLATNESS TOLERANCE: .001 Inch/Inch
- MINIMUM HOLE SIZE: .005
- DRILLED VIA SIZE: .010
- ANNULAR RING: .0075
- FINISHED TRACE WIDTH: Inside: .004 Outside: .006
- SPACING BETWEEN TRACES: Inside: .004 Outside: .006
- SMT PITCH: .012
- COPPER TO BOARD EDGE: .015 For Scoring
- BOARD FINISHES: Bare Copper, HASL, Gold, White Tin, Silver, OSP, Lead Free HASL, Immersion Gold, Immersion Silver, Hard Gold
- SOLDER MASK: Taiyo L.P.I. Green, Black, Red, Blue or Yellow
- CORE THICKNESS: .004
- MATERIAL TYPES: Fr-4, Fr-4 High Temp, Cem-1, Teflon, Polyimide, Rogers, Flex, Rigid Flex, Kapton, RO4003C, Aluminum Core
- CONTROLLED IMPEDANCE: Yes
- COPPER THICKNESS: (Foil) ½ Oz. Thru 8 Oz.
- MINIMUM DIELECTRIC THICKNESS: .004
- TESTING CAPABILITY: 18" X 24", SMT – 4 Mill Pads, 7 Mill Pitch
- QUALITY SPECIFICATIONS: MIL-Q-9858
- CERTIFICATIONS: ISO 9001: 2000, UL
- FACILITY DESCRIPTION: Mfg. Sq. Ft. 20,000 – Total Sq. Ft. 25,000

## **TOOLING DEPARTMENT**

- 2 Scan CAD Software Stations for Scanning Films Reverse Engineering
- GraphiCode CAM Station
- Fast Technologies CAM Station
- Mivatec Model 125 Photo plotter with Mivacam Software
- Colight DMVL 930 Film Exposing Systems
- Glunz & Jensen Film Processor
- Nuarc 38 inch X 50 inch Contact Table with Point Source Exposing System
- Accu-Gage II Coordinate Measuring System Model AC-36-2 LT.
- Film and template storage system
- Kroy Lettering Machine
- Light Tables, Inspection Tables, Magnifiers, Lights, Etc.

## **DRILLING DEPARTMENT**

- Excellon Century 2001 5 Spindle Driller
- Excellon Mark VI Driller/Router 4 Spindle
- Excellon UNI-Line 2000
- Barnaby 802 Driller/Pinner
- Barnaby 601 De-Pinner
- International Carbide Drill Inspection Scope

## **MACHINING DEPARTMENT**

- Excellon EX-300 5 Spindle CNC Driller/Router
- 2 5 HP American Vacuum Dust Collectors
- 2 Accu-Score Depth Gauges
- 1 Roper Whitney Pexto Shears 52 inch
- Accu-Score Jump Scoring Machine AS-150-JE
- Bosch Edge Beveling System
- Rockwell Countersink/Counter bore System
- Vertical & Horizontal Belt Sander

## **PHOTO FABRICATION DEPARTMENT (Yellow Room)**

- Olec 4 Camera Exposing Unit)
- Douthitt (Tarus 8K Exposing)
- 2-Dynachem Model 300 HRL Laminators With Pre-Clean
- Colight 1330 Automatic Exposure Units – 5KW
- 2-Circuit Services VCM Vertical Developers with Automatic Feed & Bleed System
- Rite Temp Chiller Model RTR 803 AWC
- Grieve Model 333 Oven
- Light Tables, Inspection Station with Magnifier

## **WASTE TREATMENT**

- Systems Integration Fully Automated Waste Treatment System, with Ion Exchange and Regeneration System
- Electrowinning Cell – Full Plate Out – No Land Fill Used
- Copper Reclaim

## **WET PROCESS DEPARTMENT**

- Marseco Model DBS-24 Deburring Machine
- Marseco Model DBS-24 Scrubber/Dryer
- Marseco Model FS-2 Copper Filtration System
- Western Technologies Shadow Process Direct Metallization System – 80 Panels / Hr.
- Complete Copper & Tin Plating Line:
- 2x 1000 Gal. Tanks (1-Copper, 1-Tin)
- 750 Gal Tank (Copper)
- 2x Controlled Power 2000 Amp Rectifier
- Controlled Power 500 Amp Rectifier
- Complete In Line Chemcut Strip/Etch/Strip Line
- Weber Model AB-500 Baking Oven
- Lantronic Lead Free HASL Machine Model TT30LF
- Integrated Process Systems Flux Applicator with Pickup
- Cemco Quicksilver Hot Air Leveler
- Cemco Quicksilver 2 Hole Punch
- Marseco Fluxer
- Marseco Pre-Clean & Post-Clean Lines
- ASI Dryer
- Elite Tape Squasher
- Culligan De-Ionized Water System

## **CHEMISTRY LABORATORY**

- Copper Analyzer
- Bechman Model 132 Automatic pH meter with LED Readout
- Ainsworth Model 10 N Gram Scale
- Denver Instrument Lab Scale
- Leco Micro Cross Sectioning and Polishing System
- Metallurgical Microscope with Polaroid Camera Attachment
- Hull Cell
- Electrovert Solder Pot
- Corning Hot Plate with Stirrer
- Beakers, Burettes and Misc. Lab Equipment

## **SCREENING DEPARTMENT**

- Circuit Automation DP1500 Latest Controls
- Autoroll Exactra Model 720 Semi-Automatic Screening Machine
- Bassi Tunnel Oven
- 2 – Hand Pull Tables with Light
- Grieve Model AB 500 Baking Oven
- Medalist Squeegee Sharpener
- Tetko Tensometer
- Double Sink With Power Washer
- Screen Developing Station with Back Light
- Screen Inspection Light Table
- Screen Storage Cabinet

## **INSPECTION & TEST DEPARTMENT**

- 2-Microcraft EMMA – 2010 Flying Probe Testers
- Comac Cleaning Machine for medical boards cleaned to .03 micro grams NaCl/sq. in.
- Vision Engineering Mantis Inspection Scope
- UPA Technology Cavaderm Model CD-8
- UPA Technology Microderm Model 700
- Unitek Unibond Welder with B & L Stereo Microscope
- Verniers, Calipers, Micrometers
- Plug & Radius Gages

## **GENERAL BUILDING INFORMATION**

- Atlas 50 hp. Rotary Screw Air Compressor
- 2-ARCO Dust Collection System
- Sullair 50 HP Variable Speed Air Compressor Model 3709V AC
- Clark Fork Lift
- Emergency Alarm System
- Plant-wide Air Conditioning System with Automatic Controls
- Computerized Accounting, Production Control, Order Entry and Work-In Process Systems
- Real Time Job Tracking Using Bacon Software Bar Code System