

# Advanced Circuits, Inc.

2013 Corporate Business Presentation



# About Advanced Circuits, Inc.

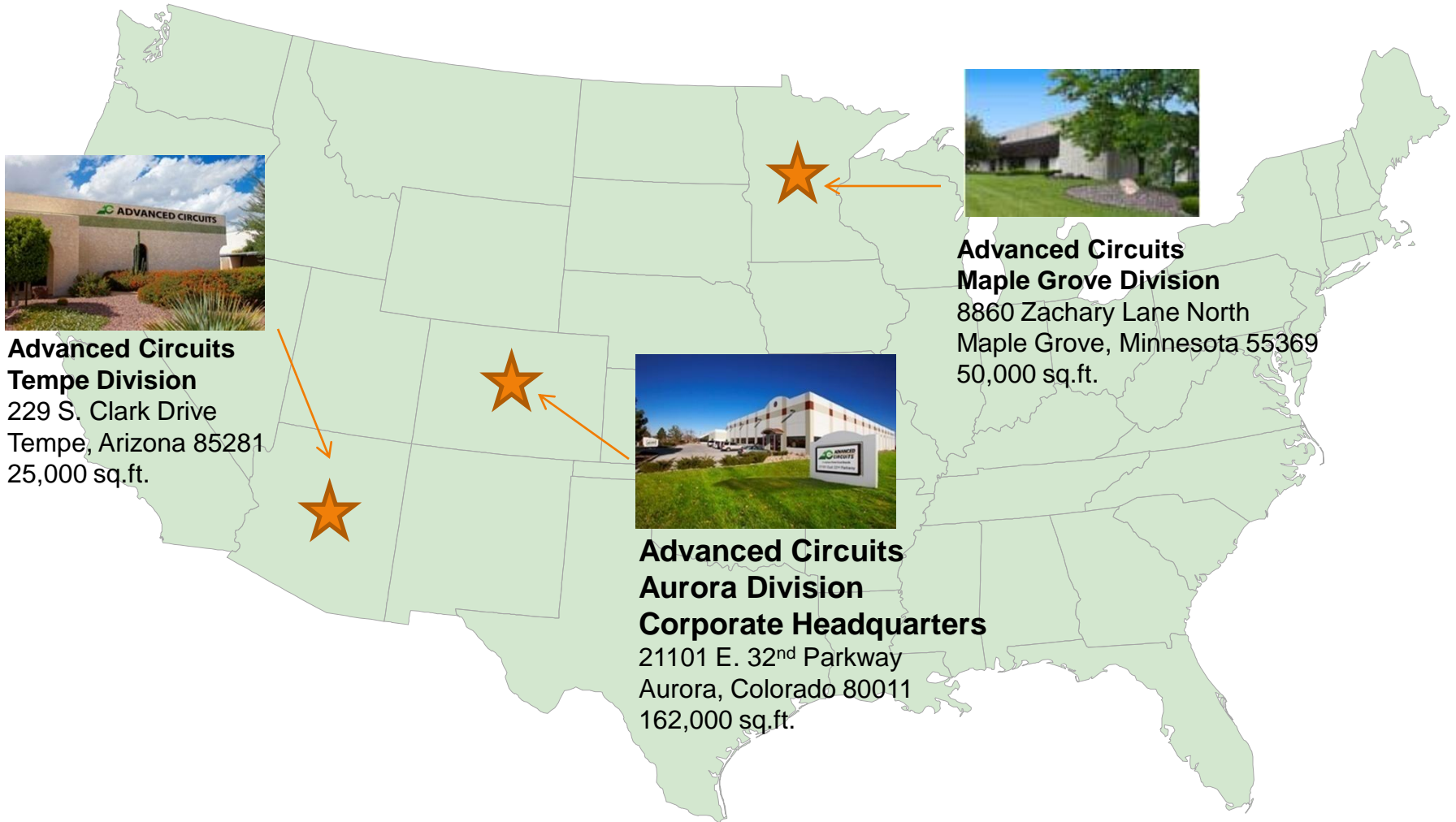
- Founded in 1989
- 3<sup>rd</sup> Largest PCB Manufacturer in North America
- 100% US Based Manufacturing – **Made in the USA!**
- 3 Manufacturing Locations Totaling Over 200,000 sq. ft.
  - Aurora, Colorado – Corporate Headquarters
  - Tempe, Arizona – Advanced Technologies
  - Maple Grove, Minnesota – Advanced Technologies and Specialty Products
- Over 500 Employees, 3 Shifts, 24 Hours per Day, Monday-Saturday
- Military/Aerospace/Defense Supplier for Over 15 Years
- ISO 9001, AS9100, MIL-PRF-31032, MIL-PRF-55110, ITAR Registered
- Expedited Leadtime Specialists
  - SAME DAY and WEEKEND TURNS available for some technologies
  - No minimum orders or lot sizes
  - Industry's best on-time shipping record
- Industry Innovation/Pioneering
  - 2002: FreeDFM.com – Pre-order file review with automated feedback report
  - 2007: PCB Artist Layout Software – #1 free downloaded PCB layout software

# Advanced Circuits Quality Policy

**“Committed to TOTAL QUALITY in every department by doing it RIGHT the first time!”**

This is our pledge to our customers that their orders will not only be received on time, but that they will also meet or exceed their quality standards.

# Advanced Circuits Locations



# Certifications and Approvals

## Aurora Division

ISO 9001:2008

AS9100:2009C

MIL-PRF-55110G Types 1, 2 and 3

ITAR Registered

UL Registered

## Tempe Division

ISO 9001:2008

AS9100:2009C

MIL-PRF-31032

MIL-PRF-55110G Types 1, 2, and 3

ITAR Registered

UL Registered

## Maple Grove Division

ISO 9001:2008

AS9100:2009C and AS9104A

MIL-PRF-31032

MIL-PRF-55110G Types 1, 2, and 3

JCP Registered

ITAR Registered

UL Registered

DOD Contracts



# PCB Capabilities

- Manufacturing, Inspection, and Quality Standards
  - IPC A600 Classes 1, 2, and 3
  - IPC 6012B Classes 1, 2, 3, and 3A
  - IPC 6018A (Microwave End Product)
  - ISO 9001:2008
  - AS9100C
  - MIL-PRF-55110 Amendment 3
  - MIL-PRF-31032
- Independent 3<sup>rd</sup> Party Verification of Quality
  - Microtek Laboratories
  - Valley Labs
  - Goddard Space Flight Center (Group B Testing)

# Products and Services

- Pre-Fab Engineering Review
  - PCB Artist Layout Software – Includes one of industry's largest parts library, surpasses many commercial software packages.
  - FreeDFM.com – Pre-order file review. Email sent within minutes with links to DFM report and PCB quotation.
  - Advanced Technology DFM Review and Reporting
- Three Ways to Receive PCB Quotes
  - Instant Self Quoting/Ordering/Status at [www.my4pcb.com](http://www.my4pcb.com)
  - File upload at [www.FreeDFM.com](http://www.FreeDFM.com) includes email link to PCB quote
  - Email data and let us do it for you!
- Quickturn Prototype Manufacturing as Fast as 24 Hours
  - Aggressive Pricing for All Jobs - 24 Hours thru 20 Days
  - Design Rule Check for 100% of All Orders
  - 24 Hour Tech Support
- Ramp/Pilot and Volume Production Manufacturing
  - Quickturn for Medium to Large Quantity Orders
  - No order is too small or too large (including scheduled shipments)
- Industry's largest inside sales support group along with factory direct outside sales to provide best-in-class customer support.
- Now providing assembly specializing in small quantity engineering prototypes with expedited turn times. True One-Stop convenience with Fab and Assembly all under one roof!

# Advanced Circuits Assembly

- No Set-up Charges, No NREs, No Stencil Charges, No Hidden Fees.
- Lowest Assembly Price Guaranteed! If you find a lower Price, let us Beat it!
- Monthly specials available for review at [www.onestopassembly.com](http://www.onestopassembly.com).
- Representatives ready to help from 7am to 7pm.
  - 3 production shifts as well as 2 engineering shifts 5 days a week!
- Lot size flexibility
  - Order just as many as you need, when you need them
  - Lots as small as one piece, to over 1000
  - Scheduled deliveries
  - Low cost first-article builds
- Fast, easy online quoting, available 24 hours a day at [www.onestopassembly.com](http://www.onestopassembly.com).
- Turn-key parts procurement or supply your own
  - Our relationships with many component distributors allow us to obtain hard to find parts.
- Valor Trilogy CAM software integrates seamlessly with PCB CAM, allowing quick, accurate assembly tooling.



# Powerful Front End – Planning/CAM

- 40 Member CAM Team Supporting Customers Around the Clock Monday 6am thru Saturday 2pm
- 46 Seats of Frontline Genesis (Valor) Software
- IPC-D-356-to-Gerber “Net List Compare” Done by Customer Request or for Advanced Technologies
- Design Rule Checks done on 100% of Orders
- Automated Scripting for MIL-PRF-31032 and 55110, IPC-6012, and Controlled Impedance Coupon Generation
- In-House Array Layout – Array Gerbers Supplied to Customer for Stencil Creation – Ask About Our Stencil Services
- Immediate Customer Notification of Job Holds
- Full Documentation and “Paper Trail” of Job Discrepancies and Customer Resolutions

# PCB Capabilities

- Materials
  - FR-4 and FR-406
  - Isola PCL-FR-370HR, IS410, and Nelco 4000-29, ITEQ IT-180
  - Rogers Ultralam, 3000, 4000, 5000, and 6000 Series Laminates
  - Polyimide – Arlon 35N and 85N, Isola P95/P96, Nelco N7000, Ventec VT901
  - Others: Isola FR408, Nelco 4000-13/SI/EP, and Teflon/Duroid
  - **NEW in 2013!** Rogers Theta, Integral Technology Zeta Lam SE, and 3M™ Embedded Capacitance Material
- Surface Finishes
  - Leaded and Lead-Free Solder (HASL)
  - Tin Nickel and Fused Tin Lead
  - Immersion Silver and Immersion Tin
  - Electroless Nickel Immersion Gold (ENIG)
  - Electrolytic Nickel and Hard Gold Plating
  - Bondable Gold
  - Electroless Nickel Electroless Palladium Immersion Gold (ENEPIG)
  - Selective Plating Processes Available

# PCB Capabilities

- 0-40 Layer Rigid PCBs
- Down to .0025” Lines/Spaces
- Laser Direct Imaging (LDI) in All Factory Locations
- Mechanical drilling down to .0057” into .062”
- Blind and Buried Vias – Extensive sequential lamination expertise
- Laser-drilled Microvias
  - Type I, II, and III, 3 Layer Stacked
  - Fully Copper Filled Using MacDermid VF-100 Plating Chemistry
- Via-in-Pad (VIP)
  - Non-Conductive (In-House Processing) and Conductive
  - Process yields meet/exceed IPC 6012 Class 3 Wrap Requirements
- Heavy Copper - Up to 20 oz. (6 oz. for Multilayer Designs)
- Buried Chip Resistors
- Bonded Heat Sinks
- Oversized Boards (Up to 37 x 120”)
- Multilayer RF Designs on Rogers 4003, 4350, 5880, and 6002 Materials (Up to 8 Layers) – **New in 2013:** Rogers 2929 Bondply!

# PCB Capabilities

- Other Services and Capabilities
  - Liquid Photo Imageable (LPI) Legend/Nomenclature
  - Digital Legend Printers
    - With Customizable Serialization
  - Dry Film Soldermask
  - Control-Depth Drilling (for Stub Removal)
  - Cover Coat Lamination
  - Plasma Etchback (Certified to MIL-PRF-55110G Amendment 3)
  - Castellated Vias
  - Edge Plating
  - Plated Slots, Countersinks, and Counterbores
  - Cavity Boards
  - Laser Routing for Teflon/Duroid Products
  - PEM Nut Installation

# Customer Actions

- Robust system for capturing customer issues.
- Customer Actions immediately entered into intranet web-based system and distributed to management team.
  - Immediate review of order and job documentation
    - Customer emails, purchase orders, customer-supplied data, shop floor travelers, quality data.
  - Follow-up call to customer for discussion of problem
  - Recovery plan created; Rebuilds as quick as 24 hours
- When requested, Corrective Action Report supplied to customer.
- Customer Actions are tracked weekly/monthly/quarterly
- Employee training programs focused on past problems to reduce the chances of problem recurrence.
- 100% Customer Satisfaction is Our Goal!

# Impressive Numbers

- Over 8,000,000 Average Drill Hits per Day
- Over 7,600 Average Monthly Orders for the Last 12 months
- Over 1,300 Total MIL-PRF-55110 Jobs
- Over 21,000 IPC-6012 Class 2, 3, and 3A Cross Sections
- Over 600,000 Average # Pieces Shipping for 12 Months
- MIL-PRF-31032 and AS9100 Are Fastest Growing Segments
- 98.91% - First Pass Production Yield Through Final Inspection
- 99.56% - First Pass Electrical Test Yield for the Last 12 Months
- 99.93% - On Time Delivery for Last 12 Months
- 99.95% - Average Number of Orders Shipped Complete – No Backorders



# Why Buy from Advanced Circuits?

1. **Solid Financial Stability** - Conservative management principals investing in technology with an eye on the future.
2. **Expanding with New Acquisitions/Capabilities** - Acquired Circuit Board Express in 2009, Circuit Express in 2010, and Universal Circuits in 2012.
3. **Continuous Capital Investment** - Over \$8M in capital investment over the past several years, \$3M for 2013. Excellon High Speed Vision Drill, Multiline Tooling System, Excellon Laser Drill/Router, MyData Pick and Place (2), Reflow Oven, Assembly AOI.
4. **Industry-Leading Capabilites** - Via-in-Pad, Sequential Lamination(blind/buried vias), Laser-Drilled Microvias (Types I, II, and III), Oversized Boards, Heavy Copper (up to 20oz.), Aluminum-Clad PCBs.
5. **High Reliability/Mission Critical Focus** - Military/Aerospace and Medical expertise. Certified for DOD Contracts. Over 12 satellite launches in last 18 months!
6. **Innovative New Materials:**
  1. ZetaLam SE polyimide film-based material for smallest microvia holes sizes and pad sizes.
  2. 3M Embedded Capacitance material for product miniaturization by removing surface capacitors.
  3. Rogers 2929 Bondply for creation of multilayer RF and Microwave PCBs using Rogers 3000, 4000, and 6000 series materials.
7. **Industry's Largest Customer Base** - Over 10,000 active company customers. Over 250 new customers each month...the majority are referrals by other customers.
8. **Industry's Best ON-TIME Shipping Record** - Many orders shipped early! Standard Spec orders shipped on time.... or its FREE!

# Why Buy from Advanced Circuits?

9. **Expedite Experts** – Same day and weekend turns available for some technologies; no minimum orders or lot sizes
10. **INSTANT Online Quote, Orders, and Status Online 24/7/365** for most technologies.
11. **Hands-On Quoting with Engineering DFM Review** for all advanced technologies.
12. **One-Stop Convenience** - PCB Fabrication + Assembly in-house as *Quick* as 1 Day!
13. **State of the Art Facility** – 3 MyData lines, AOI, Selective Solder, and much more!
14. **How You Want It/When You Want It** – Leaded or Lead-Free, Turnkey/Consigned/Partial-Turnkey, Quantities as Low as One Piece, Same Day Turnaround after PCB Completion, Assembly Engineering Services.
15. **Exclusive Customer Services: “PCB Artist”** the industry’s most popular PCB Layout Software & “FreeDFM” offering CAM file review and detailed design & manufacturability reports prior to order placement.
16. **Continuous Quality Investment** – ISO 9001:2008, MIL-PRF-31032, MIL-PRF-55110 and AS9100
17. **Quality Control** - Over 140 in-process and 300+ final Cross-Sections per day.
18. **IPC Training** – Certified IPC Trainers at each factory location. IPC A600, IPC 6012 Classes 2, 3, and 3A
19. **Equipment Redundancy** - Ensures critical time reaction to meet customer expectations.