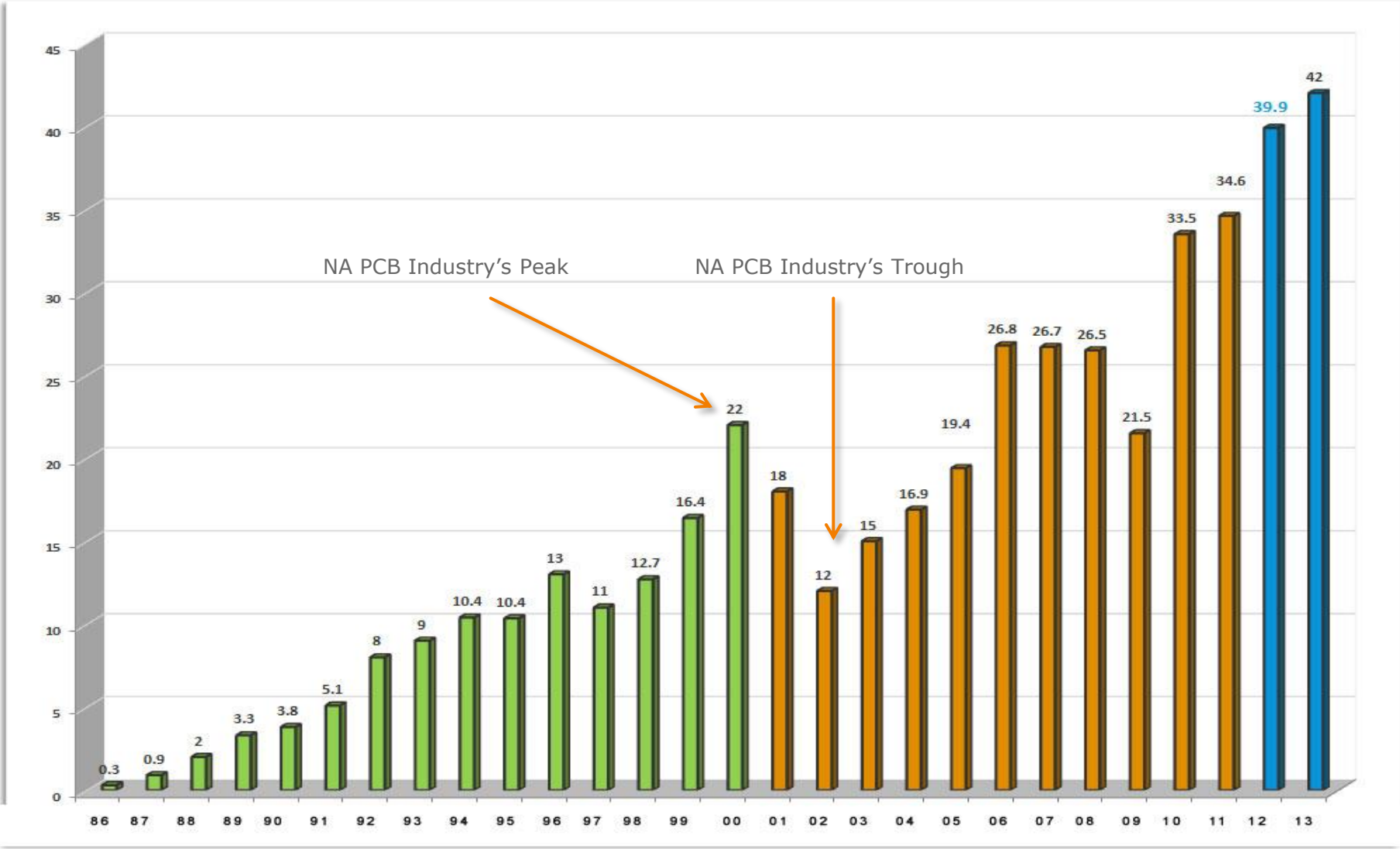


# Corporate Presentation



SATURN ELECTRONICS  
CORPORATION  
C O R P O R A T I O N

# Sales History



# Company Profile

- **Established 1985**
- **100% Equity Owners / Full-Time Operators**
- **115,000 ft<sup>2</sup> Facility (15,000 ft<sup>2</sup> warehouse)**
- **200 Employees**
- **2 Shifts operating at 75% capacity**



# Financial Strength

- **Debt-Free**
- **100% of A/P balance paid to \$0 each month on 15<sup>th</sup> & 30<sup>th</sup>**
- **\$1 million+ emergency cash reserves at any given time**
- **Controlling interest in 3 North American PCB Manufacturers**

to be a world class supplier

SEC PROVIDES CUSTOMERS SUPPLY CHAIN SECURITY



# Advanced Technologies

- **Fine Line and Spacing**
- **Controlled Impedance**
- **Heavy Copper**
- **PTFE / Hybrid Technologies**
- **RF-Microwave Boards**
- **Thermal Management**
- **Aluminum / Metal Core**
- **PCB Heatsink Registration**
- **Via-in-Pad Technology**
- **Open Face / Internal Cavity**
- **Blind / Buried Vias**

to be a world class supplier

SEC RATES TECHNOLOGY DEVELOPMENT SUPREME PRIORITY



# Production Capabilities

<b>Layer Count</b>	1 - 48 +
<b>Largest Panel Size:</b>	18" x 24"
<b>Smallest Circuit Width/Spacing:</b>	4mil, 3 mil proto
<b>Material Thickness:</b>	3mil; 200mil
<b>Materials:</b>	FR-4; FR-5; Teflon; Polyimide; Metal Heat Sinks
<b>Smallest Mech. Drilled Hole</b>	3mil
<b>Hole Size / Dimensional Tolerances:</b>	3mil / 2mil
<b>Finishes:</b>	HASL, Immersion Silver/Gold, Deep Gold, Lead-Free HASL
<b>Plasma Processing unit</b>	Teflon Activation, Etch Back, Desmear
<b>Laser</b>	Drilling, Routing, Trimming



# Capabilities

Number of **18" x 24"** Panels

## Quick-Turn Prototype

LAYERS	TURNAROUND			
	24 Hrs	2 Days	3 Days	4 Days
2 Layer	75	300	1,500	2,250
4 Layer	35	75	300	1,500
6 Layer	-	75	150	600
8 Layer	-	75	150	300

### DESIGN VALIDATION

Prototypes employ production processes--test results indicative of production product

## Fast-Turn Production

LAYERS	TURNAROUND		
	5 Days	10 Days	15 Days
2 Layer	3,000	15,000	30,000
4 Layer	2,250	6,000	15,000
6 Layer	1,500	3,000	15,000
8 Layer	1,200	3,000	15,000

### OFFSHORE CONTINGENCY PLANNING

One of the last remaining NA PCB Fabricators capable of quick-turn volume production



# Quality

## C7000 Certified

10-Layer SnPb & Pb-free HASL

## TS 16949

1st PCB Manufacturer in N.A



## UL Certifications



## ISO 14001



## ITAR



## ISO 9001



to be a world class supplier

SEC RETAINS WORLD CLASS CERTIFICATIONS





# Systems Management

## Sage MAS 500 ERP

### Full lot traceability to:

- Operator
- Machine #
- Materials Lot Information
- Thermal Press Profiles
- 100% Electronic / Real Time Records

## CEBOS MQ1 QMS

### Document Mgt for QC certs / systems

- Automated Preventive Maintenance
- Electronic Form Approval

to be a world class supplier

SEC HAS INVESTED OVER \$400K IN SOFTWARE SYSTEMS SINCE 2006



# Educational Material

## RESOURCE CENTERS

- Lead-free
- Metal Core / LED PCB
- Automotive Electronics
- Clean / Alternative Energy

## WEBINARS

Pb-free Cost Reduction  
MCPCBs for LEDs

## WHITE PAPERS

Basics of (PCB) Thermal MGT for LEDs

## ARTICLES

### Updates on Thermal Management for PCBs

SMT Magazine July 2011

### Materials for High Reliability Applications

PCB Magazine June 2011

### Latest on Lead-Free Capable Materials

I-Connect007 February 2011

### Crazy Idea: Let's Make PCBs out of FR-4

The PCB Magazine June 2012



# Customer Service

- **Inside MGT contact assigned**
- **QC Customer Interface**
- **Local SEC Representative**
- **Specific Customer Service Rep**
- **Quotes Returned within 24 hours**
- **Orders confirmed same day**
- **Auto Advanced Shipment Notification**
- **Design Engineering Support**



# Equipment Updates

- **100% of major processes continuously updated**
- **Since 2011, updates include:**
  - 10k SF expansion to house expanded inspection/testing area
  - Fully automated reverse-pulse copper plating line
  - Automated HASL Unit (SnPb)
  - Latest Technology Pb-Free HASL Unit
  - Advanced Drills
  - Orbotech Ink Jet Legend Printers
  - Mech-etch Process

to be a world class supplier

SEC HAS INVESTED OVER \$6M IN EQUIPMENT UPGRADES SINCE 2006



# Value-Add Overseas Sourcing

- **High Quality and On Time Delivery**
  - Pre-engineering performed at domestic facility in Metro Detroit
    - Manufacturability
    - Panelization
  - SEC performs First Article inspection on all new lots
  - SEC inventories up to four weeks domestically
  - SEC personnel in China supervise all orders at manufacturing level

to be a world class supplier

SEC FULFILLS RAMP SCHEDULE DOMESTICALLY WHILE OFFSHORE FILLS SUPPLY PIPELINE



# Offshore Sourcing - Contingency Planning

**In the event of a supply chain disruption, we provide insurance that brokers, and even most North America PCB houses, cannot.**

**SEC has a 100k+ SF facility that is fully capable to backstop overseas production disruptions**

to be a world class supplier

SEC FABRICATING EXPERIENCE PROVIDES BUILT-IN CONTINGENCIES (brokers cannot provide)





# Industry Standards

Production/TS16949 Certified Domestic Facility as backup

Many don't even have a facility, just an office and/or warehouse. Those with facilities are not production/TS16949 certified.

We audit and approve our suppliers in person per TS16949 audit procedures

Many have not even visited their suppliers. Those that have aren't certified themselves to audit to particular standards

Offshore product shipped to customers under our TS16949 flag

The vast majority of our competitors lack this certification

All product is automotive certified, regardless of end use

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Saturn guarantees all offshore product with our unmatched 5x guarantee

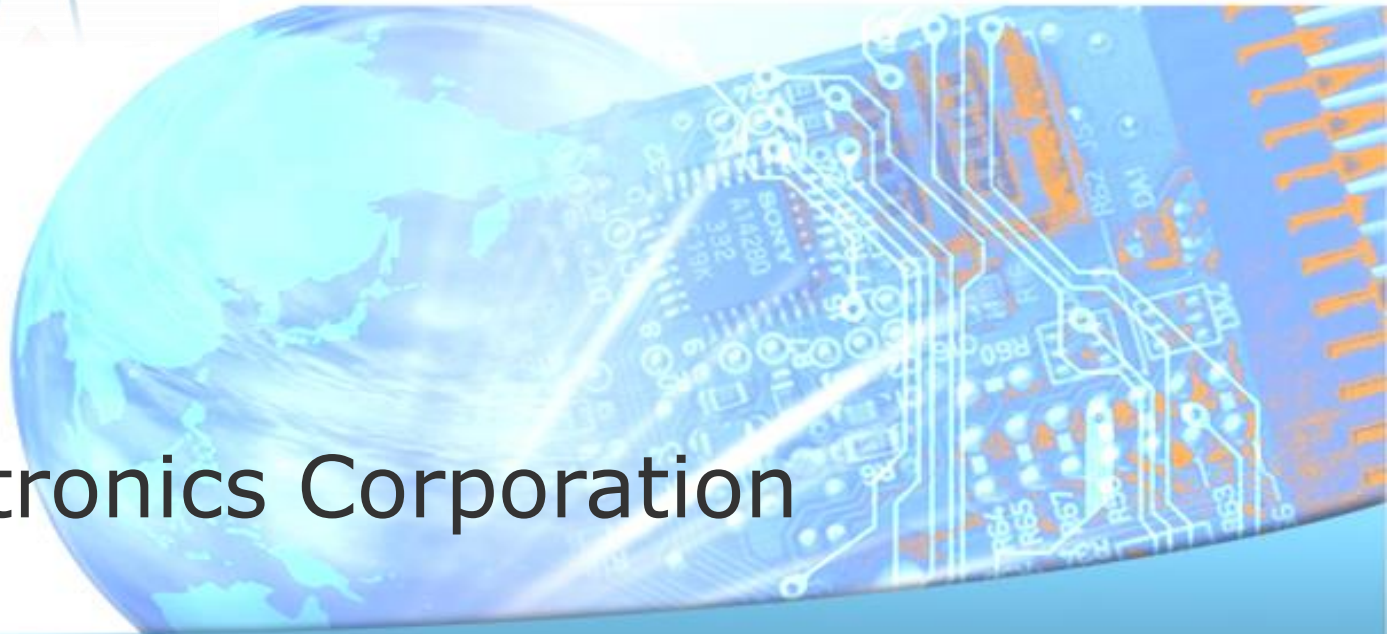
No published guarantee matches Saturn's

Saturn has personnel on-site in Asia to oversee our and our customers' interests

Majority do not have any staff whatsoever in Asia

Saturn performs all engineering work domestically prior to sending files for offshore manufacture. This ensures customers' requirements are properly communicated .

???



WE HOPE YOU WILL CONSIDER

# Saturn Electronics Corporation



# PCB Flow Chart

