

- ◆ **Your ASIC partner**
 - ◆ Manufacturer of Analog and Mixed-Signal ASICs
 - ◆ Production Site in Mainz, Germany
 - ◆ 70 Employees
 - ◆ Innovative Production Facilities



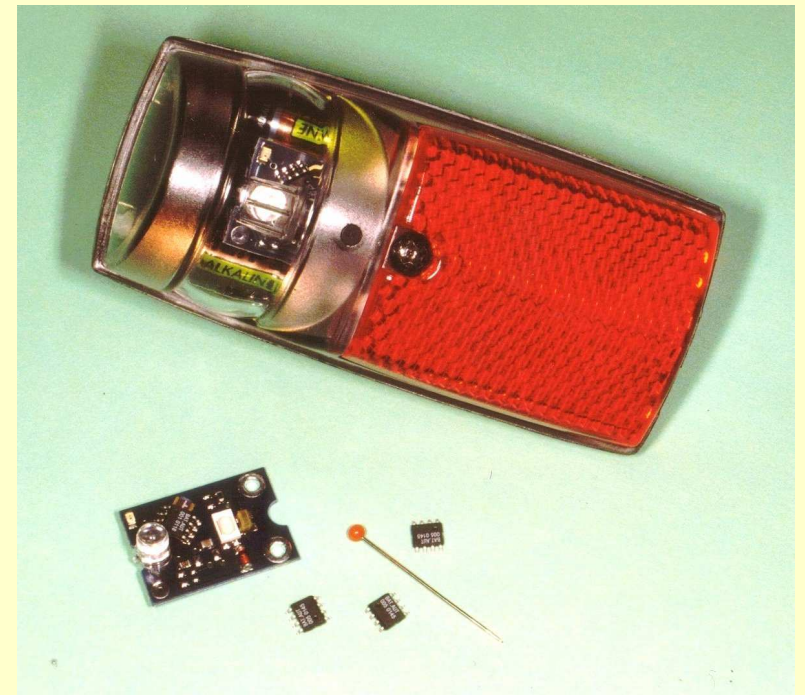
Company History



- ❖ 1977 Establishment of the **semiconductor division**. Starting construction of the PREMA wafer facility for bipolar circuits. ASIC design, mask shop. Moving to a new building with 2000 m² (22,200 sqft) production area.
- ❖ **1982** *ASIC production in bipolar technology on 3 inch wafers for analog, digital and mixed-signal circuits, for application in consumer products, sensor technology, industrial electronics, automotive electronics.*
- ❖ **1991** *Moving into the new company building with 8000 m² (89,000 sqft) production area.*
- ❖ **1996** *Launch of the 6 inch wafer facility.*
- ❖ **1999** *Universal ModuS U6-Process, the new standard for high performance Analog & Mixed-Signal processes for Analog Large Scale Integration ALSI, supply voltages from 1 V to 120 V and medium to extremely low power consumption.*
- ❖ **2004** *New 120V NPN and PNP high voltage transistors.*

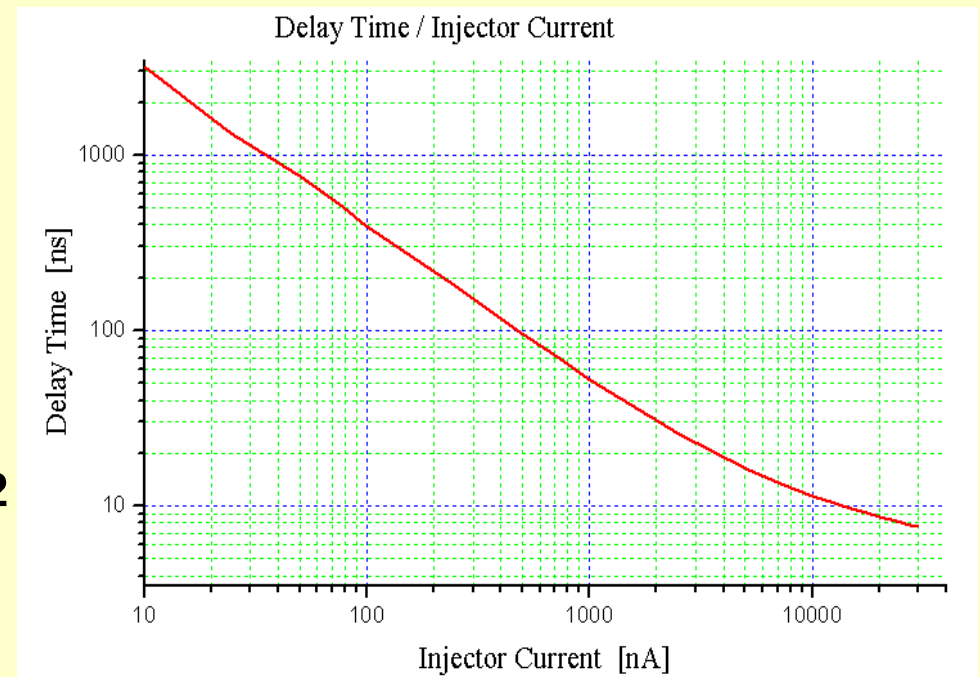
Analog ASICs

- ◆ **Supply Voltage 1V – 120V**
 - from battery to industrial applications
- ◆ **Currents up to 1A (pulsed)**
 - industrial applications
 - automotive
- ◆ **Low Noise**
 - sensor applications
 - audio applications



CCL (Constant Current Logic)

- ◆ Low supply current
⇒ low power consumption ($1\mu\text{W} / \text{gate} \cdot \text{MHz}$)
- ◆ Low disturbance
- ◆ Good electromagnetic compatibility
- ◆ Integration density of up to $1000 \text{ gates} / \text{mm}^2$



Available Components (1)



PREMA[®]
SEMICONDUCTOR

- NPN transistors with breakdown voltages of more than 120V
- PNP transistors with breakdown voltages of more than 120V
- Schottky diodes, Schottky NPNs and PNPs
- Junction field effect transistors (JFETs)
- Constant current diodes
- Zener diodes 8V and 75V

Available Components (2)

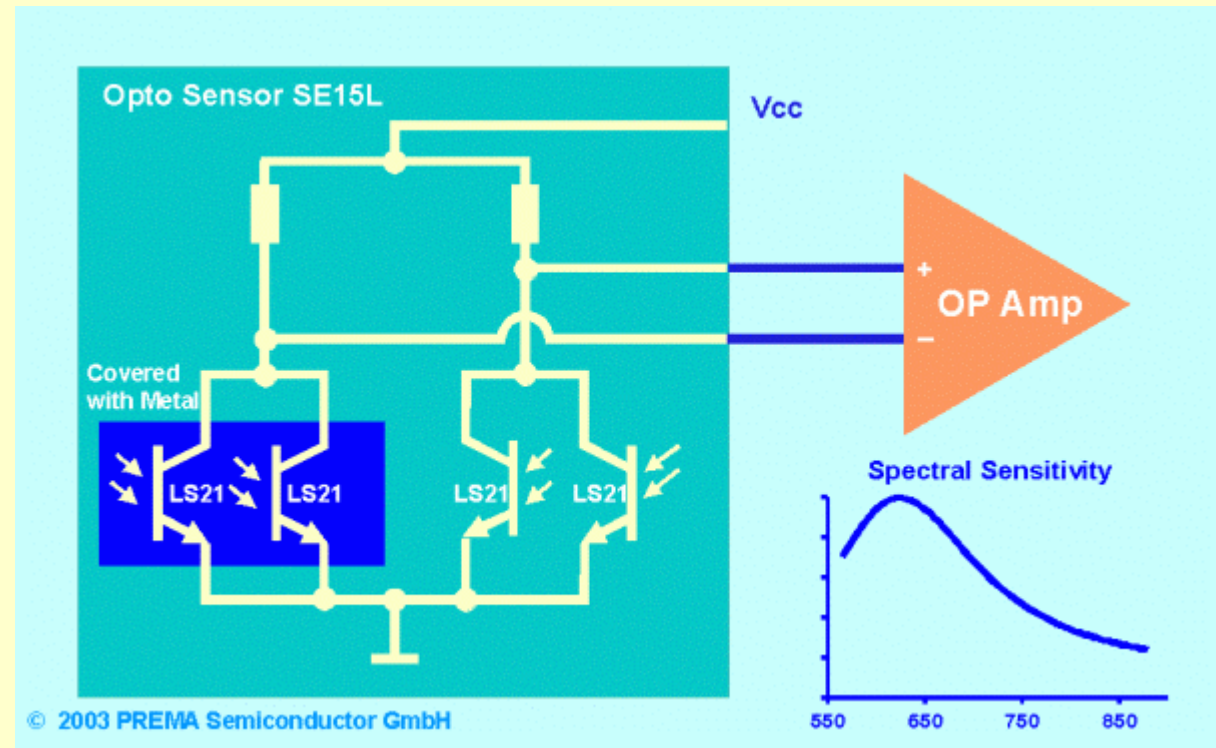


PREMA[®]
SEMICONDUCTOR

- Super beta transistors with current gain of typical 1500
- Constant Current Logic (CCL) with very low injector currents
- Variable resistors with different sheet resistance
- Junction capacitors
- Photo sensors with maximum sensitivity in the infrared or in the visible wavelength range
- Hall sensors

- ◆ Basic Components
 - ◆ Transistors (NPN, PNP, JFETs, Schottky) for a wide voltage and current range, diodes, resistors, capacitors
- ◆ Complex Components
 - ◆ OPAs, OTAs, AD/DA converter
 - ◆ Comparators, bandgap references, oscillators
 - ◆ flip-flops, divider, counter

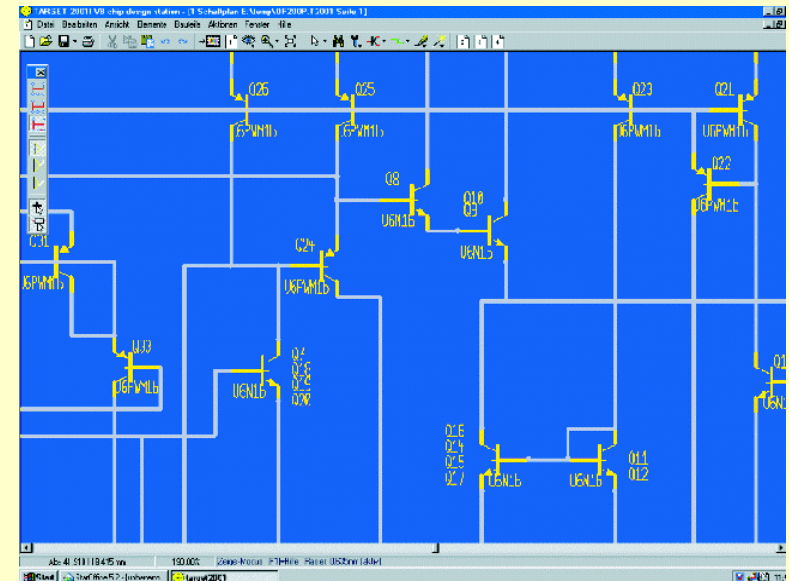
- ◆ Photo Transistors
 - ◆ Highest sensitivity, very good temperature stability
- ◆ Photo Diodes
- ◆ Hall Sensors



Design and Layout

PREMA offers:

- ◆ Inhouse design department
- ◆ Procurement of experienced external designers
- ◆ Customer support:
 - ◆ Reliable analog and digital circuits in form of complete cells
 - ◆ Affordable design tools
 - ◆ Support by experienced engineers



Steps towards an ASIC



- | | |
|---|-------------------------|
| 1. Idea for a system that includes an ASIC | Customer |
| 2. Circuitry and electrical specifications for the ASIC | Customer |
| 3. Search for a design house and a fab | Customer |
| 4. Design of the ASIC | PREMA / Design House |
| 5. Layout of the ASIC | PREMA / Design House |
| 6. Definition of the test specifications | Customer / Design House |
| 7. Manufacturing of prototypes based on the layout | PREMA |
| 8. Analysis and test of the system with ASIC prototypes | Customer |
| 9. If 8. is verified: Production of low volume pre-series ASICs
if not: go back to 4.,5.,7. | PREMA |
| 10. Set-up of the functional test for the new ASIC | PREMA |
| 11. System test and field test in the market with pre-series ASICs | Customer |
| 12. If 11. is verified: bulk production and test of series volumes | PREMA |
| 13. From the experience of the system and ASIC in the market new ideas are created. Begin from 1. with a new and better system for new applications and higher volumes. | |

Give your products the winning edge with PREMA ASICs !

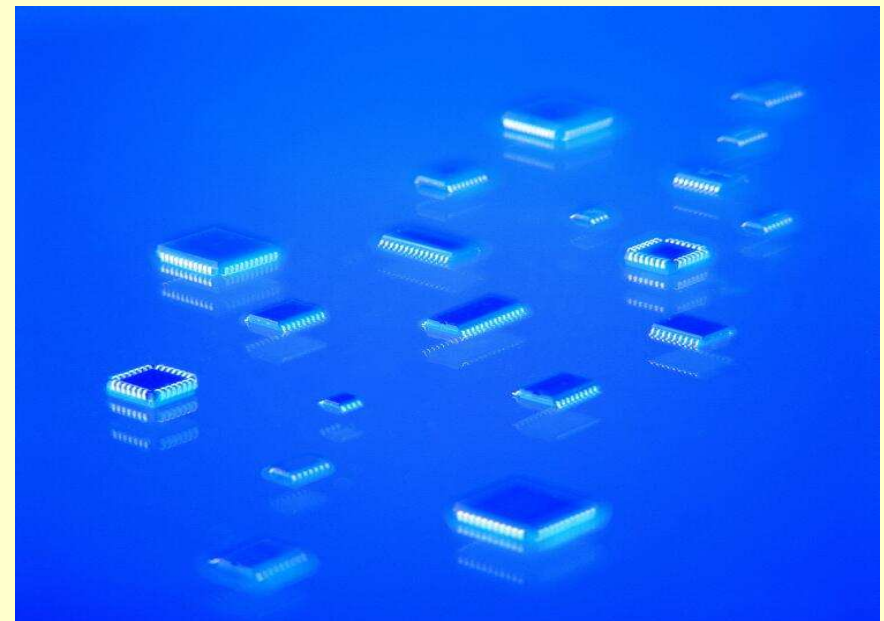
Full Service



- ◆ ASIC Development and Design
- ◆ Layout
- ◆ Prototypes: Fast and Affordable
- ◆ High Volume Series Production
- ◆ Automated Wafer Test
- ◆ Assembly in all common packages
- ◆ Test of assembled ASICs

Delivery

- Available packages:
 - SO 8-28, SSOP 16-48, PLCC
 - other packages are available on request
- Waffle pack and sliced and tested wafers
- Flip chip assembly





- ◆ **Light Barriers**

- ◆ Amplifiers and digital processing
- ◆ Laser diode drivers

- ◆ **TV & Audio**

- ◆ Analog sound enhancement system

- ◆ **Consumer Electronics**

- ◆ Controls, LED display drivers, auto shut-off switches for coffee machines
- ◆ Power supply for electronics
- ◆ Intelligent battery charging



◆ **Barcode Scanners**

- ◆ Laser light signal amplification and preconditioning

◆ **House Installation**

- ◆ Proximity detectors, intelligent switches
- ◆ Earth fault switches
- ◆ House installation bus interface
- ◆ Gas burner controls

◆ **Communications**

- ◆ Line drivers

◆ **Precision Measurement**

- ◆ Precision A/D converters for pressure transducers