



# DELTA Microelectronics

*Complete supply chain services  
Flexible business models etc.*

# About us

*DELTA Microelectronics is a leading European provider of ASIC supply chain solutions.*

DELTA gives its customers a competitive edge in bringing products to market quickly and enabling a predictable path from IC development via testing to mass production.

DELTA's comprehensive supply chain consists of development, production, packaging, testing, storage and shipping of ICs. DELTA addresses the key challenges faced by fabless IC vendors today from prototypes to mass production. By utilising DELTA's unique turnkey solutions and professional services, semiconductor vendors achieve faster time-to-market of smaller, more robust and more profitable semiconductor products.

## Highest quality standards, management and control

Above and beyond our supply chain services, we take pride in our high standards and total quality control. Over the years we have developed formal test procedures and quality management methodologies that ensure our clients the rigorous process their products receive. We use an ERP system to manage the entire supply chain process – including customers and suppliers, order handling, forecasting, reporting, and communication. Finally, DELTA is approved for ISO 9001 certification of microelectronics design since 1999 and ISO 14001 since 2005.

## History

DELTA has supported microelectronics development since 1976, and provided services to hundreds of successful integrated circuit projects for some of the world's best-known OEMs/IDMs and fabless semiconductor suppliers. We are a business unit of DELTA Danish Electronics, Light & Acoustics which was established in 1941.



**1976**  
ME test activities starts,  
RAM, PROM & CPUs



**1992**  
First space components  
delivered



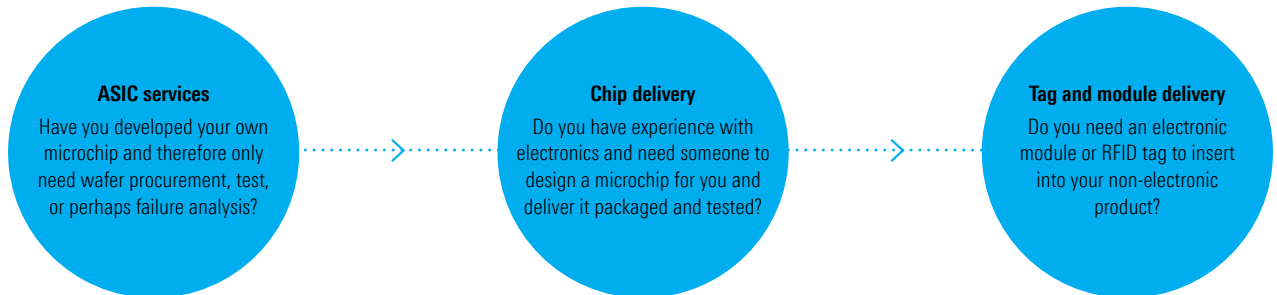
**2001**  
Mega order of 600,000  
toll road chips

**2002**  
RF test centre starts

# Engagement levels

*Semiconductor products – the way you want it.*

Whether you are an experienced semiconductor user or not, DELTA offers the solution that suits your company the best. DELTA's skillful team meets you where you are and takes you through all phases in the process.

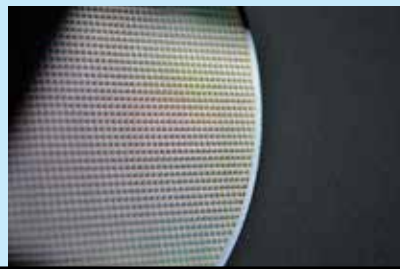


## The ASIC to COT knowledge flow

DELTA can offer various business models depending on how much responsibility you are ready and willing to take.



**2004**  
First 10 mill components delivered



**2008**  
Single contract of 10 mill chips

**2009**  
25th anniversary, the DELTA ASIC Design Centre: From hand-drawn chips to nanotechnology and BroBizz



**2010**  
IBM partnership contract

**2011**  
Celebrates more than 100 mill components delivered

**2012**  
GlobalFoundries partnership contract



# Our supply chain

*DELTA will transparently manage any subcontractors involved in providing microelectronics services to customers – from silicon production to delivery of finished components in batches.*

## **ASIC Design**

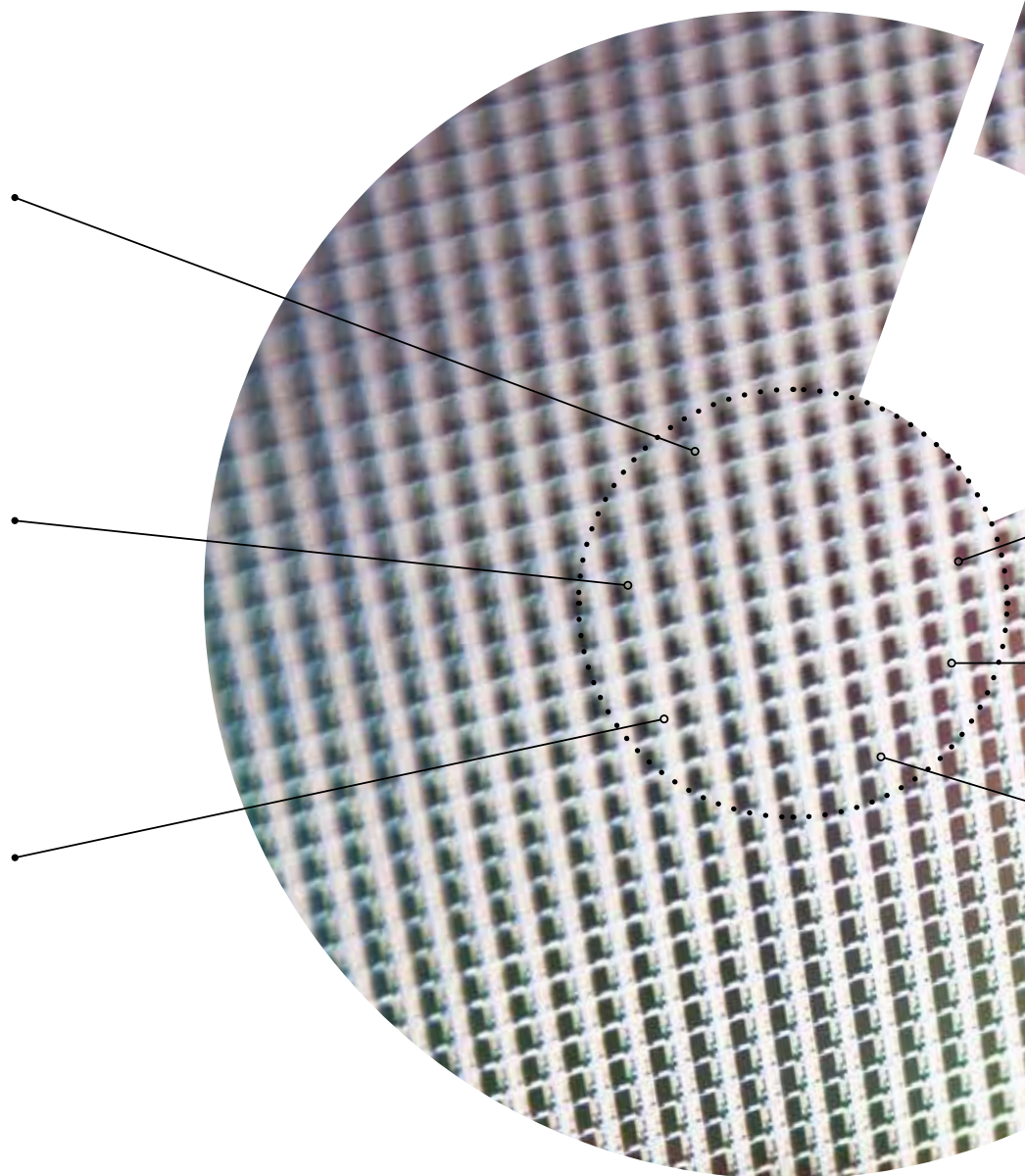
The cost and risk associated with development of custom silicon ASICs can be very high, and then experience is the best tool to assure a first-time-right outcome.

## **Wafer supply**

Great care needs to be taken throughout the wafer production process to minimise risk, from the initial selection of the best foundry, to the management of the wafer sampling and production process.

## **Test (Wafer)**

DELTA's team is completely aware of your time-to-market challenge and therefore has developed formal procedures for test development projects over many years to ensure customers high quality and rigorous test solutions.





**Project flow**

1. ASIC Design
2. Wafers
3. Test
4. Packaging
5. Supporting services

**Test (Production - with focus on timely deliveries)**

DELTA has invested heavily in our semiconductor testing resources, and operates one of the largest commercially available microelectronics testing facilities in Europe. We have a variety of equipment to suit various applications, and thus have the ability to optimise the test solution to the individual customised application (in the most optimal way).

**Packaging**

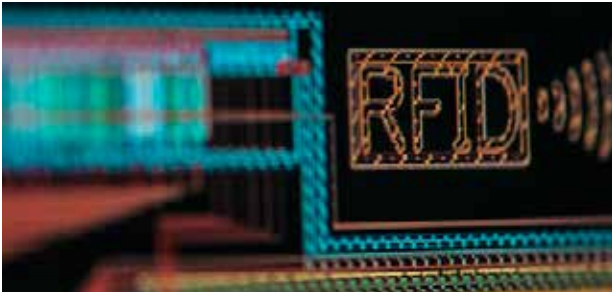
Packaging is vital for the performance of the IC. DELTA can assist at any stage, from technology selection, through development and fast-turnaround packaging of samples to volume production and analysis of field returns.

**Supporting services**

Another aspect of DELTA's packaging service is our in-house ability to decapsulate and analyse failures. Field returns are often related to packaging issues - such as delamination, temperature effects, wirebond wire failures - and DELTA's specialists and advanced tools will quickly identify the root cause of such problems.

# Our focus areas

*At DELTA Microelectronic we operate in many market applications.  
Our technologies are mixed-signal, analogue and digital design.*



## RFID

- Advanced barcodes
- Tools
- Intelligent monitoring
- Transport
- Home automation (metering)
- Temperature logging
- Food chain
- Containers
- Encryption of sensitive information
- Passports



## Optical chips

- Industrial & safety
- Production monitoring
- Position detection
- Motion control
- Optical touch detection
- Distance measurement (triangulation)
- Sensor systems
- Intelligent windows
- Colour measurement
- Eye wear
- Welding helmets
- Night vision



## Payments

- Contactless payment
- Loyalty cards
- Membership cards
- Credit cards
- Security Standards
- ESD protection
- On-board CPU
- Proven Technology
- Toll road (ETC/ERP)
- Electronic price tags



## Medical IC's

- Blood bags
- Intelligent pill box
- Glucose meter
- Blood pressure monitoring
- Inflammation of wounds
- Female heat cycle/pregnancy prevention/pregnancy support
- Bacteria detection
- Cold chain for medicine
- Body temperature monitoring
- Temperature patches
- Bandages

# At least 17 reasons to choose an ASIC

*Replacing standard components with a customised ASIC can pave the way for several advantages.*

- 1 Reducing system cost
- 2 Greater reliability
- 3 Big savings on space
- 4 Copy protection
- 5 Reductions in power consumption
- 6 Savings on assembly and testing costs
- 7 Better control of electrical parameters
- 8 Avoiding obsolete components
- 9 Lower maintenance cost due to fewer components
- 10 Savings in inventory and logistics costs due to fewer components
- 11 Reducing risk
- 12 Entire development flows
- 13 System designs and analogue IPs
- 14 Contracts where software is included
- 15 You focus only on software for the final application layer
- 16 Quick access to prototype chips that work
- 17 Right-first-time ASICs

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