



**MICROELECTRONIC SOLUTIONS
FOR A PERFECT FIT**

precise — reliable — safe

SEMICONDUCTORS

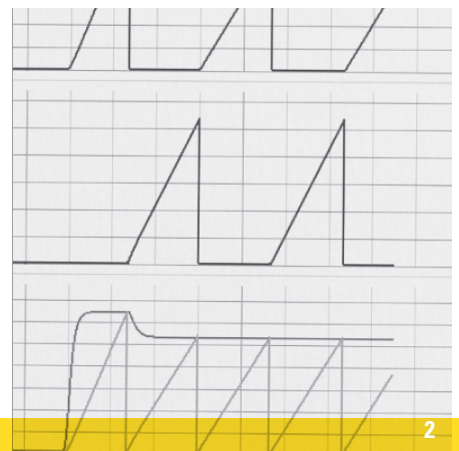
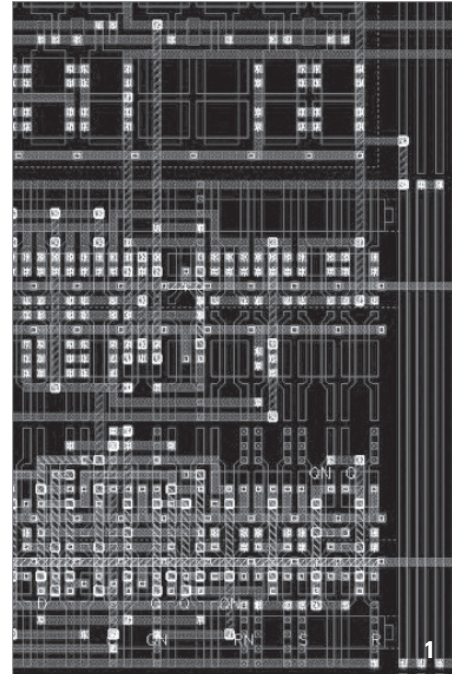
From custom integrated circuits (ASICs) to standard integrated circuits (ICs) — Microdul develops and produces the optimal integrated circuit for your application.

Competences

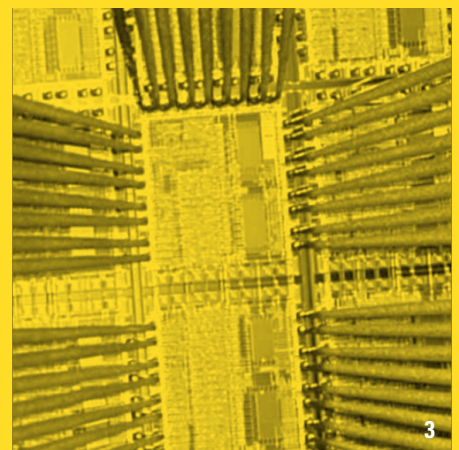
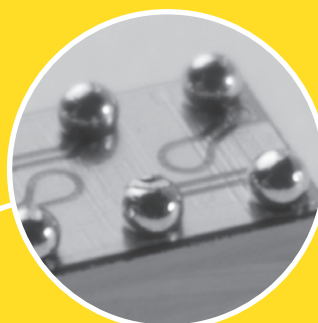
- Design and sourcing of integrated circuits, including validation and quality control
- Analog and mixed-signal design
- Ultra-low-power circuit design
- Exhaustive testing, particularly wafer probing and final test
- Failure analysis
- Assembly as required by the customer (QFN, CSP, chip-in-tray etc.)

Fields of Use / Applications

- Power and battery management
- Energy harvesting (solar, piezo-electric, inductive)
- Sensor signal evaluation and sensor interfacing
- Temperature sensors
- Touch sensors
- Analog-digital (ADC) and digital-analog conversion (DAC)
- Liquid crystal display (LCD) drivers
- Timing (quartz oscillators, temperature-compensated quartz oscillators, phase-locked loops (PLLs))
- Real-time clocks and ICs for wrist watches and chronographs
- Medical electronics, particularly active medical implants



Semiconductors — ranging from the proprietary niche product to the mass-produced standard product



MICRO-MODULES

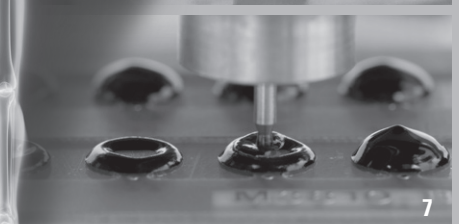
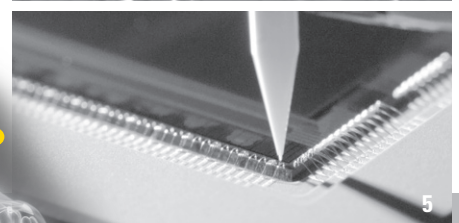
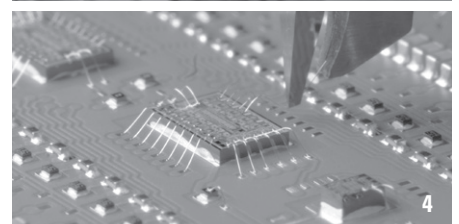
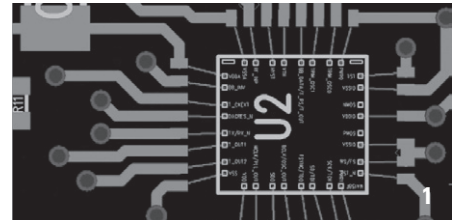
Reliable design, state-of-the-art manufacturing and timely delivery of micro-modules for your demanding core system.

Competences

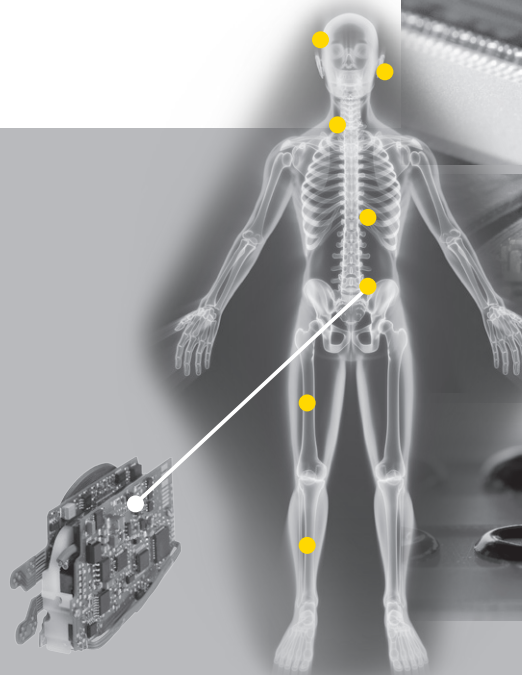
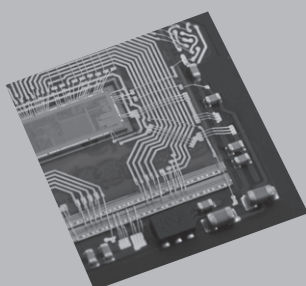
- Micro-electronic manufacturing technologies (die bonding, wire bonding, glob top dispensing)
- Certification in ISO 13485 for medical devices
- Production-oriented layout service
- SMD technology (placement of components down to 01005, flip-chip, reflow soldering, vacuum soldering, selective soldering, washing)
- Special assembly technologies (gluing, dispensing, molding, coating, marking, heat-sealing)
- Test, validation and lot acceptance tests of ICs and components
- In-line inspection and module test
- Traceability down to the component level

Fields of Use / Applications

- Active implantable medical products with certificates of conformity
 - Cochlea implants
 - Ventricular assist devices (VADs)
 - Cardio and nerve stimulation
- Active medical products with Certificate of conformity
 - Endoscopes
 - Hearing aids
 - Patient monitoring
- Power electronics
 - Power modules
 - Rail transport and traction
- Safety technology
 - Micro-SD cards
 - Access control
- Sensor technology
- Measuring and control technology



Miniaturized solutions in cutting-edge micro-modules provide you with superb reliability



THICK FILM

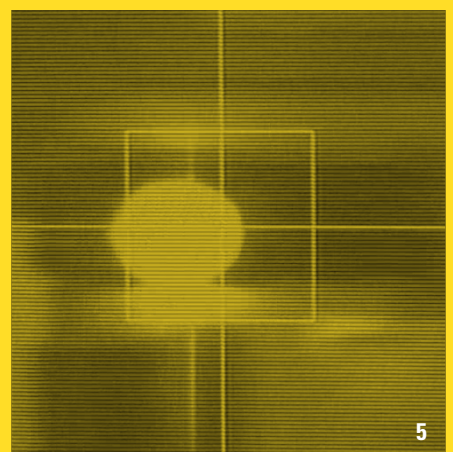
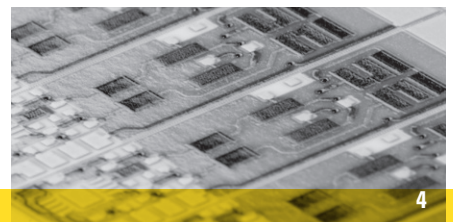
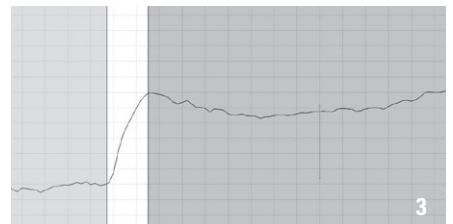
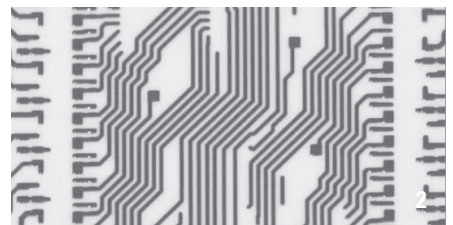
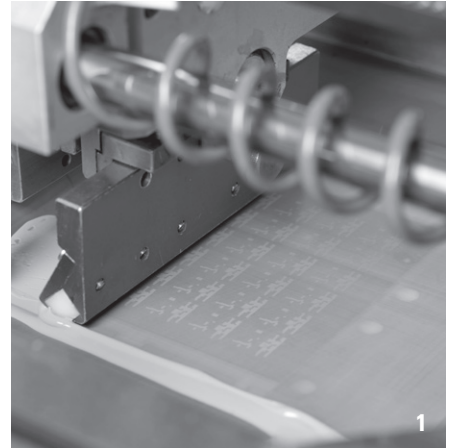
Reliable multi-layer thick film substrates produced by Microdul feature vias and laser-trimmed resistors. Thick film technology ensures first class reliability under extreme environmental conditions of humidity and heat. In specific situations such as for pressure sensors, resistor networks and safety appliances, it excels compared to other substrate technologies.

Competences

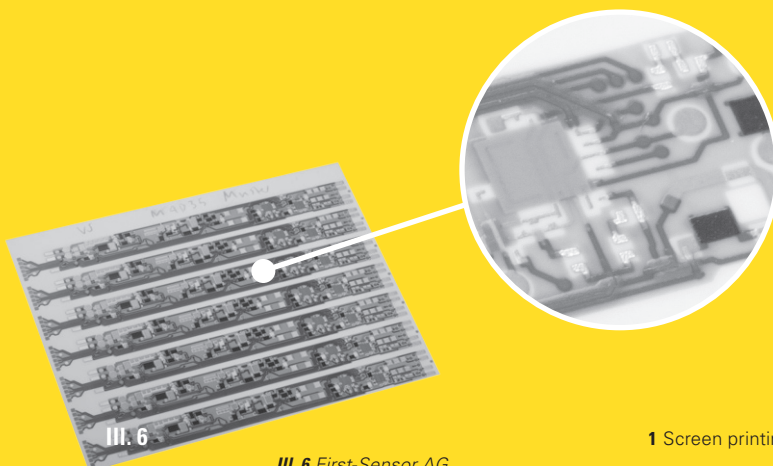
- Extensive range of services in thick film technology
- Production-oriented layout service
- Fine-line screen printing
- Via technology for through-hole-connections
- Multiple resistance printing with single firing
- (Pushed) NTC and PTC resistors
- Multilayer substrates with 18 layers and above
- Ceramic, nitride, steel and copper substrates
- Passive and active trimming of resistors

Fields of Use / Applications

- Textile industry
 - Pressure sensors
 - Strain gauges
- Power electronics
 - High-voltage substrate interconnections
 - Power resistors
- Industrial applications
- Medical electronics (e.g. non-magnetic substrates for MRI scanners)
- Automotive electronics
- Rail transport and traction
- Sensor substrates
- Heater substrates
- High-temperature substrates



Thick Film — Technology for harsh environments



1 Screen printing | 2 Printed interconnection layer | 3 Cross section measurement
4 Printed resistors | 5 Laser-trimming of resistors

PREMIUM MICRO-ELECTRONICS

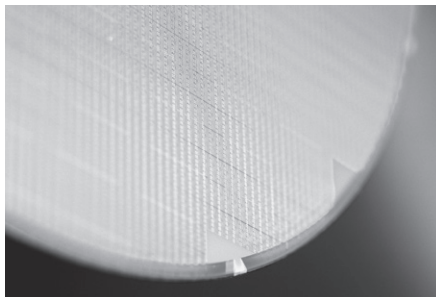
Microdul AG is your comprehensive expert for highly reliable micro-electronics. We master the processes at all implementation stages — from development and engineering through production and test of custom applications. We strive to delight and inspire our customers.

Microdul possesses a broad and profound know-how in the multi-faceted world of micro-electronics. In our business areas of semiconductors, modules and thick-film, we convert this

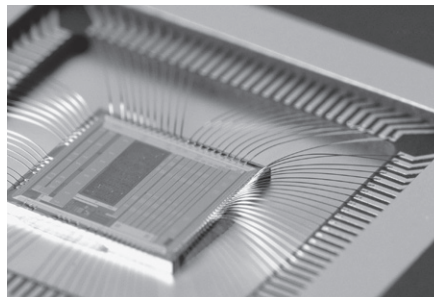
know-how into fascinating products and services. Certifications in ISO 9001 and ISO 13485 are witnesses to our process excellence — as well as the numerous, successful customer audits.

Whether you need a standard product or an individual solution — with Microdul as your partner, you will successfully cope with any hurdle.

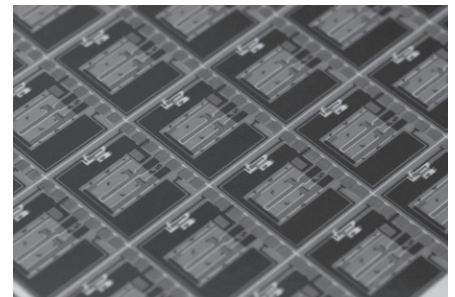
Semiconductors — ASICs and standard ICs



Micromodule — Development and production in micro-systems technology



Thick-film — Design and production of multi-layer substrates



ADDED VALUE FOR OUR CUSTOMERS

At Microdul, we focus all resources and know-how about development, technology, manufacturing and quality processes on the success of our customers. From the initial idea until product release, our versatile and accomplished experts are at your side. For very specific issues, our experts will not hesitate to provide you with qualified specialists from our partner networks.

PROVEN, CUSTOMER-ORIENTED PRODUCT AND DEVELOPMENT FLOW



CORE COMPETENCE OF MICRODUL

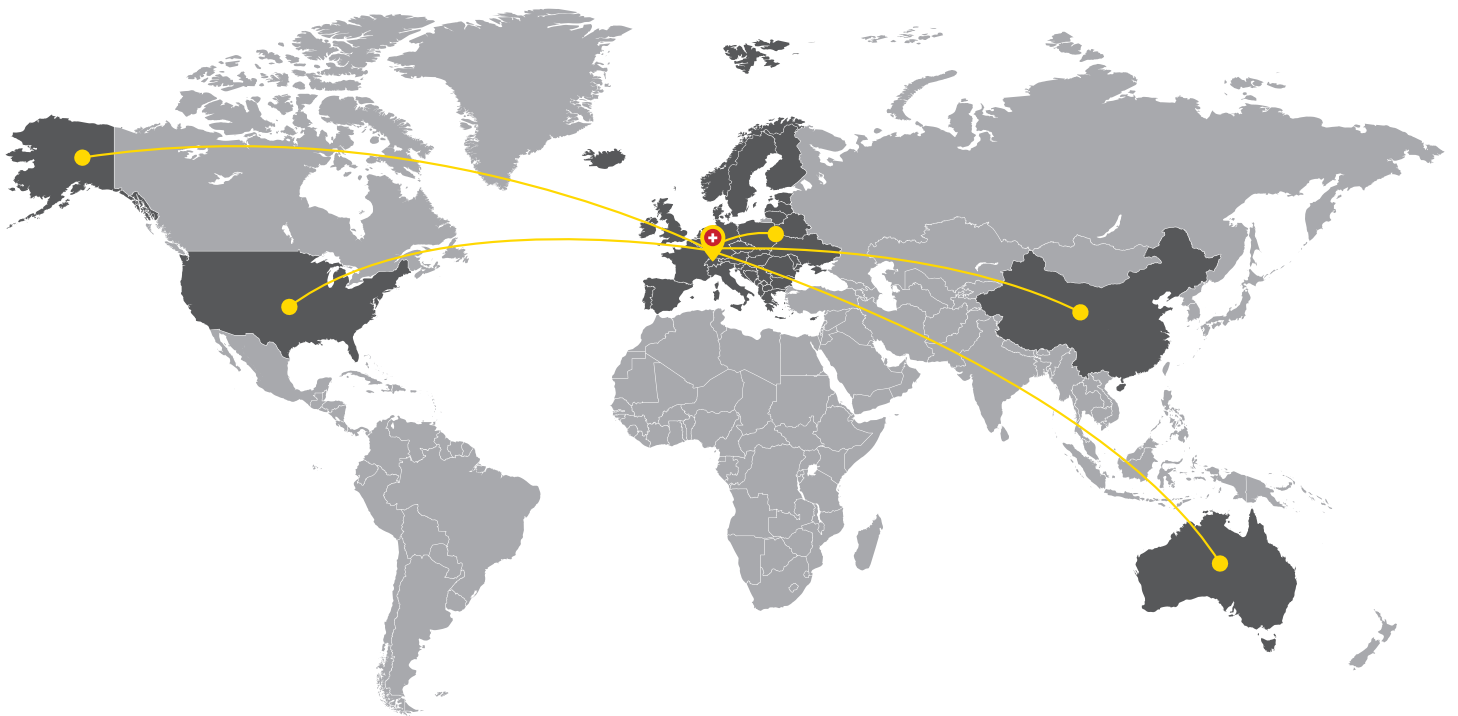
As an expert for highly reliable micro-electronics, Microdul has all processes from engineering through production at its disposal. Where required, Microdul brings in the know-how of specialists from our partner networks.

CUSTOMER EXPERTISE

Microdul guides and supports you from the initial idea to the product release.

MICRO-ELECTRONICS FROM SWITZERLAND — GLOBALLY TRUSTED

Swiss precision and quality in premium micro-electronics from Microdul AG has been globally in use for many years. We meet our customers on-site whenever they need us to ensure a smooth development and production. Excellent solutions for the miniaturization of electronic circuits emerge from our close co-operation with our customers.



Microdul AG

Grubenstrasse 9
CH-8045 Zürich, Switzerland

Phone +41 44 455 35 11
Fax +41 44 455 35 95

info@microdul.com
www.microdul.com