

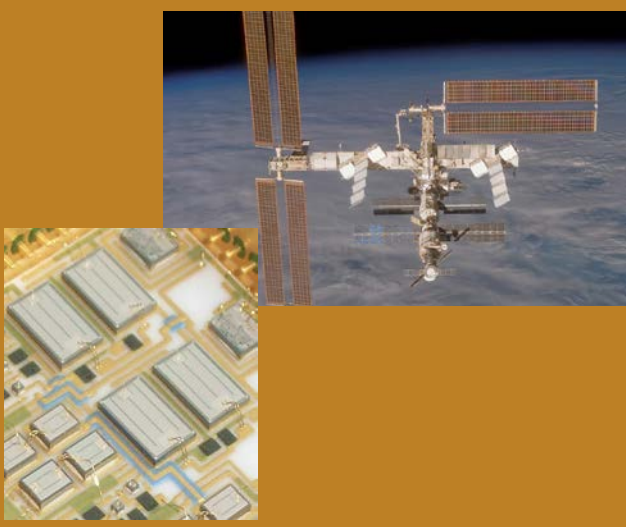
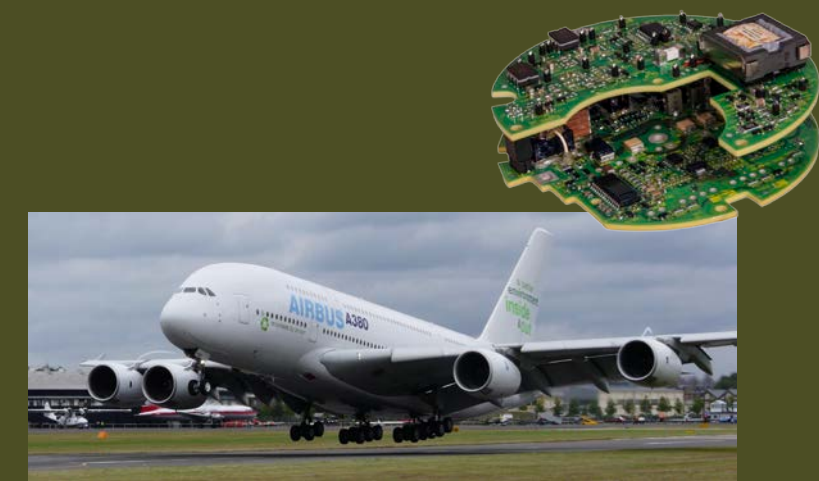
# Featured Technologies

## Medical Tooling and Instrumentation Capabilities

For medical applications where high reliability electronics are required for the harsh conditions such as autoclaves. API is able to provide custom solutions to ensure the reliability and electronic performance of surgical tools and instrumentation are maintained

## Commercial Aerospace

From fuel pump control assemblies to highly integrated multi-layer hybrid microcircuits, API offers a wide range of custom design and manufacturing solutions



## Space

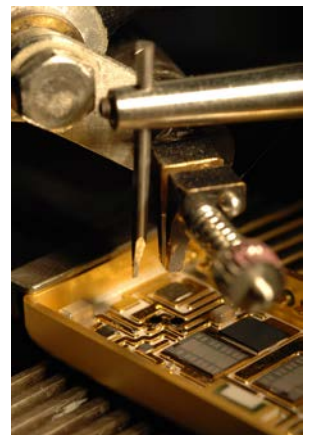
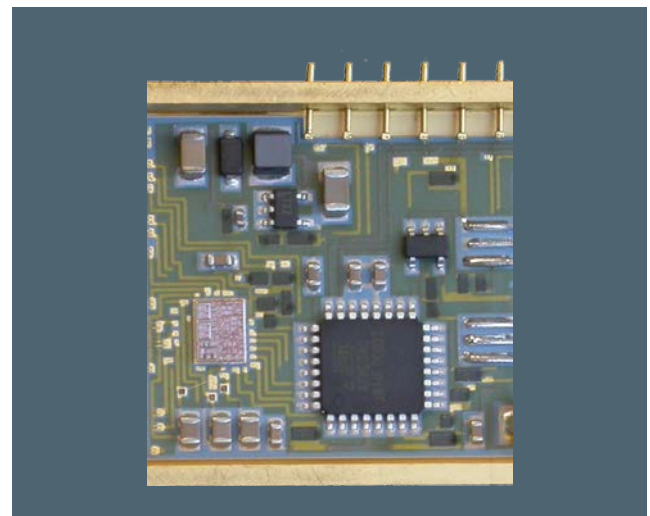
Our custom products have been produced for a wide variety of satellite requirements, they include low cost radiation hardened, high reliability die packaging. Our MIL-PRF-38534 Class K qualification enables us to support quality requirements of both military and commercial space programmes.

# Capabilities

## Chip on Board

- Suited to wire bonded bare semiconductor die with aluminium or gold bond wire
- High packing density
- Large board assemblies

Substrate materials include FR4, flexible PCBs and thick film on ceramic supporting surface mount packaged components intermixed with wire bonded bare semiconductor die.



## Fine Line Thick Film Solutions

- High density interconnect
- Cost effective alternative to thin film
- Line and space widths to 25µm
- Compatible with standard thick film, Alumina and LTCC

Photoetchable technology can be combined with standard thick-film processing to provide complex, high density multi-layer substrates suitable for RF and microwave applications.

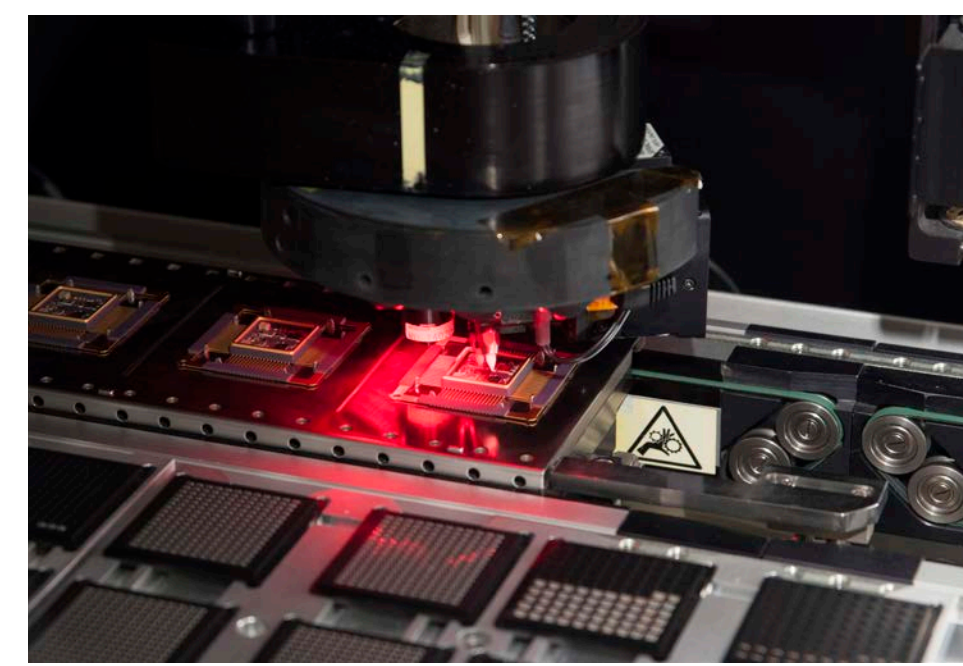
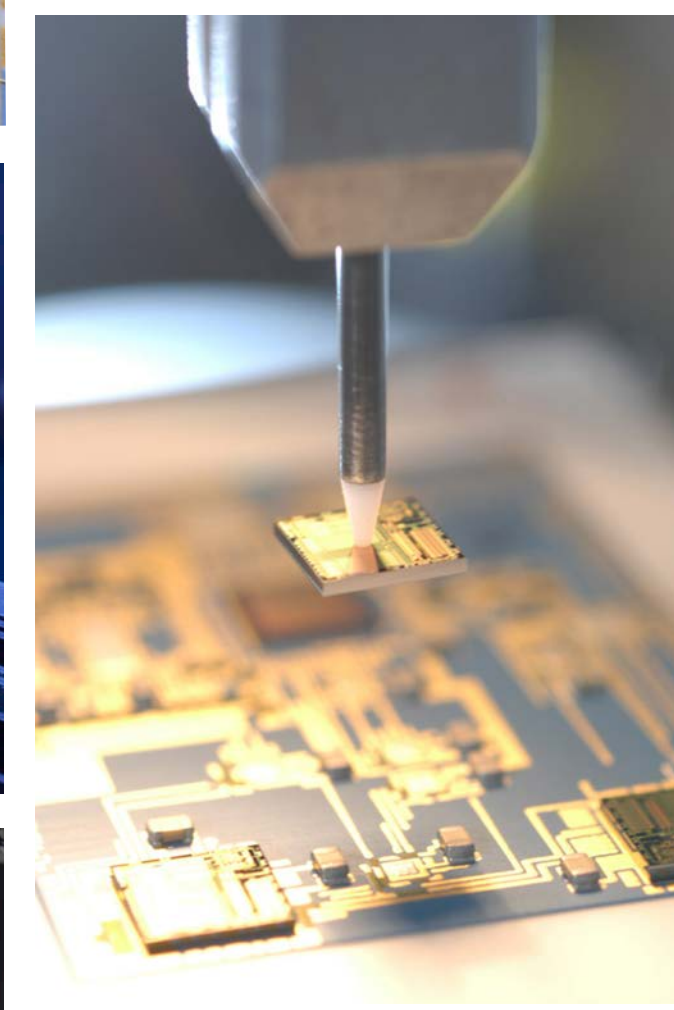
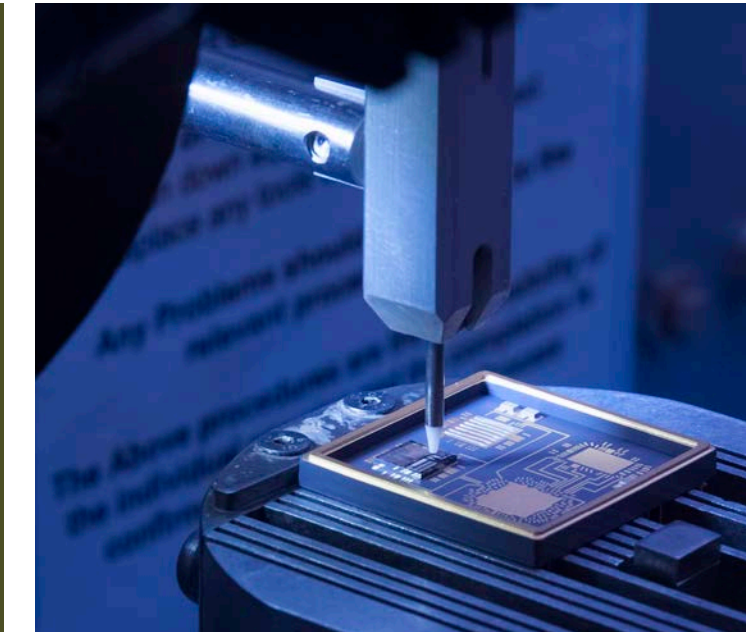
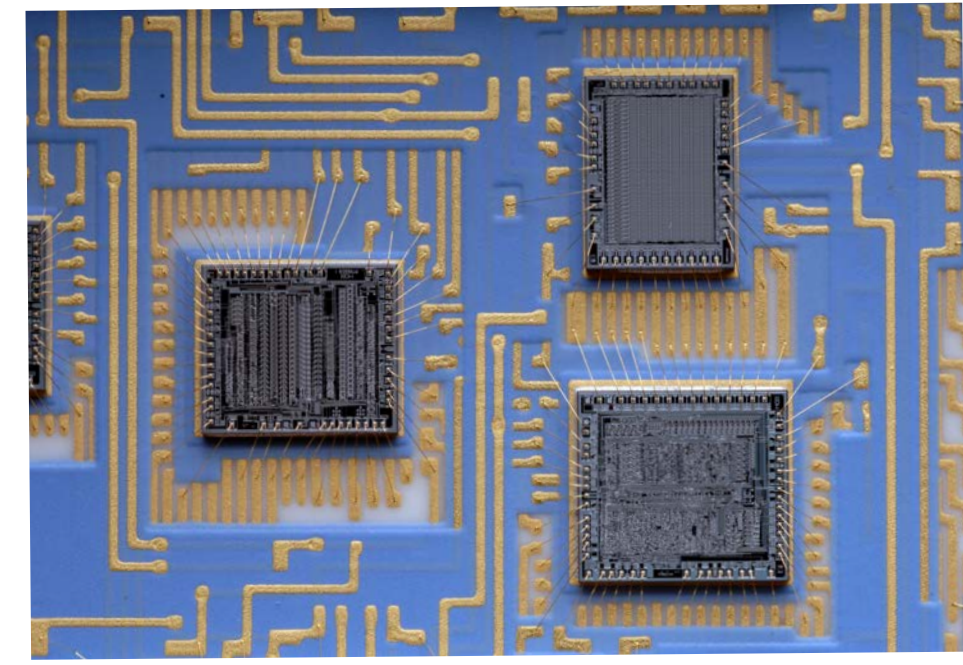


## Low Temperature Cofired Ceramic (LTCC)

- High performance electronic packaging and substrate technology
- Ideally suited to RF and microwave products
- High temperature, harsh environment suitability
- 3D capability, cavities, channels
- Effective thermal management with metal loaded vias
- Low loss glass-ceramic dielectric



# High Reliability Electronics for Harsh Environments



API Technologies Corp. is a trusted provider of RF, microwave, microelectronics, and security solutions for critical and high-reliability applications. The company designs, develops, and manufactures electronic components, modules, systems and products for technically demanding defence, commercial/industrial and aerospace applications. API Technologies' customers include many leading Fortune 500 companies, as well as a majority of NATO governments. While API was founded in 1981, our heritage brands have served the demanding, hi-rel marketplace for more than 70 years. API Technologies trades on the NASDAQ under the symbol ATNY.

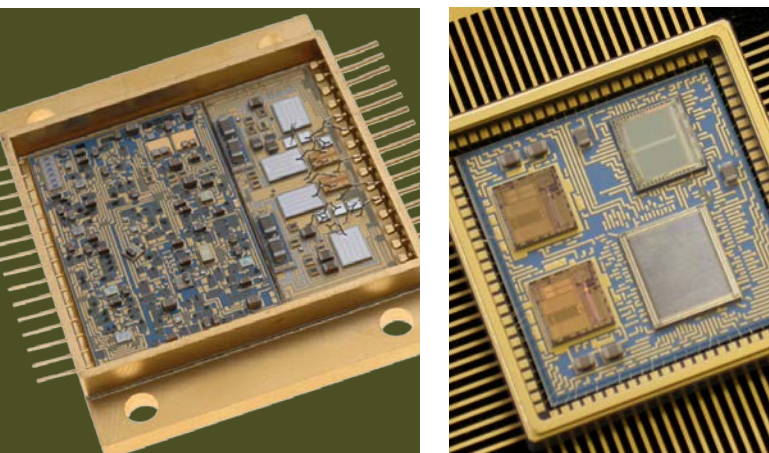
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# Core Capabilities

API Technologies is a world leader in the supply of microelectronic products and services supporting mission critical applications, including the design and manufacture of RF, microwave, power and opto-electronics for exposure to harsh environments, extremes of temperature and vibration and applications where size and mass are a premium. With over 70 years experience in the custom design, vertical integration, in-house manufacturing and testing of high reliability microelectronics, API encompasses a blend of harsh environment electronic design and packaging expertise not common in the industry today.

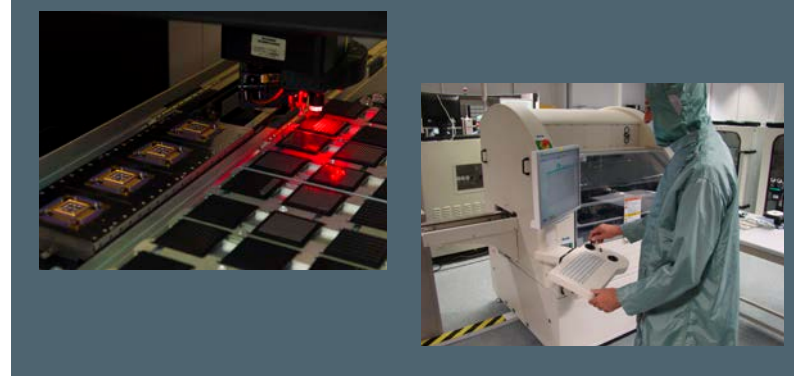


## Core Capabilities

- Hybrid Microcircuits & Multi-chip Modules (MCMs)
- High Reliability Thick Film Technology
- Ultra High Temperature Electronic Solutions
- Photodefined Thick Film
- Low Temperature Co-Fired Ceramic (LTCC)
- RF & Microwave
- Space Grade Electronics
- PCBA and PCB Miniaturisation

## Specialist Chip and Wire Capability

- Auto pick and place of die
- Precision Placement
- Flip chip
- High Speed auto-wire bonding,
- Ball and wedge bonding
- High density
- Hermetic sealing & lidding



## Test Capabilities

API's DLA and UKAS accredited Test House carry out testing in accordance with MIL-STD-883 & MIL-STD-202. API is continuously developing capabilities and test methods in response to customer requirements

- Climatic & Dynamic Testing
- Life Testing
- Vibration/Shock
- Acceleration
- Temperature Cycling
- Salt Atmosphere
- Humidity



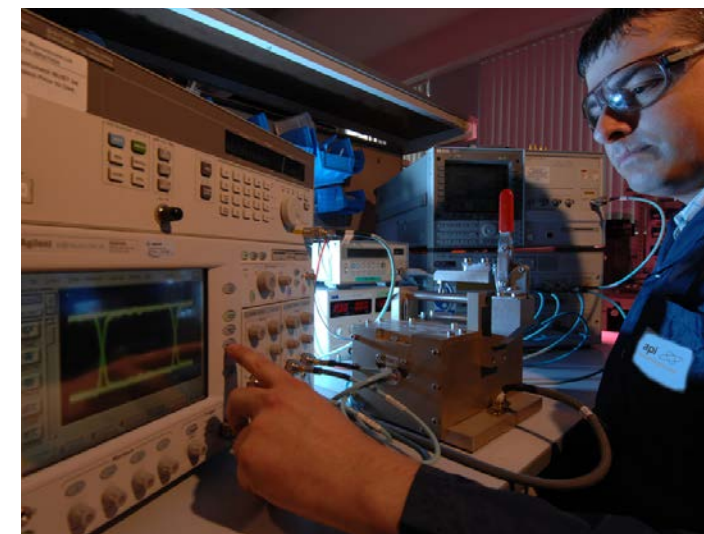
## Accreditations

- AS9100 rev C
- ISO9001:2008
- MIL-PRF-38534 (Class H & K)
- ISO 17025

# Dedicated to Design & Manufacture

## Design For Manufacture

API Technologies' customers benefit from unparalleled engineering and high temperature, high reliability industry expertise. Our state-of-the-art engineering, full technology integration, and on-site test capabilities provide for rapid turn-around from prototype to production and deliver full life-cycle support.



## Engineering Expertise

API's engineering teams have extensive design and product development experience and provide close co-operation with customers enabling the best cost saving solutions

- Electronic, Optical and Mechanical Design & Simulation
- Electrical (analogue, digital, RF, microwave) and optical test system design and construction
- 3D CAD & EM simulation

## Full Life-Cycle Support

API provides customers with the most appropriate design to manufacturing solutions to meet their demands for high reliability electronics

- Concept
- Design & Simulation
- CAD Layout & Package Design
- Procurement Cycle
- Prototype Build
- Test Development
- Qualification
- Qualification Report
- Production Readiness Review
- Production Ramp Up
- Product Support to End-of-life

## High Temp Electronics Development

- **Ceramic Substrates**  
Sinter Temperature up to 1800°C
- **Thick Film Ink**  
Minimum/Maximum Firing Temperatures 600°C to 950°C
- **Adhesives**  
Conductive and Non conductive >225°C
- **Active & Passive components**  
Silicon on Insulator 225°C  
Silicon typically up to 185°C  
Capacitors 150°C (Specialist >200°C)
- **Wire Bonding**  
Gold & Aluminium >300°C



# Featured Sectors and Technologies

## Defence Avionics & Optical Capabilities

API is proud to supply the Eurofighter programme with their own design of optical transceiver compliant with the STANAG 3910 protocol.

API is ideally placed to address the next generation of high speed optical data requirements for harsh environments.

- Optical databus suitable for avionics, space and downwell communications



## Filtered Circular Connectors

Built to meet stringent MIL specifications and broad spectrum of environment requirements. API's filtered circular connectors are available in power, signal and coax line combinations.

- European Design and Manufacture
- Operating temperature ranges of -55°C to 125°C
- MIL-DTL-38999 compliant
- Custom planar design

## Oil & Gas

API has a strong heritage of providing proven technologies to harsh environment markets. API's specialist techniques of bare semiconductor die on thick film ceramic interconnect overcomes the high temperature performance limitations of traditional glass fibre laminate printed circuit boards.

- Extended lifetime at Ultra High Temperature
- Expanding capabilities in Ultra High Temperature ranges of 175 to >225°C

