rf/microwave, microelectronic
& electromagnetic

space solutions







api technologies corp.

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A long history of space program partnerships

Developing mission critical solutions for space applications has never been more challenging. Prime contractors delivering today's deep space exploration, scientific discovery, military surveillance/protection, and commercial communications innovations demand suppliers who combine the highest reliability products with cost efficiency. API Technologies is exactly that kind of partner. With a space heritage dating to 1976, we have proven experience participating in a long line of past and present space programs.

API is a designer and manufacturer of RF/microwave and hybrid components, microwave semiconductors and microelectronic assemblies for space systems, satellites, launch vehicles, and associated support networks. We utilize five manufacturing space centers of excellence offering a wide range of space and Hi-Rel certifications and extensive testing capabilities. Our experienced engineering team will recommend one of our many space-approved standard designs or develop a custom solution radiation hardened to withstand the most extreme environments.



capabilities overview

Facilities

Rancho Cordova, California, USA
Marlborough, Massachusetts, USA
Nashua, New Hampshire, USA
Great Yarmouth, United Kingdom
Milton Keynes, United Kingdom

Brands

Spectrum Microwave™
C-MAC Aerospace™
CMT™
Filtran™

Certifications

MIL-PRF-38534 Class K
MIL-PRF-38534 Class H
AS9100
ISO9001
IPC-610 Class 3
J-STD 001
MIL STD 883
ESA/SCC 5010 –
Microwave Diodes QPL

Testing

- Environmental to IECQ, MIL-STD-883 and MIL-STD-202
- Up-screening of selected passive component and active die lots
- Completed product qualification
- ISO 17025 accredited facility

Products

RF/Microwave

- Filters
- Multiplexers
- Switched Filter Banks
- Filter GPS LNA
- Couplers
- Dividers/Combiners
- Amplifiers
- Switches
- Diodes
- Limiters (Waveguide & Coax)
- Mixers
- SAW Oscillators
- VCOs

Microelectronics

- Microelectronic Assemblies
- Multi-Chip Modules (MCM)
- Build-to-Print

Magnetics

- Transformers
- Inductors
- Coils & Chokes

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rich program heritage



Deep Space

- Galileo
- Cassini
- USERS (2 sats)
- Selene & Okina
- Mars Phoenix
- Lunar Reconnaissance Orbiter
- OCO
- LCROSS
- Mars Science Lab
- ISS Kibo EF



Scientific Missions

- SAOCOM
- Hershel Plank
- AMS-02
- Aquarius (SAC-D)
- Lisa Pathfinder
- Juno
- Grail (2 sats)
- EnMap
- Vegetation
- Cassini
- Meteosat



Communications

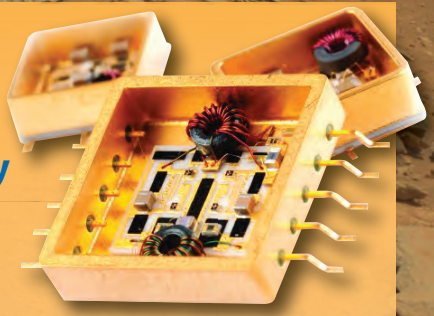
- GPS-2F
- Prima
- O3B
- Inmarsat
- Intelsat
- Sirius Radio
- Direct TV
- Optus 10
- Amazonas 3
- Thor 7
- MUOS
- Military Classified
- Hot Bird
- MARECS
- Olympus
- SkyNet
- Eutelsat
- Koreasat

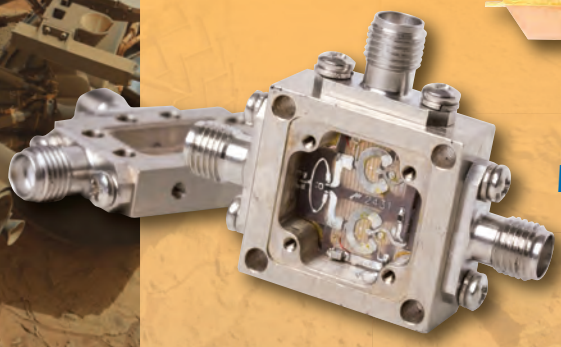
Launch & Reentry Vehicles

- Taurus
- Minuteman
- H-II

mars curiosity rover program involvement

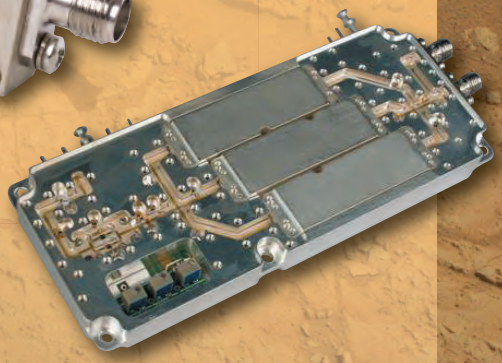
Low Noise High Linearity & High Efficiency Amplifiers

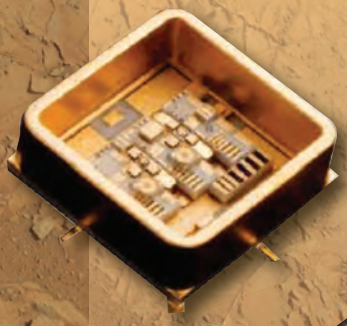




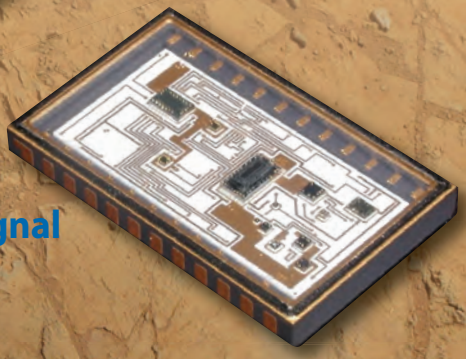
Mixers

Frequency Doubler





VCOs



Mixed Signal

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manufacturing facilities

space

The API Difference

Whether your mission requires a standard single function component, a custom multi-function assembly, or a build-to-print/testing supplier, API Technologies is poised to be your ideal space partner. With five facilities offering specialized capabilities and engineering support, API is unique in its ability to offer customers a flexible, responsive approach driven by proven technology.

Engineering Expertise

The API engineering team offers a strong heritage in designing high-reliability solutions for space payloads in a wide range of deep space, scientific, and commercial programs. We utilize all of the popular and accepted simulation and design tools, as well as several proprietary programs. In addition, as a vertically integrated manufacturer, we have in-house machining centers for quick-turn prototyping.

Certifications

API employs all of the quality systems and processes essential to being a qualified supplier for Hi-Rel space platforms. We have two facilities certified to MIL-PRF-38534 Class K out of fewer than 20 in the world, as well as facilities certified to a variety of other quality standards, including AS9100 and ISO9001. These space centers of excellence allow us to assign specific projects to the individual facility with the required certifications and specializations.

Testing

Our facilities offer a wide range of in-house mechanical and environmental screening and auto-electrical testing for element evaluation as well as completed product qualification. API has an independently managed, ISO 17025 accredited test facility providing full environmental testing against IECQ, MIL-STD-883, and MIL-STD-202 test methods. These test capabilities are an integral part of our internal process are also available for screening and qualification testing of customer-supplied designs and piece work.



Rancho Cordova
California-USA

Specialization:
RF/Microwave filters/multiplexers – component design and manufacture. Topologies include: cavity, combline, lumped element, and interdigital. Featured products include filters, multiplexers, and switched filter banks.

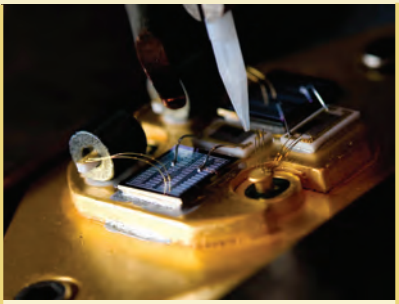
Space Heritage:
Since 2004

Certifications:
AS9100
MIL-STD-883 Screening
IPC-610 Class 3 Workmanship
J-STD 001 Soldering

Unique Capabilities :
- Filter design from 10MHz to 50GHz
- Dielectric resonators (TE01δ Mode)
- Multipaction and Corona calculators
- X-Ray fluorescence testing
- Environmental stress screening

Facility:
16,000 Sq. ft.
Class 100 Clean Room

centers of excellence



Marlborough
Massachusetts-USA

Specialization:
Design and manufacture high-performance hybrids, MCMs, SAW filters, SAW-based sub-systems, amplifiers, and build-to-print. Featured products include data converters, oscillators, filters, and precision analog circuits.

Space Heritage:
Since 1984

Certifications:
MIL-PRF-38534 Class H & K
AS9100
MIL-STD-883 Screening
IPC-610 Class 3 Workmanship
J-STD 001 Soldering

Unique Capabilities :
- Void free solder die attach
- Auto flip chip/BGA
- Mixed signal testing
- Metal deposition
- 0.7 - 2 mil gold wire bonding
- Active and passive laser trim
- Environmental stress screening
- In-house SAW
- Thin film fabrication

Facility:
45,000 Sq. ft.
30,000 Sq. ft. Clean Room



Great Yarmouth
United Kingdom

Specialization:
Microelectronics - contract manufacture of hybrid microcircuits, and custom thick film hybrid electronic modules. In-house, independently managed ISO 17025 accredited test facility.

Space Heritage:
Since 1986

Certifications:
MIL-PRF-38534 Class K
MIL-PRF-38534 Class H
AS9100
ISO9001:2008

Unique Capabilities :
- Environmental testing against IECQ, MIL-STD-883 and MIL-STD-202 test methods for element evaluation of microcircuit & semiconductor dice, passive components, substrates, packages, adhesives
- Engineering disciplines – sub-contract manufacture of analogue digital hybrids
- Up-screening of selected passive component and active die lots
- Testing for completed product qualification
- Offer monolithic and hybrid devices based on Linear Tech RF product line

Facility:
112,000 Sq. ft.



Nashua
New Hampshire-USA

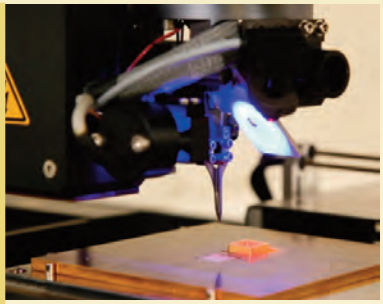
Specialization:
RF/Microwave/mmW components - design and manufacture space grade components and integrated microwave assemblies for launch vehicles, payloads, and satellites.

Space Heritage:
Since 1995

Certifications:
ISO9001:2008
AS9100 Certification in Process
MIL-PRF-38534, 883 Screening
IPC-610 Class 3 Workmanship
J-STD 001 Soldering

Unique Capabilities :
- Vertically integrated to go from concept to qualification under one roof
- Engineering disciplines – RF/Microwave and mmW electrical design, assembly and verification testing
- Test at altitude
- Up-screening of selected passive component to meet platform requirements
- Testing for completed product qualification requirements
- Extensive library of space designs

Facility:
40,000 Sq. ft.
1,000 Sq. ft. Class 10 Clean Room



Milton Keynes
United Kingdom

Specialization:
Microwave semiconductors, hybrid and multifunction components - qualified to ESA and project specific specifications for space payloads. Completed formal qualification testing to ESA/SCC 5010 for a range of UK manufactured microwave diodes.

Space Heritage:
Since 1976

Certifications:
ESA/SCC 5010 Microwave Diodes QPL
ISO9001:2008
ISO14001

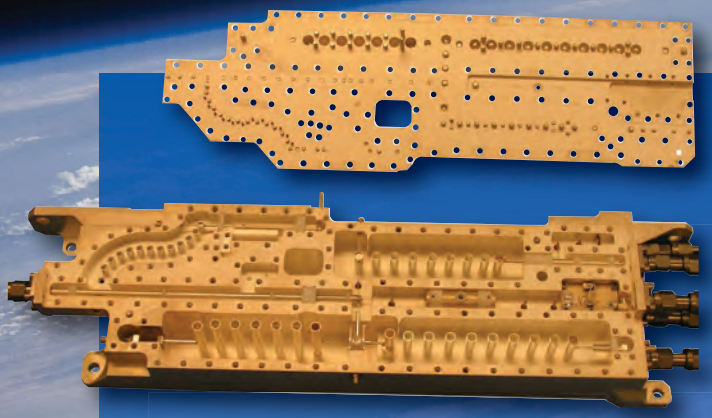
Unique Capabilities :
- Semiconductor in house wafer fab for two terminal microwave devices
- Engineering disciplines – non ITAR microwave component design
- Testing for completed product qualification
- ESA qualified microwave diodes

Facility:
50,000 Sq. ft.

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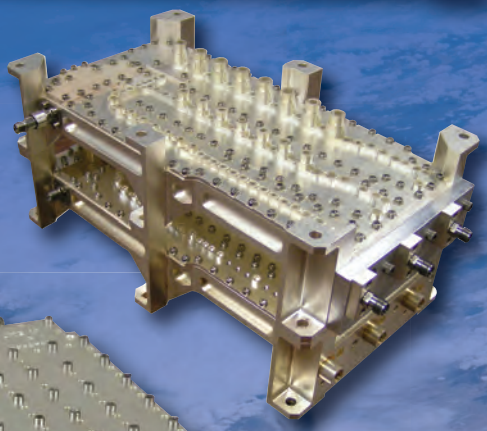
rf/microwave

products & capabilities



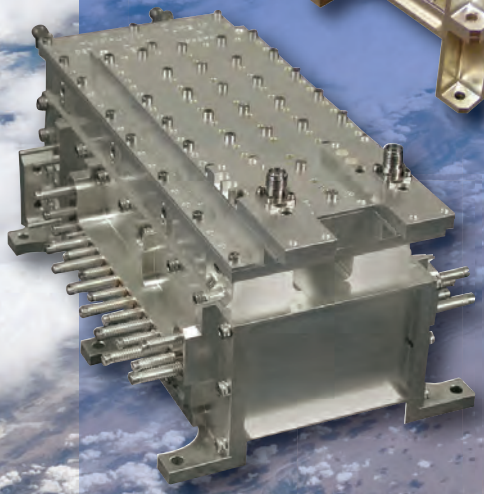
rf/microwave filters

High isolation between bands, stability over temperature



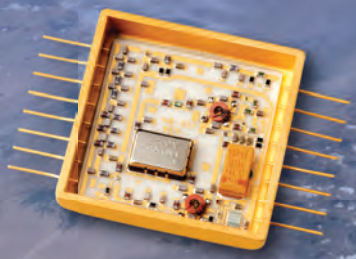
microwave diodes

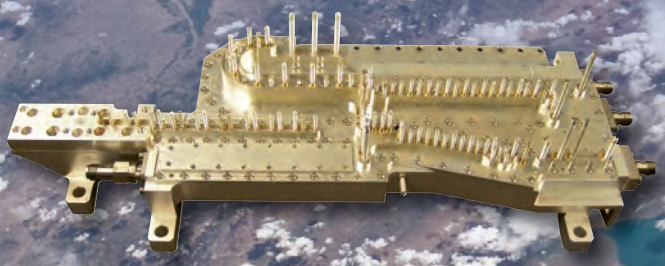
ESA Qualified product line, EU manufacture



SAW oscillators

Voltage controlled, Q-Swept, Low phase noise (400MHz to 4GHz) and low vibration sensitivity







mixers

Flight heritage on a broad product range, available EU manufacture if required

amplifiers

Low phase noise, High linearity, available EU manufacture if required

limiters

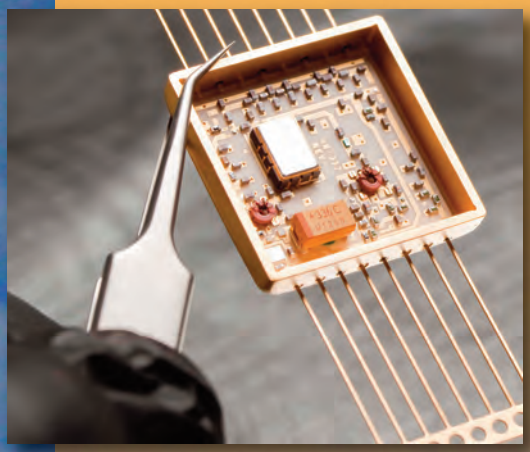
(waveguide & coax)

Broad product range supported by in-house diode manufacturing capability, EU manufacture

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microelectronics

products & capabilities



microelectronic assemblies

Hermetic MIL-PRF-38534 class K certified line, high MTBF, available EU manufacture if required

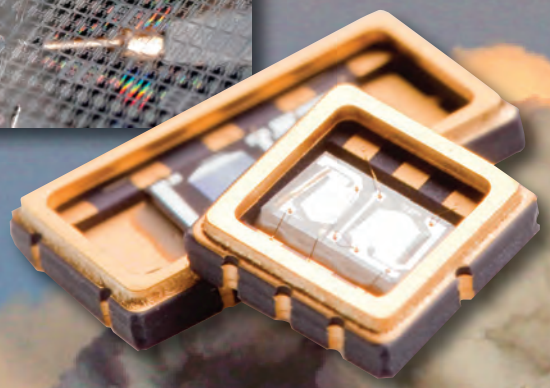
radiation tolerant power products

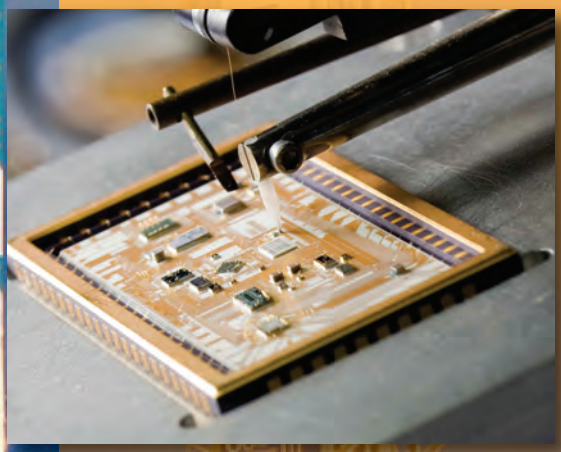
MIL- PRF-38534 certified and experienced radiation test partners



multi chip modules

Multichip Modules (MCM) – L (PCB), Thin Film (D) or LTCC (C)



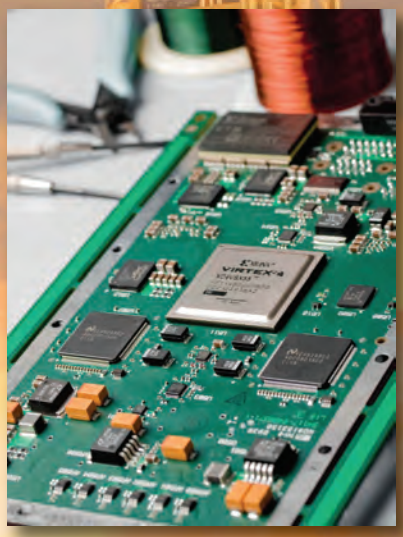


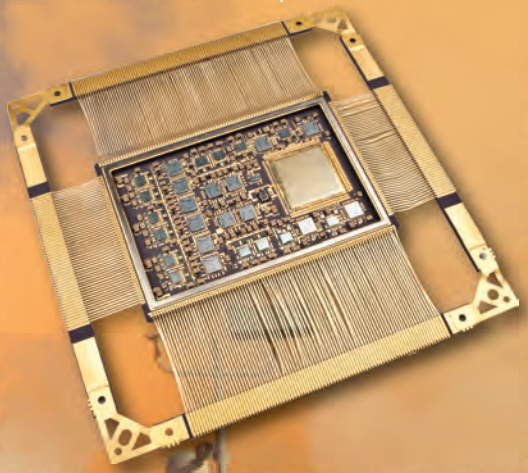
custom hybrids

Design and manufacture custom solutions with multiple technologies including Mixed Signal & Power, RF, Microwave & MMW, Optoelectronics, Thin Film & SAW Fab

build-to-print

DLA Certified, MIL-PRF-38534, Class K, available EU manufacture if required





magnetics

Custom magnetic components including transformers, inductors, coils and chokes



api technologies corp.

rf/microwave, microelectronic
& electromagnetic

space solutions

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Europe: +44.0.1908.574.324
email: sales@apitech.com

www.apitech.com/space



Power Solutions

RF/Microwave & Microelectronics

Electromagnetic Integrated Solutions

Electronics Manufacturing Services

Secure Systems & Information Assurance

About API Technologies

API Technologies Corp. is a trusted provider of RF/microwave, microelectronics, power and security solutions for critical and high-reliability applications. The company designs, develops and manufactures electronic components, modules, systems and products for technically demanding defense, 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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