APITECH MIXER TOUR

apitech

APTech's RF, Microwave & Microelectronics business unit is a dominant provider of precision-engineered, high performance RF, microwave, mmW, and microelectronic solutions for high-reliability and mission critical applications in the global defense, commercial, and space markets.

Brand Heritage

APITech's RF, Microwave & Microelectronics

- C-MAC Aerospace
- Spectrum Microwave
- Commercial Microwave Technology (CMT)

Spectrum Microwave:

- Sage Labs
- FSY
- Salisbury Engineering
- Satcom Electronics
- Remec Components
- Micro Networks
- EMF Systems
- Amplifonix

Remec Components:

- FMI
- Hycomp
- Simpex
- Q-Bit Microwave
- Magnum Microwave
- Radian Technologies
- Creative Electric
- Andersen Labs

Locations

Solutions at a Glance

Systems & Subsystems

APITech-designed & manufactured systems & subsystem for C4ISR, defense & communications applications

- AESA Radar Solutions: Active Antenna Array Unit (AAAU)
- I-Band Transponder
- RRB Receiver
- Nuclear Event Detector
- Radar and Communications Power Amplifier Subsystems

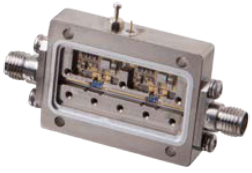
Integrated Assemblies

High-performance solutions designed for OEMs needing feature-rich, custom and configurable solutions & a high level of integration

- Multi-Function Assemblies (MFAs) and Integrated Microwave Assemblies (IMAs)
- Integrated Power Amplifier Assemblies
- Integrated Filter Assemblies, Wireless Assemblies, Co-Location Solutions
- Receiver Front-Ends, IFMs, DFDs
- T/R Modules

High-Reliability Modules & Components

Standard and customizable, high-reliability RF, microwave and millimeterwave modules & components for defense, communications, industrial, and space



- High Frequency, High Linearity and Low Noise Amplifiers
- High Performance Filters
- SAW/BAW, Delay Lines, Rotary Joints, Phase Shifters, Power Dividers, Couplers
- Synthesizers, Multipliers, Oscillators, and Complex Sources
- Mixers, Delay Lines, Antennas
- Switches, Limiters, Diodes
- Custom Hybrids & MCMs
- Optical Transceivers

Markets & Applications

Defense

- Electronic Warfare
- ELINT/SIGINT
- C4ISR
- Radar
- Missile Defense
- CNI
- Manned/Unmanned Military Aircrafts
- Homeland, Coasta,l and Border Security
- Land Mobile Radio
- Ship-to-Ship Communications

Avionics & Space

- Aerospace
- Flight, Engine & Motor Controls
- In-Flight Communications Systems
- Air Traffic Control Radar
- Satellites and SATCOM Systems
- Payloads
- Launch Vehicles
- Launch Systems

Commercial

- Medical
- Industrial
- Wireless, Cell-Site & Infrastructure
- Oil & Gas
- Broadcast
- Point-to-Point Communications
- Public Safety & Transportation
- Smart Metering
- Test & Instrumentation

Frequency Control Components Overview

Topology

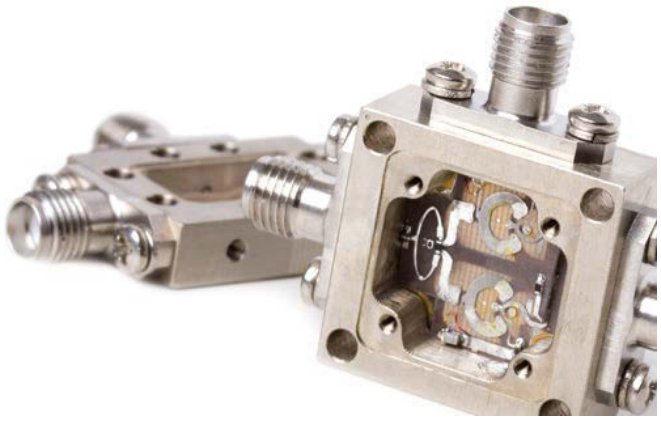
- Double Balanced
- Triple Balanced
- Image Reject
- Frequency Doublers
- Diode Based Technology

Frequency

- DC to 26 GHz frequency coverage
- If frequencies up to 10 GHz
- Frequency Doublers to 20 GHz
- Diode Based Technology

Performance

- Low Conversion Loss
- Low Spurious
- High Isolation
- High Dynamic Range



Double Balanced Mixers

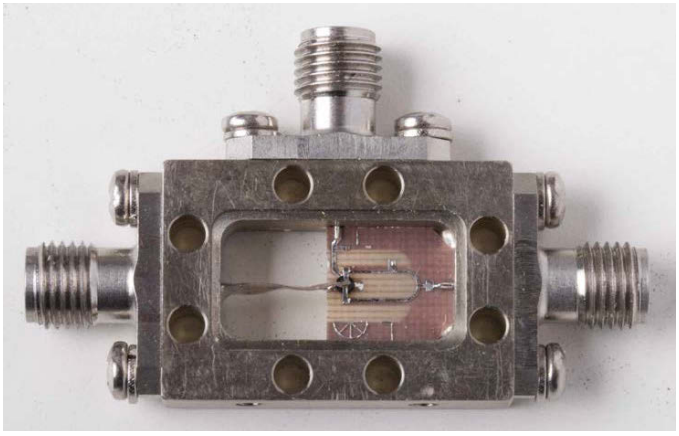
Double Balanced Mixers employ a single quad diode ring with two broadband baluns, one for the modulating signal and one for the carrier signal.

- Excellent LO to IF Isolation through the use of matched diode selection
- Superior LO to RF Isolation through strict line length symmetry

Triple Balanced Mixers

Triple Balanced Mixers feature a pair of quad diode rings and balun structures on all three ports of the mixers.

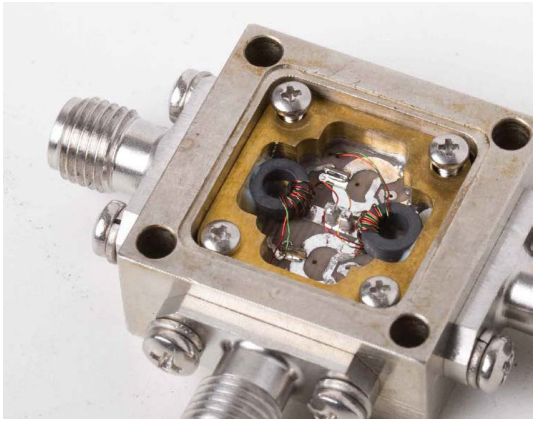
Triple Balanced Mixers provide wider operating frequency bandwidths, overlapping RF and IF frequency ranges, and higher available LO drive levels of up to +23 dBm.



I/R Mixers

Image Reject Mixers minimize the impact of image noise on the system noise figure compared to the SSB performance.

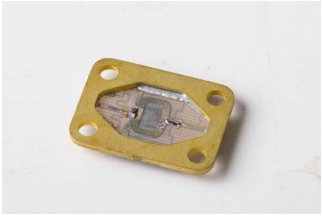
APITech's Image Reject Mixers also suppress by 25 dB the spurious products generated by undesired signals falling in the system's image frequency range.

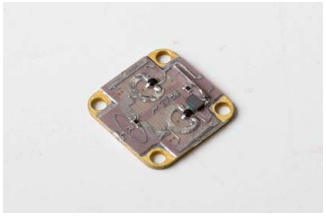


Frequency Doublers

Multi-octave spanning Frequency Doublers extend the useful range of lower frequency signal sources.

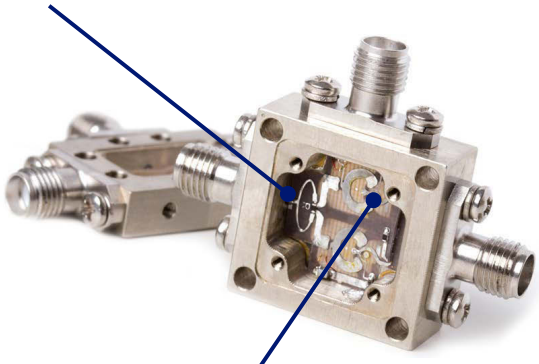
- Quarter wavelength stubs are used to provide diode ground paths and optimize Return Loss
- Synthesized input and output matching networks maintain maximum response flatness across the performance band





High Performance Mixers

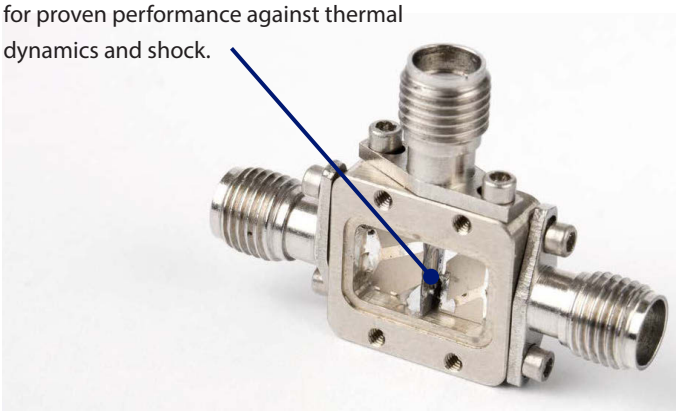
Our mixers use high performance monolithic diodes for superior isolation and the lowest loss possible.



Synthesized input and output matching networks maintain maximum response flatness across the performance band.

Rugged Construction

Our mixers use rugged duroid construction for proven performance against thermal dynamics and shock.



Dependable chip and wire technology offers repeatability under extreme conditions.

Hermetic Sealing

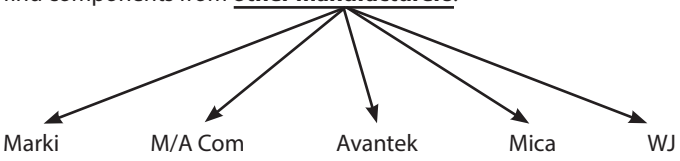
In order to protect against corrosion and oxidation in extreme environments, hermetic sealing in Nitrogen is an option on select Kovar packages.

Advanced Laser Sealing

Unlike other mixer companies, APITech routinely laser welds its mixers for improved hermeticity and environmental integrity.

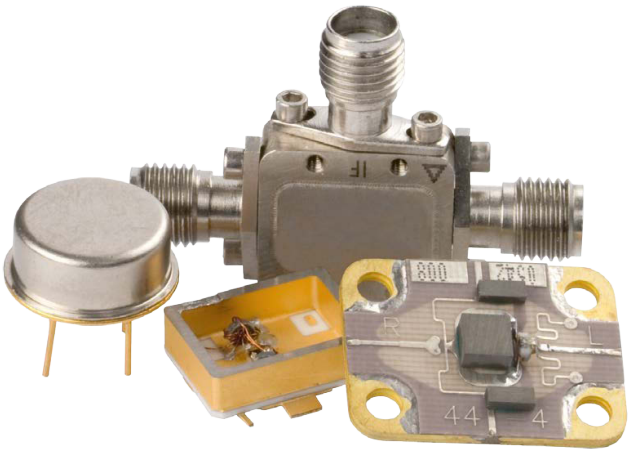
Replacement Options

We offer drop-in-replacements to many old, obsolete, or hard-to-find components from **other manufacturers**.



Housing Options

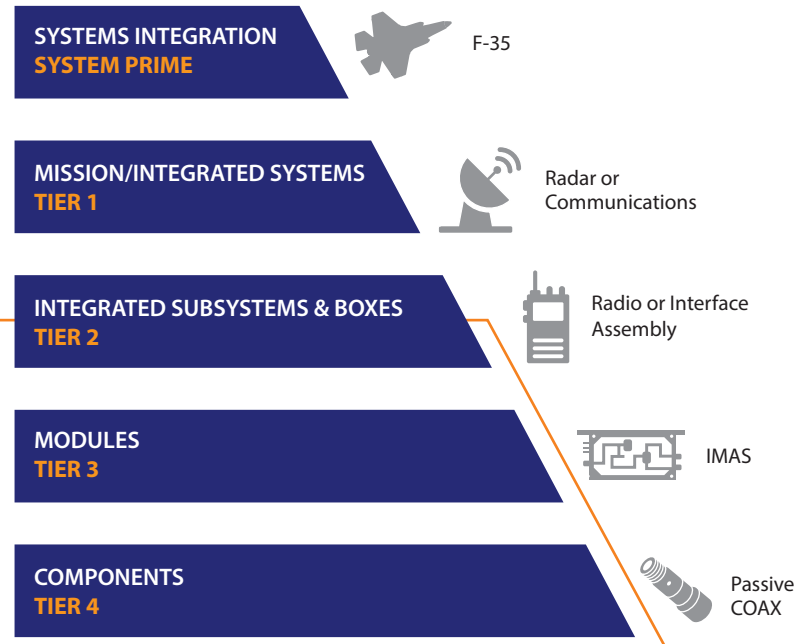
APITech mixers are available in many industry standard surface mount, drop-in and connectorized housings.



Who We Are

Value-added Integration from Components to Subsystem Solutions

APITech provides rugged, reliable, and efficient subsystems, assemblies, and components for use in the most mission critical defense and military applications, supporting government programs throughout the world. With diverse program experience and preferred supplier status with some of the industry's top premier contractors, our precision-engineered MIL-grade products are ideal for applications where uncompromised reliability and uninterrupted performance is required. APITech is the Electromagnetic Spectrum Innovator at Tier 2.5-4 in the supply chain.



The Electromagnetic Spectrum Innovator

APITech is an innovative designer and manufacturer of high performance systems, subsystems, assemblies and components for technically demanding RF, microwave, millimeterwave, electromagnetic, power, and security applications. A high reliability technology pioneer with over 70 years of heritage, APITech's products are used by global defense, industrial, and commercial customers in applications spanning radar, electronic warfare, unmanned systems, missile defense, harsh environments, space, communications, medical, test and instrumentation, and more.

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