API Technologies, a world class leader in amplifier technology, is your full service partner for high performance power amplification requirements.

Designed To Perform
Efficient amplification is a system designer’s goal and we design Linear Class A, Class AB and Non-Linear Class C high power amplifiers with efficiency in mind. Products include both broadband, high linearity amplifiers, as well as high frequency, narrowband, higher power amplifiers to 1,000 watts with strict attention to size and value.
Utilizing thin film, thick film and SMT technology, our power amplifiers employ a wide range of leading edge semiconductors including:

- Silicon MOSFET
- LDMOS
- GaN
- GaAs
- SiC
- MESFET

Full of Standard Features

Wide bandwidth and high efficiency are not the only features offered in our full line of higher power amplifiers. API also incorporates many specialized features to provide better customer solutions, including:

- Built-In User Control Interfaces
- High Input Protection Circuitry
- Built-In Monitoring
- Voltage Regulators
- Thermal Temperature Compensating Circuits
- Harmonic Filters
- Fault Monitoring
- Customizable Control Functions
- Custom Designs Available

For more information or to let us know how we may help you, please contact us at 888.553.7531
Exceeding Expectations

API Technologies’ design engineers focus their expertise not only on meeting the customer’s requirements, but on exceeding expectations. Other companies talk about technology. The performance of our sophisticated designs speak for itself.

Chip & Wire Technology Provides Dense Packaging Options
Power Amplifier Integration

Working closely with leading edge semiconductor suppliers, API Technologies exploits the benefits of innovative semiconductor technologies, paving the way towards increased power density and complexity while reducing the overall size of the amplifier. This translates to power amplifier solutions that are reliable, smaller, lighter, and more efficient.

API has earned its reputation and heritage in the broadband power amplifier market by delivering leading edge technical designs and high quality products as a direct result of working closely with key defense companies to meet their strict technical specifications and quality requirements. In addition to these leading edge electrical designs, API engineers optimize package configurations to address numerous thermal conditions to meet end customer's system level integration challenges.

API provides compact, lightweight, excellent thermal characteristic power amplifiers to customers in the shortest possible lead-time. Engineering high-power GaN power amplifiers to predict junction-to-case temperatures and thermal profiles during the design stage, helps eliminate the need for cumbersome heat-sinks thus reducing cost and providing for more accurate results.
A broad range of RF and microwave components, integrated assemblies and power amplifiers are the cornerstone of API's business. Our ability to offer complete custom solutions for unique requirements in a timely manner and rapid turn-around prototypes with demanding specifications is what separates API Technologies from other power amplifier suppliers.

**Experience in Integration**
API engineers are experts at amplifier, filter and power supply design. Integrating multiple RF and function components in a single housing reduces overall costs and package housing size while optimizing heat transfer.

**Optimum Packaging Solutions**
Our designers use sophisticated software to optimize package layouts for a variety of thermal conditions providing a higher MTBF.

**Experienced RF Chain Analysis**
Engineering solutions and providing assistance with the entire RF transmit chain (baseband or IF) is an element of customer service that separates API from other suppliers whose one-dimensional offerings leave customers needing more.
API’s Unique Packaging

Modules, pallets, surface mount and substrate drop-in packages offer customers a wide range of custom packaging options. API’s ability to provide custom control circuits provide complete customer solutions.
Using state-of-the-art software and simulation tools, our experienced engineering team is able to quickly take a requirement from concept to production. Utilizing these sophisticated programs sets our company apart, making API Technologies the company choice for all of your power amplification needs.

Design Development
All amplifier designs are based on theoretical linear and non-linear simulations using both ADS and Genesys. Based on proven nonlinear simulation and CAD mechanical and thermal modeling, API provides compact, low weight, excellent thermal characteristic power amplifiers to customers in the shortest possible time.

3D Modeling
All power amp designs are based on state-of-the-art 3D SolidWorks modeling. These sophisticated models are used to predict junction-to-case temperatures, thermal profiles, and optimized PCB layouts.
Teaming with Customers
API engineers work closely with customers using thermal and CAD models to embed the power amplifier into the customer’s next higher level assembly to ensure fit and thermal integrity.

Performance Enhancements
API Technologies builds added features into its lineup of power amplifiers including:

- Fault Reporting
- Control & Configuration Monitoring using RS-232, RS-485, MODBUS, I2C, CAN and other protocols
- High Efficiency Doherty techniques integrated
- Optimized for Cross-Cancellation Linearization
- Drain Boost Efficiency Enhancements implemented
- Power & Coupler Feedback techniques employed

Tools & software our RF Engineers routinely use:
- Agilent ADS Design Suite
- SolidWorks
- Labview
- Agilent Genesys
- AutoCAD
- Cadence Allegro
- Ansoft Designer
- Sonnet EM Simulator
100% Testing

Prior to delivery, API Technologies performs 100% electrical testing on all power amplifiers to confirm compliance with the customer’s specification requirements. Our quality management system is also registered is compliant with ISO-9001:2008 and periodically audited by our registrar. Additionally, API Technologies also offers military and high reliability commercial environmental screening.

For more information or to let us know how we may help you, please contact us at 888.553.7531
Commitment to Quality

With over 20 awards and accolades to its credit, API Technologies’ reputation for quality and performance is the reason why leading military, commercial, medical and technology firms choose API for their amplifier requirements.
API's diverse lineup of power amplifier solutions includes broadband models covering DC to 26 GHz in a small, low profile package. Using advanced semiconductor technologies such as GaN and HEMT for broader bandwidths, along with a number of proprietary design techniques, our power amplifiers deliver exceptional performance up to 1,000 watts.

**Gain**

No additional circuitry needed. Internal blocking caps, biasing circuitry and RF matching is included.

A balanced output design is featured for Excellent Broadband Return Loss.

We also added an integral High Pass Filter for improved Low Frequency Rejection.

A standard Internal Voltage Regulator is incorporated to accept multiple bias options.

**Power Out vs. Frequency**
API subjects the highest quality control standards to every aspect of production from initial design through the entire manufacturing process. Our Quality Assurance Department maintains tight control of all processes in our ISO 9001:2008 certified facility including both material and screening standards, strict lot traceability, and continuous monitoring over all parameters critical to product quality and development.

**Seam Sealing**

API’s inventory of sealing alternatives includes both seam sealing and projection welding which provide a very reliable hermetic seal, while maintaining a cool, stable environment for the package and its temperature sensitive contents. Hermetic sealing also maintains environmental integrity to pass the rigors of MIL-PRF-38534 methods 1014 conditions A & C for both Gross and Fine leak detection.

**Laser Sealing**

Unlike other amplifier companies we offer laser sealing for both hermetic and environmental integrity.

**Vibration Testing**

On-site random and sinusoidal vibration to 30g, along with shock testing allow our engineers to test their designs under extreme conditions early in the design process without waiting to schedule outside testing services.
Designed & Tested To Perform

Our thick and thin film amplifiers are designed and tested to meet the reliability and testing requirements of MIL-PRF-38534 and the screening requirements of MIL-STD-883. We are also equipped to perform Groups A, B, C and D QCI qualification of our hybrid microelectronic devices. We routinely perform MIL-PRF-38534 Class H qualification testing on many of our amplifiers thereby proving out the high reliability designs API is known for in the industry.

Temperature Cycling

Cycling amplifiers from -55 to 85°C is often required when the amplifier may be exposed to extreme operating conditions.

Comprehensive Testing

API employs testing over temperature to include not merely functionality, but parametric testing as well, as illustrated on this tuner. Capabilities include:

- Conversion gain
- Spurious testing
- IP2, IP3, and IP2H
- Current Draw
- Noise figure
- Windowed gain ripple
- Compression tests
- Linearity testing
- LO leakage testing
- Image rejection
- Group delay
API Technologies’ website features complete information on all standard products with thousands of product datasheets. API’s customers enjoy free engineering tools, tours, application notes, white papers, and the ability to create a custom designed product per individual specifications.

**API Technologies’ Online Engineering Design Tools**

http://micro.apitech.com/engineering_tools

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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 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 60 years. API Technologies trades on the NASDAQ under the symbol ATNY.

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