Corporate Profile

ATC designs, develops, manufactures and markets Multilayer Capacitors, Single Layer Capacitors, Resistive Products, Inductors and Custom Thin Film Products for RF, microwave and millimeter-wave applications. Our products are primarily focused on the wireless communications infrastructure, fiber optic, medical electronics, semiconductor manufacturing equipment, defense, aerospace, and satellite communications markets. For over fifty years, ATC’s family of superior component and custom integrated packaging solutions has been represented by THE ENGINEERS’ CHOICE® brand.

Customer interface is administered by our own personnel and independent sales representatives. American Technical Ceramics is headquartered in Huntington Station, New York and has an Advanced Technology Center in Jacksonville, Florida. This is the center of excellence for our traditional product lines and the development and manufacturing facilities for Thin Film and Resistive Products.

American Technical Ceramics’ Sales and Customer Service Center, serving Europe, Africa and the Middle East, is located in the Czech Republic. ATC has Regional Sales Offices in Surrey, England and Hallbergmoos, Germany. The Company’s wholly-owned subsidiary offering Sales and Technical Support for Asia is located in Shenzhen, PR. China.

American Technical Ceramics is a wholly-owned subsidiary of AVX Corp. The common stock of AVX is listed on the New York Stock Exchange (symbol “AVX”).

RLC Products
- Multilayer Ceramic Capacitors
- Capacitor Assemblies for Power Applications
- Single Layer Ceramic Capacitors
- Resistor Products
- Inductor Products

Markets Served
- Wireless Communications Infrastructure
- Semiconductor Manufacturing Equipment
- Medical Diagnostic Equipment
- Satellite Systems
- Public Safety Radio
- Avionic Systems
- Military and Aerospace
- Commercial Broadcast Transmitters
- Fiber Optic Communications
- Automotive Electronics

Facilities
- Huntington Station, New York – Sales, Applications Support, Manufacturing and Distribution Center
- Jacksonville, Florida – Advanced Technology Center, Manufacturing Facility

Processes and Packaging
- Thin Film Custom Products: metalization and patterned substrates for a broad range of hybrid circuit requirements

Download complete pdf data sheets at www.atceramics.com

ATC’s website includes a complete listing of technical articles in pdf format, as well as new product updates and design support software. As an added convenience, ATC Multilayer Capacitor Kits and Inductor Design Kits may be purchased online.

NOTE: Contact ATC’s Applications Engineers for further technical information at (+1-631) 622-4700.
### ATC PRODUCTS BY FREQUENCY RANGE

#### Frequency Range 1: Up to 30 MHz

<table>
<thead>
<tr>
<th>Typical Applications</th>
<th>Capacitor Products</th>
<th>Power Capacitor Assemblies</th>
<th>Resistive Products</th>
<th>Inductor Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Frequency Communication Systems, Switch Mode Power Supplies, AM Broadcast, Semiconductor Fabrication, HF Amplifiers, Medical (MRI)</td>
<td>100 Series Porcelain MLCs, 700 Series NPO Porcelain and Ceramic MLCs, 800 Series NPO Ceramic MLCs, 900 Series X7R Ceramic RF Power MLCs, 520, 530 Series Broadband SMT Capacitors, General Purpose Capacitors, HP Series Capacitors, CDR / QPL Approved MIL-PRF-55681, COTS Hi-Rel Upscreening</td>
<td>Extended Capacitance Assemblies, Extended Voltage &amp; Current Assemblies, Matched Sets, Voltage Dividers, Transmitter Capacitor Equivalents</td>
<td>Resistors, Terminations: SMT, Chip, Leaded &amp; Flanged, Attenuators, Non-Magnetic Series CR1, LR1, FR1, 504 L Series Ultra-Broadband Resistors</td>
<td>WL Chip Inductors - EIA Sizes 0402, 0603, 0805, 1008, 1206, 506 WLC Series Ultra-Broadband Inductors, 506 WLS Series Ultra-Broadband SMT Inductors</td>
</tr>
</tbody>
</table>

#### Frequency Range 2: >30 MHz to 800 MHz

<table>
<thead>
<tr>
<th>Typical Applications</th>
<th>Capacitor Products</th>
<th>Power Capacitor Assemblies</th>
<th>Resistive Products</th>
<th>Inductor Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical (MRI), Aircraft, Marine, Public Safety, Military</td>
<td>100 Series Porcelain MLCs, 700 Series NPO Porcelain and Ceramic MLCs, 600 Series Ultra-Low ESR, 800 Series NPO Ceramic MLCs, 400 Series Precision Tolerance Capacitors, 200 Series BX Ceramic MLCs, 900 Series X7R Ceramic RF Power MLCs, 520, 530 Series Broadband SMT Capacitors, General Purpose Capacitors, HP Series Capacitors, CDR / QPL Approved MIL-PRF-55681, COTS Hi Rel Upscreening</td>
<td>Extended Capacitance Assemblies, Extended Voltage &amp; Current Assemblies, Matched Sets, Voltage Dividers, Transmitter Capacitor Equivalents</td>
<td>Resistors, Terminations: SMT, Chip, Leaded &amp; Flanged, Attenuators, Non-Magnetic Series CR1, LR1, FR1, 504 L Series Ultra-Broadband Resistors</td>
<td>WL Chip Inductors - EIA Sizes 0402, 0603, 0805, 1008, 1206, 506 WLC Series Ultra-Broadband Inductors, 506 WLS Series Ultra-Broadband SMT Inductors</td>
</tr>
</tbody>
</table>

**Thin Film Technologies**

- LPF Series High Performance Low Pass Filter
## ATC PRODUCTS BY FREQUENCY RANGE

### Frequency Range 3: >800 MHz to 3.5 GHz

<table>
<thead>
<tr>
<th>Typical Applications</th>
<th>Capacitor Products</th>
<th>Thin Film Technologies</th>
<th>Resistive Products</th>
<th>Inductor Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless Infrastructure (Cellular / PCS / DCS / GPS / MMDS), Bluetooth, Wireless LAN (802.11)</td>
<td>▶ 100 Series Porcelain MLCs&lt;br&gt;▶ 700 Series NPO Porcelain and Ceramic MLCs&lt;br&gt;▶ 600 Series Ultra-Low ESR&lt;br&gt;▶ 800 Series NPO Ceramic MLCs&lt;br&gt;▶ 400 Series Precision Tolerance Capacitors&lt;br&gt;▶ Single Layer Capacitors&lt;br&gt;▶ 500 Series Millimeter Wave SMT&lt;br&gt;▶ 520, 530 Series Broadband SMT Capacitors&lt;br&gt;▶ General Purpose Capacitors&lt;br&gt;▶ HP Series Capacitors&lt;br&gt;▶ CDR / QPL Approved MIL-PRF-55681&lt;br&gt;▶ COTS Hi-Rel Upscreening</td>
<td>▶ MOS Single Layer Capacitors&lt;br&gt;▶ 504 L Series Ultra-Broadband Resistors&lt;br&gt;▶ LPF Series High Performance Low Pass Filter</td>
<td>▶ Resistors&lt;br&gt;▶ Terminations: SMT Chip Leaded &amp; Flanged&lt;br&gt;▶ Attenuators&lt;br&gt;▶ Non-Magnetic Series CR1, LR1, FR1&lt;br&gt;▶ 504 L Series Ultra-Broadband Resistors</td>
<td>▶ WL Chip Inductors&lt;br&gt;▶ - EIA Sizes 0402 0603 0805 1008 1206&lt;br&gt;▶ 506 WLC Series Ultra-Broadband Inductors&lt;br&gt;▶ 506 WLS Series Ultra-Broadband SMT Inductors</td>
</tr>
</tbody>
</table>

### Frequency Range 4: >3.5 GHz to 100 GHz

<table>
<thead>
<tr>
<th>Typical Applications</th>
<th>Capacitor Products</th>
<th>Thin Film Technologies</th>
<th>Resistive Products</th>
<th>Inductor Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satellite Communications, LMDS, Radar, High Speed Data</td>
<td>▶ 100 Series Porcelain MLCs&lt;br&gt;▶ 700 Series NPO Porcelain and Ceramic MLCs&lt;br&gt;▶ 600 Series&lt;br&gt;▶ 800 Series NPO Ceramic MLCs&lt;br&gt;▶ 400 Series Precision Tolerance Capacitors&lt;br&gt;▶ 500 Series Millimeter Wave SMT&lt;br&gt;▶ 520, 530 Series Broadband SMT Capacitors&lt;br&gt;▶ Single Layer Capacitors&lt;br&gt;▶ HP Series Capacitors&lt;br&gt;▶ CDR / QPL Approved MIL-PRF-55681&lt;br&gt;▶ COTS Hi-Rel Upscreening</td>
<td>▶ MOS Single Layer Capacitors&lt;br&gt;▶ 504 L Series Ultra-Broadband Resistors&lt;br&gt;▶ LPF Series High Performance Low Pass Filter</td>
<td>▶ Resistors&lt;br&gt;▶ Terminations: SMT Chip Leaded &amp; Flanged&lt;br&gt;▶ Attenuators&lt;br&gt;▶ Non-Magnetic Series CR1, LR1, FR1&lt;br&gt;▶ 504 L Series Ultra-Broadband Resistors</td>
<td>▶ WL Chip Inductors&lt;br&gt;▶ - EIA Sizes 0402 0603 0805 1008 1206&lt;br&gt;▶ 506 WLC Series Ultra-Broadband Inductors&lt;br&gt;▶ 506 WLS Series Ultra-Broadband SMT Inductors</td>
</tr>
</tbody>
</table>
CAPACITORS

ATC 100 SERIES PORCELAIN SUPERCHIP® MLCS
These capacitors feature High Q, low ESR / ESL, ultra-stable performance, low noise, high self-resonance and established reliability (QPL).
Non-magnetic products available
RoHS compliant terminations are standard. Refer to data sheets for other styles.
ATC 100 B (size = .110” x .110”)
• Capacitance Range 0.1 pF to 1000 pF
ATC 100 C (size = .250” x .250”)
• Capacitance Range 1 pF to 2700 pF
• High RF Current/Voltage
ATC 100 E (size = .380” x .380”)
• Capacitance Range 1 pF to 5100 pF
• High RF Power
• Extended WVDC up to 7200 VDC
• High RF Current/Voltage
• High Reliability
ATC 700 SERIES NPO PORCELAIN AND CERAMIC MLCs
This series features low ESR / ESL, rugged construction and high reliability. These capacitors are available with encapsulation option for leaded styles only.
ATC 700 B (size = .110” x .110”)
• Capacitance Range 0.1 pF to 1000 pF
ATC 700 C (size = .250” x .250”)
• Capacitance Range 1 pF to 2700 pF
• High RF Power
• Extended WVDC up to 7200 VDC
• High RF Current/Voltage
• High Reliability
ATC 800 SERIES NPO CERAMIC HIGH RF POWER MLCs
Advantages of these MLCs include optimized form factor, lowest ESR at wireless frequencies, highest self resonance and superior thermal performance.
ATC 800 C (size = .250” x .250”)
• Capacitance Range 2.2 pF to 3000 pF
ATC 800 E (size = .380” x .380”)
• Capacitance Range 3.3 pF to 5100 pF
ATC 800 H (size = .720” x .740”)
• Capacitance Range 100 pF to 20,000 pF
ATC 200 SERIES BX CERAMIC MLCs
This series features low ESR / ESL, rugged construction and high reliability.
ATC 200 A (size = .055” x .055”)
• Capacitance Range 510 pF to 0.01 µF
ATC 200 B (size = .110” x .110”)
• Capacitance Range 5000 pF to 0.1 µF
ATC 900 SERIES X7R CERAMIC RF POWER MLCs
This series features low ESR/ESL, rugged construction, a mid-K, X7R dielectric, and high reliability.
ATC 900 C (size = .250” x .250”)
• Capacitance Range 0.01 µF to 1 µF
• Available with encapsulation option for leaded styles only
ATC 520 AND 530 SERIES BROADBAND SMT CAPACITORS
ATC 520 L (size = 0402)
• 160 KHz to 16 GHz, 10 nF
ATC 530 Z (size = 0201)
• 16 KHz to 20 GHz, 100 nF
ATC 530 L (size = 0402)
• 16 KHz to 18 GHz, 100 nF
ATC GENERAL PURPOSE MLC SURFACE MOUNT CAPACITORS
Low cost general purpose capacitors, not intended for precision designs but suitable for many applications including DC blocking, coupling, bypassing, and filtering. This offering consists of a variety of dielectric types from the most stable NPO to high K versions for maximum capacitance. Available in standard EIA case sizes 0402, 0603, 0805, 1206, 1210, 1812 and 2225.
ATC HP SERIES HIGH PERFORMANCE CAPACITORS
ATC offers the new HP Series high performance family of MLC NPO ceramic capacitors. Built in a rugged ceramic SMT package, these products deliver high performance at the right price. The HP series is available in four popular EIA case sizes and is suitable for tuning, DC blocking, coupling and bypassing over the full range of wireless frequencies. All HP Series products are RoHS compliant.
• Case Size 0402: 0.2 to 30 pF, 50 WVDC
• Case Size 0603: 0.2 pF to 120 pF, up to 250 WVDC
• Case Size 0805: 1.0 pF to 160 pF, 250 WVDC
• Case Size 1210: 1.0 pF to 1000 pF, up to 500 WV
ATC MILITARY (CDR) / QPL APPROVED PRODUCTS
ATC is a QPL approved supplier for MIL-PRF-55681/4 and /5 fixed, multilayer, unencapsulated, monolithic porcelain and ceramic dielectric capacitors.
ATC COTS HIGH-REL UPSCREENING
Cost-effective upscreening of standard products for enhanced reliability applications.

QUICK REFERENCE PRODUCT SELECTION GUIDE

Frequency Range 1: Up to 30 MHz
POWER CAPACITOR ASSEMBLIES

ATC power capacitor assemblies are manufactured to customer specifications using ATC’s proven standard products. Benefits include:

Reduced Assembly Steps / Handling Costs: Combinations of capacitors pre-packaged in manageable mechanical configurations for customer specific “drop-in” applications.

Enhanced Reliability: Overall elements and assemblies are 100% pre-tested to customer’s electrical requirements: – Capacitance – Q – IR – DWV (to 10kV max). Elements are 100% ESR tested.

Reduced Purchasing Logistics: Reduced inventory requirements in matched assemblies. This eliminates excess, wasted parts.

Reduced Technical Labor: Alleviate need for engineering and technician resources in selecting electrically matched elements.

Guaranteed Performance: ATC guarantees electrical / mechanical performance on an assembly level every time.

Achieve Non-Standard Values and Ultra-Tight Tolerances: ATC will “mix and match” values from our extensive inventory via computer matching programs to achieve any capacitor value specified by the designer.

Non-magnetic products available

ATC Parallel Assemblies: Extended capacitance

<table>
<thead>
<tr>
<th>Standard Designs</th>
<th>B Case</th>
<th>C Case</th>
<th>E Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of caps</td>
<td>2</td>
<td>2 - 6</td>
<td>2 - 8</td>
</tr>
<tr>
<td>Lead Type</td>
<td>L Bracket</td>
<td>L Bracket</td>
<td>L Bracket</td>
</tr>
<tr>
<td>Lead Material</td>
<td>Silver</td>
<td>Silver</td>
<td>Silver or Copper</td>
</tr>
<tr>
<td>Lead Thickness</td>
<td>.004 or .010</td>
<td>.004 or .010</td>
<td>.010 or .020</td>
</tr>
<tr>
<td></td>
<td>(0.10 or 0.25)*</td>
<td>(0.10 or 0.25)*</td>
<td>(0.25 or 0.51)*</td>
</tr>
<tr>
<td>Lead Length (max.)</td>
<td>0.5 (12.7)*</td>
<td>0.75 (19.1)*</td>
<td>2.0 (50.8)*</td>
</tr>
<tr>
<td>No. of holes (max.)</td>
<td>None</td>
<td>1 per lead</td>
<td>1 per lead</td>
</tr>
<tr>
<td>Mtg. Configuration</td>
<td>Horizontal/Vertical</td>
<td>Horizontal/Vertical</td>
<td>Horizontal/Vertical</td>
</tr>
<tr>
<td>Capacitor Spacer (typ.)</td>
<td>.050 or .070 (1.27 or 1.78)*</td>
<td>.050 or .070 (1.27 or 1.78)*</td>
<td>.090 (2.29)*</td>
</tr>
</tbody>
</table>

*inches (mm)

ATC Series Assemblies: Extended voltage

<table>
<thead>
<tr>
<th>Standard Designs</th>
<th>C Case</th>
<th>E Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of caps</td>
<td>2 - 3</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Lead Type</td>
<td>L Bracket</td>
<td>L Bracket</td>
</tr>
<tr>
<td>Lead Material</td>
<td>Silver</td>
<td>Silver</td>
</tr>
<tr>
<td>Lead Thickness</td>
<td>.010*</td>
<td>.010*</td>
</tr>
<tr>
<td>Lead Length (max.)</td>
<td>0.75 (19.1)*</td>
<td>1.0 (25.4)*</td>
</tr>
<tr>
<td>No. of holes (max.)</td>
<td>1 per lead</td>
<td>1 per lead</td>
</tr>
<tr>
<td>Mtg. Configuration</td>
<td>Horizontal</td>
<td>Horizontal</td>
</tr>
<tr>
<td>Capacitor Spacer (typ.)</td>
<td>.050 (1.27)*</td>
<td>.050 (1.27)*</td>
</tr>
</tbody>
</table>

*inches (mm)

Matched Sets: Series or Parallel configurations for non-standard values or very close tolerance capacitance values.

Voltage Dividers: Based on capacitive reactance, provided to customers’ specific capacitance ratio.

ATC TRANSMITTER CAPACITOR ASSEMBLIES

ATC Transmitter Capacitor Assemblies offer a cost effective alternative to large and costly fixed vacuum capacitors, doorknobs and transmitter capacitors. ATC assemblies are ideal for the most demanding applications requiring high RF power at low frequencies. They are constructed with the finest materials and are engineered to provide the most reliable performance in the most demanding applications.

ATC’s Transmitter Capacitor Assembly products are ideal for use in Plasma Generators and matching networks used in Semiconductor Manufacturing equipment, AM Broadcast Transmitters, RF Induction Heating, High Power HF amplifiers and many others.

Attributes:
- Capacitance Values up to 1200 pF
- High RF Power Handling Capability
- Current Handling Capability up to 156 Amps RMS @ 13.56 MHz
- 7200 Rated WVDC
- Ideal for applications between 400 KHz to 30 MHz
- Rugged Porcelain Construction for superior dielectric strength
- Heavy Cu leads (0.020”) with punched holes
- Highest breakdown voltage
- NPO and P90 ultra stable dielectrics
- Available in tight tolerances

Applications:
- High RF Power Matching Networks
- High RF Power Tuning Circuits
- Antenna Tuning
- High RF Power Output Filter Networks

ATC LPF SERIES HIGH PERFORMANCE LOW PASS FILTERS

The HP LPF Series offers superb high frequency performance in low profile EIA style packages. This Series offers sharp cut-off response, excellent stopband rejection, low passband insertion loss with 50 ohm input and output impedance characteristics.

**ATC 0805**
- LPF0805HP2900L, Passband: 0 to 2900 MHz

**ATC 1206**
- LPF1206HP0512L, Passband: 0 to 512 MHz
- LPF1206HP0700L, Passband: 0 to 700 MHz
INDUCTORS

ATC WL SERIES INDUCTOR PRODUCTS
ATC’s family of RF surface mount inductors is intended to complement its high frequency ultra-low ESR capacitor products. The WL Series is constructed with a rugged high quality ceramic core and is available in traditional EIA case sizes, 0402, 0603, 0805, 1008 and 1206, with a range extending from 1 nH to 15,000 nH.

The WL Series is intended for RF and microwave applications and features high self-resonance, high Q, low DC resistance and stable temperature coefficient of inductance. These products are especially attractive for all 800 MHz to 3.4 GHz wireless applications, providing the best balance between cost and performance.

ATC WL (size = 0402)
- Inductance Range: 1.0 nH @ 250 MHz to 120 nH @ 250 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 0603)
- Inductance Range: 1.6 nH @ 250 MHz to 470 nH @ 100 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 0805)
- Inductance Range: 2.7 nH @ 250 MHz to 4700 nH @ 7.9 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 1008)
- Inductance Range: 4.7 nH @ 50 MHz to 15,000 nH @ 2.52 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 1206)
- Inductance Range: 6.8 nH @ 100 MHz to 1200 nH @ 35 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC 506 WLC SERIES ULTRA-BROADBAND INDUCTOR
ATC’s new 506WLC Series High Frequency Ultra-Broadband Inductor (UBL) is a unique component that provides low insertion loss and an excellent match over multiple octaves of frequency spectrum.

The 506WLC is ideal for ultra-broadband DC decoupling networks and bias tee applications in optical communication systems and equipment using high-speed digital logic.

ATC 506WLSM0R47KT815T
- Inductance: 0.47 µH typ.
- Operating Frequency Range: 9.5 MHz to 40+ GHz
- Rated DC Current: 815 mA

ATC 506WLSM0R70KT619T
- Inductance: 0.7 µH typ.
- Operating Frequency Range: 5.6 MHz to 40+ GHz
- Rated DC Current: 619 mA

ATC 506WLSM1R10KT438T
- Inductance: 1.1 µH typ.
- Operating Frequency Range: 3.3 MHz to 40+ GHz
- Rated DC Current: 438mA

ATC 506WLSM2R00KT277T
- Inductance: 2.0 µH typ.
- Operating Frequency Range: 2.1 MHz to 40+ GHz
- Rated DC Current: 277 mA

ATC 506WLSM3R80KT182T
- Inductance: 3.8 µH typ.
- Operating Frequency Range: 1.1 MHz to 40+ GHz
- Rated DC Current: 182 mA

ATC 506WLSN1R47KT694T
- Inductance: 1.47 µH typ.
- Operating Frequency Range: 2.8 MHz to 40+ GHz
- Rated DC Current: 694 mA

ATC 506WLSN2R00KT494T
- Inductance: 2.0 µH typ.
- Operating Frequency Range: 1.6 MHz to 40+ GHz
- Rated DC Current: 494 mA

ATC 506WLSN3R30KT350T
- Inductance: 3.3 µH typ.
- Operating Frequency Range: 1.3 MHz to 40+ GHz
- Rated DC Current: 350 mA

ATC 506WLSN6R00KT236T
- Inductance: 6.0 µH typ.
- Operating Frequency Range: 700 KHz to 40+ GHz
- Rated DC Current: 236 mA

ATC 506WLSN10R7KT150T
- Inductance: 10.7 µH typ.
- Operating Frequency Range: 400 KHz to 40+ GHz
- Rated DC Current: 150 mA
RESISTORS

ATC HIGH POWER RF RESISTIVE PRODUCTS
ATC’s complete line of high power resistive products are designed and manufactured in our ISO-9001 registered facility. These products are manufactured with non-toxic, cost effective, aluminum nitride base substrates and are designed to meet Mil-PRF-55342, MIL-STD 202, and ANSI/J-STD-002 specifications.

ATC high power resistive products are suitable for many wireless and satellite communication applications including GSM, PCS, W-CDMA, 3G, WCS, ISM and Wireless LAN. Other applications include medical, industrial, military and aerospace. Typical circuit applications are splitter-combiner networks, power amplifiers, synthesizers, MRR coils, isolators and circulators.

DC and RF Specifications:
• Resistance value: 50Ω and 100Ω standard (10Ω to 200Ω available)
• Terminations: Typical VSWR from 1.05:1 to 1.20:1
• Resistors: Low parasitic capacitance (See catalog)
• Temperature Coefficient of Resistance (TCR)<150ppm/°C typical
• Operating temperature range: -55°C to +150°C

Mechanical Specifications:
• Substrate – Aluminum Nitride; Resistive Film – Tantalum Nitride; Terminals – Silver
• Flangeless and Flanged tabs – 100% silver leads; Covers – Alumina
• Copper flanges – Nickel or Silver plated
• Lead-Free, RoHS compliant and BeO Free

Non-magnetic products available

ATC HIGH POWER ATTENUATOR SERIES
ATC LA1 Series Leaded Attenuators
• Power handling: up to 100 watts
ATC FA1 Series Flanged Attenuators
• Power handling: up to 100 watts

ATC RF/MICROWAVE ATTENUATORS
ATC AT Series 0603 RF/Microwave Attenuators
• Thin Film Design
• Power Rating: 1 watt

ATC HIGH POWER RESISTOR SERIES
ATC CS1 and CW Surface Mount Resistors
• Power handling: 4 watts to 40 watts
ATC CR1 Chip Resistors
• Power handling: 5 watts to 250 watts
ATC LR1 Leaded Chip Resistors
• Power handling: 30 watts to 250 watts
ATC FR1 Flanged Resistors
• Power handling: 15 watts to 250 watts

ATC HIGH POWER TERMINATION SERIES
ATC CZ1 Series Surface Mount Terminations
• Power handling: 10 watts to 40 watts
ATC CT1 Series Chip Terminations
• Power handling: 20 watts to 250 watts
ATC LT1 Series Leaded Terminations
• Power handling: 20 watts to 2250 watts
ATC FT1 Series Flanged Terminations
• Power handling: 20 watts to 250 watts

ATC JUMPERS
• Substrate Material: Aluminum Nitride
• Terminals: Silver
• Operating Temp Range: -55 to +150°C
• Reliability: MIL-PRF-55342
• Lead-Free, RoHS Compliant

ATC 504 L SERIES ULTRA-BROADBAND RESISTORS
The 504L Series next generation of surface mount Ultra-Broadband Resistors was designed with our proprietary Glass Sandwich Flexterm® Technology, (GSFT). The Flexterm® is a surface mountable automotive qualified termination that adds an extra margin against damage due to flexure during installation. The 504L Series has been designed with high quality selected materials that yield excellent performance. This product is ideal for use in Optical Transceiver Modules or any application requiring excellent ultra-broadband performance.

• Standard Resistance Values (Ω): 25Ω, 50Ω, 100Ω, 200Ω
• Frequency Range: DC to 20 GHz
• EIA 0402 Case Size
• Power Rating: 125 mW
• Operating Temperature: -40°C to +125°C
• 100% Laser Trimming for Tight Tolerances
• RoHS Compliant

Quick Reference Product Selection Guide

American Technical Ceramics
www.atceramics.com
ATC North America
sales@atceramics.com
ATC Europe
sales@atceramics.com
ATC Asia
sales@atceramics-asia.com
## Frequency Range 2: >30 MHz to 800 MHz

### CAPACITORS

**ATC 100 SERIES PORCELAIN SUPERCHIP® MLCS**
These capacitors feature High Q, low ESR / ESL, ultra-stable performance, low noise, high self-resonance and established reliability (QPL).

*Non-magnetic products available. RoHS compliant terminations are standard. Refer to data sheets for other styles.*

- **ATC 100 B (size = .110” x .110”)**
  - Capacitance Range 0.1 pF to 1000 pF
  - Voltage Rating: 500 WVDC
- **ATC 100 C (size = .250” x .250”)**
  - Capacitance Range 0.1 pF to 2700 pF
  - High RF Current/Voltage
  - Extended WDC up to 7200 VDC
- **ATC 100 E (size = .380” x .380”)**
  - Capacitance Range 1 pF to 5100 pF
  - High RF Power
  - High Reliability

**ATC 700 SERIES NPO PORCELAIN AND CERAMIC MLCs**
This series features low ESR / ESL, low noise, ultra-stable NPO performance, high self-resonance and rugged construction. They meet established reliability standards. These capacitors are available with encapsulation option for leaded styles only.

- **ATC 700 B (size = .110” x .110”)**
  - Capacitance Range 0.1 pF to 5100 pF
- **ATC 700 C (size = .250” x .250”)**
  - Capacitance Range 1 pF to 2700 pF
- **ATC 700 E (size = .380” x .380”)**
  - Capacitance Range 1 pF to 5100 pF
  - High RF Power
  - Extended WDC up to 7200 VDC
  - High RF Current/Voltage
  - High Reliability

**ATC 600 SERIES ULTRA-LOW ESR HIGH Q MICROWAVE CAPACITORS**
Feature ultra-low ESR and high self-resonance. Environmentally safe terminations meet or exceed MIL-PRF-55681. Operating temperature is -55°C to +125°C.

- **ATC 600 S (size = 0603)**
  - Capacitance Range 0.1 pF to 100 pF
  - Voltage Rating: 250 WVDC
- **ATC 600 F (size = 0805)**
  - Capacitance Range 0.1 pF to 240 pF
  - Voltage Rating: 250 WVDC

**ATC 800 SERIES NPO CERAMIC HIGH RF POWER MLCS**
Advantages of these MLCs include optimized form factor, lowest ESR at wireless frequencies, highest self-resonance and superior thermal performance.

- **ATC 800 C (size = .250” x .250”)**
  - Capacitance Range 2.2 pF to 3000 pF
- **ATC 800 E (size = .380” x .380”)**
  - Capacitance Range 3.3 pF to 5100 pF
- **ATC 800 H (size = .720” x .740”)**
  - Capacitance Range 100 pF to 20,000 pF

**ATC 400 SERIES PRECISION TOLERANCE CAPACITORS**

- **ATC 400 L (size = 0402)**
  - Capacitance Range 0.1 pF to 68 pF
  - Voltage Rating: 200 WVDC
- **ATC 400 S (size = 0603)**
  - Capacitance Range 0.1 pF to 68 pF
  - Voltage Rating: 200 WVDC

**ATC 200 SERIES BX CERAMIC MLCS**
This series features low ESR / ESL, rugged construction and high reliability.

- **ATC 200 A (size = .055” x .055”)**
  - Capacitance Range 510 pF to 0.01 µF
- **ATC 200 B (size = .110” x .110”)**
  - Capacitance Range 5000 pF to 0.1 µF

**ATC 900 SERIES X7R CERAMIC RF POWER MLCS**
This series features low ESR/ESL, rugged construction, a mid-K, X7R dielectric, and high reliability.

- **ATC 900 C (size = .250” x .250”)**
  - Capacitance Range 0.01 µF to 0.1 µF
  - Available with encapsulation option for leaded styles only

**ATC 520 AND 530 SERIES BROADBAND SMT CAPACITORS**

- **ATC 520 L (size = 0402)**
  - 160 KHz to 16 GHz, 10 nF
- **ATC 530 Z (size = 0201)**
  - 16 KHz to 20 GHz, 100 nF
- **ATC 530 L (size = 0402)**
  - 16 KHz to 18 GHz, 100 nF

**ATC GENERAL PURPOSE MLC SURFACE MOUNT CAPACITORS**
Low cost general purpose capacitors, not intended for precision designs but suitable for many applications including DC blocking, coupling, bypassing, and filtering. This offering consists of a variety of dielectric types from the most stable NPO to high K versions for maximum capacitance. Available in standard EIA case sizes 0402, 0603, 0805, 1206, 1210, 1812 and 2225.

**ATC HP SERIES HIGH PERFORMANCE CAPACITORS**
ATC offers the new HP Series high performance family of MLC NPO ceramic capacitors. Built in a rugged ceramic SMT package, these products deliver high performance at the right price. The HP series is available in four popular EIA case sizes and is suitable for tuning, DC blocking, coupling and bypassing over the full range of wireless frequencies. All HP Series products are RoHS compliant.

- **Case Size 0402:**
  - 0.2 to 30 pF, 50 WVDC
  - Case Size 0603: 0.2 pF to 120 pF, up to 250 WVDC
  - Case Size 0805: 1.0 pF to 160 pF, 250 WVDC
  - Case Size 1210: 1.0 pF to 1000 pF, up to 500 WVDC

**ATC MILITARY (CDR) / QPL APPROVED PRODUCTS**
ATC is a QPL approved supplier for MIL-PRF-55681/4 and /5 fixed, multilayer, unencapsulated, monolithic porcelain and ceramic dielectric capacitors.

**ATC COTS HIGH-REL UPSCREENING**
Cost-effective upscreening of standard products for enhanced reliability applications.
POWER CAPACITOR ASSEMBLIES

ATC POWER CAPACITOR ASSEMBLIES
ATC power capacitor assemblies are manufactured to customer specifications using ATC’s proven standard products. Benefits include:

Reduced Assembly Steps / Handling Costs: Combinations of capacitors pre-packaged in manageable mechanical configurations for customer specific “drop-in” applications.

Enhanced Reliability: Overall elements and assemblies are 100% pre-tested to customer’s electrical requirements: – Capacitance – Q – IR – DWV (to 10kV max). Elements are 100% ESR tested.

Reduced Purchasing Logistics: Reduced inventory requirements in matched assemblies. This eliminates excess, wasted parts.

Reduced Technical Labor: Alleviate need for engineering and technician resources in selecting electrically matched elements.

Guaranteed Performance: ATC guarantees electrical / mechanical performance on an assembly level every time.

Achieve Non-Standard Values and Ultra-Tight Tolerances: ATC will “mix and match” values from our extensive inventory via computer matching programs to achieve any capacitor value specified by the designer.

Non-magnetic products available

ATC Parallel Assemblies: Extended capacitance

<table>
<thead>
<tr>
<th>Standard Designs</th>
<th>B Case</th>
<th>C Case</th>
<th>E Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of caps</td>
<td>2</td>
<td>2-6</td>
<td>2-8</td>
</tr>
<tr>
<td>Lead Type</td>
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<tr>
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</tr>
<tr>
<td>Lead Thickness</td>
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<td>.004 or .010</td>
<td>.010 or .020</td>
</tr>
<tr>
<td></td>
<td>(0.10 or 0.25)*</td>
<td>(0.10 or 0.25)*</td>
<td>(0.25 or 0.51)*</td>
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<tr>
<td>Lead Length (max.)</td>
<td>0.5 (12.7)*</td>
<td>0.75 (19.1)*</td>
<td>2.0 (50.8)*</td>
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<tr>
<td>No. of holes (max.)</td>
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<td>1 per lead</td>
<td>1 per lead</td>
</tr>
<tr>
<td>Mtg. Configuration</td>
<td>Horizontal/Vertical</td>
<td>Horizontal/Vertical</td>
<td>Horizontal/Vertical</td>
</tr>
<tr>
<td>Capacitor Spacer (typ.)</td>
<td>.050 or .070</td>
<td>.050 or .070</td>
<td>.090</td>
</tr>
<tr>
<td></td>
<td>(1.27 or 1.78)*</td>
<td>(1.27 or 1.78)*</td>
<td>(2.29)*</td>
</tr>
</tbody>
</table>

*inches (mm)

ATC Series Assemblies: Extended voltage

<table>
<thead>
<tr>
<th>Standard Designs</th>
<th>C Case</th>
<th>E Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of caps</td>
<td>2 - 3</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Lead Type</td>
<td>L Bracket</td>
<td>L Bracket</td>
</tr>
<tr>
<td>Lead Material</td>
<td>Silver</td>
<td>Silver</td>
</tr>
<tr>
<td>Lead Thickness</td>
<td>.010*</td>
<td>.010*</td>
</tr>
<tr>
<td>Lead Length (max.)</td>
<td>0.75 (19.1)*</td>
<td>1.0 (25.4)*</td>
</tr>
<tr>
<td>No. of holes (max.)</td>
<td>1 per lead</td>
<td>1 per lead</td>
</tr>
<tr>
<td>Mtg. Configuration</td>
<td>Horizontal</td>
<td>Horizontal</td>
</tr>
<tr>
<td>Capacitor Spacer (typ.)</td>
<td>.050 (1.27)*</td>
<td>.050 (1.27)*</td>
</tr>
</tbody>
</table>

*inches (mm)

Matched Sets: Series or Parallel configurations for non-standard values or very close tolerance capacitance values.

Voltage Dividers: based on capacitive reactance, provided to customers’ specific capacitance ratio.

ATC TRANSMITTER CAPACITOR ASSEMBLIES
ATC Transmitter Capacitor Assemblies offer a cost effective alternative to large and costly fixed vacuum capacitors, doorknobs and transmitter capacitors. ATC assemblies are ideal for the most demanding applications requiring high RF power at low frequencies. They are constructed with the finest materials and are engineered to provide the most reliable performance in the most demanding applications.

ATC’s Transmitter Capacitor Assembly products are ideal for use in Plasma Generators and matching networks used in Semiconductor Manufacturing equipment, AM Broadcast Transmitters, RF Induction Heating, High Power HF amplifiers and many others.

Attributes:
- Capacitance Values up to 1200 pF
- High RF Power Handling Capability
- Current Handling Capability up to 156 Amps RMS @ 13.56 MHz
- 7200 Rated WVDC
- Ideal for applications between 400 KHz to 30 MHz
- Rugged Porcelain Construction for superior dielectric strength
- Heavy Cu leads (0.020") with punched holes
- Highest breakdown voltage
- NPO and P90 ultra stable dielectrics
- Available in tight tolerances

Applications:
- High RF Power Matching Networks
- High RF Power Tuning Circuits
- Antenna Tuning
- High RF Power Output Filter Networks

ATC LPF SERIES HIGH PERFORMANCE LOW PASS FILTERS
The HP LPF Series offers superb high frequency performance in low profile EIA style packages. This Series offers sharp cut-off response, excellent stopband rejection, low passband insertion loss with 50 ohm input and output impedance characteristics.

ATC 0805
- LPF0805HP2900L, Passband: 0 to 2900 MHz

ATC 1206
- LPF1206HP0512L, Passband: 0 to 512 MHz
- LPF1206HP0700L, Passband: 0 to 700 MHz
ATC WL SERIES INDUCTOR PRODUCTS
ATC’s family of RF surface mount inductors is intended to complement its high frequency ultra-low ESR capacitor products. The WL Series is constructed with a rugged high quality ceramic core and is available in traditional EIA case sizes, 0402, 0603, 0805, 1008 and 1206, with a range extending from 1 nH to 15,000 nH.

The WL Series is intended for RF and microwave applications and features high self-resonance, high Q, low DC resistance and stable temperature coefficient of inductance. These products are especially attractive for all 800 MHz to 3.4 GHz wireless applications, providing the best balance between cost and performance.

ATC WL (size = 0402)
- Inductance Range: 1.0 nH @ 250 MHz to 120 nH @ 250 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 0603)
- Inductance Range: 1.6 nH @ 250 MHz to 470 nH @ 100 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 0805)
- Inductance Range: 2.7 nH @ 250 MHz to 4700 nH @ 7.9 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 1008)
- Inductance Range: 4.7 nH @ 50 MHz to 15,000 nH @ 2.52 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 1206)
- Inductance Range: 6.8 nH @ 100 MHz to 1200 nH @ 35 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC 506 WLC SERIES ULTRA-BROADBAND INDUCTOR
ATC’s new 506WLC Series High Frequency Ultra-Broadband Inductor (UBL) is a unique component that provides low insertion loss and an excellent match over multiple octaves of frequency spectrum.

The 506WLC is ideal for ultra-broadband DC decoupling networks and bias tee applications in optical communication systems and equipment using high-speed digital logic.

ATC 506WLSM0R47KT615T
- Inductance: 0.47 µH typ.
- Operating Frequency Range: 9.5 MHz to 40+ GHz
- Rated DC Current: 815 mA

ATC 506WLSM0R70KT619T
- Inductance: 0.7 µH typ.
- Operating Frequency Range: 5.6 MHz to 40+ GHz
- Rated DC Current: 619 mA

ATC 506WLSM1R10KT438T
- Inductance: 1.1 µH typ.
- Operating Frequency Range: 3.3 MHz to 40+ GHz
- Rated DC Current: 438 mA

ATC 506WLSM2R00KT277T
- Inductance: 2.0 µH typ.
- Operating Frequency Range: 2.1 MHz to 40+ GHz
- Rated DC Current: 277 mA

ATC 506WLSM3R80KT182T
- Inductance: 3.8 µH typ.
- Operating Frequency Range: 1.1 MHz to 40+ GHz
- Rated DC Current: 182 mA

ATC 506WLSN1R47KT694T
- Inductance: 1.47 µH typ.
- Operating Frequency Range: 2.8 MHz to 40+ GHz
- Rated DC Current: 694 mA

ATC 506WLSN2R00KT494T
- Inductance: 2.0 µH typ.
- Operating Frequency Range: 1.6 MHz to 40+ GHz
- Rated DC Current: 494 mA

ATC 506WLSN3R30KT350T
- Inductance: 3.3 µH typ.
- Operating Frequency Range: 1.3 MHz to 40+ GHz
- Rated DC Current: 350 mA

ATC 506WLSN6R00KT236T
- Inductance: 6.0 µH typ.
- Operating Frequency Range: 1.3 MHz to 40+ GHz
- Rated DC Current: 236 mA

ATC 506WLSN10R7KT150T
- Inductance: 10.7 µH typ.
- Operating Frequency Range: 400 KHz to 40+ GHz
- Rated DC Current: 150 mA
RESISTORS

ATC HIGH POWER RF RESISTIVE PRODUCTS
ATC’s complete line of high power resistive products are designed and manufactured in our ISO-9001 registered facility. These products are manufactured with non-toxic, cost effective, aluminum nitride base substrates and are designed to meet Mil-PRF-55342, MIL-STD 202, and ANSI/J-STD-002 specifications.

ATC high power resistive products are suitable for many wireless and satellite communication applications including GSM, PCS, W-CDMA, 3G, WCS, ISM and Wireless LAN. Other applications include medical, industrial, military and aerospace. Typical circuit applications are splitter-combiner networks, power amplifiers, synthesizers, MRI coils, isolators and circulators.

DC and RF Specifications:
- Resistance value: 50Ω and 100Ω standard (10Ω to 200Ω available)
- Terminations: Typical VSWR from 1.05:1 to 1.20:1
- Resistors: Low parasitic capacitance (See catalog)
- Temperature Coefficient of Resistance (TCR) <150ppm/°C typical
- Operating temperature range: -55°C to +150°C

Mechanical Specifications:
- Substrate – Aluminum Nitride; Resistive Film – Tantalum Nitride; Terminals – Silver
- Flangeless and Flanged tabs – 100% silver leads; Covers – Alumina
- Copper flanges – Nickel or Silver plated
- Lead-Free, RoHS compliant and BeO Free

Non-magnetic products available

ATC HIGH POWER ATTENUATOR SERIES
ATC LA1 Series Leaded Attenuators
- Power handling: up to 100 watts

ATC FA1 Series Flanged Attenuators
- Power handling: up to 100 watts

ATC RF/MICROWAVE ATTENUATORS
ATC AT Series 0603 RF/Microwave Attenuators
- Thin Film Design
- Power Rating: 1 watt

ATC HIGH POWER RESISTOR SERIES
ATC CS1 and CW Surface Mount Resistors
- Power handling: 4 watts to 40 watts

ATC CR1 Chip Resistors
- Power handling: 5 watts to 250 watts

ATC LR1 Leaded Chip Resistors
- Power handling: 30 watts to 250 watts

ATC FR1 Flanged Resistors
- Power handling: 15 watts to 250 watts

ATC HIGH POWER TERMINATION SERIES
ATC CZ1 Series Surface Mount Terminations
- Power handling: 10 watts to 40 watts

ATC CT1 Series Chip Terminations
- Power handling: 20 watts to 250 watts

ATC LT1 Series Leaded Terminations
- Power handling: 20 watts to 250 watts

ATC FT1 Series Flanged Terminations
- Power handling: 20 watts to 250 watts

ATC JUMPERS
- Substrate Material: Aluminum Nitride
- Terminals: Silver
- Operating Temp Range: -55 to +150°C
- Reliability: MIL-PRF-55342
- Lead-Free, RoHS Compliant

ATC 504 L SERIES ULTRA-BROADBAND RESISTORS
The 504L Series next generation of surface mount Ultra-Broadband Resistors was designed with our proprietary Glass Sandwich Flexiterm® Technology, (GSFT). The Flexiterm® is a surface mountable automotive qualified termination that adds an extra margin against damage due to flexure during installation.

The 504L Series has been designed with high quality selected materials that yield excellent performance. This product is ideal for use in Optical Transceiver Modules or any application requiring excellent ultra-broadband performance.

- Standard Resistance Values (Ω): 25Ω, 50Ω, 100Ω, 200Ω
- Frequency Range: DC to 20 GHz
- EIA 0402 Case Size
- Power Rating: 125 mW
- Operating Temperature: -40°C to +125°C
- 100% Laser Trimming for Tight Tolerances
- RoHS Compliant

Frequency Range 2: >30 MHz to 800 MHz
**CAPACITORS**

**ATC 100 SERIES PORCELAIN SUPERCHIP® MLCs**
These capacitors feature high Q, low ESR / ESL, ultra-stable performance, low noise, high self-resonance and established reliability (QPL). **Non-magnetic products available**

**RoHS compliant terminations are standard. Refer to data sheets for other styles.**

**ATC 100 A (size = .055” x .055”)**
- Capacitance Range 0.1 pF to 100 pF

**ATC 100 B (size = .110” x .110”)**
- Capacitance Range 0.1 pF to 1000 pF

**ATC 700 SERIES NPO PORCELAIN AND CERAMIC MLCs**
This series features low ESR / ESL, low noise, ultra-stable NPO performance, high self-resonance and rugged construction. They meet established reliability standards.

**ATC 700 A (size = .055” x .055”)**
- Capacitance Range 0.1 pF to 1000 pF

**ATC 700 B (size = .110” x .110”)**
- Capacitance Range 0.1 pF to 5100 pF

**ATC 600 SERIES ULTRA-LOW ESR HIGH Q MICROWAVE CAPACITORS**
Feature ultra-low ESR and high self-resonance. Environmentally safe terminations meet or exceed MIL-PRF-55681. Operating temperature is -55°C to +125°C

**ATC 600 L (size = 0402)**
- Capacitance Range 0.1 pF to 27 pF
- Voltage Rating: 200 WVDC

**ATC 600 S (size = 0603)**
- Capacitance Range 0.1 pF to 100 pF
- Voltage Rating: 250 WVDC

**ATC 600 F (size = 0805)**
- Capacitance Range 0.1 pF to 240 pF
- Voltage Rating: 250 WVDC

**ATC 800 SERIES NPO CERAMIC HIGH RF POWER MLCs**
Advantages of these MLCs include optimized form factor, lowest ESR at wireless frequencies, highest self-resonance and superior thermal performance.

**ATC 800 A (size = .055” x .055”)**
- Capacitance Range 0.1 pF to 100 pF

**ATC 800 B (size = .110” x .110”)**
- Capacitance Range 0.1 pF to 1000 pF

**ATC 800 R (size = .070” x .090”)**
- Capacitance Range 1 pF to 100 pF

**ATC 400 SERIES PRECISION TOLERANCE CAPACITORS**

**ATC 400 W (size = 01005)**
- Capacitance Range 0.05 pF to 2.4 pF
- Voltage Rating: 16 WVDC

**ATC 400 Z (size = 0201)**
- Capacitance Range 0.1 pF to 22 pF
- Voltage Rating: 100 WVDC

**ATC 400 L (size = 0402)**
- Capacitance Range 0.1 pF to 68 pF
- Voltage Rating: 200 WVDC

**ATC 400 S (size = 0603)**
- Capacitance Range 0.1 pF to 68 pF
- Voltage Rating: 200 WVDC

**ATC SINGLE LAYER CAPACITORS**
For applications with operating frequencies up to 100 GHz. Capacitance range 0.04 pF to 10,000 pF, case sizes from 10 mils to 90 mils. “Design your own” option (custom sizes.)

**ATC 500 S SERIES MILLIMETER-WAVE SMT CAPACITORS**
- Low insertion loss and ultra-high self resonance surface mount millimeter-wave capacitors

**ATC 520 AND 530 SERIES BROADBAND SMT CAPACITORS**

**ATC 520 L (size = 0402)**
- 160 KHz to 16 GHz, 10 nF

**ATC 530 Z (size = 0201)**
- 16 KHz to 20 GHz, 100 nF

**ATC 530 L (size = 0402)**
- 16 KHz to 18 GHz, 100 nF

**ATC GENERAL PURPOSE MLC SURFACE MOUNT CAPACITORS**
Low cost general purpose capacitors, not intended for precision designs but suitable for many applications including DC blocking, coupling, bypassing, and filtering. This offering consists of a variety of dielectric types from the most stable NPO to high K versions for maximum capacitance. Available in standard EIA case sizes 0402, 0603, 0805, 1206, 1210, 1812 and 2212.

**ATC HP SERIES HIGH PERFORMANCE CAPACITORS**
ATC offers the new HP Series high performance family of MLC NPO ceramic capacitors. Built in a rugged ceramic SMT package, these products deliver high performance at the right price. The HP series is available in four popular EIA case sizes and is suitable for tuning, DC blocking, coupling and bypassing over the full range of wireless frequencies. All HP Series products are RoHS compliant.

**ATC MILITARY (CDR) / QPL APPROVED PRODUCTS**
ATC is a QPL approved supplier for MIL-PRF-55681/4 and /5 fixed, multilayer, encapsulated, monolithic porcelain and ceramic dielectric capacitors.

**ATC COTS HIGH-REL UPSCREENING**
Cost-effective upscreening of standard products for enhanced reliability applications.

**Frequency Range 3: >800 MHz to 3.5 GHz**
INDUCTORS

ATC WL SERIES INDUCTOR PRODUCTS
ATC’s family of RF surface mount inductors is intended to compliment its high frequency ultra-low ESR capacitor products. The WL Series is constructed with a rugged high quality ceramic core and is available in traditional EIA case sizes, 0402, 0603, 0805, 1008 and 1206, with a range extending from 1 nH to 15,000 nH.

The WL Series is intended for RF and microwave applications and features high self-resonance, high Q, low DC resistance and stable temperature coefficient of inductance. These products are especially attractive for all 800 MHz to 3.4 GHz wireless applications, providing the best balance between cost and performance.

ATC WL (size = 0402)
- Inductance Range: 1.0 nH @ 250 MHz to 120 nH @ 250 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 0603)
- Inductance Range: 1.6 nH @ 250 MHz to 470 nH @ 100 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 0805)
- Inductance Range: 2.7 nH @ 250 MHz to 4700 nH @ 7.9 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 1008)
- Inductance Range: 4.7 nH @ 50 MHz to 15,000 nH @ 2.52 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 1206)
- Inductance Range: 6.8 nH @ 100 MHz to 1200 nH @ 35 MHz
- Tolerances: G (±2%), J (±5%), K (±10%)

ATC 506 WLS SERIES ULTRA-BROADBAND SMT INDUCTORS
ATC’s new 506WLS Series High Frequency Ultra-Broadband Inductor (UBL) is a unique component that provides low insertion loss and an excellent match over multiple octaves of frequency spectrum.

The 506WLS is ideal for ultra-broadband DC decoupling networks and bias tee applications in optical communication systems and equipment using high-speed digital logic.

ATC 506WLSM0R47KT815T
- Inductance: 0.47 µH typ.
- Operating Frequency Range: 9.5 MHz to 40+ GHz
- Rated DC Current: 815 mA

ATC 506WLSM0R70KT619T
- Inductance: 0.7 µH typ.
- Operating Frequency Range: 5.6 MHz to 40+ GHz
- Rated DC Current: 619 mA

ATC 506WLSM1R10KT438T
- Inductance: 1.1 µH typ.
- Operating Frequency Range: 3.3 MHz to 40+ GHz
- Rated DC Current: 438 mA

ATC 506WLSM2R00KT277T
- Inductance: 2.0 µH typ.
- Operating Frequency Range: 2.1 MHz to 40+ GHz
- Rated DC Current: 277 mA

ATC 506WLSM3R80KT182T
- Inductance: 3.8 µH typ.
- Operating Frequency Range: 1.1 MHz to 40+ GHz
- Rated DC Current: 182 mA

ATC 506WLSM4R7KT694T
- Inductance: 1.47 µH typ.
- Operating Frequency Range: 2.8 MHz to 40+ GHz
- Rated DC Current: 694 mA

ATC 506WLSM5R00KT494T
- Inductance: 2.0 µH typ.
- Operating Frequency Range: 1.6 MHz to 40+ GHz
- Rated DC Current: 494 mA

ATC 506WLSM6R00KT236T
- Inductance: 6.0 µH typ.
- Operating Frequency Range: 700 KHz to 40+ GHz
- Rated DC Current: 236 mA

ATC 506WLSM10R7KT150T
- Inductance: 10.7 µH typ.
- Operating Frequency Range: 400 KHz to 40+ GHz
- Rated DC Current: 150 mA
ATC HIGH POWER RF RESISTIVE PRODUCTS

ATC’s complete line of high power resistive products are designed and manufactured in our ISO-9001 registered facility. These products are manufactured with non-toxic, cost effective, aluminum nitride base substrates and are designed to meet Mil-PRF-55342, MIL-STD 202, and ANSI/J-STD-002 specifications.

ATC high power resistive products are suitable for many wireless and satellite communication applications including GSM, PCS, W-CDMA, 3G, WCS, ISM and Wireless LAN. Other applications include medical, industrial, military and aerospace. Typical circuit applications are splitter-combiner networks, power amplifiers, synthesizers, MRI coils, isolators and circulators.

DC and RF Specifications:
- Resistance value: 50Ω and 100Ω standard (10Ω to 200Ω available)
- Terminations: Typical VSWR from 1.05:1 to 1.20:1
- Resistors: Low parasitic capacitance (See catalog)
- Temperature Coefficient of Resistance (TCR) <150ppm/°C typical
- Operating temperature range: -55°C to +150°C

Mechanical Specifications:
- Substrate – Aluminum Nitride; Resistive Film – Tantalum Nitride; Terminals – Silver
- Flangeless and Flanged tabs – 100% silver leads; Covers – Alumina
- Copper flanges – Nickel or Silver plated
- Lead-Free, RoHS compliant and BeO Free

Non-magnetic products available

ATC HIGH POWER TERMINATION SERIES

ATC C21 Series Surface Mount Terminations
- Power handling: 10 watts to 40 watts

ATC CT1 Series Chip Terminations
- Power handling: 20 watts to 250 watts

ATC LT1 Series Leaded Terminations
- Power handling: 20 watts to 250 watts

ATC FT1 Series Flanged Terminations
- Power handling: 20 watts to 250 watts

ATC JUMPERS

- Substrate Material: Aluminum Nitride
- Terminals: Silver
- Operating Temp Range: -55 to +150°C
- Reliability: MIL-PRF-55342
- Lead-Free, RoHS Compliant

ATC 504 L SERIES ULTRA-BROADBAND RESISTORS

The 504L Series next generation of surface mount Ultra-Broadband Resistors was designed with our proprietary Glass Sandwich Flexiterm® Technology, (GSFT). The Flexiterm® is a surface mountable automotive qualified termination that adds an extra margin against damage due to flexure during installation.

The 504L Series has been designed with high quality selected materials that yield excellent performance. This product is ideal for use in Optical Transceiver Modules or any application requiring excellent ultra-broadband performance.

- Standard Resistance Values (Ω): 25Ω, 50Ω, 100Ω, 200Ω
- Frequency Range: DC to 20 GHz
- EIA 0402 Case Size
- Power Rating: 125 mW
- Operating Temperature: -40°C to +125°C
- 100% Laser Trimming for Tight Tolerances
- RoHS Compliant
THIN FILM TECHNOLOGIES

Combined Capabilities

• Design: Modeling (HFSS), simulation (Genesys) and CAD (Tanner)
• Substrates: 1 inch square to 6 inch round (150 mm) wafers
• Typical materials: Alumina, Aluminum Nitride, Beryllium Oxide, Silicon, (N, P, and N+), Quartz, Glass, Glass-Ceramic, Sapphire, Ferrites and Titanates
• Metalizations:
  Sputtered: Al, Au, Cr, Cu, Ni(V), Pt, TaN, Ti and TiW
  Plated: Electrolytic Cu, Ni, Au; Electroless Cu, Au
• Resistors: High Ohmic SiCr and TaN resistors in laser trimmable designs
• Capacitors: SiO2, SiON and BCB dielectrics in laser trimmable designs
• Inductors: Multilevel and multturn copper and gold inductors
• Routing: True Air Bridges and Dielectric Crossovers
• Passivation Materials: SiON, Si3N4, BCB and polyimide
• I/Os: BGA, LGA, edge wrap, through via and wire or ribbon bond
• Machining:
  CO2 cutting, drilling, and scribing
  Diamond-saw dicing
  Back grinding and polishing
• Assembly:
  High precision 0201 or larger pick and place
  Attachment via wire or ribbon bonding, BGA, LGA or surface mount reflow
  Encapsulation
• Testing:
  MIL-STD-105D level II sampling
  MIL-STD-883 100% visual inspection
  Capacitance, insulation resistance and resistivity
  RF testing to 40 GHz

Primary Markets and Applications

• Military, Aerospace and Space:
  RF and Microwave filters
  Precision resistors
  MOS capacitors
  Circulators, Splitters
  Specialized modules
• Medical and Instrumentation:
  Precision resistor networks and arrays
  In-circuit trimmed designs
  Telemetry filters
  Microelectronics circuits and assemblies
• Broadband infrastructure:
  Laser diode mounts and heat sinks
  Optoelectronic converters RF and DC fan-outs
• Instrumentation:
  Ultra-precision reference capacitors and resistors

Solar:
Interposers and heat sinks

MOS SINGLE LAYER CAPACITORS
ATC/AVX Thin Film Technologies offers semi-custom thin film Metal Oxide Semiconductor (MOS) Single Layer Capacitors suitable for RF/microwave and millimeter-wave applications. The silicon oxide dielectric is fabricated with high temperature processing resulting in excellent uniformity and stability.

ATC/AVX Thin Film Technologies’ unique processing and materials sets result in MOS capacitors with high Q, excellent temperature stability, high dielectric strength, high insulation resistance and low ESR. A wide range of termination metallizations are available to facilitate epoxy, solder die attach, thermosonic and ultrasonic bonding and gold or aluminum wire bonding. Custom applications and designs are welcome. Consult factory for additional information.

Typical Electrical Specifications

<table>
<thead>
<tr>
<th>Material</th>
<th>MOS (SiO2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>pF/mm² Typical</td>
<td>85 @ 50V rated</td>
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<tr>
<td>TCC</td>
<td>±30 ppm/°C</td>
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<tr>
<td>Rated Voltage</td>
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<tr>
<td>Peak Voltage at +25°C</td>
<td>1.5 x Rated</td>
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</table>

ATC 504 L SERIES ULTRA-BROADBAND RESISTORS

The 504L Series next generation of surface mount Ultra-Broadband Resistors was designed with our proprietary Glass Sandwich Flexiterm® Technology, (GSFT). The Flexiterm® is a surface mountable automotive qualified termination that adds an extra margin against damage due to flexure during installation.

The 504L Series has been designed with high quality selected materials that yield excellent performance. This product is ideal for use in Optical Transceiver Modules or any application requiring excellent ultra-broadband performance.

• Standard Resistance Values (Ω): 25Ω, 50Ω, 100Ω, 200Ω
• Frequency Range: DC to 20 GHz
• EIA 0402 Case Size
• Power Rating: 125 mW
• Operating Temperature: -40°C to +125°C
• 100% Laser Trimming for Tight Tolerances
• RoHS Compliant

ATC LPF SERIES HIGH PERFORMANCE LOW PASS FILTERS

The HP LPF Series offers superb high frequency performance in low profile EIA style packages. This Series offers sharp cut-off response, excellent stopband rejection, low passband insertion loss with 50 ohm input and output impedance characteristics.

ATC 0805
• LPF0805HP2900L, Passband: 0 to 2900 MHz

ATC 1206
• LPF1206HP0512L, Passband: 0 to 512 MHz
• LPF1206HP0700L, Passband: 0 to 700 MHz
CAPACITORS

ATC 100 SERIES PORCELAIN SUPERCHIP® MLCS
These capacitors feature High Q, low ESR / ESL, ultra-stable performance, low noise, high self-resonance and established reliability (QPL).
Non-magnetic products available
RoHS compliant terminations are standard. Refer to data sheets for other styles.
ATC 100 A (size = .055" x .055")
• Capacitance Range 0.1 pF to 100 pF

ATC 700 SERIES NPO PORCELAIN AND CERAMIC MLCs
This series features low ESR / ESL, low noise, ultra-stable NPO performance, high self-resonance and rugged construction. They meet established reliability standards.
ATC 700 A (size = .055" x .055")
• Capacitance Range 0.1 pF to 1000 pF

ATC 600 SERIES ULTRA-LOW ESR HIGH Q MICROWAVE CAPACITORS
Feature ultra-low ESR and high self-resonance. Environmentally safe terminations meet or exceed MIL-PRF-55681. Operating temperature is -55°C to +125°C
ATC 600 L (size = 0402)
• Capacitance Range 0.1 pF to 27 pF
• Voltage Rating: 200 WVDC
ATC 600 S (size = 0603)
• Capacitance Range 0.1 pF to 100 pF
• Voltage Rating: 250 WVDC
ATC 600 F (size = 0805)
• Capacitance Range 0.1 pF to 240 pF
• Voltage Rating: 250 WVDC

ATC 800 SERIES NPO CERAMIC HIGH RF POWER MLCs
Advantages of these MLCs include optimized form factor, lowest ESR at wireless frequencies, highest self resonance and superior thermal performance.
ATC 800 A (size = .055" x .055")
• Capacitance Range 0.1 pF to 100 pF

ATC 400 SERIES PRECISION TOLERANCE CAPACITORS
ATC 400 W (size = 01005)
• Capacitance Range 0.05 pF to 2.4 pF
• Voltage Rating: 16 WVDC
ATC 400 Z (size = 0201)
• Capacitance Range 0.1 pF to 22 pF
• Voltage Rating: 100 WVDC
ATC 400 L (size = 0402)
• Capacitance Range 0.1 pF to 68 pF
• Voltage Rating: 200 WVDC
ATC 400 S (size = 0603)
• Capacitance Range 0.1 pF to 68 pF
• Voltage Rating: 200 WVDC

ATC SINGLE LAYER CAPACITORS
For applications with operating frequencies up to 100 GHz. Capacitance range 0.04 pF to 10,000 pF, case sizes from 10 mils to 90 mils. “Design your own” option (custom sizes.)

ATC 500 S SERIES MILLIMETER-WAVE SMT CAPACITORS
• Low insertion loss and ultra-high self resonance surface mount millimeter-wave capacitors

ATC 520 AND 530 SERIES BROADBAND SMT CAPACITORS
ATC 520 L (size = 0402)
• 160 KHz to 16 GHz, 10 nF
ATC 530 Z (size = 0201)
• 16 KHz to 20 GHz, 100 nF
ATC 530 L (size = 0402)
• 16 KHz to 18 GHz, 100 nF

ATC HP SERIES HIGH PERFORMANCE CAPACITORS
ATC offers the new HP Series high performance family of MLC NPO ceramic capacitors. Built in a rugged ceramic SMT package, these products deliver high performance at the right price. The HP series is available in four popular EIA case sizes and is suitable for tuning, DC blocking, coupling and bypassing over the full range of wireless frequencies. All HP Series products are RoHS compliant.
• Case Size 0402: 0.2 to 30 pF, 50 WVDC
• Case Size 0603: 0.2 pF to 120 pF, up to 250 WVDC
• Case Size 0805: 1.0 pF to 160 pF, 250 WVDC
• Case Size 1210: 1.0 pF to 1000 pF, up to 500 WVD

ATC MILITARY (CDR) / QPL APPROVED PRODUCTS
ATC is a QPL approved supplier for MIL-PRF-55681/4 and /5 fixed, multilayer, unencapsulated, monolithic porcelain and ceramic dielectric capacitors.

ATC COTS HIGH-REL UPSCREENING
Cost-effective upscreening of standard products for enhanced reliability applications.
INDUCTORS

ATC WL SERIES INDUCTOR PRODUCTS
ATC’s family of RF surface mount inductors is intended to complement its high frequency ultra-low ESR capacitor products. The WL Series is constructed with a rugged high quality ceramic core and is available in traditional EIA case sizes, 0402, 0603, 0805, 1008 and 1206, with a range extending from 1 nH to 15,000 nH. The WL Series is intended for RF and microwave applications and features high self-resonance, high Q, low DC resistance and stable temperature coefficient of inductance. These products are especially attractive for all 800 MHz to 3.4 GHz wireless applications, providing the best balance between cost and performance.

ATC WL (size = 0402)
• Inductance Range: 1.0 nH @ 250 MHz to 120 nH @ 250 MHz
• Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 0603)
• Inductance Range: 1.6 nH @ 250 MHz to 470 nH @ 100 MHz
• Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 0805)
• Inductance Range: 2.7 nH @ 250 MHz to 4700 nH @ 7.9 MHz
• Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 1008)
• Inductance Range: 4.7 nH @ 50 MHz to 15,000 nH @ 2.52 MHz
• Tolerances: G (±2%), J (±5%), K (±10%)

ATC WL (size = 1206)
• Inductance Range: 6.8 nH @ 100 MHz to 1200 nH @ 35 MHz
• Tolerances: G (±2%), J (±5%), K (±10%)

ATC 506 WLS SERIES ULTRA-BROADBAND SMT INDUCTORS
ATC’s new 506WLS Series High Frequency Ultra-Broadband Inductor (UBL) is a unique component that provides low insertion loss and an excellent match over multiple octaves of frequency spectrum. The 506WLS is ideal for ultra-broadband DC decoupling networks and bias tee applications in optical communication systems and equipment using high-speed digital logic.

ATC 506WLSM0R47KT815T
• Inductance: 0.47 µH typ.
• Operating Frequency Range: 9.5 MHz to 40+ GHz
• Rated DC Current: 815 mA

ATC 506WLSM0R70KT619T
• Inductance: 0.7 µH typ.
• Operating Frequency Range: 5.6 MHz to 40+ GHz
• Rated DC Current: 619 mA

ATC 506WLSM1R10KT438T
• Inductance: 1.1 µH typ.
• Operating Frequency Range: 3.3 MHz to 40+ GHz
• Rated DC Current: 438 mA

ATC 506WLSM2R00KT277T
• Inductance: 2.0 µH typ.
• Operating Frequency Range: 2.1 MHz to 40+ GHz
• Rated DC Current: 277 mA

ATC 506WLSM3R80KT182T
• Inductance: 3.8 µH typ.
• Operating Frequency Range: 1.1 MHz to 40+ GHz
• Rated DC Current: 182 mA

ATC 506WLSN1R47KT694T
• Inductance: 1.47 µH typ.
• Operating Frequency Range: 2.8 MHz to 40+ GHz
• Rated DC Current: 694 mA

ATC 506WLSN2R00KT494T
• Inductance: 2.0 µH typ.
• Operating Frequency Range: 1.6 MHz to 40+ GHz
• Rated DC Current: 494 mA

ATC 506WLSN3R30KT350T
• Inductance: 3.3 µH typ.
• Operating Frequency Range: 1.3 MHz to 40+ GHz
• Rated DC Current: 350 mA

ATC 506WLSN6R00KT236T
• Inductance: 6.0 µH typ.
• Operating Frequency Range: 700 KHz to 40+ GHz
• Rated DC Current: 236 mA

ATC 506WLSN10R7KT150T
• Inductance: 10.7 µH typ.
• Operating Frequency Range: 400 KHz to 40+ GHz
• Rated DC Current: 150 mA
RESISTORS

ATC HIGH POWER RF RESISTIVE PRODUCTS
ATC’s complete line of high power resistive products are designed and manufactured in our ISO-9001 registered facility. These products are manufactured with non-toxic, cost effective, aluminum nitride base substrates and are designed to meet Mil-PRF-55342, MIL-STD 202, and ANSI/J-STD-002 specifications.

ATC high power resistive products are suitable for many wireless and satellite communication applications including GSM, PCS, W-CDMA, 3G, WCS, ISM and Wireless LAN. Other applications include medical, industrial, military and aerospace. Typical circuit applications are splitter-combiner networks, power amplifiers, synthesizers, MRI coils, isolators and circulators.

DC and RF Specifications:
• Resistance value: 50Ω and 100Ω standard (10Ω to 200Ω available)
• Terminations: Typical VSWR from 1.05:1 to 1.20:1
• Resistors: Low parasitic capacitance (See catalog)
• Temperature Coefficient of Resistance (TCR) <150ppm/°C typical

Mechanical Specifications:
• Substrate – Aluminum Nitride; Resistive Film – Tantalum Nitride; Terminals – Silver
• Flangeless and Flanged tabs – 100% silver leads; Covers – Alumina
• Copper flanges – Nickel or Silver plated
• Lead-Free, RoHS compliant and BeO Free

Non-magnetic products available

ATC HIGH POWER ATTENUATOR SERIES
ATC LA1 Series Leaded Attenuators
• Power handling: up to 100 watts
ATC FA1 Series Flanged Attenuators
• Power handling: up to 100 watts

ATC RF/MICROWAVE ATTENUATORS
ATC AT Series 0603 RF/Microwave Attenuators
• Thin Film Design
• Power Rating: 1 watt

ATC HIGH POWER RESISTOR SERIES
ATC CS1 and CW Surface Mount Resistors
• Power handling: 4 watts to 40 watts
ATC CR1 Chip Resistors
• Power handling: 5 watts to 250 watts
ATC LR1 Leaded Chip Resistors
• Power handling: 30 watts to 250 watts
ATC FR1 Flanged Resistors
• Power handling: 25 watts to 250 watts

ATC HIGH POWER TERMINATION SERIES
ATC C21 Series Surface Mount Terminations
• Power handling: 10 watts to 40 watts
ATC CT1 Series Chip Terminations
• Power handling: 20 watts to 250 watts
ATC LT1 Series Leaded Terminations
• Power handling: 20 watts to 250 watts
ATC FT1 Series Flanged Terminations
• Power handling: 20 watts to 250 watts

ATC JUMPERS
• Substrate Material: Aluminum Nitride
• Terminals: Silver
• Operating Temp Range: -55 to +150˚C
• Reliability: MIL-PRF-55342
• Lead-Free, RoHS Compliant

ATC 504 L SERIES ULTRA-BROADBAND RESISTORS
The 504L Series next generation of surface mount Ultra-Broadband Resistors was designed with our proprietary Glass Sandwich Flexiterm® Technology, (GSFT). The Flexiterm® is a surface mountable automotive qualified termination that adds an extra margin against damage due to flextrue during installation.

The 504L Series has been designed with high quality selected materials that yield excellent performance. This product is ideal for use in Optical Transceiver Modules or any application requiring excellent ultra-broadband performance.

• Standard Resistance Values (Ω): 25Ω, 50Ω, 100Ω, 200Ω
• Frequency Range: DC to 20 GHz
• EIA 0402 Case Size
• Power Rating: 125 mW
• Operating Temperature: -40°C to +125°C
• 100% Laser Trimming for Tight Tolerances
• RoHS Compliant
**THIN FILM TECHNOLOGIES**

**Combined Capabilities**

- **Design:** Modeling (HFSS), simulation (Genesys) and CAD (Tanner)
- **Substrates:** 1 inch square to 6 inch round (150 mm) wafers
- **Typical materials:** Alumina, Aluminum Nitride, Beryllium Oxide, Silicon, (N, P, and N+), Quartz, Glass, Glass-Ceramic, Sapphire, Ferrites and Titanates
- **Metalizations:**
  - Sputtered: Al, Au, Cr, Cu, Ni, Pt, TaN, Ti and TiW
  - Plated: Electrolytic Cu, Ni, Au; Electroless Cu, Au
- **Resistors:** High Ohmic SiCr and TaN resistors in laser trimmable designs
- **Capacitors:** SiO2, SiON and BCB dielectrics in laser trimmable designs
- **Inductors:** Multilevel and multiturn copper and gold inductors
- **Routing:** True Air Bridges and Dielectric Crossovers
- **Passivation Materials:** SiON, Si3N4, BCB and polyimide
- **Vias:** Sputtered, enhanced plated, filled and castellations
- **I/Os:** BGA, LGA, edge wrap, through via and wire or ribbon bond
- **Machining:**
  - CO2 cutting, drilling, and scribing
  - Diamond-saw dicing
  - Back grinding and polishing
- **Assembly:**
  - High precision 0201 or larger pick and place
  - Attachment via wire or ribbon bonding, BGA, LGA or surface mount reflow
  - Encapsulation
- **Testing:**
  - MIL-STD-105D level II sampling
  - MIL-STD-883 100% visual inspection
  - Capacitance, insulation resistance and resistivity
  - RF testing to 40 GHz

**Primary Markets and Applications**

- **Military, Aerospace and Space:**
  - RF and Microwave filters
  - Precision resistors
  - MOS capacitors
  - Circulators, Splitters
  - Specialized modules
- **Medical and Instrumentation:**
  - Precision resistor networks and arrays
  - In-circuit trimmed designs
  - Telemetry filters
  - Miniature circuits and assemblies
- **Broadband infrastructure:**
  - Laser diode mounts and heat sinks
  - Optoelectronic converters RF and DC fan-outs
- **Instrumentation:**
  - Ultra-precision reference capacitors and resistors

**MOS SINGLE LAYER CAPACITORS**

ATC/AVX Thin Film Technologies offers semi-custom thin film Metal Oxide Semiconductor (MOS) Single Layer Capacitors suitable for RF/microwave and millimeter-wave applications. The silicon oxide dielectric is fabricated with high temperature processing resulting in excellent uniformity and stability.

ATC/AVX Thin Film Technologies’ unique processing and materials sets result in MOS capacitors with high Q, excellent temperature stability, high dielectric strength, high insulation resistance and low ESR. A wide range of termination metallizations are available to facilitate epoxy, solder die attach, thermosonic and ultrasonic bonding and gold or aluminum wire bonding. Custom applications and designs are welcome. Consult factory for additional information.

**Typical Electrical Specifications**

<table>
<thead>
<tr>
<th>Material</th>
<th>MOS (SiO₂)</th>
</tr>
</thead>
<tbody>
<tr>
<td>pF/mm² Typical</td>
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<td>1.5 x Rated</td>
</tr>
<tr>
<td>D</td>
<td>≤0.1%</td>
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</tbody>
</table>

**ATC 504 L SERIES ULTRA-BROADBAND RESISTORS**

The 504L Series next generation of surface mount Ultra-Broadband Resistors was designed with our proprietary Glass Sandwich Flexiterm® Technology, (GSFT). The Flexiterm® is a surface mountable automotive qualified termination that adds an extra margin against damage due to flexure during installation.

The 504L Series has been designed with high quality selected materials that yield excellent performance. This product is ideal for use in Optical Transceiver Modules or any application requiring excellent ultra-broadband performance.

- **Standard Resistance Values (Ω):** 25Ω, 50Ω, 100Ω, 200Ω
- **Frequency Range:** DC to 20 GHz
- **EIA 0402 Case Size**
- **Power Rating:** 125 mW
- **Operating Temperature:** -40°C to +125°C
- **100% Laser Trimming for Tight Tolerances**
- **RoHS Compliant**

**ATC LPF SERIES HIGH PERFORMANCE LOW PASS FILTERS**

The HP LPF Series offers superb high frequency performance in low profile EIA style packages. This Series offers sharp cut-off response, excellent stopband rejection, low passband insertion loss with 50 ohm input and output impedance characteristics.

**ATC 0805**
- LPF0805HP2900L, Passband: 0 to 2900 MHz

**ATC 1206**
- LPF1206HP0512L, Passband: 0 to 512 MHz
- LPF1206HP0700L, Passband: 0 to 700 MHz
**ATC High Power RF Resistive Products**

ATC’s complete line of high powered resistive products are designed and manufactured in our ISO-9001 facility using non-toxic, cost effective, Aluminum Nitride base substrates. All products are manufactured and are designed to meet MIL-PRF-55342, MIL-STD 202, and ANSI/J-STD-002 specifications. Leaded and flanged devices are available. Non-Magnetic styles are available in CR1, LR1 and FR1 Series. Please consult factory.

ATC High powered resistive products are used in all wireless & satellite communication applications. Communication bands include GSM, PCS, W-CDMA, 3G, WCS, ISM Wireless LAN. They are also used in medical, industrial, military and aerospace applications. Typical applications include splitter/combiner networks, power amplifiers, feed forward amplifiers, RF Generators, MRI devices, isolators & circulators.

### DC and RF Specifications:
- **Resistance value:** 500 and 1000Ω standard (100Ω to 200Ω available)
- **Terminations:** Typical VSWR (Voltage Standard Wave Ratio) 1.05:1 to 1.20:1
- **Resistors:** Low parasitic capacitance
- **Temperature Coefficient of Resistance TCR Typical <150 ppm/°C**
- **Operating temperature range:** -55°C to +150°C
- **Frequency Range:** DC to 18 GHz

### Mechanical Specifications:
- **Substrate** – Aluminum Nitride
- **Resistive Film** – Tantalum Nitride
- **Terminals** – Silver
- **Flangeless and Flanged tabs** – 100% silver leads
- **Covers** – Alumina
- **Copper flanges** – Nickel or Silver plated
- **Lead-Free, RoHS compliant**
- **BeO Free**

### Order Resistive Product Design Kits Online at [www.atceramics.com](http://www.atceramics.com)

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<table>
<thead>
<tr>
<th><strong>ATC High Power RF Resistive Products</strong></th>
<th><strong>Sizes/Flange Options</strong></th>
<th><strong>Power</strong></th>
<th><strong>Capacitance/VSWR</strong></th>
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<tbody>
<tr>
<td>LA1 High Power Leaded Chip Attenuators</td>
<td>3740</td>
<td>150w</td>
<td>Attenuation: 1 dB thru 30 dB</td>
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<tr>
<td>FA1 High Power Flange Mount Attenuators</td>
<td>2 hole</td>
<td>150w</td>
<td>Attenuation: 1 dB thru 30 dB</td>
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<tr>
<td>CS1 Series Surface Mount Chip Resistors</td>
<td>2010 thru 3737</td>
<td>10w thru 40w</td>
<td>.95pf thru 3.5pf</td>
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<tr>
<td>CW1 Series Surface Mount Chip Resistors</td>
<td>2010 thru 3737</td>
<td>4w thru 10w</td>
<td>.95pf thru 3.5pf</td>
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<td>CR1 Series Chip Resistors</td>
<td>1005 thru 3737</td>
<td>5w thru 250w</td>
<td>.75pf thru 6pf</td>
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<tr>
<td>LR1 Series Leaded Chip Resistors</td>
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<td>FR1 Series Flange Resistors</td>
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<td>20w thru 250w</td>
<td>1.15:1 thru 1.25:1</td>
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<td>20w thru 250w</td>
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<td>1 hole, 2 hole</td>
<td>20w thru 250w</td>
<td>1.10:1 thru 1.30:1</td>
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ATC 504 L Series UBRTM Ultra-Broadband Resistors

The 504L Series next generation of surface mount Ultra-Broadband Resistors. This product was designed with our proprietary Glass Sandwich Flexiterm® Technology, (GSFT). The Flexiterm® is a surface mountable automotive qualified termination that adds an extra margin against damage due to flexture during installation.

The 504L Series has been designed with high quality selected materials that yield excellent performance. This product is ideal for use in Optical Transceiver Modules or any application requiring excellent ultra-broadband performance.

These devices are suitable for a wide range of RF/Microwave applications in Opto-electronics, Automotive, Telecom, Broadband Jamming for EW, and Satellite Communications.

Features:
• Standard Resistance Values (Ω):
  25Ω, 50Ω, 100Ω, 200 Ω
• Frequency Range: DC to 20 GHz
• EIA 0402 Case Size

Applications:
• Optical Transceiver Modules
• Balanced PI design
• Non-Magnetic
• RoHS Compliant

ATC AT Series 0603 RF/Microwave Attenuators

ATC’s AT Series RF / Microwave SMT Attenuators are constructed with Aluminum Nitride (AlN) and are available in a standard EIA 0603 case size. These devices are suitable for a wide range of RF / Microwave applications in Telecommunications, Satellite Communications, Cellular Base Stations, Microwave Radio, ISM, Military / Aerospace and Test and Measurement instrumentation.

The AT Series provides virtually flat loss over a broad frequency spectrum and is ideal where low noise and low parasitic capacitance is required. Thin film metallization provides stable characteristics over temperature and time. Its balanced Pi design provides even current distribution and accurate attenuation characteristics from DC to 20 GHz. Designed to meet a wide range of RF and microwave large and small signal level applications, the AT Series is ideal for impedance matching, input padding, signal level tuning, and many other critical RF / Microwave applications. This Series is rated highest power in class and is suitable for microstrip and CPW applications.

Features:
• Thin Film Design
• Characterized to 20 GHz
• Power Rating: 1 watt
• Flatness: ±0.5 dB
• CPW and Microstrip Applications

Applications:
• EIA 0603 SMT footprint
• AlN construction
• Balanced Pi design
• Non-Magnetic
• RoHS Compliant

Specifications

<table>
<thead>
<tr>
<th>Resistor</th>
<th>Detail</th>
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<tbody>
<tr>
<td>Outline</td>
<td>EIA 0402</td>
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<tr>
<td>Package</td>
<td>Glass wafer sandwich</td>
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<tr>
<td>Resistance Value Range</td>
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<td>Termination</td>
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<td>Power Rating</td>
<td>125 mW</td>
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<td>Operating Temperature Range</td>
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<td>Tolerance</td>
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<td>Cold Storage</td>
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ATC WL Series
Wire Wound Chip Inductors

ATC’s family of RF surface mount inductor components is intended to complement their high frequency ultra-low ESR capacitor products. The WL Series wire wound chip inductor products have been designed to provide excellent performance at competitive prices.

This Series includes the most widely used traditional EIA case sizes – 0402, 0603, 0805, 1008 and 1206. With an inductance range of 1 nH to 15,000 nH, these products have an operating temperature of -40°C to +125°C and a temperature coefficient of inductance (TCL) of +25 to +125 ppm/°C typical from -40°C to +125°C.

The WL inductor product line is intended for RF and microwave applications and features high self-resonant frequencies (SRF), high Q, and low DC resistance. These products are manufactured on a rugged core made of high quality ceramic material that exhibits high Q at high operating frequencies.

The WL Series is especially attractive for all 800 MHz to 3.4 GHz wireless applications where cost and performance are major factors. These applications include but are not limited to: cellular base stations, broadband wireless services, point-to-point and point-to-multipoint radio as well as other RF and microwave telecommunications systems.

All WL Series inductor products are supplied in tape and reel (2000 to 4000 parts per reel depending on case size) as standard, making them ideal for automated pick and place manufacturing applications. The terminations consist of a barrier layer with a lead-free, tin-plated finish that exhibits excellent solderability for trouble-free attachments.

Inductor Product Overview

<table>
<thead>
<tr>
<th>Case Size Code</th>
<th>Inductance Value (nH)</th>
<th>Tolerance Code</th>
<th>Q min.</th>
<th>SRF (MHz) typ.</th>
<th>RDC (Ohms) max.</th>
<th>IDC (mA) max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0402</td>
<td>1.0 @ 250 MHz</td>
<td>J, K</td>
<td>16</td>
<td>&gt;6000</td>
<td>0.045</td>
<td>1360</td>
</tr>
<tr>
<td></td>
<td>10 @ 250 MHz</td>
<td>G, J, K</td>
<td>21</td>
<td>3900</td>
<td>0.195</td>
<td>480</td>
</tr>
<tr>
<td></td>
<td>100 @ 250 MHz</td>
<td>G, J, K</td>
<td>22</td>
<td>1620</td>
<td>1.120</td>
<td>100</td>
</tr>
<tr>
<td>0603</td>
<td>1.6 @ 250 MHz</td>
<td>J, K</td>
<td>16</td>
<td>12,500</td>
<td>0.040</td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>22 @ 250 MHz</td>
<td>G, J, K</td>
<td>38</td>
<td>3000</td>
<td>0.190</td>
<td>700</td>
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<tr>
<td></td>
<td>470 @ 100 MHz</td>
<td>G, J, K</td>
<td>23</td>
<td>600</td>
<td>3600</td>
<td>80</td>
</tr>
<tr>
<td>0805</td>
<td>2.7 @ 250 MHz</td>
<td>J, K</td>
<td>80</td>
<td>7900</td>
<td>0.060</td>
<td>800</td>
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<tr>
<td></td>
<td>100 @ 150 MHz</td>
<td>G, J, K</td>
<td>65</td>
<td>1200</td>
<td>0.460</td>
<td>400</td>
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<tr>
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<td>4700 @ 7.9 MHz</td>
<td>G, J, K</td>
<td>15</td>
<td>40</td>
<td>6.400</td>
<td>90</td>
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<tr>
<td>1008</td>
<td>5.6 @ 50 MHz</td>
<td>J, K</td>
<td>50</td>
<td>4000</td>
<td>0.15</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>330 @ 25 MHz</td>
<td>G, J, K</td>
<td>45</td>
<td>570</td>
<td>1.05</td>
<td>450</td>
</tr>
<tr>
<td></td>
<td>15000 @ 2.52 MHz</td>
<td>G, J, K</td>
<td>15</td>
<td>11.5</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

Visit our website for individual values and specifications.

Order Inductor Design Kits Online at www.atceramics.com
506 WLC Ultra-Broadband Inductor

The ATC 506WLC High Frequency Ultra-Broadband Inductor (UBL)* provides low insertion loss and an excellent match over multiple octaves of frequency spectrum. The 506WLC is ideal for ultra broadband DC decoupling networks and bias tee applications in optical communications systems and equipment using high-speed digital logic.

*patent pending

Features:
- Ultra-Broadband Performance
- Ultra-Low Insertion Loss
- Flat Frequency Response
- Excellent Return Loss Through 40+ GHz
- Operating Temperature Range: - 55° C to + 125 ° C
- Unit-to-Unit Performance Repeatability
- Rugged Powdered Iron Core
- Gold Plated Leads

### ATC 506 WLS Ultra-Broadband SMT Inductors

The ATC 506WLS Series High Frequency Ultra-Broadband Inductor (UBL) is a unique component that provides low insertion loss and an excellent match over multiple octaves of frequency spectrum. The 506WLS is ideal for ultra-broadband DC decoupling networks and bias tee applications in optical communications systems and equipment using high-speed digital logic.

#### Features:
- Operating Frequency: 400 KHz (-3 dB roll-off frequency) through 40+ GHz, typ.
- Operating Temperature Range: - 55° C to + 125 ° C
- Lead-Free, RoHS Compliant Terminations

#### Advantages:
- Flat Frequency Response
- Excellent Return Loss Through 40+ GHz
- Unit-to-Unit Performance Repeatability
- Rugged Powdered Iron Core

### Part Number, max Inductance (µH) Operating Frequency Range* Insertion Loss** Return Loss** DC Resistance Current Handling (DC max.)*

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Inductance (µH)</th>
<th>Operating Frequency Range*</th>
<th>Insertion Loss**</th>
<th>Return Loss**</th>
<th>DC Resistance</th>
<th>Current Handling (DC max.)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATC 506WLC2R0KG250B</td>
<td>2.0 typ.</td>
<td>2.3 MHz* to 40 GHz</td>
<td>0.5 dB typ.</td>
<td>17 dB typ.</td>
<td>1.45 Ω typ. @ 10 mA</td>
<td>250 mA dc</td>
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</table>

*Lower -3 dB roll-off frequency **Shunt Mounted ***Current for 100 °C temperature rise
### ATC Multilayer High Q RF Capacitors

<table>
<thead>
<tr>
<th>ATC Series</th>
<th>Case Size Footprint in. (mm)</th>
<th>Cap Value Range (pF)*</th>
<th>Working Voltage WVDC (volts) max.</th>
<th>Dielectric Material</th>
<th>TCC -55°/+125°C (ppm/°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100A</td>
<td>.055 x .055 (1.40 x 1.40)</td>
<td>0.1 to 100</td>
<td>250</td>
<td>Porcelain (P90)</td>
<td>+90 ± 20</td>
</tr>
<tr>
<td>100B</td>
<td>.110 x .110 (2.79 x 2.79)</td>
<td>0.1 to 1000</td>
<td>1500</td>
<td>Porcelain (P90)</td>
<td>+90 ± 20</td>
</tr>
<tr>
<td>100C</td>
<td>.250 x .250 (6.35 x 6.35)</td>
<td>1 to 2700</td>
<td>3600</td>
<td>Porcelain (P90)</td>
<td>+90 ± 30</td>
</tr>
<tr>
<td>100E</td>
<td>.380 x .380 (9.65 x 9.65)</td>
<td>1 to 5100</td>
<td>7200</td>
<td>Porcelain (P90)</td>
<td>+90 ± 30</td>
</tr>
<tr>
<td>700A</td>
<td>.055 x .055 (1.40 x 1.40)</td>
<td>0.1 to 1000</td>
<td>250</td>
<td>Porcelain and Ceramic (NPO)</td>
<td>0 ± 30</td>
</tr>
<tr>
<td>700B</td>
<td>.110 x .110 (2.79 x 2.79)</td>
<td>0.1 to 5100</td>
<td>1500</td>
<td>Porcelain and Ceramic (NPO)</td>
<td>0 ± 30</td>
</tr>
<tr>
<td>700C</td>
<td>.250 x .250 (6.35 x 6.35)</td>
<td>1 to 2700</td>
<td>2500</td>
<td>Porcelain (NPO)</td>
<td>0 ± 30</td>
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<tr>
<td>700E</td>
<td>.380 x .380 (9.65 x 9.65)</td>
<td>1 to 2200</td>
<td>7200</td>
<td>Porcelain (NPO)</td>
<td>0 ± 30</td>
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<tr>
<td>600L</td>
<td>.040 x .020 (1.02 x .51)</td>
<td>0.1 to 27</td>
<td>200</td>
<td>Ultra-Low ESR, High Q (NPO)</td>
<td>0 ± 30</td>
</tr>
<tr>
<td>600S</td>
<td>.063 x .032 (1.60 x .81)</td>
<td>0.1 to 100</td>
<td>250</td>
<td>Ultra-Low ESR, High Q (NPO)</td>
<td>0 ± 30</td>
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<tr>
<td>600F</td>
<td>.079 x .049 (2.00 x 1.25)</td>
<td>0.1 to 240</td>
<td>250</td>
<td>Ultra-Low ESR, High Q (NPO)</td>
<td>0 ± 30</td>
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<tr>
<td>800A</td>
<td>.055 x .055 (1.40 x 1.40)</td>
<td>0.1 to 100</td>
<td>250</td>
<td>NPO Ceramic</td>
<td>0 ± 30</td>
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<tr>
<td>800B</td>
<td>.110 x .110 (2.79 x 2.79)</td>
<td>0.1 to 1000</td>
<td>500</td>
<td>NPO Ceramic</td>
<td>0 ± 30</td>
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<tr>
<td>800R</td>
<td>.070 x .090 (1.78 x 2.29)</td>
<td>1 to 100</td>
<td>500</td>
<td>NPO Ceramic</td>
<td>0 ± 30</td>
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<tr>
<td>800C</td>
<td>.250 x .250 (6.35 x 6.35)</td>
<td>2.2 to 3000</td>
<td>3600</td>
<td>NPO Ceramic</td>
<td>0 ± 30</td>
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<tr>
<td>800E</td>
<td>.380 x .380 (9.65 x 9.65)</td>
<td>3.3 to 5100</td>
<td>7200</td>
<td>NPO Ceramic</td>
<td>0 ± 30</td>
</tr>
<tr>
<td>800H</td>
<td>.720 x .740 (18.29 x 18.80)</td>
<td>100 to 20,000</td>
<td>8000</td>
<td>NPO Ceramic</td>
<td>0 ± 30</td>
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<tr>
<td>200A</td>
<td>.055 x .055 (1.40 x 1.40)</td>
<td>510 to 10,000</td>
<td>50</td>
<td>BX Ceramic</td>
<td>±15%</td>
</tr>
<tr>
<td>200B</td>
<td>.110 x .110 (2.79 x 2.79)</td>
<td>5000 to 100,000</td>
<td>50</td>
<td>BX Ceramic</td>
<td>±15%</td>
</tr>
<tr>
<td>900C</td>
<td>.230 x .250 (5.84 x 6.35)</td>
<td>.01 µF to 1 µF</td>
<td>300</td>
<td>X7R Ceramic</td>
<td>±15%</td>
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<td>ATC Series</td>
<td>Typical ESR (Ohms)</td>
<td>Capacitor Value</td>
<td>Working Voltage max.</td>
<td>Dielectric Material</td>
<td>TCC (ppm/°C)</td>
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<tr>
<td>900C</td>
<td></td>
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</tbody>
</table>

**ATC’s products are supported by fully certified in-house RF and QA Labs with test capability from DC to Millimeter-wave Frequencies.**

**Standard Electrical Testing:**
- Capacitors: Capacitance, Dissipation Factor, Dielectric Withstanding Voltage, Insulation Resistance
- Inductors: Inductance, Q, SRF, RDC, IDC
- Resistors: Resistance, RF Power, VSWR, Shunt Capacitance

**Hi-Reliability Testing (MIL-PRF-55681, MIL-PRF-123) and COTS Upscreening Program:**
- Full Burn In and Life Test Capability
- Electrical, Environmental and Mechanical (MIL-STD-202, MIL-STD-883)

**Specialized RF Power Testing:**
- High RF Power: CW and pulsed
- Thermal Characterization
- High RF Voltage: Corona, Internal and external breakdown, Partial discharge
- Specialized test fixtures designed in-house to support a full range of customer requirements

**Frequency Range: 2 MHz to 1 GHz**

**POPULAR TEST FREQUENCIES: APPLICATIONS:**

- 13.56 MHz: Semiconductor Manufacturing
- 64 MHz: 1.5 Tesla MRI Systems
- 128 MHz: 3 Tesla MRI Systems
- 1 GHz: Telecommunications & Cellular Systems
- ISM: Unlicensed Wireless Devices

**Small Signal RF Testing:**
- Equivalent Series Resistance (ESR) from 10 MHz to 2 GHz
- Impedance vs. Frequency: 1 MHz to 1.8 GHz
- S-Parameters: Four-receiver architecture, full two-port TRL calibration to 40 GHz

**Design Support For Capacitor, Inductor, & Resistive Products:**
- Comprehensive electrical, mechanical and environmental data available
- S-Parameters
- Tech-Select™ RF Design Software
- Applications Support Team of Experienced RF Engineers
## ATC Single Layer Capacitor Products

ATC’s extensive line of Single Layer Capacitor (SLC) products offers solutions to the most demanding microwave and millimeter wave requirements. Broadband applications with operating frequencies up to 100 GHz are achievable with ATC’s SLC products.

- Capacitance Range: 0.04 to 10,000 pF
- Wide selection of dielectrics with K’s of 14 to 25,000
- Ultra-high Q
- Up to 100 WVDC rating
- Standard case sizes from 10 mils.
- “Design Your Own” option
- Manufacturing facilities certified to ISO 9001
- Custom Design Kits available online at www.atceramics.com

### Stable K Dielectrics

<table>
<thead>
<tr>
<th>Dielectric Code</th>
<th>Dielectric Const. (K)</th>
<th>TCC (-55°C to +125°C)</th>
<th>Cap. Range (pF)</th>
<th>Max. DF @ 1 MHz (%)</th>
<th>Q @ 6.4 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>14</td>
<td>+90 ±30 PPM/°C</td>
<td>0.04 to 5.6</td>
<td>0.01</td>
<td>11,000</td>
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<tr>
<td>BB</td>
<td>31</td>
<td>0 ±30 PPM/°C</td>
<td>0.06 to 13</td>
<td>0.15</td>
<td>950 @ 4.5</td>
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<tr>
<td>CA</td>
<td>60</td>
<td>0 ±30 PPM/°C</td>
<td>0.1 to 27</td>
<td>0.15</td>
<td>770 @ 5</td>
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</tbody>
</table>

### Mid-K Dielectrics

<table>
<thead>
<tr>
<th>Dielectric Code</th>
<th>Dielectric Const. (K)</th>
<th>TCC (-55°C to +125°C)</th>
<th>Cap. Range (pF)</th>
<th>Max. DF (%)*</th>
<th>Q @ Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC</td>
<td>130</td>
<td>-750 ±220 PPM/°C</td>
<td>0.3 to 56</td>
<td>0.15</td>
<td>2310 @ 5</td>
</tr>
<tr>
<td>DA</td>
<td>165</td>
<td>-1500 ±500 PPM/°C</td>
<td>0.4 to 68</td>
<td>0.25</td>
<td>500 @ 1.8 G</td>
</tr>
<tr>
<td>DB</td>
<td>200</td>
<td>±7.5% max. change (non-linear)</td>
<td>0.5 to 82</td>
<td>0.25</td>
<td>29 @ 5 G</td>
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<tr>
<td>HC</td>
<td>420</td>
<td>-2000 ±500 PPM/°C</td>
<td>1.1 to 180</td>
<td>0.7</td>
<td>3</td>
</tr>
<tr>
<td>EA</td>
<td>650</td>
<td>-4700 ±1500 PPM/°C</td>
<td>1.5 to 270</td>
<td>0.3</td>
<td>3</td>
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</table>

### High-K Dielectrics

<table>
<thead>
<tr>
<th>Dielectric Code</th>
<th>Dielectric Const. (K)</th>
<th>TCC (-55°C to +125°C)</th>
<th>Cap. Range (pF)</th>
<th>Max. DF (%)*</th>
<th>@ 1 MHz</th>
<th>@ 1 KHz</th>
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</thead>
<tbody>
<tr>
<td>EC</td>
<td>650</td>
<td>±10% max. change (non-linear)</td>
<td>1.5 to 270</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>J</td>
<td>1100</td>
<td>+5% to -15% max. change (non-linear)</td>
<td>2.4 to 470</td>
<td>2.5</td>
<td>2.0</td>
<td>2.0</td>
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<tr>
<td>F</td>
<td>2000</td>
<td>±15% max. change (non-linear)</td>
<td>4.3 to 820</td>
<td>2.5</td>
<td>2.0</td>
<td>2.0</td>
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<tr>
<td>GA</td>
<td>4000</td>
<td>±15%</td>
<td>10 to 1800</td>
<td>3.0</td>
<td>2.0</td>
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### Ultra High-K Dielectrics

<table>
<thead>
<tr>
<th>Dielectric Code</th>
<th>Dielectric Const. (K)</th>
<th>TCC (+10°C to +85°C)</th>
<th>Cap. Range (pF)</th>
<th>Max. DF (%)*</th>
<th>@ 1 MHz</th>
<th>@ 1 KHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>6000</td>
<td>±10% to -75% max. change (non-linear)</td>
<td>13 to 2400</td>
<td>2.5</td>
<td>2.0</td>
<td>2.0</td>
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<tr>
<td>K</td>
<td>9000</td>
<td>0% to -92% max. change (non-linear)</td>
<td>20 to 3300</td>
<td>4.0</td>
<td>2.0</td>
<td>2.0</td>
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<tr>
<td>L</td>
<td>16,000</td>
<td>0/-92%</td>
<td>33 to 6200</td>
<td>3.5</td>
<td>2.0</td>
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### Max-K Dielectrics

<table>
<thead>
<tr>
<th>Dielectric Code</th>
<th>Dielectric Const. (K)</th>
<th>TCC (-55°C to +125°C)</th>
<th>Cap. Range (pF)</th>
<th>Max. DF (%)*</th>
<th>@ 1 MHz</th>
<th>@ 1 KHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>25,000 typ.</td>
<td>±15%</td>
<td>150 to 10,000</td>
<td>2.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Capacitance and DF are measured at 1MHz for capacitance values ≤ 1,000 pF and 1 KHz for capacitance values > 1,000 pF.
ATC 520 L, 530Z and 530 L Broadband SMT Capacitors

Best Broadband Options for Reliability and Widest Frequency Coverage.

The 520 L Series, 530 Z Series and 530 L Series Multilayer Broadband Capacitors provide low insertion loss performance over multiple octaves of frequency spectrum. These capacitors are compatible with high speed automated pick and place SMT manufacturing.

The 520 L, 530 Z and 530 L are ideal for broadband DC blocking, coupling, bypassing, and feedback applications in optical communications systems and equipment using high-speed digital logic.

Attributes
- Low Loss X7R and X5R Dielectrics
- Broadband Performance
- Flat Frequency Response
- Excellent Return Loss
- Unit-to-Unit Performance Repeatability
- Rugged Ceramic Construction
- Solderable SMT Terminations
- RoHS Compliant Terminations

Functional Applications
- Broadband
- Bypass
- Coupling
- Feedback
- Impedance Matching
- DC Blocking
- Tuning

ATC 500 S Series Millimeter-Wave SMT Capacitors

Low insertion loss and ultra-high self-resonance surface mount millimeter-wave capacitors

ATC’s 500 Series (BMC) Broadband Microwave Capacitor is a unique, patented component which greatly exceeds both multilayer and single layer capacitor performance. It delivers extremely low insertion loss with ultra-high self resonance performance, in a rugged, laser-marked package compatible with automatic SMT manufacturing.

Attributes
- EIA 0603 Case Size
- Low Insertion Loss
- Ultra High Self Resonance
- Surface Mountable
- Rugged Construction

Functional Applications
- Broadband
- Bypass
- Coupling
- Feedback
- Impedance Matching
- DC Blocking
- Tuning

<table>
<thead>
<tr>
<th>ATC Series</th>
<th>Cap Value Range (pF)*</th>
<th>Working Voltage WVDC (volts)</th>
<th>TCC -55° to 125°C (ppm/°C)</th>
<th>Typical Resonance</th>
<th>IR@ 25°C (Megohms)</th>
<th>Case size Footprint Inches (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>0.1 to 10 pF</td>
<td>100 WVDC (0.1 pF to 4.7 pF) 50 WVDC (5.1 pF to 10 pF)</td>
<td>0±30 for C ≤2.2pF 0±60 for C ≥2.4 pF</td>
<td>0.1 1 10</td>
<td>28 GHz 15 GHz 7.8 GHz 40 GHz 32 GHz 20 GHz</td>
<td>10⁶</td>
</tr>
</tbody>
</table>
ATC Power Capacitor Assemblies

ATC offers leaded Power Capacitor Assemblies that extend the capacitance, voltage and current parameters of our standard multilayer ceramic capacitor product line.

ATC standard & custom Power Capacitor Assemblies are fabricated from PARALLEL and SERIES combinations of industry-respected ATC catalog products. Customer requirements are addressed by a variety of computer matching and assembly techniques which have enabled ATC to extend voltage, current, lower ESR, and tolerance parameters beyond what is normally available in the industry.

ATC Power Capacitor Assemblies offer distinct advantages over purchasing standard components. Collaboration with the customer design engineer results in a precisely engineered solution to their exact requirements.

MATCHED SETS: SERIES OR PARALLEL CONFIGURATIONS

For customers requiring non-standard values or very close tolerance capacitance values, ATC can select a set of capacitors (2 or more) to achieve the desired results. Available tolerances appear in table at right.

VOLTAGE DIVIDERS: Voltage dividers based on capacitive reactance can be provided to customers’ specific capacitance ratio. Ratios can be provided within 1.0%.

PERFORMANCE ADVANTAGES
• High operating voltage
• High operating current
• Extended capacitance
• Tighter tolerances
• High reliability
• High Q
• Ultra-low ESR

TYPICAL APPLICATIONS
• HF/RF Power Amplifiers
• Semiconductor Manufacturing Equipment
• Medical Electronics (MRI)
• Broadcast Transmitters
• Antenna Matching Networks
• Inductive Heating
• Ultra-low ESR

ATTRIBUTES
• Reduced Assembly Steps/Handling Costs
• Enhanced Reliability
• Reduced Purchasing Logistics
• Reduced Technical Labor
• Guaranteed Performance
• Achieve Non-Standard Values and Ultra-Tight Tolerances

Series | Capacitance Range | Tolerance
--- | --- | ---
100A/700A | 1 pF to 6.2 pF 6.8 pF to 1000 pF | 0.1 pF 0.5%
100B/700B | 0.1 pF to 6.2 pF 6.8 pF to 5100 pF | 0.1 pF 0.5%
100C | 1 pF to 2700 pF | 0.5%
100E | 1 pF to 5100 pF | 0.5%
ATC Transmitter Capacitor Assemblies

ATC Transmitter Capacitor Assemblies offer a cost effective alternative to large and costly fixed vacuum capacitors, door-knobs and transmitter capacitors. ATC assemblies are ideal for the most demanding applications requiring high RF power at low frequencies. They are constructed with the finest materials and are engineered to provide the most reliable performance in the most demanding applications.

ATC’s Transmitter Capacitor Assembly products are ideal for use in Plasma Generators and matching networks used in Semiconductor Manufacturing equipment, AM Broadcast Transmitters, RF Induction Heating, High Power HF amplifiers and many others.

ATTRIBUTES:
- Capacitance Values up to 1200 pF
- High RF Power Handling Capability
- Current Handling Capability up to 156 Amps RMS @ 13.56 MHz
- 7200 Rated WVDC
- Ideal for applications between 400 KHz to 30 MHz
- Rugged Porcelain Construction for superior dielectric strength
- Heavy Cu leads (0.020”) with punched holes
- Highest breakdown voltage
- NPO and P90 ultra stable dielectrics
- Available in tight tolerances

APPLICATIONS:
- High RF Power Matching Networks
- High RF Power Tuning Circuits
- Antenna Tuning
- High RF Power Output Filter Networks

Capacitance Value Table:

<table>
<thead>
<tr>
<th>Capacitance Value (pF)</th>
<th>Number of Capacitors</th>
<th>Single Capacitance Value (pF)</th>
<th>Rms Current (1 cap.) @ 13.56 MHz</th>
<th>Rms Current (max.) @ 13.56 MHz</th>
<th>Mechanical Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>2</td>
<td>50</td>
<td>11</td>
<td>22</td>
<td>Single bracket</td>
</tr>
<tr>
<td>200</td>
<td>4</td>
<td>50</td>
<td>11</td>
<td>44</td>
<td>Single bracket</td>
</tr>
<tr>
<td>300</td>
<td>6</td>
<td>50</td>
<td>11</td>
<td>66</td>
<td>Single bracket</td>
</tr>
<tr>
<td>400</td>
<td>4</td>
<td>100</td>
<td>13</td>
<td>52</td>
<td>Single bracket</td>
</tr>
<tr>
<td>500</td>
<td>5</td>
<td>100</td>
<td>13</td>
<td>65</td>
<td>Single bracket</td>
</tr>
<tr>
<td>600</td>
<td>6</td>
<td>100</td>
<td>13</td>
<td>78</td>
<td>Single bracket</td>
</tr>
<tr>
<td>700</td>
<td>7</td>
<td>100</td>
<td>13</td>
<td>91</td>
<td>4 over 3</td>
</tr>
<tr>
<td>800</td>
<td>8</td>
<td>100</td>
<td>13</td>
<td>104</td>
<td>4 over 4</td>
</tr>
<tr>
<td>900</td>
<td>9</td>
<td>100</td>
<td>13</td>
<td>117</td>
<td>5 over 4</td>
</tr>
<tr>
<td>1000</td>
<td>10</td>
<td>100</td>
<td>13</td>
<td>130</td>
<td>5 over 5</td>
</tr>
<tr>
<td>1100</td>
<td>11</td>
<td>100</td>
<td>13</td>
<td>143</td>
<td>6 over 5</td>
</tr>
<tr>
<td>1200</td>
<td>12</td>
<td>100</td>
<td>13</td>
<td>156</td>
<td>6 over 6</td>
</tr>
</tbody>
</table>

Rated WVDC: 7200
Available with 1% Tolerance
ATC // AVX Thin Film Technologies

Engineered Thin Film Solutions
ATC // AVX is pleased to introduce the combined resources of ATC’s Jacksonville, Florida and AVX’s Myrtle Beach, South Carolina Thin Film product groups. This allows us to offer a wide range of custom hybrid circuits along with thin film resistors, capacitors, inductors, as well as lumped element and distributed filters, integrated passives, modules, heat sinks, and other unique thin film microelectronic solutions.

Design, Fabrication, Assembly, and RF Testing Services

Jacksonville Thin Film Products
Since 1993, ATC Thin Film Products, located in Jacksonville, FL, has been supplying a broad spectrum of high reliability metalized hybrid circuits. Designers can select from a wide variety of substrate materials, as well as vias, crossovers and bridges. Whether built to print or designed to a performance specification, the experienced engineering staff is available to assist in optimizing your product. In addition, two-sided assembly and RF testing to 40 GHz are value-added services. AS-9100 certification ensures conformance with existing military and aerospace requirements.

Myrtle Beach Thin Film Products
AVX Thin Film operations, located in Myrtle Beach, SC, offers an array of thin film passives including networked resistors, capacitors, inductors, along with integrated passive LC and RC filters and modules. Six inch (150 mm) wafer technology offers the designer build-to-print or custom designs based on 3D HFSS modeling from 500 MHz to 40 GHz. These products will meet the most demanding requirements of circuit miniaturizations, tolerance and signal integrity applications that involve a wide frequency spectrum from MHz to GHz.

Combined Capabilities
- Design: Modeling (HFSS), simulation (Genesys) and CAD (Tanner)
- Substrates: 1 inch square to 6 inch round (150 mm) wafers
- Typical materials: Alumina, Aluminum Nitride, Beryllium Oxide, Silicon, (N, P, and N+), Quartz, Glass, Glass-Ceramic, Sapphire, Ferrites and Titanates
  - Metalizations:
    - Sputtered: Al, Au, Cr, Cu, Ni(V), Pt, TaN, Ti and TiW
    - Plated: Electrolytic Cu, Ni, Au; Electroless Cu, Au
- Resistors: High Ohmic SiCr and TaN resistors in laser trimmable designs
- Capacitors: SiO2, SiON and BCB dielectrics in laser trimmable designs
- Inductors: Multilevel and multiturn copper and gold inductors
- Routing: True Air Bridges and Dielectric Crossovers
- Passivation Materials: SiON, Si3N4, BCB and polyimide
- Vias: Sputtered, enhanced plated, filled and castellations
- I/Os: BGA, LGA, edge wrap, through via and wire or ribbon bond
- Machining:
  - CO2 cutting, drilling, and scribing
  - Diamond-saw dicing
  - Back grinding and polishing
- Assembly:
  - High precision 0201 or larger pick and place
  - Attachment via wire or ribbon bonding, BGA, LGA or surface mount reflow
- Encapsulation
- Testing:
  - MIL-STD-105D level II sampling
  - MIL-STD-883 100% visual inspection
  - Capacitance, insulation resistance and resistivity
  - RF testing to 40 GHz

Primary Markets and Applications
- Military, Aerospace and Space:
  - RF and Microwave filters
  - Precision resistors
  - MOS capacitors
  - Circulators, Splitters
  - Specialized modules
- Medical and Instrumentation:
  - Precision resistor networks and arrays
  - In-circuit trimmed designs
  - Telemetry filters
  - Miniature circuits and assemblies
- Broadband infrastructure:
  - Laser diode mounts and heat sinks
  - Optoelectronic converters
  - RF and DC fan-outs
- Instrumentation:
  - Ultra-precision reference capacitors and resistors
- Solar:
  - Interposers and heat sinks

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sales@atceramics.com
ATC Europe
sales_eur@atceramics.com
ATC Asia
sales@atceramics-asia.com

www.atceramics.com
### Typical Substrate Properties

<table>
<thead>
<tr>
<th>Properties Nominal</th>
<th>Al$_2$O$_3$ 99.6%</th>
<th>Al$_2$O$_3$ 96.0%</th>
<th>Fused Silica</th>
<th>BeO 99.5%</th>
<th>AlN</th>
<th>Glass Borosilicate</th>
<th>Glass Ceramic</th>
<th>P-Silicon Boron Doped</th>
<th>N+-Silicon Arsenic Doped</th>
<th>FZ-Silicon Arsenic Doped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness Range (mil)</td>
<td>4-50</td>
<td>10-50</td>
<td>4-25</td>
<td>10-60</td>
<td>10-60</td>
<td>20</td>
<td>20</td>
<td>2-25</td>
<td>4-25</td>
<td>4-25</td>
</tr>
<tr>
<td>As Fired (Surface finish) $µ''$</td>
<td>&lt;20</td>
<td>No</td>
<td>No</td>
<td>6µ''</td>
<td>No</td>
<td>10 Å</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lapped (Surface finish) $µ''$</td>
<td>&lt;4</td>
<td>No</td>
<td>No</td>
<td>&lt;20</td>
<td>No</td>
<td>&lt;20</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polished (Surface finish) $µ''$</td>
<td>&lt;2</td>
<td>&lt;4</td>
<td>&lt;1</td>
<td>&lt;3</td>
<td>&lt;3</td>
<td>&lt;.04</td>
<td>&lt;.06</td>
<td>&lt;.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dielectric Constant @ 10 GHz</td>
<td>9.8</td>
<td>9.6</td>
<td>3.8</td>
<td>6.6</td>
<td>8.7</td>
<td>5.1</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss Tangent @ 10 GHz</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.0001</td>
<td>0.0003</td>
<td>0.001</td>
<td>0.003</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTE (PPM/°C)</td>
<td>6.7</td>
<td>8.2</td>
<td>0.5</td>
<td>7.5</td>
<td>4.5</td>
<td>3.2</td>
<td>11.5</td>
<td>2.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Conductivity (W/mK)</td>
<td>25.5</td>
<td>24.7</td>
<td>1.38</td>
<td>280</td>
<td>170</td>
<td>1.16</td>
<td>2.7</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume Resistivity (ohm-cm)</td>
<td>$10^{14}$</td>
<td>$10^{14}$</td>
<td>$10^{14}$</td>
<td>$10^{14}$</td>
<td>$10^{14}$</td>
<td>$10^{15}$</td>
<td>15</td>
<td>$0.002$</td>
<td>$10^4$</td>
<td></td>
</tr>
<tr>
<td>Dielectric Strength (KV/mm)</td>
<td>8.7</td>
<td>8.3</td>
<td>100</td>
<td>14</td>
<td>&gt;10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sputtered and Electroplated Materials

<table>
<thead>
<tr>
<th>Materials</th>
<th>Sputtered</th>
<th>Electroplated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al</td>
<td>150-40000 Å</td>
<td>A/AlSi (&lt;1%) and AlCu (2%) available, Typical 2000 – 15000</td>
</tr>
<tr>
<td>Au</td>
<td>1000-65000 Å</td>
<td>Typical 3000 – 10000</td>
</tr>
<tr>
<td>Cr</td>
<td>150-5000 Å</td>
<td>Typical 600</td>
</tr>
<tr>
<td>Cu</td>
<td>2000-65000 Å</td>
<td>NA</td>
</tr>
<tr>
<td>LSCO</td>
<td>300-1200 Å</td>
<td>Typical 600</td>
</tr>
<tr>
<td>NiV</td>
<td>500-10000 Å</td>
<td>NA</td>
</tr>
<tr>
<td>Pt</td>
<td>1000-4000 Å</td>
<td>Typical 2500</td>
</tr>
<tr>
<td>TaN</td>
<td>300-1500 Å</td>
<td>Barrier Layer</td>
</tr>
<tr>
<td>Ti</td>
<td>500-5000 Å</td>
<td>Typical 600</td>
</tr>
<tr>
<td>TiW</td>
<td>300-1500 Å</td>
<td>Typical 500</td>
</tr>
</tbody>
</table>

### Plated Material

<table>
<thead>
<tr>
<th>Plated Material</th>
<th>Electrolytic µm and (µin)</th>
<th>Electroless µm and (µin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Au</td>
<td>0.5 – 50 (20-2000)</td>
<td>1-10 (40-400)</td>
</tr>
<tr>
<td>Cu</td>
<td>5 – 150 (200-6000)</td>
<td>2-4 (80-160)</td>
</tr>
<tr>
<td>Ni</td>
<td>1.25 – 5 (50-200)</td>
<td>NA</td>
</tr>
</tbody>
</table>

### Resistor Technology

<table>
<thead>
<tr>
<th>Thin Film Resistors</th>
<th>SiCr</th>
<th>TaN</th>
<th>NiCr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process</td>
<td>High Ohmic, High Voltage, Ultra-stable</td>
<td>High process temperature (no diffusion); Resistance to harsh environment</td>
<td>Low TCR</td>
</tr>
<tr>
<td>Typical Sheet Resistivity (ohm/sq)</td>
<td>300-1300</td>
<td>10-200</td>
<td>5-200</td>
</tr>
<tr>
<td>TCR (ppm/°C -25 to 125°C)</td>
<td>±50; 0 to -150</td>
<td>-100 to -150</td>
<td>0 to 100</td>
</tr>
<tr>
<td>Stability (Change after 1000 hours @ 125°C)</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Maximum Stabilization Temperature (°C)</td>
<td>500</td>
<td>450</td>
<td>350</td>
</tr>
<tr>
<td>Recommended Device Environment</td>
<td>Ambient Atmosphere</td>
<td>Ambient Atmosphere</td>
<td>Ambient with Passivation or Inert Atmosphere</td>
</tr>
<tr>
<td>Maximum Device Processing Temperature</td>
<td>Up to 1 hr. @ 400 °C</td>
<td>Up to 1/2 hr. @ 350 °C</td>
<td>Up to 1/2 hr. @ 260 °C</td>
</tr>
<tr>
<td>Tolerance (the greater of)</td>
<td>0.05% or 0.1 Ω</td>
<td>0.05% or 0.1 Ω</td>
<td>0.05% or 0.1 Ω</td>
</tr>
</tbody>
</table>

### Capacitor Materials

<table>
<thead>
<tr>
<th>Material</th>
<th>SiON</th>
<th>SiO$_2$</th>
<th>BCB</th>
<th>PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>55</td>
<td>35</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Trim</td>
<td>1-500 pF</td>
<td>1-500 pF</td>
<td>1-50 pF</td>
<td>0.5-10 pF</td>
</tr>
<tr>
<td>Tolerance; NOTE: value dependent</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Stability</td>
<td>±60 ppm/°C</td>
<td>±30 ppm/°C</td>
<td>±42 ppm/°C</td>
<td>±100 ppm/°C</td>
</tr>
<tr>
<td>Rated Voltage</td>
<td>≤ 100</td>
<td>≤ 100</td>
<td>≤ 25</td>
<td>≤ 25</td>
</tr>
<tr>
<td>BDV (v/µm)</td>
<td>600</td>
<td>1000</td>
<td>300</td>
<td>200</td>
</tr>
<tr>
<td>DF</td>
<td>≤ 0.1%</td>
<td>≤ 0.1%</td>
<td>≤ 0.1%</td>
<td>≤ 0.2%</td>
</tr>
<tr>
<td>Performance</td>
<td>K 5.8; TCC 60</td>
<td>K 4.0; TCC 30</td>
<td>K 2.7; TCC 42</td>
<td>K 3.3; TCC</td>
</tr>
</tbody>
</table>
ATC’s Design Support Software – New Enhanced 2017 Version

Tech Select® is ATC’s Design Support Software: a comprehensive tool that provides complete descriptions and illustrations of ATC products. Designers may select products by sorting on attributes. Included are RF Performance Parameters, Smith Charts, Exportable S-Parameter Files, Electrical, Mechanical and Environmental Specifications.

Also included are Technical Application Notes and Bulletins, Circuit Designers’ Notebook Articles, and Product Data Sheets. Tech-Select is compatible with Windows XP, Vista, Windows 7, Windows 8 and Windows 10.

These measurement-based models, available for selected ATC components, are both substrate and part-value scalable, and represent high-order resonant effects and accurate effective series resistance. Each model includes complete documentation detailing the test fixtures used, measurement conditions, range of validity, and model-to-measurement data comparisons.

S-Parameter Data Files
Scattering parameters of ATC 100 Series A and B, 180 R, 700 Series A and B, and 500 S Capacitors measured in vertical orientation on Alumina. README file provides details on measurement conditions.

600 L, 600 S and 600 F Series S-Parameter Data
Scattering parameters of ATC 600 Series Ultra-Low ESR Capacitors measured in horizontal and vertical orientation on Rogers R04350 softboard. README file provides details of measurement conditions.

800 A, 800 B and 800 R Series S-Parameter Data
Scattering parameters of ATC 800 A / B Series and 800 R Series Ultra-Low ESR Capacitors, measured on Rogers R04350 softboard. 800 A measured in horizontal and vertical orientation; 800 R measured in horizontal orientation; 800 B measured in vertical orientation. README file provides details of measurement conditions.

400 W, 400 Z, 400 L, and 400 S Series Precision Tolerance NPO RF Microwave Capacitors S-Parameter Data

WL Series Inductors S-Parameter Data
Scattering parameters of ATC WL Series Chip Inductors measured in horizontal orientation on Rogers R04350 softboard. README file provides details of measurement conditions.

506 WLC Series Inductor S-Parameter Data
All testing performed on 10-mil-thick Rogers RO4350 microstrip board, with the UBL leads connected between the microstrip trace and under the ground plane (nominal 50-ohm characteristic impedance).

506 WLS M Series and N Series Inductors S-Parameter Data
All testing performed on 10-mil-thick Rogers RO4350 microstrip board, with the UBL leads connected between the microstrip trace and under the ground plane (nominal 50-ohm characteristic impedance).
Contact Information

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**ATC EUROPE**
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