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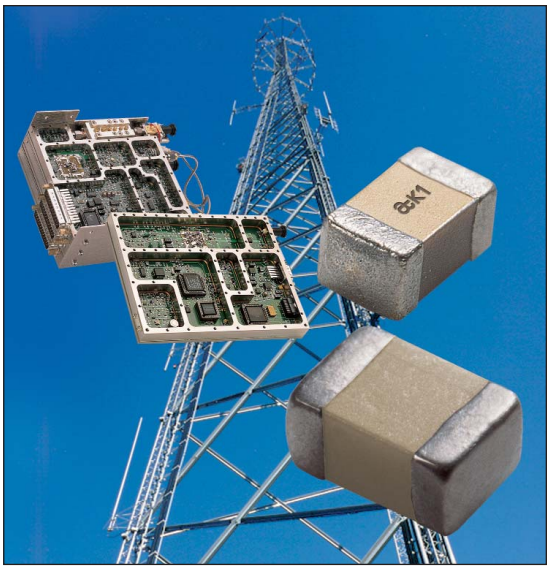
NPO RF/Microwave Capacitors are Designed for Maximum Performance

The improved dielectric and electrode structure of ATC's 600 Series chip capacitors delivers higher Q and lower ESR for high performance RF and microwave coupling, filter and bypass applications

American Technical Ceramics, a leading manufacturer of component and custom integrated packaging solutions for RF, microwave and telecommunications, announces the introduction of the 600F capacitor series to complement the 600S Series. The 600S (0603) and 600F (0805) capacitor products, developed with over 35 years of expertise in RF and microwave technologies utilize a new proprietary dielectric formulation and an enhanced internal electrode structure. This combination of technological advancements makes the 600 Series family of products an excellent candidate for numerous RF and microwave applications. The 600 Series exhibits outstanding performance advantages over other capacitor products in its class. This Series optimizes signal integrity and reliability by reducing radio frequency circuit losses thereby enhancing overall system efficiency and performance.

Today's wireless infrastructure applications have imposed more stringent requirements on wireless amplifier module design than ever before. The RF performance attributes of capacitor elements are critical whether designing for the best power added efficiency (PAE) or ultra linearity. ATC's latest family of 600 Series ultra low loss NPO ceramic chip capacitors offers solutions to all wireless designs. The 600 Series products were specifically designed for the most critical RF and microwave applications. This family of capacitor products is packaged in two of the most popular EIA case sizes, i.e., 0603 and 0805. These products encompass the lowest ESR and the highest voltage rating for their size, making them ideal for high RF power as well as signal level RF and microwave applications. This combination of attributes allows the designer to implement a higher level of amplifier performance by enhancing PAE, linearity, low noise and low phase distortion parameters so vitally needed by today's stringent design requirements.



Wireless communications is a key application area for the 0603- and 0805-size chip capacitors in the ATC 600 Series.

ATC's 600 Series was designed to satisfy high-volume RF and microwave power and small signal applications such as cellular and PCS base stations, broadband wireless services, satcom systems, wireless LAN systems, point to point and point to multipoint radio

Capacitance Range:	600S — 0.1 pF to 100 pF 600F — 0.1 pF to 240 pF
Dimensions:	600S — 0.060 L x 0.032 W 600F — 0.080 L x 0.050 W
Voltage Rating:	250 WVDC
TCC:	0 ±30 ppm/°C
Operating Temperature:	–55°C to 125°C
Terminations:	Environmentally-friendly solderable tin SMT style

600 Series capacitor specifications.

systems. In addition to topping the industry's ESR standards, the 600 Series' efficiency and superior heat-conducting properties allow these products to run cooler at high signal power levels. When used in small signal applications the 600 Series can enhance thermal noise performance and phase distortion allowing for improved signal to noise ratio and lower bit error rates. This product advance marks ATC's continuing role as a major player in the fast-growing segment of the wireless infrastructure as well as consumer based wireless communications markets.

Engineering Design Kits are available for 600 Series capacitors. These may be purchased online at: www.atceramics.com. For further information, contact:

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HFeLink 305

Product Features

- Lowest ESR in its class
- Cooler operating for easier thermal management
- Extended component and circuit reliability
- Allows maximum transfer of signal energy for highest achievable output
- Excellent for critical matching, bypass and coupling applications
- Lower thermal noise (kTB) for improved effective gain and better signal to noise ratio (SNR) in receiver module applications
- Well suited for automated pick-and-place SMT assembly
- Rugged NPO performance

Applications

- DC Blocking / Coupling:
  - Delivers more power to the load in power amplifier stages.
  - Realize highest effective gain in small signal interstage coupling applications
- Bypassing
  - Better RF grounding in decoupling applications.
- Filtering
  - Higher Q for a more ideal filter response.
  - Lower rejection floor and sharper passband response
- Matching
  - Lower loss for higher gain
  - Lower noise figure for best input stage matching