

ATC 900 C Series X7R Ceramic RF Power Multilayer Capacitors

- Case C Size (.250" x .250")
- Low ESR/ESL
- Rugged Construction
- Available with Encapsulation Option*
- Capacitance Range 0.01 μ F to 1 μ F
- Mid-K
- High Reliability

ATC, the industry leader, offers new improved ESR/ESL performance for the 900 C Series RF Capacitors. This Series exhibits superior volumetric efficiency, providing high levels of capacitance for HF/RF power applications. Ceramic construction provides a rugged, hermetic package.

ATC offers an encapsulation option for applications requiring extended protection against arc-over and corona.

Typical functional applications: Bypass, Coupling and DC Blocking.

Typical circuit applications: HF/RF Power Amplifiers, High Frequency Switch Mode Power Supplies, and Medical Electronics.

*For leaded styles only.

ENVIRONMENTAL TESTS

ATC 900 C Series Capacitors are designed and manufactured to meet and exceed the requirements of EIA-198, MIL-PRF-55681 and MIL-PRF-123.

THERMAL SHOCK:

MIL-STD-202, Method 107, Condition A.

MOISTURE RESISTANCE:

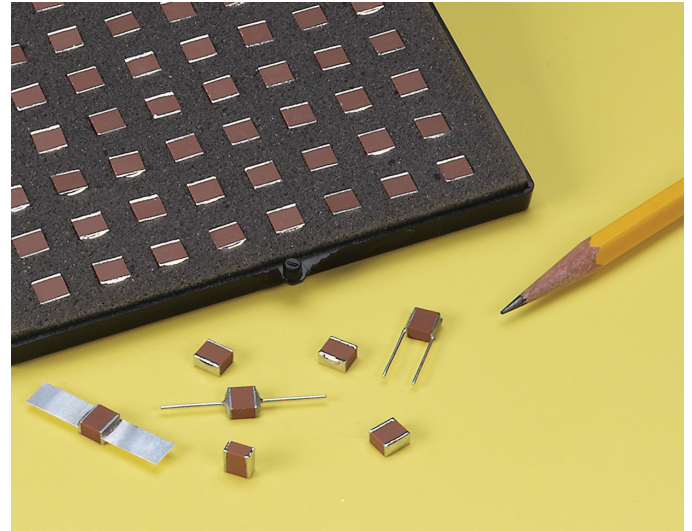
MIL-STD-202, Method 106.

LOW VOLTAGE HUMIDITY:

MIL-STD-202, Method 103, Condition A, with 1.5 Volts DC applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours min.

LIFE TEST:

MIL-STD-202, Method 108, for 2000 hours, at 125°C. 200% WVDC applied.



ELECTRICAL AND MECHANICAL SPECIFICATIONS

DISSIPATION FACTOR (DF): 2.5% max. at 1 KHz.

TEMPERATURE COEFFICIENT OF CAPACITANCE (TCC):
Less than $\pm 15\%$ (-55°C to +125°C)

INSULATION RESISTANCE (IR):

0.01 MFd to 1 MFd

1000 megohms min. @ +25°C at rated WVDC.

100 megohms min. @ +125°C at rated WVDC.

WORKING VOLTAGE (WVDC):

See Capacitance Values Table, page 2.

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Case C: 250% of rated WVDC for 5 secs.

AGING EFFECTS: 3% maximum per decade hour.

PIEZOELECTRIC EFFECTS: Negligible

DIELECTRIC ABSORPTION: 2% typical

OPERATING TEMPERATURE RANGE:

-55°C to +125°C (No derating of working voltage).

TERMINATION STYLES:

Available in various surface mount and leaded styles. See Mechanical Configurations, page 3.

TERMINAL STRENGTH: Terminations for chips and pellets withstand a pull of 10 lbs. min., 15 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor. Test per MIL-STD-202, method 211.



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ATC # 001-815 Rev. M, 9/19

ATC 900 C Capacitance Values

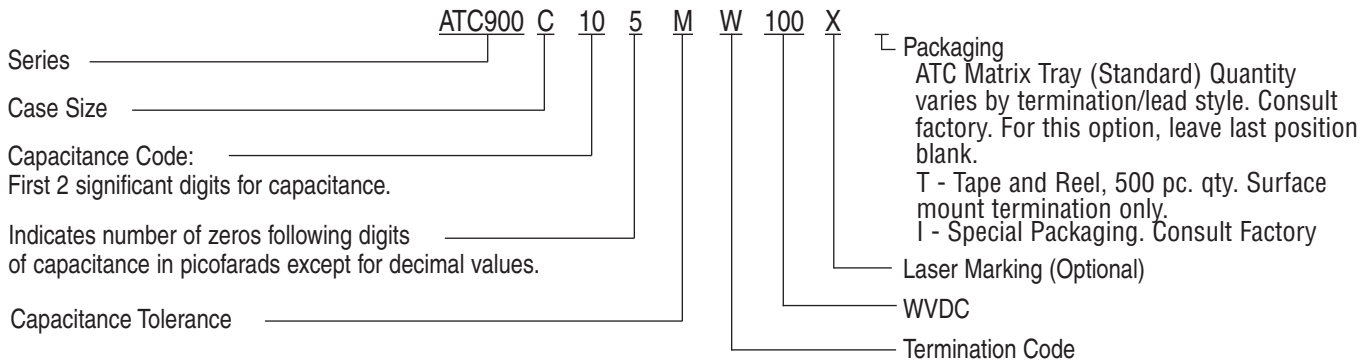
| CAP. CODE | CAP. (MFd) | TOL. | RATED WVDC |
|-----------|------------|---------|------------|
| 103 | .010 | K, M, N | 300 |
| 153 | .015 | | 300 |
| 223 | .022 | | 300 |
| 333 | .033 | | 250 |
| 473 | .047 | | 250 |
| 683 | .068 | | 250 |
| 104 | .10 | | 200 |
| 154 | .15 | | 200 |
| 224 | .22 | | 200 |
| 334 | .33 | | 150 |
| 474 | .47 | | 150 |
| 684 | .68 | | 150 |
| 824 | .82 | | 100 |
| 105 | 1.0 | | 100 |

$VRMS = 0.707 \times WVDC$

- SPECIAL VALUES, TOLERANCES, HIGHER WVDC AND MATCHING AVAILABLE.
- ENCAPSULATION OPTION AVAILABLE. PLEASE CONSULT FACTORY.

| Code | K | M | N |
|------|------|------|------|
| Tol. | ±10% | ±20% | ±30% |

ATC PART NUMBER CODE



The above part number refers to a 900 C Series (case size C) 1.0 MFd capacitor,

M tolerance (±20%), 100 WVDC, with W termination (Tin/Lead, Solder Plated over Nickel Barrier), laser marking and ATC Matrix Tray packaging.

ATC accepts orders for our parts using designations *with* or *without* the "ATC" prefix. Both methods of defining the part number are equivalent, i.e., part numbers referenced with the "ATC" prefix are interchangeable to parts referenced without the "ATC" prefix. Customers are free to use either in specifying or procuring parts from American Technical Ceramics.

For additional information and catalogs contact your ATC representative or call direct at (631) 622-4700.

Consult factory for additional performance data.

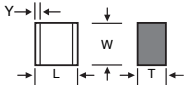
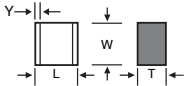
ATC 900 C Capacitors: Mechanical Configurations

| ATC SERIES & CASE SIZE | ATC TERM. CODE | CASE SIZE & TYPE | OUTLINES W/T IS A TERMINATION SURFACE | BODY DIMENSIONS INCHES (mm) | | | LEAD AND TERMINATION DIMENSIONS AND MATERIALS | | |
|------------------------|----------------|--------------------------------|--|--|---|---|---|--|---|
| | | | | LENGTH (L) | WIDTH (W) | THICKNESS (T) | OVERLAP (Y) | MATERIALS | |
| 900C | W | C Solder Plate | | .230+.020 -.010 (5.84+0.51 -0.25) | .250±.015 (6.35±0.38) | .145 (3.68) max. for capacitance values < 0.82 MFd; | .040 (1.02) max. | Tin/Lead, Solder Plated over Nickel Barrier Termination | |
| 900C | P | C Pellet | | .230+.025 -.010 (5.84+0.64 -0.25) | | | | Heavy Tin/Lead Coated, over Nickel Barrier Termination | |
| 900C | T | C Solderable Nickel Barrier | | .230+.020 -.010 (5.84+0.51 -0.25) | | | | RoHS Compliant Tin Plated over Nickel Barrier Termination | |
| 900C | MS | C Microstrip | | .245 ±.025 (6.22 ±0.64) | | | .165 (4.19) max. for capacitance values ≥ 0.82 MFd. | N/A | High Purity Silver Leads L _L = .500 (12.7) min. W _L = .240 ±.005 (6.10 ±.127) T _L = .004 ±.001 (.102 ±.025) Leads are Attached with High Temperature Solder. |
| 900C | AR | C Axial Ribbon | | | | | | | |
| 900C | AW | C Axial Wire | | .245 ±.025 (6.22 ±0.64) | | | .165 (4.19) max. for capacitance values ≥ 0.82 MFd. | | Silver-plated Copper Leads L _L = 1.0 (25.4) min. Dia. = .032 ±.002 (0.81 ±0.05) |
| 900C | VA | C Vertical Axial Ribbon | | | | | | | Silver Leads L _L = .500 (12.7) min. W _L = * See below T _L = .004 ±.001 (.102 ±.025) |
| 900C | RW | C Radial Wire | | | Silver-plated Copper Leads L _L = 1.0 (25.4) min. Dia. = .032 ±.002 (0.81 ±0.05) | | | | |

Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.

**W_L = .110 (2.79) for capacitance values < 0.82 MFd.; W_L = .130 (3.30) for capacitance values ≥ 0.82 MFd.

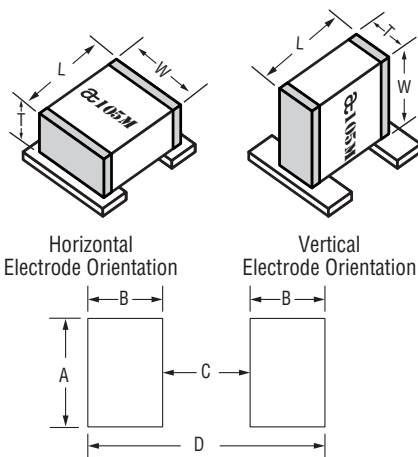
ATC 900 C Capacitors: Non-Magnetic Mechanical Configurations

| ATC SERIES & CASE SIZE | ATC TERM. CODE | CASE SIZE & TYPE | OUTLINES W/T IS A TERMINATION SURFACE | BODY DIMENSIONS INCHES (mm) | | | LEAD AND TERMINATION DIMENSIONS AND MATERIALS | |
|------------------------|----------------|------------------------------|---|---|--------------------------|-----------------------------------|---|---|
| | | | | LENGTH (L) | WIDTH (W) | THICKNESS (T) | OVERLAP (Y) | MATERIALS |
| 900C | WN | C Non-Mag Solder Plate |  | .230+.025 -.010 (5.84+0.64 -.25) | .250±.015 (6.35±0.38) | .145 (3.68) max. < 0.82 MFd | .040 (1.02) max. | Tin/Lead, Solder Plated over Non-Magnetic Barrier Termination |
| 900C | TN | C Non-Mag Solderable Barrier |  | .230+.025 -.010 (5.84+0.64 -.25) | | | | .165 (4.19) max. ≥ 0.82 MFd |

Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.

Suggested Mounting Pad Dimensions

Case C Vertical Mount



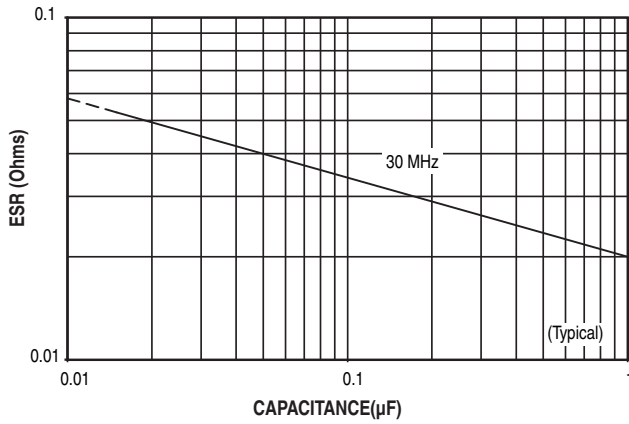
| Cap Value | Pad Size | A Min. | B Min. | C Min. | D Min. |
|---------------|--------------|--------|--------|--------|--------|
| < .82 μ F | Normal | .150 | .050 | .200 | .300 |
| | High Density | .130 | .030 | .200 | .260 |
| ≥ .82 μ F | Normal | .185 | .050 | .200 | .300 |
| | High Density | .165 | .030 | .200 | .260 |

Horizontal Mount

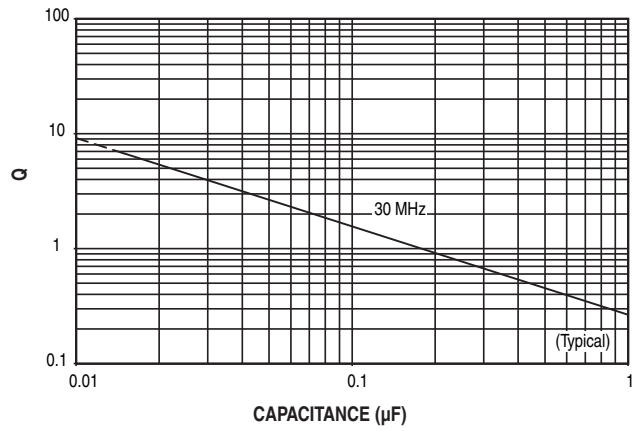
| All values | Pad Size | A Min. | B Min. | C Min. | D Min. |
|------------|--------------|--------|--------|--------|--------|
| All values | Normal | .280 | .050 | .200 | .300 |
| | High Density | .260 | .030 | .200 | .260 |

ATC 900 C Performance Data

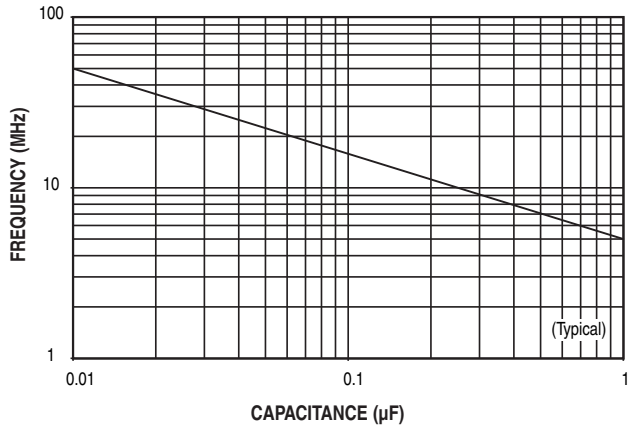
ESR VS. CAPACITANCE
ATC SERIES 900, CASE C



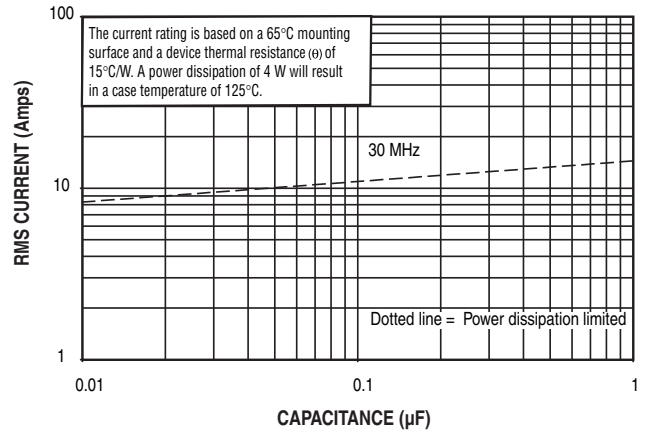
Q VS. CAPACITANCE
ATC SERIES 900, CASE C



SERIES RESONANCE VS. CAPACITANCE
ATC SERIES 900, CASE C



CURRENT RATING VS. CAPACITANCE
ATC SERIES 900, CASE C



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