

AMERICAN
TECHNICAL
CERAMICS

HP SERIES HIGH PERFORMANCE CAPACITORS



 THE
ENGINEERS'
CHOICE®

Low Cost HP Series High Performance
Multilayer Ceramic Capacitors

ISO 9001
REGISTERED
COMPANY



ATC 001-1103, Rev. A; 7/11

ATC HP 0402 Series High Performance NPO Ceramic MLCS

Electrical Characteristics:

Capacitance Range: 0.2 pF to 30 pF @ 1 MHz

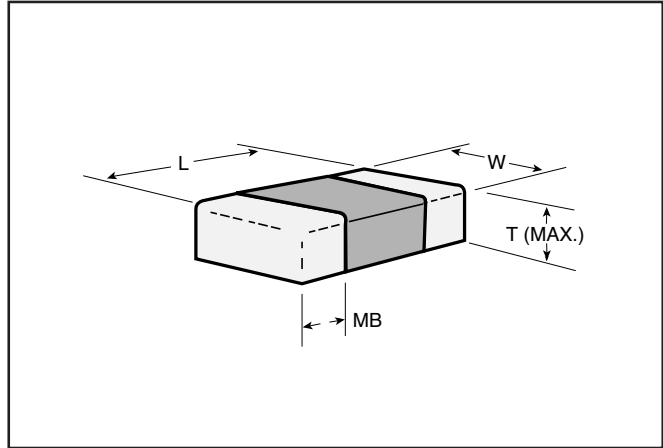
Temperature Coefficient of Capacitance: 0 ± 30 ppm/°C (-55° to +125°C)

Insulation Resistance (IR) $10^{12} \Omega$ min. @ 25°C and rated WVDC
 $10^{11} \Omega$ min. @ 125°C and rated WVDC

Dielectric Working Voltage (DWV): 250% of rated WVDC

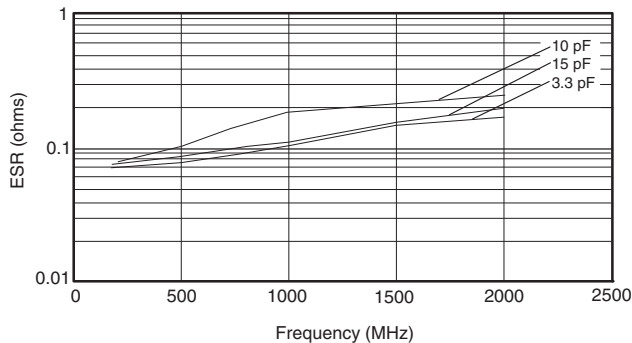
Working Voltage (WVDC) 50 WVDC

ATC offers the new HP Series high performance family of MLC 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.

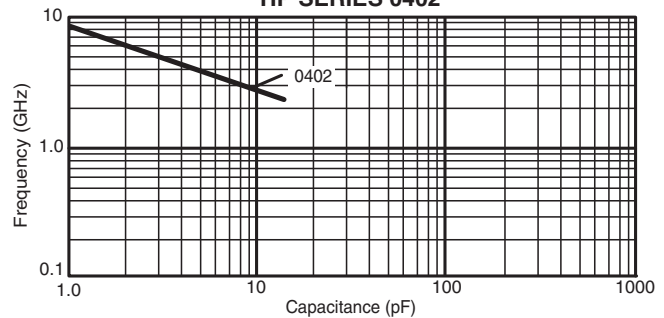


| Case Size | 0402 |
|-----------------|--------------------------|
| Length (L) | 0.039 ±0.004 (1.00 ±0.1) |
| Width (W) | 0.020 ±0.004 (0.50 ±0.1) |
| T Max. | 0.024 (0.6) |
| Term. (MB) Max. | N/A |

**TYPICAL ESR vs. FREQUENCY
HP SERIES 0402**



**TYPICAL SERIES RESONANT FREQUENCY
HP SERIES 0402**



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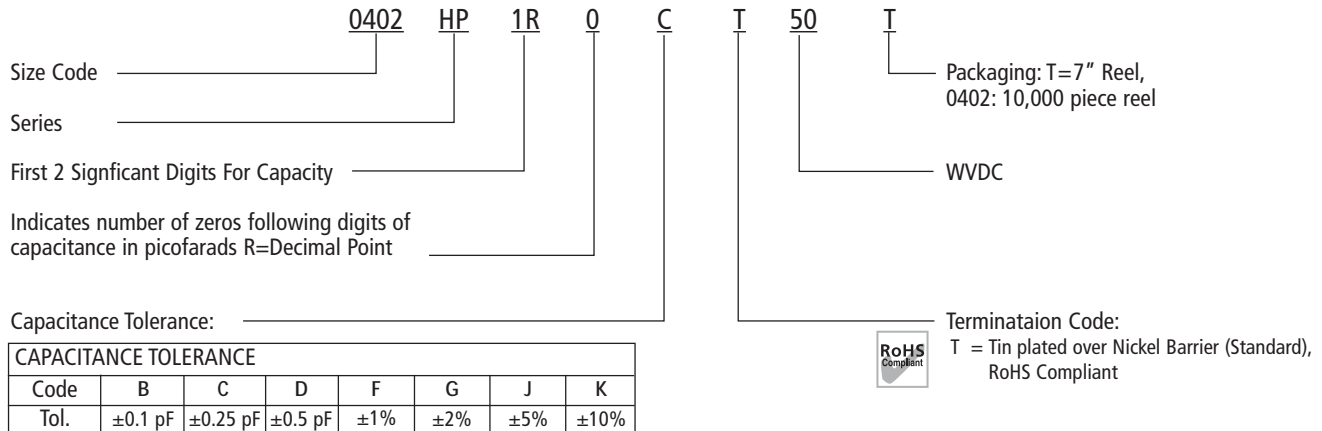
www.atceramics.com

ATC HP 0402 SERIES HIGH PERFORMANCE NPO CERAMIC MLCS

Capacitance Values:

| CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC |
|-----------|-----------|---------|------------|-----------|-----------|---------|------------|-----------|-----------|---------|------------|-----------|-----------|------------|------------|
| 0R2 | 0.2 | B, C | 50 | 1R4 | 1.4 | B, C, D | 50 | 3R3 | 3.3 | B, C, D | 50 | 100 | 10 | F, G, J, K | 50 |
| 0R3 | 0.3 | | | 1R5 | 1.5 | | | 3R6 | 3.6 | | | 110 | 11 | | |
| 0R4 | 0.4 | | | 1R6 | 1.6 | | | 3R9 | 3.9 | | | 120 | 12 | | |
| 0R5 | 0.5 | | | 1R7 | 1.7 | | | 4R3 | 4.3 | | | 130 | 13 | | |
| 0R6 | 0.6 | | | 1R8 | 1.8 | | | 4R7 | 4.7 | | | 150 | 15 | | |
| 0R7 | 0.7 | B, C, D | | 1R9 | 1.9 | | | 5R1 | 5.1 | | | 180 | 18 | | |
| 0R8 | 0.8 | | | 2R0 | 2.0 | | | 5R6 | 5.6 | | | 200 | 20 | | |
| 0R9 | 0.9 | | | 2R1 | 2.1 | | | 6R2 | 6.2 | | | 220 | 22 | | |
| 1R0 | 1.0 | | | 2R2 | 2.2 | | | 6R8 | 6.8 | | | 240 | 24 | | |
| 1R1 | 1.1 | | | 2R4 | 2.4 | | | 7R5 | 7.5 | | | 270 | 27 | | |
| 1R2 | 1.2 | | 2R7 | 2.7 | 8R2 | 8.2 | 300 | 30 | | | | | | | |
| 1R3 | 1.3 | | 3R0 | 3.0 | 9R1 | 9.1 | | | | | | | | | |

Part Number Code



The above part number refers to an ATC HP 0402 Series 1.0 pF capacitor, C tolerance (±0.25 pF), 50 WVDC, with T termination (Tin Plated over Nickel Barrier), on 7 inch reel.

For additional information and catalogs contact your ATC representative or call direct at (+1-631) 622-4700. Consult factory for additional performance data.

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ATC HP 0603 Series High Performance NPO Ceramic MLCS

Electrical Characteristics:

Capacitance Range: 1.0 pF to 120 pF @ 1 MHz

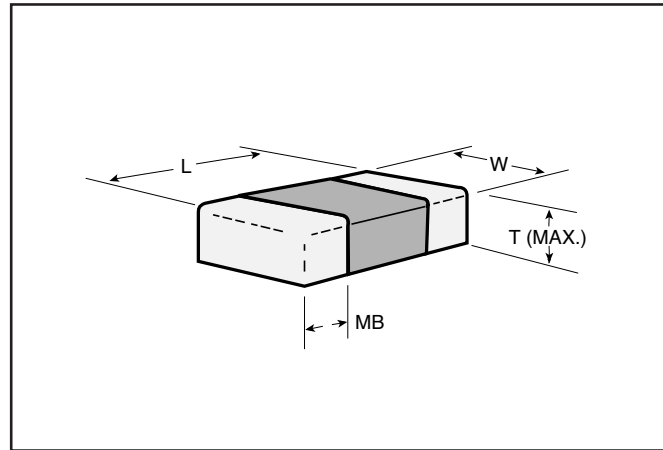
Temperature Coefficient of Capacitance: 0 ± 30 ppm/°C (-55° to +125°C)

Insulation Resistance (IR) $10^{12} \Omega$ min. @ 25°C and rated WVDC
 $10^{11} \Omega$ min. @ 125°C and rated WVDC

Dielectric Working Voltage (DWV): 250% of rated WVDC

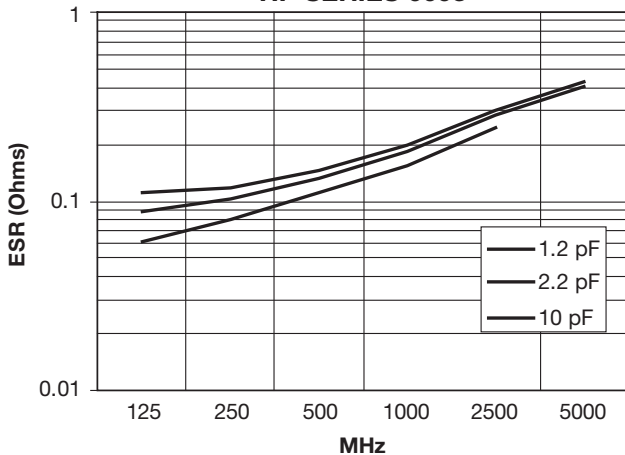
Working Voltage (WVDC) 200, 100, 50 WVDC

ATC offers the new HP Series high performance family of MLC 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.

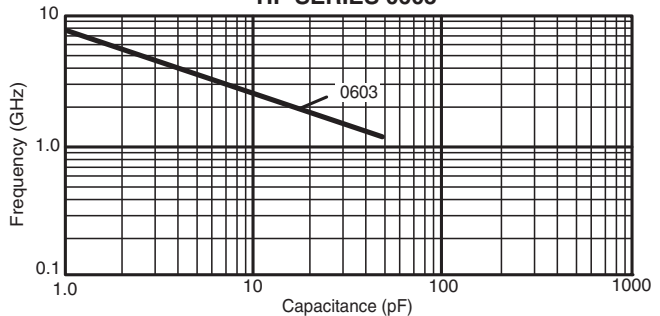


| Case Size | 0603 |
|-----------------|---------------------------|
| Length (L) | 0.060 ±0.010 (1.52 ±0.25) |
| Width (W) | 0.030 ±0.010 (0.76 ±0.25) |
| T Max. | 0.036 (0.91) |
| Term. (MB) Max. | 0.010 ±0.005 (0.25 ±0.13) |

**TYPICAL ESR vs. FREQUENCY
HP SERIES 0603**



**TYPICAL SERIES RESONANT FREQUENCY
HP SERIES 0603**



A M E R I C A N T E C H N I C A L C E R A M I C S

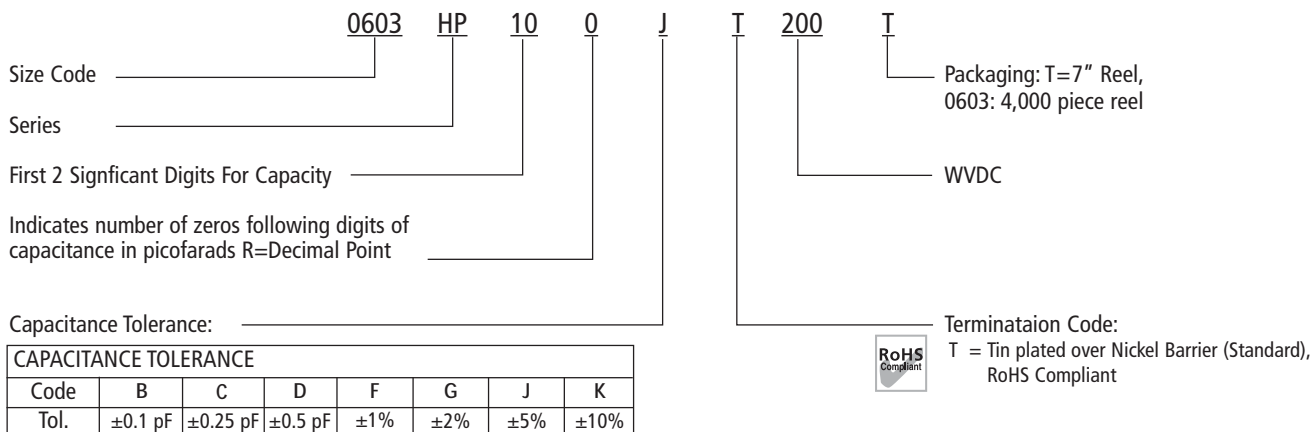
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ATC HP 0603 SERIES HIGH PERFORMANCE NPO CERAMIC MLCS

Capacitance Values:

| CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC |
|-----------|-----------|---------|------------|-----------|-----------|---------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|------------|
| 1R0 | 1.0 | B, C, D | 200 | 2R4 | 2.4 | B, C, D | 200 | 9R1 | 9.1 | B, C, J, K | 200 | 360 | 36 | F, G, J, K | 100 |
| 1R1 | 1.1 | | | 2R7 | 2.7 | | | 100 | 10 | 390 | | 39 | | | |
| 1R2 | 1.2 | | | 3R0 | 3.0 | | | 110 | 11 | 430 | | 43 | | | |
| 0R5 | 0.5 | | | 3R3 | 3.3 | | | 120 | 12 | 470 | | 47 | | | |
| 1R3 | 1.3 | | | 3R6 | 3.6 | | | 130 | 13 | 510 | | 51 | | | |
| 1R4 | 1.4 | | | 3R9 | 3.9 | | | 150 | 15 | 560 | | 56 | | | |
| 1R5 | 1.5 | | | 4R3 | 4.3 | | | 180 | 18 | 680 | | 68 | | | |
| 1R6 | 1.6 | | | 4R7 | 4.7 | | | 200 | 20 | 750 | | 75 | | | |
| 1R7 | 1.7 | | | 5R1 | 5.1 | | | 220 | 22 | 820 | | 82 | | | |
| 1R8 | 1.8 | | | 5R6 | 5.6 | | | 240 | 24 | 910 | | 91 | | | |
| 1R9 | 1.9 | | | 6R2 | 6.2 | | | 270 | 27 | 101 | | 100 | | | |
| 2R0 | 2.0 | | | 6R8 | 6.8 | | | 300 | 30 | 111 | | 110 | | | |
| 2R1 | 2.1 | | | 7R5 | 7.5 | | | 330 | 33 | 121 | | 120 | | | |
| 2R2 | 2.2 | | | 8R2 | 8.2 | | | | | | | | | | |

Part Number Code



The above part number refers to an ATC HP 0603 Series 10 pF capacitor, J tolerance (±5%), 200 WVDC, with T termination (Tin Plated over Nickel Barrier), on 7 inch reel.

For additional information and catalogs contact your ATC representative or call direct at (+1-631) 622-4700. Consult factory for additional performance data.

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ATC HP 0805 Series High Performance NPO Ceramic MLCs

Electrical Characteristics:

Capacitance Range: 1.0 pF to 160 pF @ 1 MHz

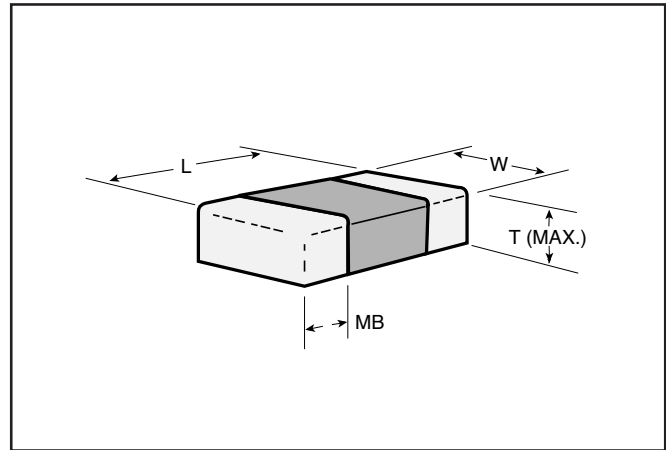
Temperature Coefficient of Capacitance: 0 ± 30 ppm/°C (-55° to +125°C)

Insulation Resistance (IR) $10^{12} \Omega$ min. @ 25°C and rated WVDC
 $10^{11} \Omega$ min. @ 125°C and rated WVDC

Dielectric Working Voltage (DWV): 250% of rated WVDC

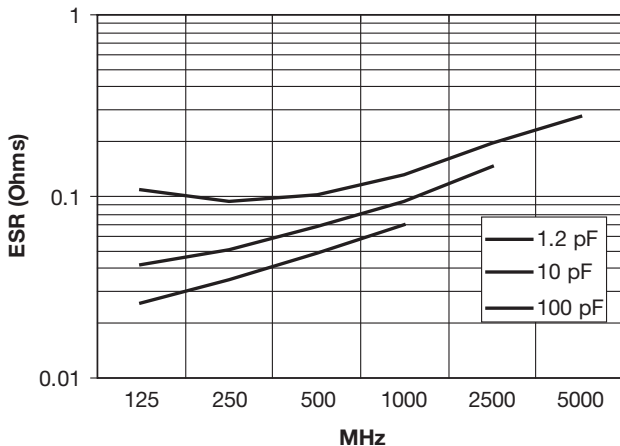
Working Voltage (WVDC) 200 WVDC

ATC offers the new HP Series high performance family of MLC 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.

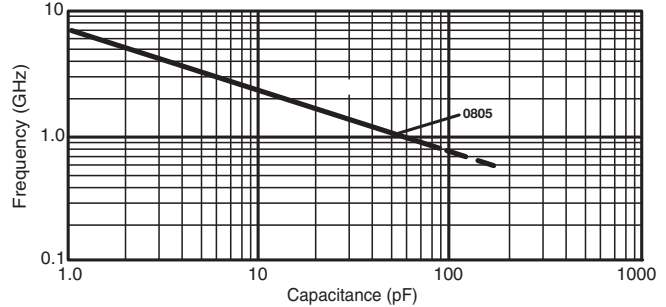


| Case Size | 0805 |
|-----------------|----------------------------|
| Length (L) | 0.079 ±0.008 (2.01 ±0.2) |
| Width (W) | 0.049 ±0.008 (1.25 ±0.2) |
| T Max. | 0.040 ±0.005 (1.02 ±0.127) |
| Term. (MB) Max. | 0.020 ±0.010 (0.51 ±0.254) |

**TYPICAL ESR vs. FREQUENCY
HP SERIES 0805**



**TYPICAL
SERIES RESONANT FREQUENCY
HP SERIES 0805**



A M E R I C A N T E C H N I C A L C E R A M I C S

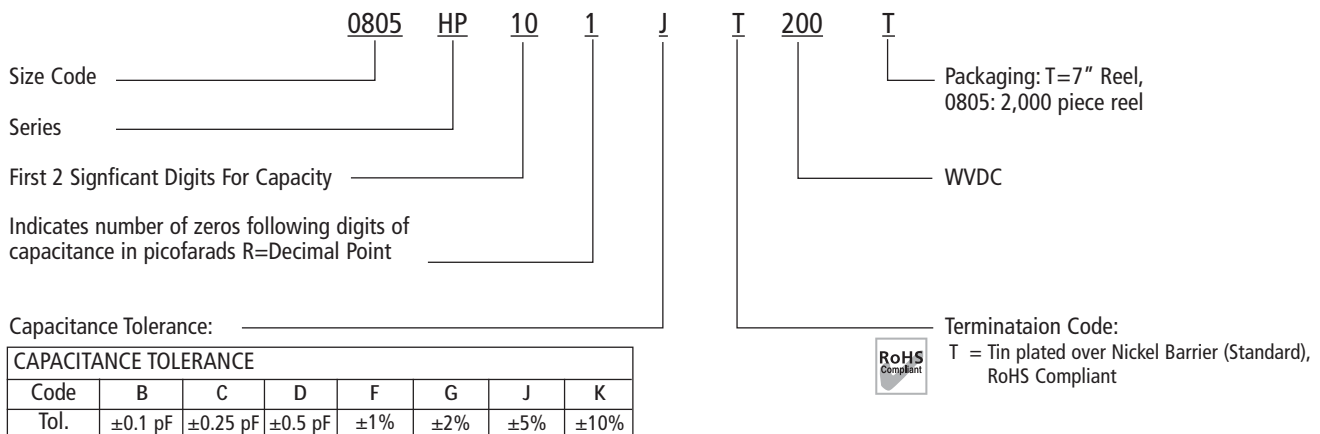
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ATC HP 0805 SERIES HIGH PERFORMANCE NPO CERAMIC MLCS

Capacitance Values:

| CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC |
|-----------|-----------|---------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|------------|
| 1R0 | 1.0 | | | 3R0 | 3.0 | | | 110 | 11 | | | 470 | 47 | | |
| 1R1 | 1.1 | | | 3R3 | 3.3 | | | 120 | 12 | | | 510 | 51 | | |
| 1R2 | 1.2 | | | 3R6 | 3.6 | | | 130 | 13 | | | 560 | 56 | | |
| 1R3 | 1.3 | | | 3R9 | 3.9 | | | 150 | 15 | | | 680 | 68 | | |
| 1R4 | 1.4 | | | 4R3 | 4.3 | B, C, D | | 180 | 18 | | | 750 | 75 | | |
| 1R5 | 1.5 | | | 4R7 | 4.7 | | | 200 | 20 | | | 820 | 82 | | |
| 1R6 | 1.6 | | | 5R1 | 5.1 | | | 220 | 22 | | | 910 | 91 | | |
| 1R7 | 1.7 | B, C, D | 200 | 5R6 | 5.6 | | 200 | 240 | 24 | F, G, J, K | 200 | 101 | 100 | F, G, J, K | 200 |
| 1R8 | 1.8 | | | 6R2 | 6.2 | | | 270 | 27 | | | 111 | 110 | | |
| 1R9 | 1.9 | | | 6R8 | 6.8 | | | 300 | 30 | | | 121 | 120 | | |
| 2R0 | 2.0 | | | 7R5 | 7.5 | | | 330 | 33 | | | 131 | 130 | | |
| 2R1 | 2.1 | | | 8R2 | 8.2 | B, C, J, K | | 360 | 36 | | | 141 | 140 | | |
| 2R2 | 2.2 | | | 9R1 | 9.1 | | | 390 | 39 | | | 151 | 150 | | 100 |
| 2R4 | 2.4 | | | 100 | 10 | F, G, J, K | | 430 | 43 | | | 161 | 160 | | |
| 2R7 | 2.7 | | | | | | | | | | | | | | |

Part Number Code



The above part number refers to an ATC HP 0805 Series 100 pF capacitor, F tolerance (±1%), 200 WVDC, with T termination (Tin Plated over Nickel Barrier), on 7 inch reel.

For additional information and catalogs contact your ATC representative or call direct at (+1-631) 622-4700. Consult factory for additional performance data.

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ATC HP 1210 Series High Performance NPO Ceramic MLCs

Electrical Characteristics:

Capacitance Range: 1.0 pF to 1000 pF @ 1 MHz

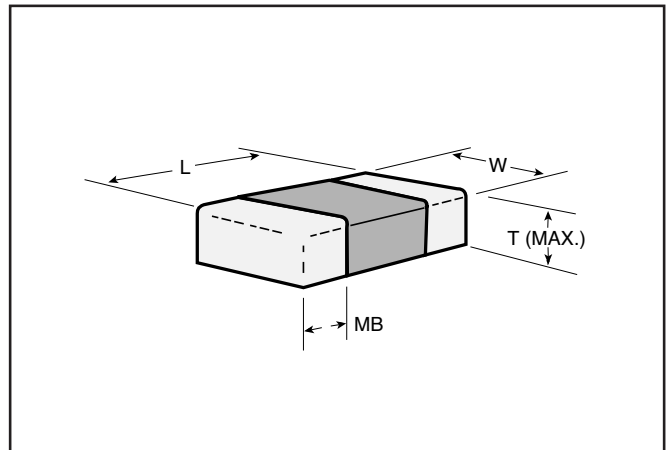
Temperature Coefficient of Capacitance: 0 ± 30 ppm/°C (-55° to +125°C)

Insulation Resistance (IR) $10^{12} \Omega$ min. @ 25°C and rated WVDC
 $10^{11} \Omega$ min. @ 125°C and rated WVDC

Dielectric Working Voltage (DWV): 250% of rated WVDC

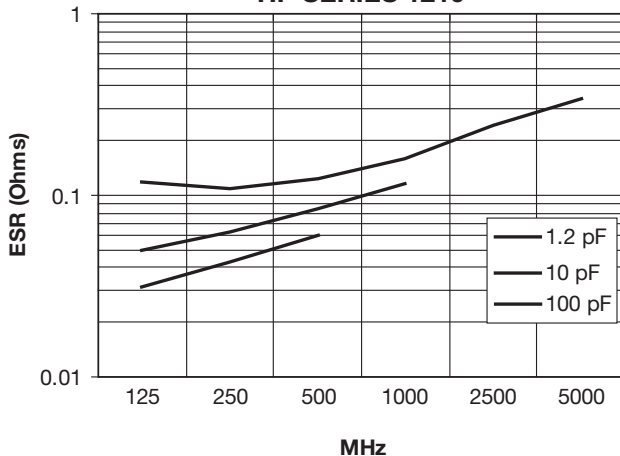
Working Voltage (WVDC) 200, 100 WVDC

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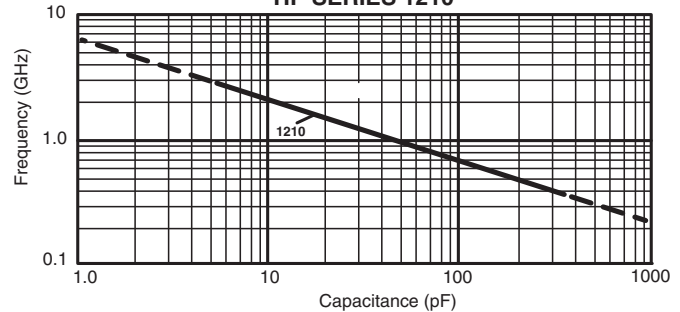


| Case Size | 1210 |
|-----------------|-----------------------------|
| Length (L) | 0.126 ±0.008 (3.2 ±0.2) |
| Width (W) | 0.098 ±0.008 (2.49 ±0.2) |
| T Max. | 0.050 ±0.005 (1.27 ±0.127) |
| Term. (MB) Max. | 0.025 ±0.015 (0.635 ±0.381) |

**TYPICAL ESR vs. FREQUENCY
HP SERIES 1210**



**TYPICAL
SERIES RESONANT FREQUENCY
HP SERIES 1210**



A M E R I C A N T E C H N I C A L C E R A M I C S

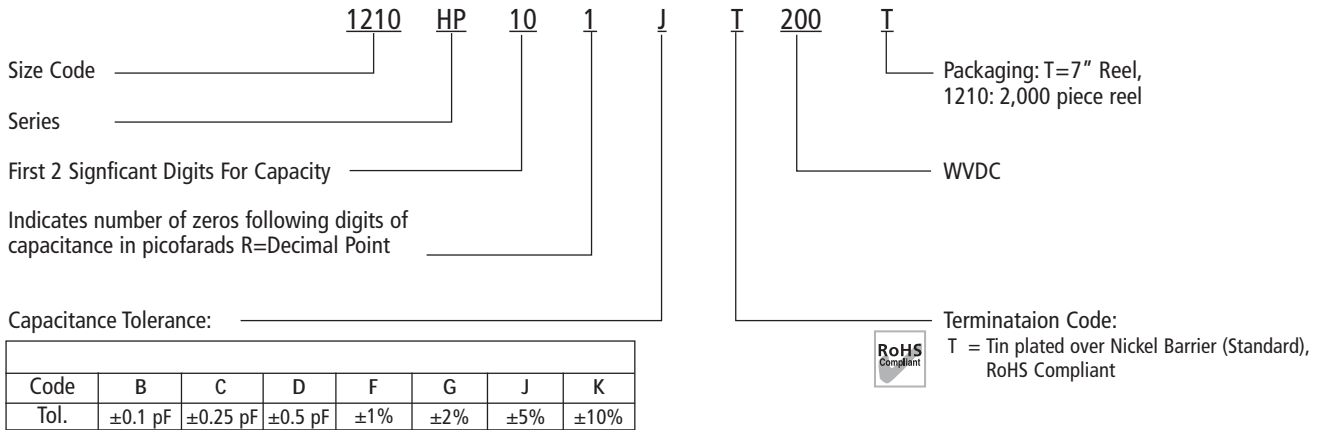
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ATC HP 1210 SERIES HIGH PERFORMANCE NPO CERAMIC MLCS

Capacitance Values:

| CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC | CAP. CODE | CAP. (pF) | TOL. | RATED WVDC |
|-----------|-----------|---------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|------------|-----------|-----------|------------|------------|
| 1R0 | 1.0 | | | 4R3 | 4.3 | | | 300 | 30 | | | 181 | 180 | | |
| 1R1 | 1.1 | | | 4R7 | 4.7 | | | 330 | 33 | | | 201 | 200 | | |
| 1R2 | 1.2 | | | 5R1 | 5.1 | B, C, D | | 360 | 36 | | | 221 | 220 | | |
| 1R3 | 1.3 | | | 5R6 | 5.6 | | | 390 | 39 | | | 271 | 270 | | |
| 1R4 | 1.4 | | | 6R2 | 6.2 | | | 430 | 43 | | | 301 | 300 | | 200 |
| 1R5 | 1.5 | | | 6R8 | 6.8 | | | 470 | 47 | | | 331 | 330 | | |
| 1R6 | 1.6 | | | 7R5 | 7.5 | B, C, J, K | | 510 | 51 | | | 361 | 360 | | |
| 1R7 | 1.7 | | | 8R2 | 8.2 | | | 560 | 56 | | | 391 | 390 | | |
| 1R8 | 1.8 | | | 9R1 | 9.1 | | | 680 | 68 | | | 431 | 430 | | |
| 1R9 | 1.9 | B, C, D | 200 | 100 | 10 | | 200 | 750 | 75 | F, G, J, K | 200 | 471 | 470 | F, G, J, K | |
| 2R0 | 2.0 | | | 110 | 11 | | | 820 | 82 | | | 511 | 510 | | |
| 2R1 | 2.1 | | | 120 | 12 | | | 910 | 91 | | | 561 | 560 | | |
| 2R2 | 2.2 | | | 130 | 13 | | | 101 | 100 | | | 621 | 620 | | |
| 2R4 | 2.4 | | | 150 | 15 | F, G, J, K | | 111 | 110 | | | 681 | 680 | | 100 |
| 2R7 | 2.7 | | | 180 | 18 | | | 121 | 120 | | | 751 | 750 | | |
| 3R0 | 3.0 | | | 200 | 20 | | | 131 | 130 | | | 821 | 820 | | |
| 3R3 | 3.3 | | | 220 | 22 | | | 141 | 140 | | | 911 | 910 | | |
| 3R6 | 3.6 | | | 240 | 24 | | | 151 | 150 | | | 102 | 1000 | | |
| 3R9 | 3.9 | | | 270 | 27 | | | 161 | 160 | | | | | | |

Part Number Code



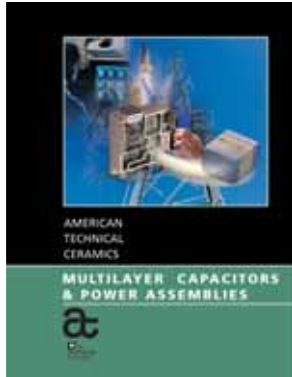
The above part number refers to an ATC HP 1210 Series 100 pF capacitor, F tolerance (±1%), 200 WVDC, with T termination (Tin Plated over Nickel Barrier), on 7 inch reel.

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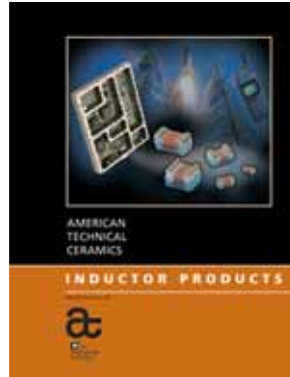
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Products



Single Layer
Capacitors

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