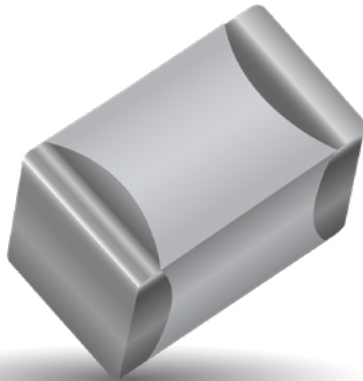


# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### 600L Ultra-Low ESR NPO Capacitors



## FEATURES

- Lowest ESR in Class
- Highest Working Voltage in Class - 200 V
- Capacitance Range 0.1 pF to 27 pF
- High Q
- High Self-Resonance

## 600 SERIES OVERVIEW

Series	Case Size	EIA Case Size
600	L	0402
600	S	0603
600	F	0805

## APPLICATIONS

- Cellular Base Stations
- Broadband Wireless Services
- Satellite Communications
- Subscriber-based Wireless Devices
- WiFi (802.11)
- Public Safety Radio

## CIRCUIT APPLICATIONS

- Filter Networks
- High Q Frequency Sources
- Matching Networks
- Tuning, Coupling, Bypass and DC Blocking

## ELECTRICAL SPECIFICATIONS

<b>Temperature Coefficient (TCC)</b>	0 ± 30 PPM/°C
<b>Capacitance Range</b>	0.1 pF to 27 pF
<b>Operating Temperature</b>	-55°C to +125°C*
<b>Quality Factor</b>	Greater than 2,000 at 1 MHz
<b>Insulation Resistance (IR)</b>	10 <sup>5</sup> Megohms min. @ 25°C at rated WVDC 10 <sup>4</sup> Megohms min. @ 125°C at rated WVDC
<b>Working Voltage (WVDC)</b>	200 V
<b>Dielectric Withstanding Voltage (DWV)</b>	250% of rated WVDC for 5 seconds
<b>Aging Effects</b>	None
<b>Piezoelectric Effects</b>	None

## PACKAGING OPTIONS



Tape & Reel



## ENVIRONMENTAL CHARACTERISTICS

<b>Thermal Shock</b>	5 Cycles, -55°C to 125°C
<b>Moisture Resistance</b>	Mil-STD-202, Method 106
<b>Life Test</b>	2000 hours at 125°C at 2X
<b>Solderability</b>	Solder Coverage > 90% of end termination
<b>Terminal Strength</b>	2 lbs. typ., 1 lb. min.
<b>Military Approval</b>	DSCC Drawing Number 05003

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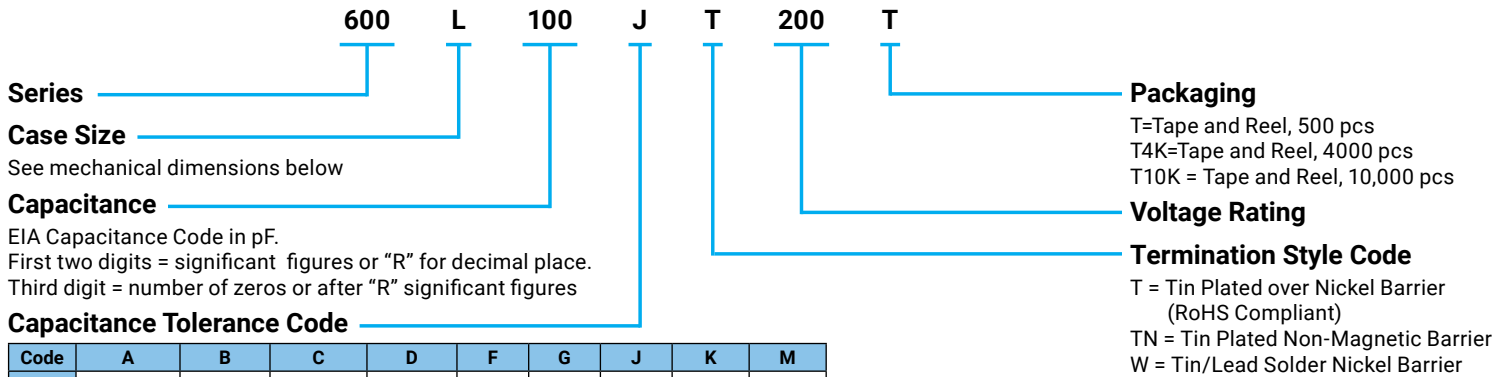
### 600L Ultra-Low ESR NPO Capacitors



## CAPACITANCE VALUES

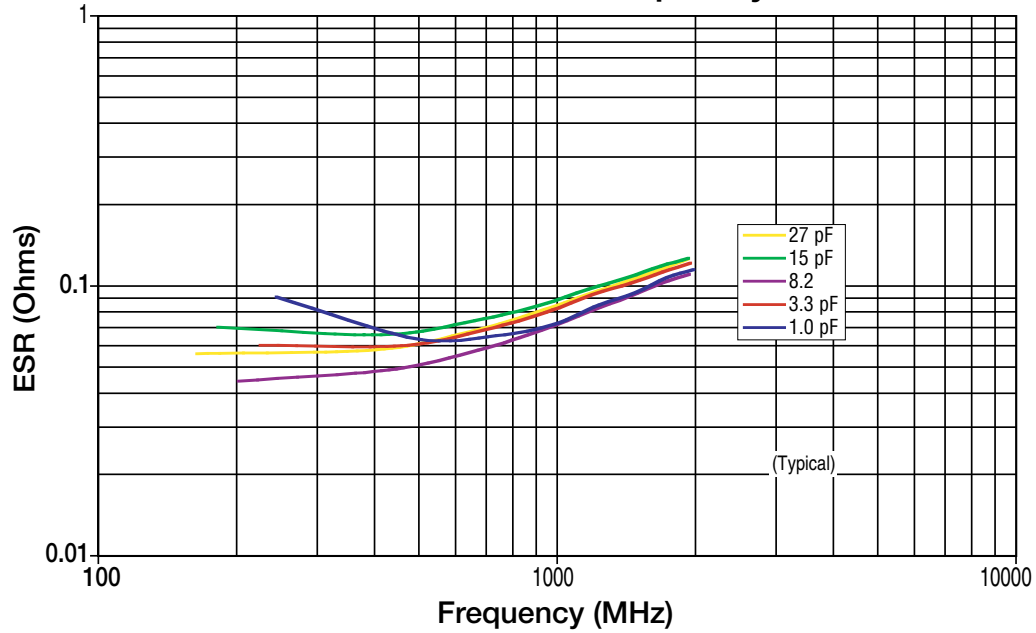
Value (pF)	Cap Code	Tolerances	Value (pF)	Cap Code	Tolerances	Value (pF)	Cap Code	Tolerances
0.1	0R1	A, B	1.6	1R6	A, B, C, D	6.2	6R2	A, B, C, D
0.2	0R2	A, B	1.8	1R8	A, B, C, D	6.8	6R8	B, C, J, K
0.3	0R3	A, B, C	2.0	2R0	A, B, C, D	7.5	7R5	B, C, J, K
0.4	0R4	A, B, C	2.2	2R2	A, B, C, D	8.2	8R2	B, C, J, K
0.5	0R5	A, B, C	2.4	2R4	A, B, C, D	9.1	9R1	B, C, J, K
0.6	0R6	A, B, C	2.7	2R7	A, B, C, D	10	100	F, G, J, K, M
0.7	0R7	A, B, C	3.0	3R0	A, B, C, D	11	110	F, G, J, K, M
0.8	0R8	A, B, C	3.3	3R3	A, B, C, D	12	120	F, G, J, K, M
0.9	0R9	A, B, C	3.6	3R6	A, B, C, D	15	150	F, G, J, K, M
1.0	1R0	A, B, C, D	3.9	3R9	A, B, C, D	18	180	F, G, J, K, M
1.1	1R1	A, B, C, D	4.3	4R3	A, B, C, D	20	200	F, G, J, K, M
1.2	1R2	A, B, C, D	4.7	4R7	A, B, C, D	22	220	F, G, J, K, M
1.3	1R3	A, B, C, D	5.1	5R1	A, B, C, D	24	240	F, G, J, K, M
1.5	1R5	A, B, C, D	5.6	5R6	A, B, C, D	27	270	F, G, J, K, M

## HOW TO ORDER

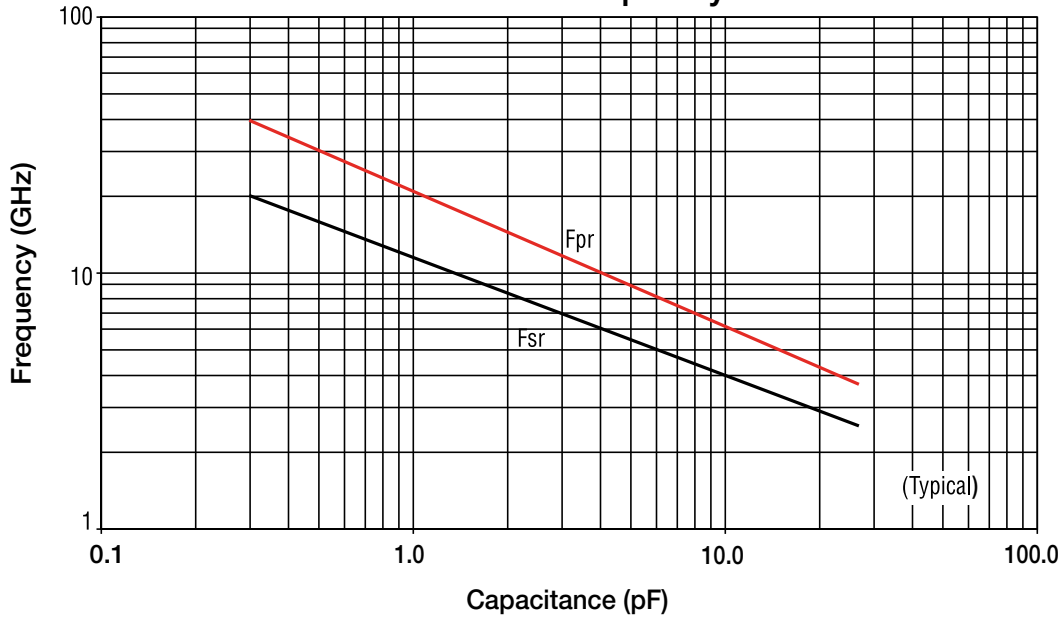


\*All Tape and Reel Packaging comes on 7" reels. The above part number refers to a 600L Series (case size L) 11 pF capacitor, J tolerance (±5%), 200 WVDC, with T termination (Tin Plated over Nickel Barrier, RoHS Compliant), Tape and Reel packaging.

600L ESR vs. Frequency



600L Resonant Frequency Data



ATC 600L Series Data Sheet Test Condition Description

Capacitors mounted in series microstrip configuration on 10-mil thick Rogers R04350® softboard, 22-mils wide 1/2 oz. Cu traces.

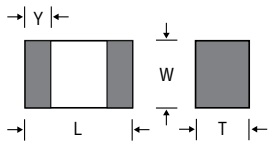
**FSR** = lowest frequency at which S11 response, referenced at capacitor edge, crosses real axis on Smith Chart.

**FPR** = lowest frequency at which there is a notch in S21 magnitude response.

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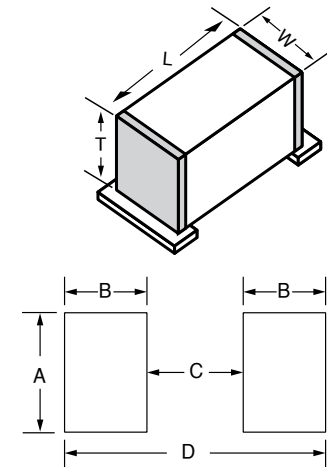
**OUTLINE DIMENSIONS**



<b>L (0402)</b>	L: $.040 \pm .004$ (1.02 $\pm$ 0.1)	T: $.024$ max (0.60 max)
	W: $.020 \pm .004$ (.51 $\pm$ 0.1)	Y: $.010 \pm .006$ (0.25 $\pm$ 0.15)

inches (mm)

**SUGGESTED MOUNTING PAD DIMENSIONS**



**Case Size L, S, and F**

Case Size	A Min.	B Min.	C Min.	D Min.
<b>0402 (1005)</b>	.0275 (0.70)	.0354 (0.90)	.0157 (0.40)	.0866 (2.20)
<b>0603 (1608)</b>	.0393 (1.00)	.0433 (1.10)	.0236 (0.60)	.110 (2.80)
<b>0805 (2012)</b>	.0590 (1.50)	.0512 (1.30)	.0236 (0.60)	.1259 (3.20)

inches (mm)

**DESIGN KITS**

Kit #	RoHS Compliant	Item #	Description	Cap. Value Range (pF)	Cap. Value (pF)	Tol. (pF)	Price
<b>Kit 36T</b>		DK0036T	600L Series Ultra-low ESR, High Q Microwave Capacitors 16 different values, 15 pcs. min. per value	0.1 to 2.0	0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2, 1.5.....	$\pm 0.1$	\$100.00
					1.6, 1.8, 2.0 .....		
<b>Kit 37T</b>		DK0037T	600L Series Ultra-low ESR, High Q Microwave Capacitors 16 different values, 15 pcs. min. per value	0.1 to 10	1.0, 1.2, 1.5, 1.8, 2.0, 2.2, 2.4, 2.7, 3.0, 3.3 .....	$\pm 0.1$	\$100.00
					3.9, 4.7, 5.6, 6.8, 8.2 .....		
					10 .....	$\pm 5\%$	
<b>Kit 38T</b>		DK0038T	600L Series Ultra-low ESR, High Q Microwave Capacitors 8 different values, 15 pcs. min. per value	10 to 27	10, 12, 15, 18, 20, 22, 24, 27 .....	$\pm 5\%$	\$100.00

For Online Kit Orders, Catalog & Application Notes, Visit: [www.avx.com](http://www.avx.com)