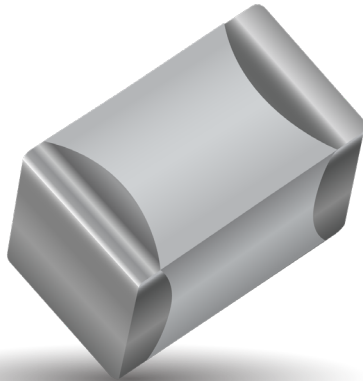


# RF/Microwave Capacitors

## 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 (Cap Values ≤10pf .0010 Max. @ 1MHz Cap Values >10pf .0005 Max. @ 1MHz)
<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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## RF/Microwave Multilayer Capacitors (MLC)

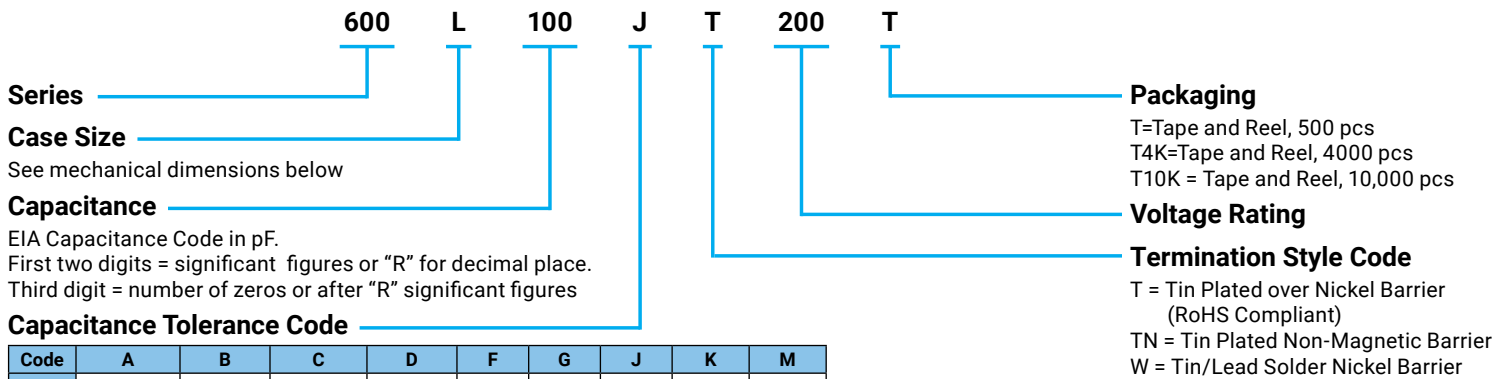
### 600L Ultra-Low ESR NPO Capacitors



## CAPACITANCE VALUES

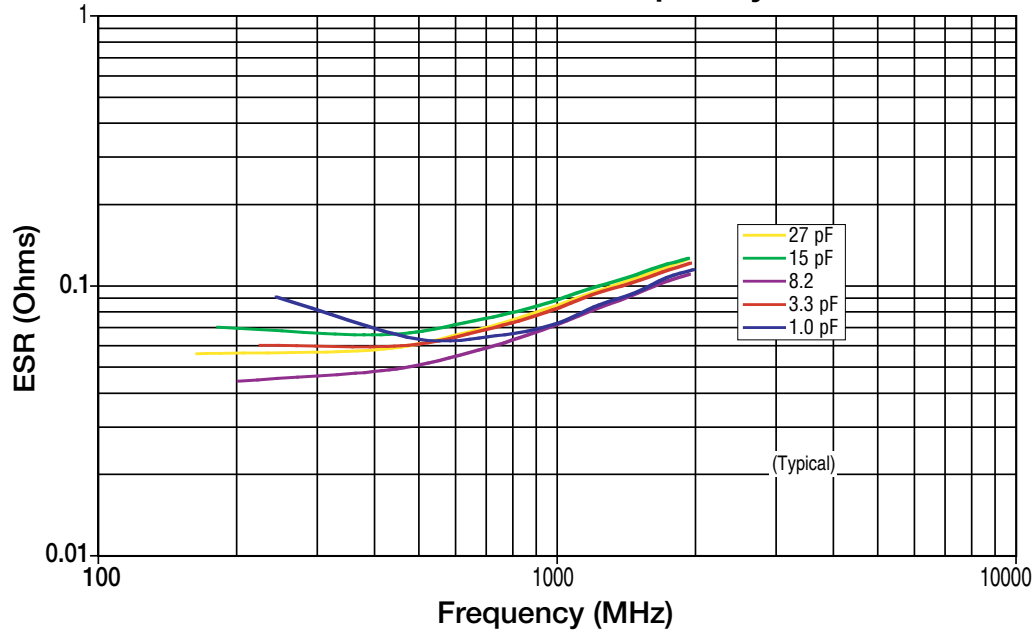
Value (pF)	Cap Code	Tolerances	Value (pF)	Cap Code	Tolerances	Value (pF)	Cap Code	Tolerances
0.1	0R1	A, B	1.6	1R6	A, B, C, D	6.2	6R2	A, B, C, D
0.2	0R2	A, B	1.8	1R8	A, B, C, D	6.8	6R8	B, C, J, K
0.3	0R3	A, B, C	2.0	2R0	A, B, C, D	7.5	7R5	B, C, J, K
0.4	0R4	A, B, C	2.2	2R2	A, B, C, D	8.2	8R2	B, C, J, 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

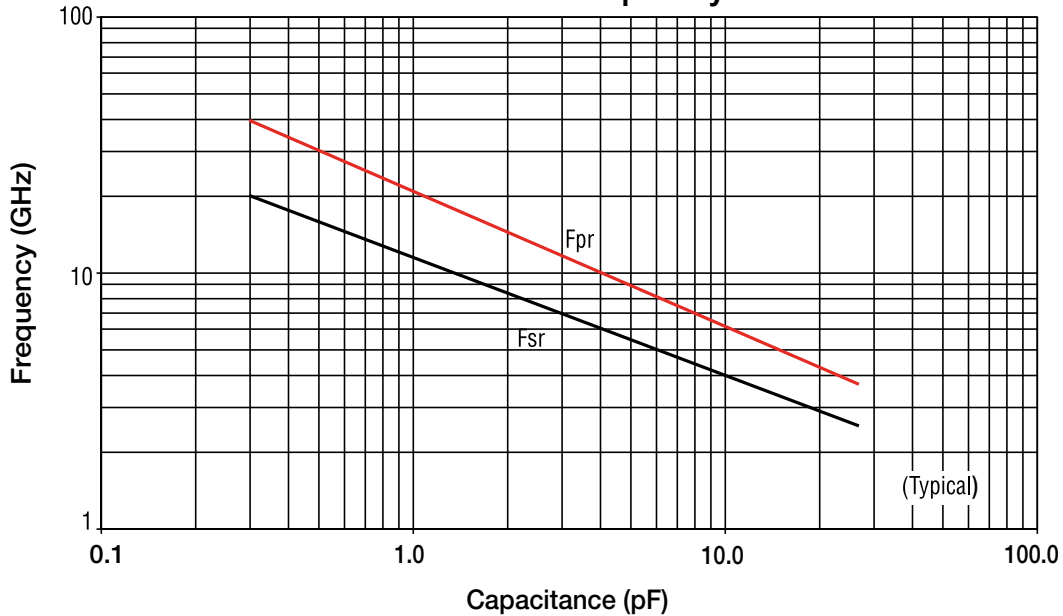


\*All Tape and Reel Packaging comes on 7" reels. The above part number refers to a 600L Series (case size L) 11 pF capacitor, J tolerance (±5%), 200 WVDC, with T termination (Tin Plated over Nickel Barrier, RoHS Compliant), Tape and Reel packaging.

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.

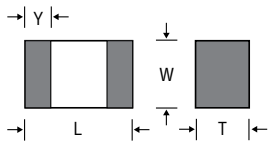
**FSR** = lowest frequency at which S11 response, referenced at capacitor edge, crosses real axis on Smith Chart.

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

**RF/Microwave Capacitors**  
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**600L Ultra-Low ESR NPO Capacitors**



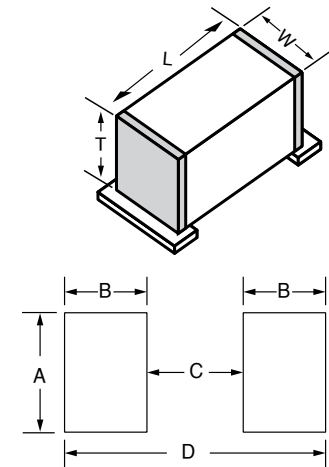
**OUTLINE DIMENSIONS**



<b>L (0402)</b>	L: .040 ± .004 (1.02 ± 0.1)	T: .024 max (0.60 max)
	W: .020 ± .004 (.51 ± 0.1)	Y: .010 ± .006 (0.25 ± 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.....	±0.1	\$100.00
					1.6, 1.8, 2.0 .....	±0.25	
<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 .....	±0.1	\$100.00
					3.9, 4.7, 5.6, 6.8, 8.2 .....	±0.25	
					10 .....	±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 .....	±5%	\$100.00

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

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[600L4R3BT200T](#) [600L8R2BT200T](#) [600L3R9CT200T](#) [600L270FW200T](#) [600L2R2CT200T](#) [600L3R3BT200T](#)  
[600L1R3AW200T](#) [600L0R3BT200T](#) [600L0R6AT200T](#) [600L150FW200T](#) [600L9R1BT200T](#) [600L2R7BT200T](#)  
[600L4R7BT200T](#) [600L2R4BT200T](#) [600L100FW200T](#) [600L3R6AT200T](#) [600L1R5AW200T](#) [600L0R1AT200T](#)  
[600L2R0AT200T](#) [600L3R6BT200T](#) [600L0R2AT200T](#) [600L6R2AW200T](#) [600L0R5AT200T](#) [600L0R9BT200T](#)  
[600L2R0AW200T](#) [600L1R3BT200T](#) [600L220FW200T](#) [600L5R6CT200T](#) [600L5R1BT200T](#) [600L200FT200T](#)  
[600L2R7AT200T](#) [600L4R7CT200T](#) [600L0R2BT200T](#) [600L240FT200T](#) [600L1R0AW200T](#) [600L1R5BT200T](#)  
[600L1R1AW200T](#) [600L180FW200T](#) [600L220GT200T](#) [600L100GT200T](#) [600L1R6BT200T](#) [600L2R2AT200T](#)  
[600L2R7BW200T](#) [600L3R9AT200T](#) [600L100JT200T](#) [600L6R8BT200T](#) [600L0R5BT200T](#) [600L3R9AW200T](#)  
[600L3R6AW200T](#) [600L1R6AT200T](#) [600L2R2AW200T](#) [600L150JT200T](#) [600L1R1BT200T](#) [600L100FT200T](#)  
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