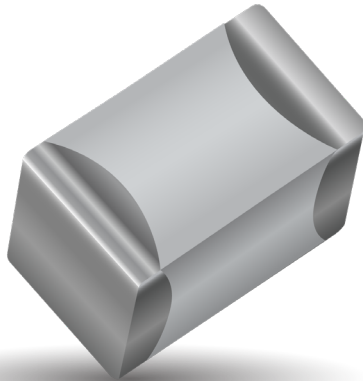


# RF/Microwave Capacitors

## 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

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

#### PACKAGING OPTIONS



Tape & Reel



#### ENVIRONMENTAL CHARACTERISTICS

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

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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

**Series** 600

**Case Size** L  
See mechanical dimensions below

**Capacitance** 100  
EIA Capacitance Code in pF.  
First two digits = significant figures or "R" for decimal place.  
Third digit = number of zeros or after "R" significant figures

**Capacitance Tolerance Code** J

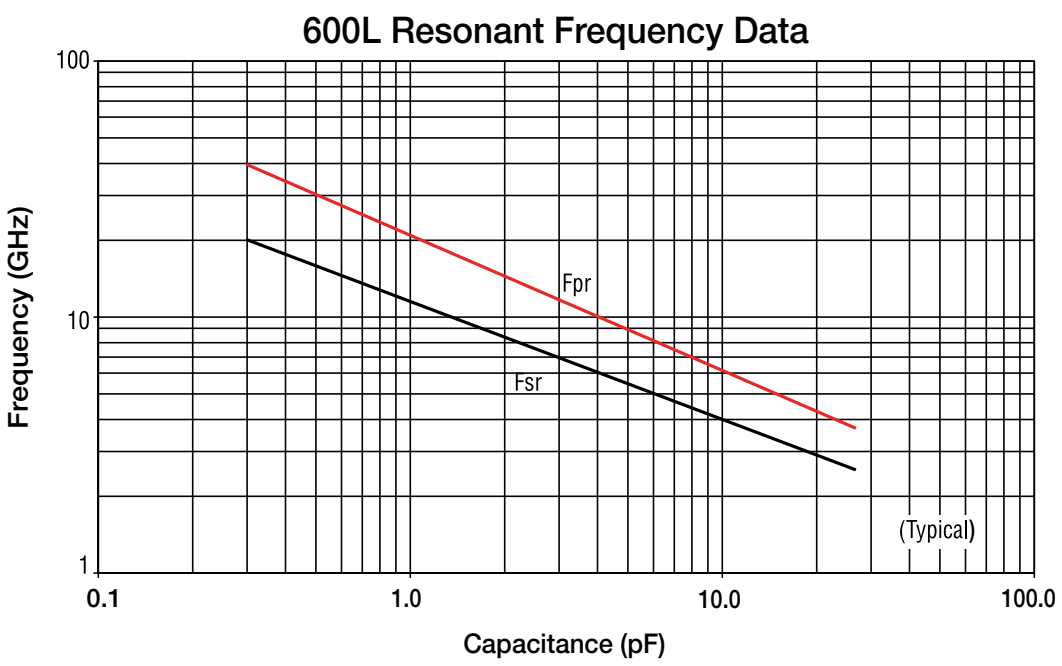
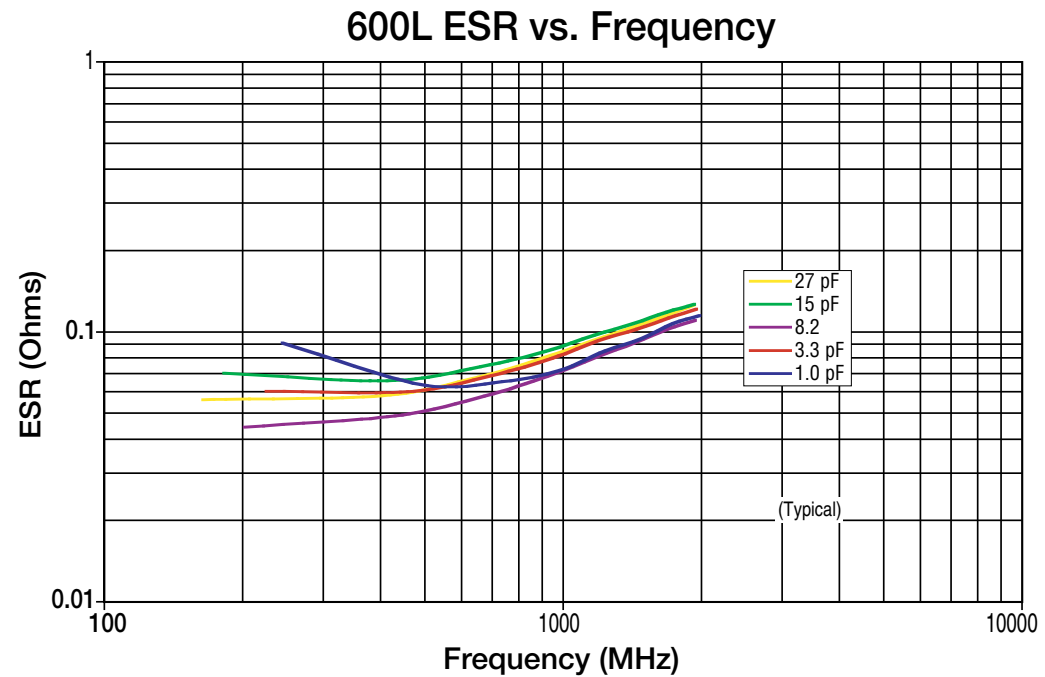
**Voltage Rating** 200

**Termination Style Code** T

**Packaging** T  
T=Tape and Reel, 500 pcs  
T4K=Tape and Reel, 4000 pcs  
T10K = Tape and Reel, 10,000 pcs

Code	A	B	C	D	F	G	J	K	M
Tol.	±0.05 pF	±0.1 pF	±0.25 pF	±0.5 pF	±1%	±2%	±5%	±10%	±20%

\*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.



**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.

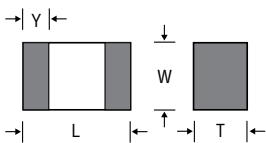
**FSR** = lowest frequency at which S11 response, referenced at capacitor edge, crosses real axis on Smith Chart.

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

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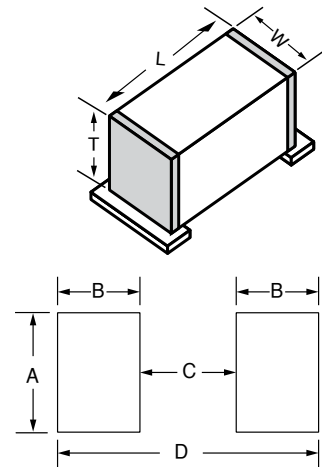
OUTLINE DIMENSIONS



L (0402)	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.
0402 (1005)	.0275 (0.70)	.0354 (0.90)	.0157 (0.40)	.0866 (2.20)
0603 (1608)	.0393 (1.00)	.0433 (1.10)	.0236 (0.60)	.110 (2.80)
0805 (2012)	.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
Kit 36T		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	
Kit 37T		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%	
Kit 38T		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)