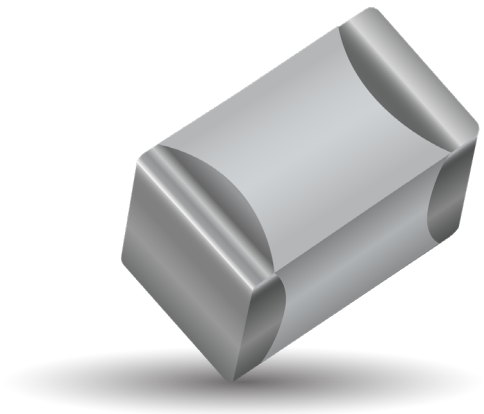
RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

600S Ultra-Low ESR, High Q, NPO Capacitors



FEATURES

- Lowest ESR in Class
- Highest Working Voltage in Class - 250 V
- Standard EIA Size: 0603
- Laser Marking (Optional)
- High Self-Resonance Frequencies

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

PACKAGING OPTIONS

Tape & Reel

Vertical Orientation Tape & Reel

RoHS COMPLIANT

CIRCUIT APPLICATIONS

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

ENVIRONMENTAL CHARACTERISTICS

Themal Shock	5 Cycles, -55°C to 125°C
Moisture Resistance	Mil-STD-202, Method 106
Life Test	2000 hours at 125°C at 2X WVDC
Solderability	Solder Coverage > 90% of end termination
Terminal Strength	4 lbs. typ., 2 lb. min.
Military Approval	DSCC Drawing Number 05002

ELECTRICAL SPECIFICATIONS

Capacitance	0.1 to 100 pF
Tolerances	See Cap Value Chart
Working Voltage (WVDC)	250 V
Quality Factor	Greater than 2,000 at 1 MHz (Cap Values <=10pf .0010 Max. @ 1MHz Cap Values >10pf .0005 Max. @ 1MHz)
Operating Temperature Range	-55°C to +125°C (no derating of working voltage)
Temperature Coefficient of Capacitance (TCC)	0 ± 30 ppm/°C, -55°C to +125°C 10^5 MΩ min. at +25°C at rated WVDC 10^4 MΩ min. at +125°C at rated WVDC
Dielectric Withstanding Voltage (DWV)	2.5 x WVDC for 5 seconds
Aging	None
Piezo Effects	None

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CAPACITANCE VALUES

Value (pF)	Cap Code	Marking	Tolerances	Value (pF)	Cap Code	Marking	Tolerances	Value (pF)	Cap Code	Marking	Tolerances
0.1	0R1	A9	A, B	2.7	2R7	L0	A, B, C, D	22	220	J1	F, G, J, K, M
0.2	0R2	H9	A, B	3.0	3R0	M0	A, B, C, D	24	240	K1	F, G, J, K, M
0.3	0R3	M9	A, B, C	3.3	3R3	N0	A, B, C, D	27	270	L1	F, G, J, K, M
0.4	0R4	d9	A, B, C	3.6	3R6	P0	A, B, C, D	30	300	M1	F, G, J, K, M
0.5	0R5	f9	A, B, C	3.9	3R9	Q0	A, B, C, D	33	330	N1	F, G, J, K, M
0.6	0R6	m9	A, B, C	4.3	4R3	R0	A, B, C, D	36	360	P1	F, G, J, K, M
0.7	0R7	n9	A, B, C	4.7	4R7	S0	A, B, C, D	39	390	Q1	F, G, J, K, M
0.8	0R8	t9	A, B, C	5.1	5R1	T0	A, B, C, D	43	430	R1	F, G, J, K, M
0.9	0R9	y9	A, B, C	5.6	5R6	U0	A, B, C, D	47	470	S1	F, G, J, K, M
1.0	1R0	A0	A, B, C, D	6.2	6R2	V0	A, B, C, D	51	510	T1	F, G, J, K, M
1.1	1R1	B0	A, B, C, D	6.8	6R8	W0	B, C, J, K	56	560	U1	F, G, J, K, M
1.2	1R2	C0	A, B, C, D	7.5	7R5	X0	B, C, J, K	62	620	V1	F, G, J, K, M
1.3	1R3	D0	A, B, C, D	8.2	8R2	Y0	B, C, J, K	68	680	W1	F, G, J, K, M
1.4	1R4	N/A	A, B, C, D	9.1	9R1	Z0	B, C, J, K	75	750	X1	F, G, J, K, M
1.5	1R5	E0	A, B, C, D	10	100	A1	F, G, J, K, M	82	820	Y1	F, G, J, K, M
1.6	1R6	F0	A, B, C, D	11	110	B1	F, G, J, K, M	91	910	Z1	F, G, J, K, M
1.8	1R8	G0	A, B, C, D	12	120	C1	F, G, J, K, M	100	101	A2	F, G, J, K, M
2.0	2R0	H0	A, B, C, D	15	150	E1	F, G, J, K, M				
2.2	2R2	J0	A, B, C, D	18	180	G1	F, G, J, K, M				
2.4	2R4	K0	A, B, C, D	20	200	H1	F, G, J, K, M				

HOW TO ORDER

600 S 0R2 B T 250 X** T

Series

Case Size
See mechanical dimensions below

Capacitance Code
EIA Capacitance Code in pF.
Third digit = number of zeros or after "R" significant figures

Capacitance Tolerance Code

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%

Termination Style Code
T = Tin Plated over Nickel Barrier (RoHS Compliant)
TN = Tin Plated Non-Magnetic Barrier
W = Tin/Lead Solder Nickel Barrier

Voltage Rating

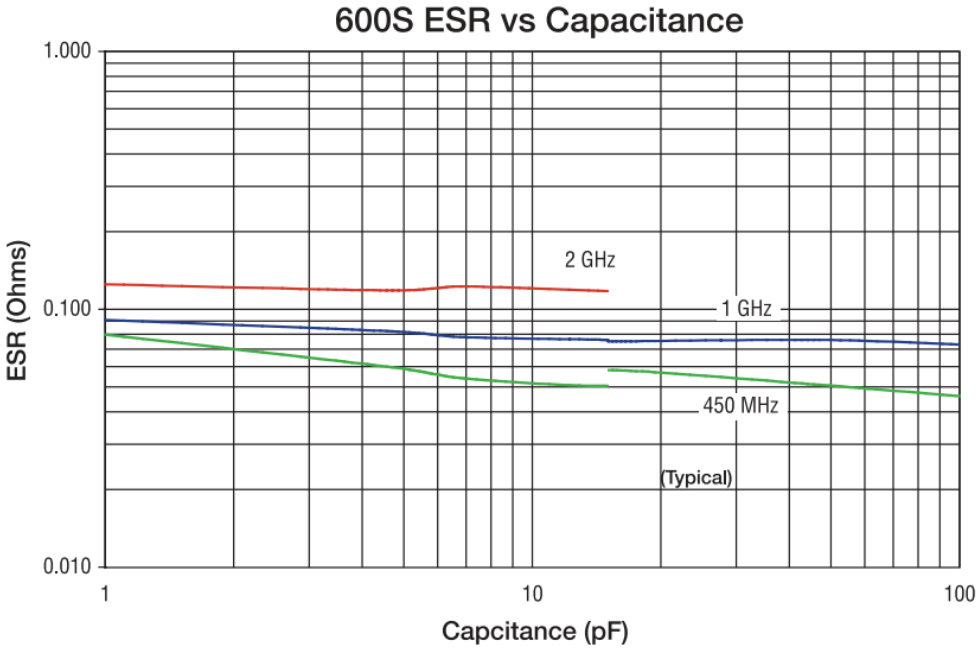
Laser Marking (Optional)

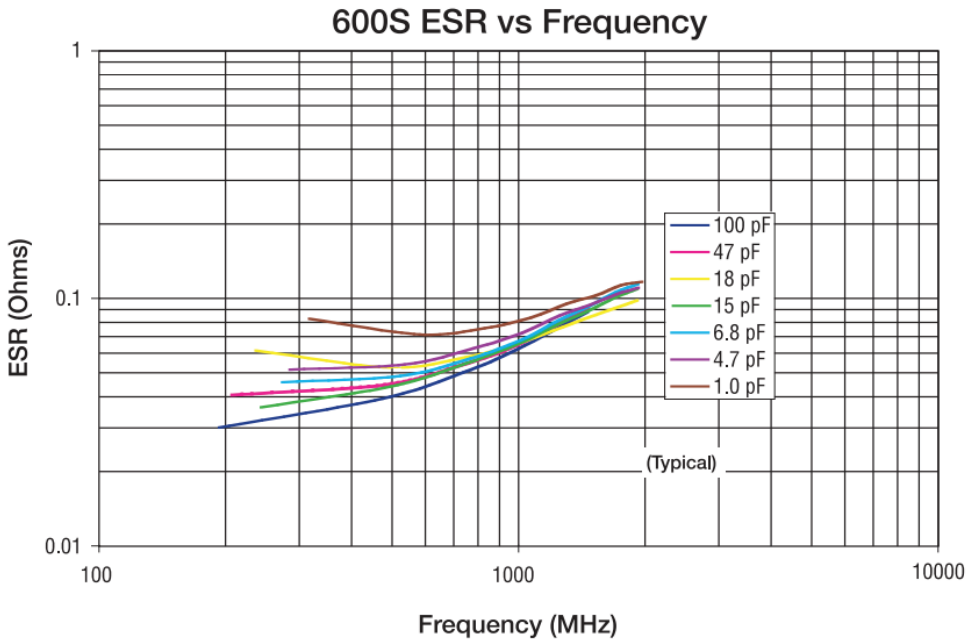
Packaging
T = Tape and Reel, 500 pcs
T4K = Tape and Reel, 4000 pcs
TV = Vertical Tape and Reel, 500 pcs

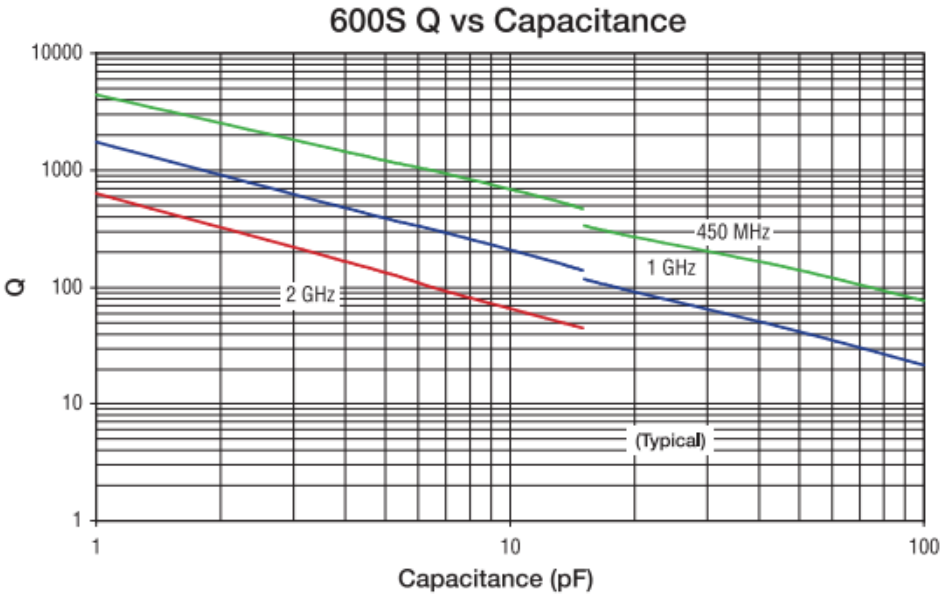
The above part number refers to a 600F Series (case size F) 10 pF capacitor, J tolerance (±5%), 250 WVDC, with T termination (Tin Plated over Nickel Barrier, RoHS Compliant), Laser Marking and Tape and Reel packaging.

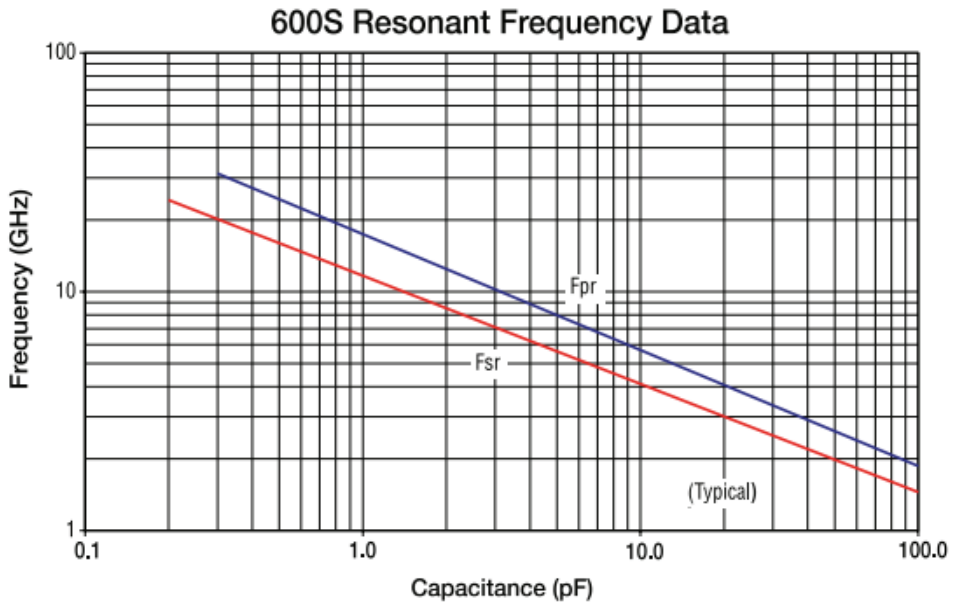
**Laser Marking is optional

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600S ESR vs Capacitance
1.000
0.100
0.010
ESR (Ohms)
2 GHz
1 GHz
450 MHz
(Typical)
1
10
100
Capcitance (pF)


600S ESR vs Frequency
1
0.1
0.01
ESR (Ohms)
100 pF
47 pF
18 pF
15 pF
6.8 pF
4.7 pF
1.0 pF
(Typical)
100
1000
10000
Frequency (MHz)



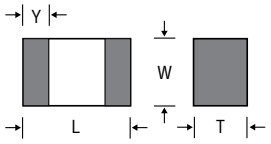


600F Series Data Sheet Condition Description

Capacitors horizontally mounted on 13.3 -mil thick Rogers R0435® softboard 29-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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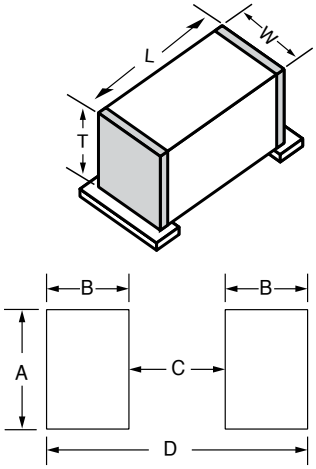
OUTLINE DIMENSIONS



S (0603)	L: .063 ± .006 (1.60 ± 0.15) W: .032 ± .006 (.81 ± 0.15)	T: .035 max (0.89 max) Y: .014 ± .006 (0.36 ± 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 25T	RoHS	DK0025T	**600S 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 26T	RoHS	DK0026T	**600S 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 27T	RoHS	DK0027T	**600S Series Ultra-low ESR,** High Q Microwave Capacitors 16 different values, 15 pcs. min. per value	10 to 100	10, 12, 15, 18, 20, 22, 24, 27, 30, 33, 39, 47 56, 68, 82, 100	±5%	$100.00

For Online Kit Orders, Catalog & Application Notes, Visit: www.kyocera-avx.com

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