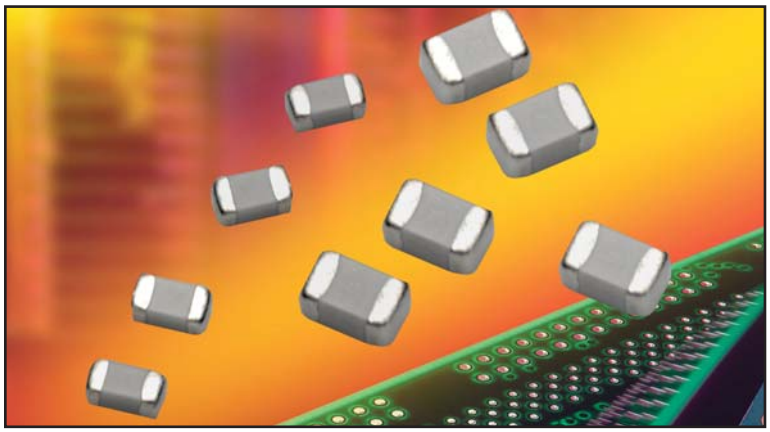
Microwave MLC's

SQCS (0603) SQCF (0805) Ultra Low ESR MLC



FEATURES:

- Low ESR
- High Q
- High Self Resonance
- Capacitance Range 0.1 pF to 240 pF
- EIA Size

APPLICATIONS:

- RF Power Amplifiers
- Low Noise Amplifiers
- Filter Networks
- Point to Point Radios

HOW TO ORDER

SQ	CS	V	A	100	J	A	T	1A

AVX Style

Case Size
CS = 0603
CF = 0805

Voltage Code
V = 250V

Temperature Coefficient Code
A = 0±30ppm/°C

Capacitance
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
A = ±.05 pF
B = ±.1 pF
C = ±.25 pF
D = ±.5 pF
F = ±1%
G = ±2%
J = ±5%

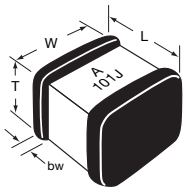
Failure Rate Code
A = Not Applicable

Termination Style Code
**1 = Pd/Ag
**7 = Ag/Ni/Au
J = Nickel Barrier Sn/Pb (60/40)
**T = 100% Tin (Standard)

Packaging Code
1A = 7" Reel Unmarked
ME = 7" Reel Marked

* Vertical T&R available
* 500 piece reels available

**RoHS compliant



MECHANICAL DIMENSIONS: inches (millimeters)

Case	Length (L)	Width (W)	Thickness (T)	Band Width (bw)
SQCS	.063±.006 (1.60±.152)	.032±.006 (.813±.152)	.030 Max. (.762)	.014±.006 (.357±.152)
SQCF	.079±.008 (2.01±.200)	.049±.008 (1.24±.200)	.045 Max. (1.14)	.014±.006 (.357±.152)

TAPE & REEL: All tape and reel specifications are in compliance with EIA RS481 (equivalent to IEC 286 part 3).

—8mm carrier
—7" reel = 4000 pcs (500 piece options)

Not RoHS Compliant

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

9

ELECTRICAL SPECIFICATIONS

Temperature Coefficient (TCC)	(A) 0 ± 30 PPM/ºC
Operating Temperature	-55ºC to +125ºC
Quality Factor (Q)	Greater than 10,000 at 1 MHz
Insulation Resistance (IR)	0.1 pF to 240 pF 10^5 Megohms min. @ 25ºC at rated WVDC 10^4 Megohms min. @ 125ºC at rated WVDC
Working Voltage (WVDC)	See Capacitance Values table
Dielectric Withstanding Voltage (DWV)	250% of rated WVDC for 5 secs
Aging Effects	None
Piezoelectric Effects	None
Capacitance Drift	± (0.02% or 0.02 pF), whichever is greater

ENVIRONMENTAL CHARACTERISTICS

AVX SQ will meet and exceed the requirements of EIA-198, MIL-PRF-55681 and MIL-PRF-123

Themal Shock	Mil-STD-202, Method 107, Condition A
Moisture Resistance	Mil-STD-202, Method 106
Low Voltage Humidity	Mil-STD-202, Method 103, condition A, with 1.5 VDC applied while subjected to an environment of 85ºC with 85% relative humidity for 240 hours
Life Test	Mil-STD-202, Method 108, for 2000 hours at 125ºC
Shock	Mil-STD-202, Method 213, Condition J
Vibration	Mil-STD-202, Method 204, Condition B
Immersion	Mil-STD-202, Method 104, Condition B
Salt Spray	Mil-STD-202, Method 101, Condition B
Solderability	Mil-STD-202, Method 208
Terminal Strength	Mil-STD-202, Method 211
Temperature Cycling	Mil-STD-202, Method 102, Condition C
Barometric Pressure	Mil-STD-202, Method 105, Condition B
Resistance to Solder Heat	Mil-STD-202, Method 210, Condition C

Microwave MLC's

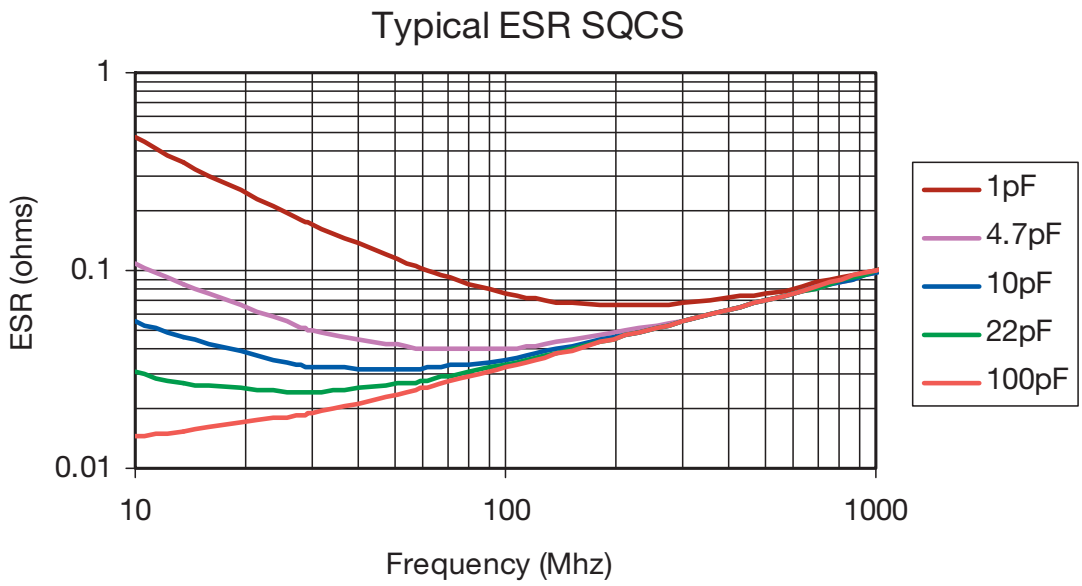
SQ Series Available Capacitance/Size/WVDC/T.C.

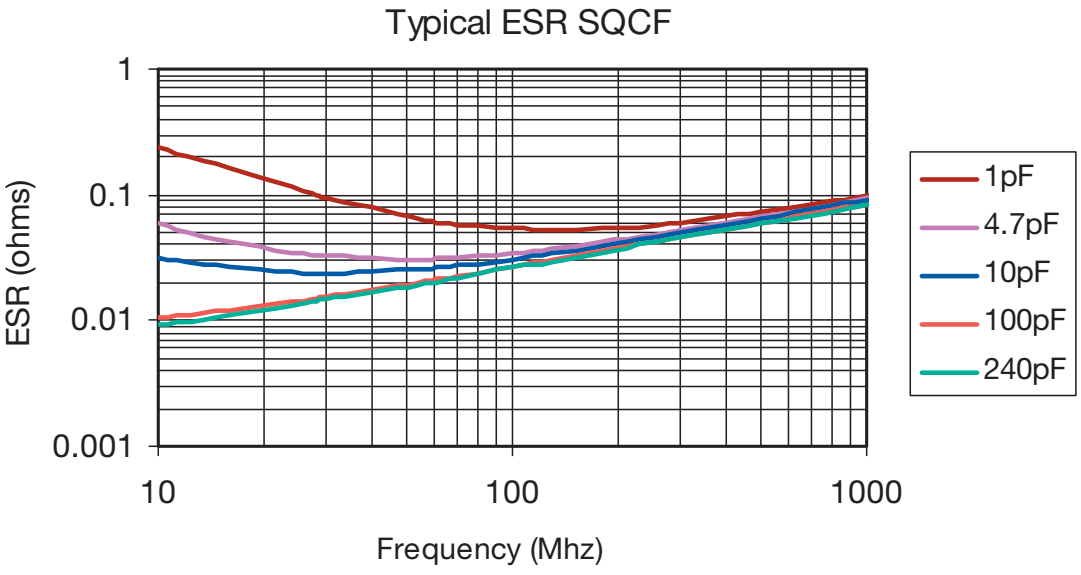
TABLE I: TC: A (0±30PPM/°C) CASE SIZE S

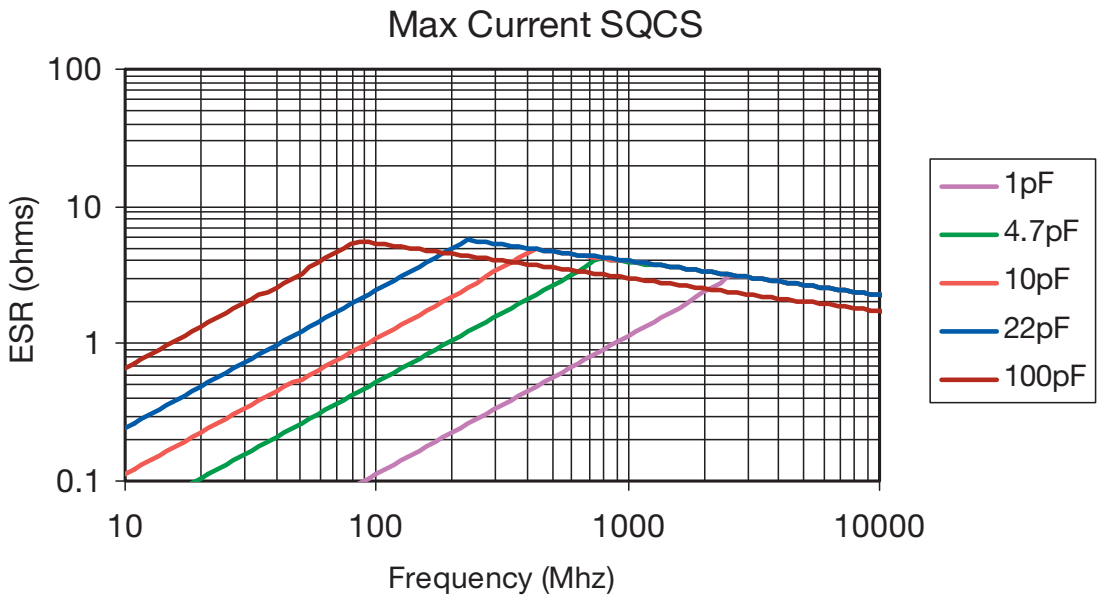
Cap. pF	Cap. Tol.	WVDC
0.1	A, B	250
0.2	A, B	250
0.3	A, B	250
0.4	A, B	250
0.5	A, B, C	250
0.6	A, B, C	250
0.7	A, B, C	250
0.8	A, B, C	250
0.9	A, B, C	250
1.0	A, B, C	250
1.1	A, B, C	250
1.2	A, B, C	250
1.3	A, B, C	250
1.4	A, B, C	250
1.5	A, B, C	250
1.6	A, B, C	250
1.7	A, B, C	250
1.8	A, B, C	250
1.9	A, B, C	250
2.0	A, B, C	250
2.2	A, B, C	250
2.4	A, B, C	250
2.7	A, B, C	250
3.0	A, B, C	250
3.3	A, B, C	250
3.6	A, B, C	250
3.9	A, B, C	250
4.3	A, B, C	250
4.7	A, B, C	250
5.1	A, B, C	250
5.6	A, B, C	250
6.2	A, B, C	250
6.8	B, C, D	250
7.5	B, C, D	250
8.2	B, C, D	250
9.1	B, C, D	250
10	F, G, J	250
11	F, G, J	250
12	F, G, J	250
13	F, G, J	250
15	F, G, J	250
16	F, G, J	250
18	F, G, J	250
20	F, G, J	250
22	F, G, J	250
24	F, G, J	250
27	F, G, J	250
30	F, G, J	250
33	F, G, J	250
36	F, G, J	250
39	F, G, J	250
43	F, G, J	250
47	F, G, J	250
51	F, G, J	250
56	F, G, J	250
62	F, G, J	250
68	F, G, J	250
75	F, G, J	250
82	F, G, J	250
91	F, G, J	250
100	F, G, J	250

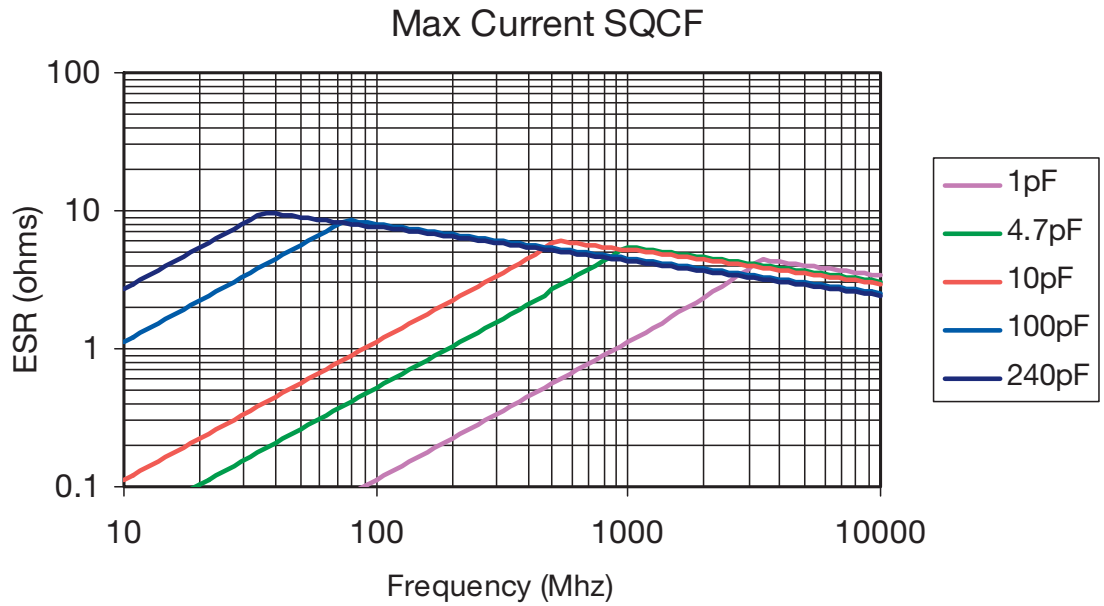
TABLE II: TC: A (0±30PPM/°C) CASE SIZE F

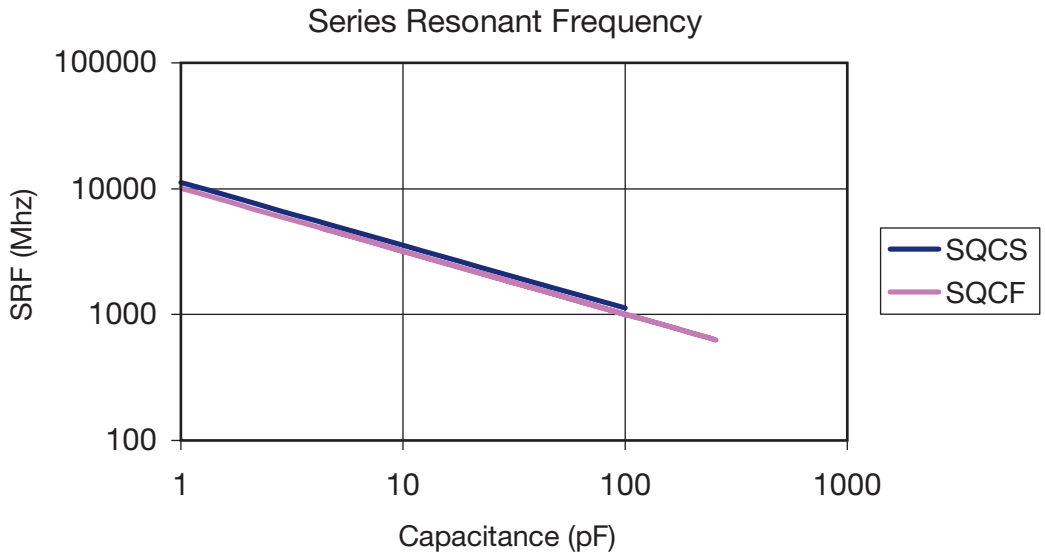
Cap. pF	Cap. Tol.	WVDC
0.1	A, B	250
0.2	A, B	250
0.3	A, B	250
0.4	A, B	250
0.5	A, B, C	250
0.6	A, B, C	250
0.7	A, B, C	250
0.8	A, B, C	250
0.9	A, B, C	250
1.0	A, B, C	250
1.1	A, B, C	250
1.2	A, B, C	250
1.3	A, B, C	250
1.4	A, B, C	250
1.5	A, B, C	250
1.6	A, B, C	250
1.7	A, B, C	250
1.8	A, B, C	250
1.9	A, B, C	250
2.0	A, B, C	250
2.2	A, B, C	250
2.4	A, B, C	250
2.7	A, B, C	250
3.0	A, B, C	250
3.3	A, B, C	250
3.6	A, B, C	250
3.9	A, B, C	250
4.3	A, B, C	250
4.7	A, B, C	250
5.1	A, B, C	250
5.6	A, B, C	250
6.2	A, B, C	250
6.8	B, C, D	250
7.5	B, C, D	250
8.2	B, C, D	250
9.1	B, C, D	250
10	F, G, J	250
11	F, G, J	250
12	F, G, J	250
13	F, G, J	250
15	F, G, J	250
16	F, G, J	250
18	F, G, J	250
20	F, G, J	250
22	F, G, J	250
24	F, G, J	250
27	F, G, J	250
30	F, G, J	250
33	F, G, J	250
36	F, G, J	250
39	F, G, J	250
43	F, G, J	250
47	F, G, J	250
51	F, G, J	250
56	F, G, J	250
62	F, G, J	250
68	F, G, J	250
75	F, G, J	250
82	F, G, J	250
91	F, G, J	250
100	F, G, J	250
110	F, G, J	250
120	F, G, J	250
150	F, G, J	250
180	F, G, J	250
200	F, G, J	250
220	F, G, J	250
240	F, G, J	250

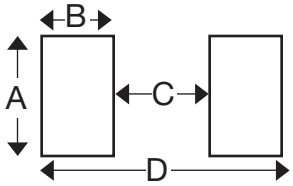

Typical ESR SQCS
ESR (ohms)
1
0.1
0.01
10
100
1000
Frequency (Mhz)
1pF
4.7pF
10pF
22pF
100pF


Typical ESR SQCF
ESR (ohms)
1
0.1
0.01
0.001
10
100
1000
Frequency (Mhz)
1pF
4.7pF
10pF
100pF
240pF


Max Current SQCS
100
10
1
0.1
ESR (ohms)
10
100
1000
10000
Frequency (Mhz)
1pF
4.7pF
10pF
22pF
100pF


Max Current SQCF
100
10
1
0.1
ESR (ohms)
10
100
1000
10000
Frequency (Mhz)
1pF
4.7pF
10pF
100pF
240pF





MOUNTING PAD DIMENSIONS: inches (millimeters)

Case	A min	B min	C min	D min
SQCA	0.082 (2.083)	0.051 (1.295)	0.032 (0.813)	0.130 (3.302)
SQCB	0.131 (3.327)	0.051 (1.295)	0.074 (1.880)	0.177 (4.496)
SQCS	0.038 (0.965)	0.043 (1.092)	0.025 (0.635)	0.112 (2.845)
SQCF	0.059 (1.499)	0.051 (1.295)	0.024 (0.610)	0.125 (3.175)

SQCS & SQCF ENGINEERING KITS

PN	Series	Diel	Term	Range	Different Values	# per value
Kit SQ1800LF	SQCF	C0G	100% Tin	.1 to 10pF	27	15
Kit SQ1900LF			RoHS	10 to 240pF	22	
Kit SQ1500LF	SQCS	C0G	100%Tin	.1 to 10pF	27	15
Kit SQ1600LF			RoHS	10 to 100pF	16	

Tolerance per PF:	
B from .1 to 3.3	J from 10 to 240
C from 3.9 to 8.2	

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

AVX:

SQCSVA0R2AAT6A SQCSVA0R5AAT6A SQCSVA0R5BAT6A SQCSVA100FAT6A SQCSVA1R0BAT6A SQCSVA2R2BAT6A SQCSVA4R7BAT6A SQCSVA130FAJ1A SQCSVA220GAJ1A SQCSVA330GAJ1A SQCSVA4R7CAJ1A SQCSVA0R2BA16A SQCFVA3R9CAT1A SQCFVA3R9CATME SQCSVA9R1CAT1A SQCSVA5R1CATME SQCSVA6R2CAT1A SQCSVA8R2CATME SQCFVA241FAT1A SQCFVA221FAT1A SQCFVA3R3BAT1A SQCFVA0R3BATME SQCFVA1R3BAT1A SQCFVA0R3BAT1A SQCFVA3R3BATME SQCSVA1R1BATME SQCSVA0R1BATME SQCSVA470GAT1A SQCSVA6R8CATME SQCSVA820GAT1A SQCFVA5R1AAT1A SQCSVA200GAT1A SQCSVA110GAT1A SQCSVA160GAT1A SQCSVA560GAT1A SQCSVA330GAT1A SQCSVA270JATME SQCSVA220JATME SQCSVA200JATME SQCSVA240JATME SQCSVA620JATME SQCSVA160JAT1A SQCSVA820JATME SQCSVA470JATME SQCSVA560JATME SQCSVA150JATME SQCSVA100JATME SQCSVA120JATME SQCSVA620JAT1A SQCSVA330JATME SQCSVA300JATME SQCSVA4R3AAT1A SQCSVA3R3AAT1A SQCSVA3R9AAT1A SQCSVA0R9AAT1A SQCFVA120GAT1A SQCSVA2R4AAT1A SQCSVA1R6BATME SQCSVA5R6BATME SQCSVA1R6BAT1A SQCSVA3R6BAT1A SQCSVA0R6BATME SQCFVA181JAT1A SQCFVA181JATME SQCFVA8R2CAT1A SQCFVA6R2CAT1A SQCFVA8R2CATME SQCFVA6R8CAT1A SQCFVA6R8CATME SQCSVA150GAJ1A SQCFVA200JAT1A SQCFVA240JAT1A SQCFVA220JAT1A SQCFVA270JAT1A SQCFVA560JATME SQCFVA120JATME SQCFVA100JATME SQCFVA150JATME SQCFVA680FATME SQCFVA300JATME SQCFVA330JATME SQCFVA470JAT1A SQCFVA820JAT1A SQCFVA820JATME SQCFVA470JATME SQCFVA330JAT1A SQCFVA300JAT1A SQCFVA360JAT1A SQCFVA120JAT1A SQCFVA180FATME SQCFVA100JAT1A SQCFVA150JAT1A SQCFVA680FAT1A SQCSVA110JAJME SQCFVA560JAT1A SQCFVA200JATME SQCFVA240JATME SQCFVA220JATME SQCFVA270JATME SQCSVA270JAJ1A