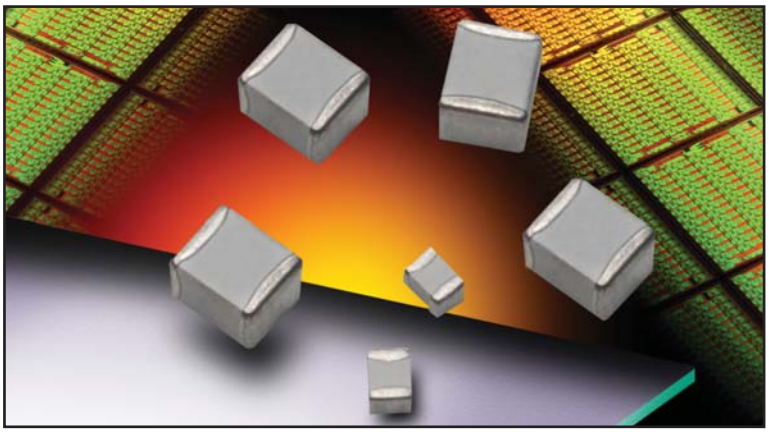
Microwave MLC's

UQ Series High Q Ultra Low ESR MLC



FEATURES:

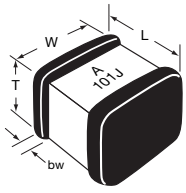
- Ultra Low ESR
- High Q
- High Self Resonance
- Capacitance Range 0.1 pF to 1000 pF

APPLICATIONS:

- RF Power Amplifiers
- Low Noise Amplifiers
- Filter Networks
- MRI Systems

HOW TO ORDER

UQ	CB	7	A	100	J	A	T	ME
AVX Style	**Case Size** CA = 0605 CB = 1210 CR = 0709 See mechanical dimensions below	**Voltage Code** 5 = 50V 1 = 100V E = 150V 2 = 200V V = 250V 9 = 300V 7 = 500V	**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** B = ±.1 pF C = ±.25 pF D = ±.5 pF F = ±1% G = ±2% J = ±5% K = ±10% M = ±20% N = ±30%	**Failure Rate Code** A = Not Applicable	**Termination Style Code** J = Nickel Barrier Sn/Pb (60/40) **T = 100% Tin C = Non-Magnetic Barrier/Tin **RoHS Compliant	**Packaging Code** ME = 7" Reel Marked * Vertical T&R available * 500 piece reels available



MECHANICAL DIMENSIONS: inches (millimeters)

Case	Length (L)	Width (W)	Thickness (T)	Band Width (bw)
UQCA	.055 + .015 - .010 (1.40+ .381 - .254)	.055±.015 (1.40±.381)	.057 (1.45) max.	.010 + .010 -.005 (.254 +.254 -.127)
UQCB	.110 + .020 - .010 (2.79 +.508 -.254)	.110±.015 (2.79±.381)	.102 (2.59) max.	.015±.010 (.381±.254)
UQCR	.070 ± .015 (1.78 ± .381)	.090±.010 (2.29±.254)	.115 (2.92) max.	.010 + .010 -.005 (.254 +.254 -.127)

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

—8mm carrier
—7" reel: UQCA = 500 or 4000 pc T&R
UQCB = 500 or 1000 pc T&R
UQCR = 500 or 1000 pc T&R

RoHS COMPLIANT
Pb: Free

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ELECTRICAL SPECIFICATIONS

		Temperature Characteristic Code A
Temperature Coefficient (TCC)		(A) 0 ± 30 PPM/ºC
Capacitance Range		(A) 0.1 pF to 1000 pF
Operating Temperature		0.1 pF to 1000 pF: from -55ºC to +125ºC
Quality Factor (Q)	A Dielectric B Case	Greater than 2,000 at 1 MHz
	A Dielectric A Case	Greater than 2,000 at 1 MHz
	A Dielectric R Case	Greater than 2,000 at 1 MHz
Insulation Resistance (IR)		0.1 pF to 1000 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 (for 500V rated 150% of rated voltage)
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

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AVX RF

Case Size A

TABLE I: TC: A (0±30PPM/°C)

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

Case Size B

TABLE II: TC: A (0±30PPM/°C)

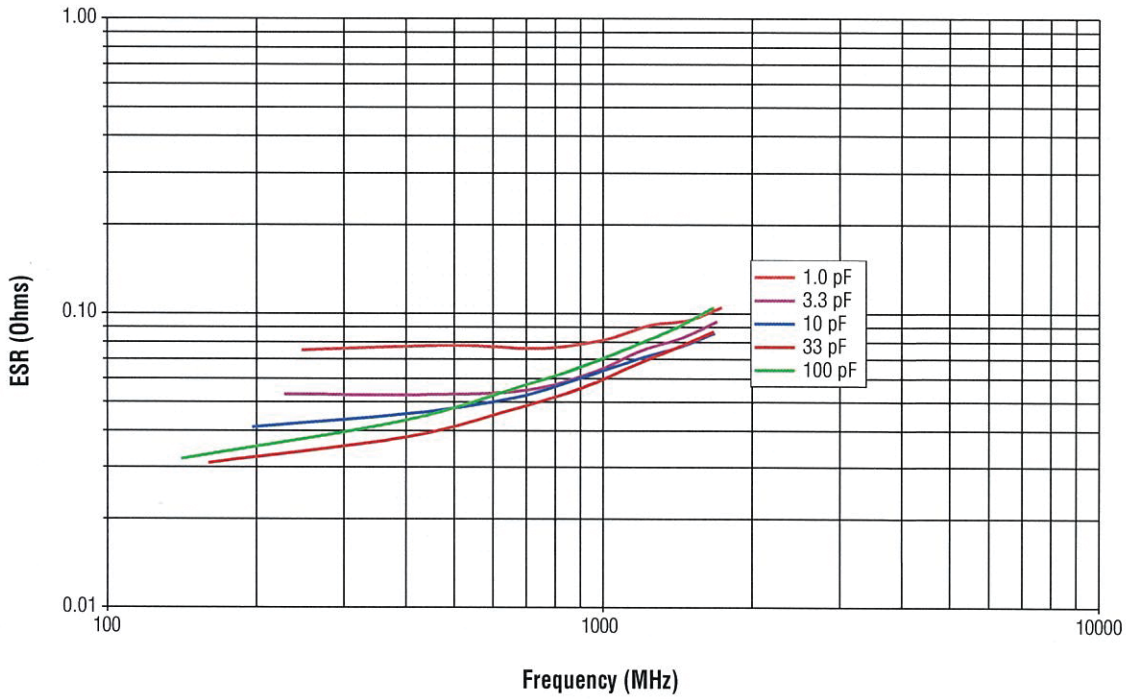
Cap. pF	Cap. Tol.	WVDC
0.1	B	500
0.2	B	500
0.3	B,C	500
0.4	B,C	500
0.5	B, C, D	500
0.6	B, C, D	500
0.7	B, C, D	500
0.8	B, C, D	500
0.9	B, C, D	500
1.0	B, C, D	500
1.1	B, C, D	500
1.2	B, C, D	500
1.3	B, C, D	500
1.4	B, C, D	500
1.5	B, C, D	500
1.6	B, C, D	500
1.7	B, C, D	500
1.8	B, C, D	500
1.9	B, C, D	500
2.0	B, C, D	500
2.2	B, C, D	500
2.4	B, C, D	500
2.7	B, C, D	500
3.0	B, C, D	500
3.3	B, C, D	500
3.6	B, C, D	500
3.9	B, C, D	500
4.3	B, C, D	500
4.7	B, C, D	500
5.1	B, C, D	500
5.6	B, C, D	500
6.2	B, C, D	500
6.8	B, C, J, K	500
7.5	B, C, J, K	500
8.2	B, C, J, K	500
9.1	B, C, J, K	500
10	F, G, J, K	500
11	F, G, J, K	500
12	F, G, J, K	500
13	F, G, J, K	500
15	F, G, J, K	500
16	F, G, J, K	500
18	F, G, J, K	500
20	F, G, J, K	500
22	F, G, J, K	500
24	F, G, J, K	500
27	F, G, J, K	500
30	F, G, J, K	500
33	F, G, J, K	500
36	F, G, J, K	500
39	F, G, J, K	500
43	F, G, J, K	500
47	F, G, J, K	500
51	F, G, J, K	500
56	F, G, J, K	500
62	F, G, J, K	500
68	F, G, J, K	500
75	F, G, J, K	500
82	F, G, J, K	500
91	F, G, J, K	500
100	F, G, J, K	500
110	F, G, J, K	300
120	F, G, J, K	300
130	F, G, J, K	300
150	F, G, J, K	300
160	F, G, J, K	300
180	F, G, J, K	300
200	F, G, J, K	300
220	F, G, J, K	200
240	F, G, J, K	200
270	F, G, J, K	200
300	F, G, J, K	200
330	F, G, J, K	200
360	F, G, J, K	200
390	F, G, J, K	200
430	F, G, J, K	200
470	F, G, J, K	200
510	F, G, J, K	100
560	F, G, J, K	100
620	F, G, J, K	100
680	F, G, J, K	50
750	F, G, J, K	50
820	F, G, J, K	50
910	F, G, J, K	50
1000	F, G, J, K	50

Case Size R

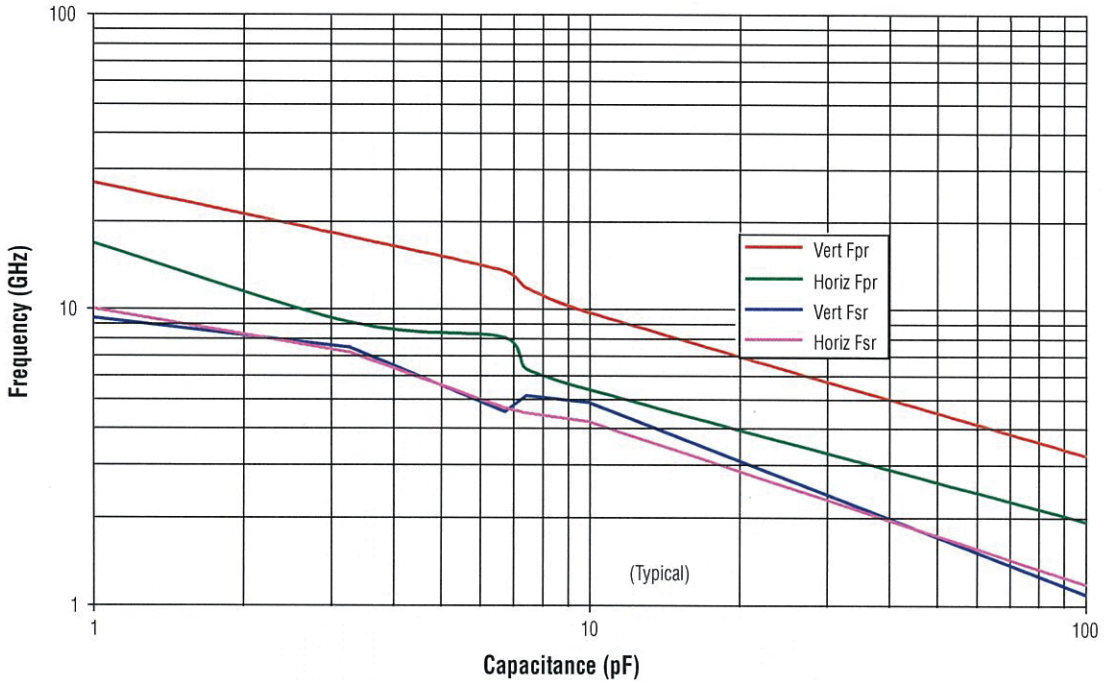
TABLE III: TC: A (0±30PPM/°C)

Cap. pF	Cap. Tol.	WVDC
1.0	B, C, D	500
1.1	B, C, D	500
1.2	B, C, D	500
1.3	B, C, D	500
1.4	B, C, D	500
1.5	B, C, D	500
1.6	B, C, D	500
1.7	B, C, D	500
1.8	B, C, D	500
1.9	B, C, D	500
2.0	B, C, D	500
2.1	B, C, D	500
2.2	B, C, D	500
2.4	B, C, D	500
2.7	B, C, D	500
3.0	B, C, D	500
3.3	B, C, D	500
3.6	B, C, D	500
3.9	B, C, D	500
4.3	B, C, D	500
4.7	B, C, D	500
5.1	B, C, D	500
5.6	G, J, K, M	500
6.2	G, J, K, M	500
6.8	G, J, K, M	500
7.5	G, J, K, M	500
8.2	G, J, K, M	500
9.1	G, J, K, M	500
10	G, J, K, M	500
11	G, J, K, M	500
12	G, J, K, M	500
13	G, J, K, M	500
15	G, J, K, M	500
16	G, J, K, M	500
18	G, J, K, M	500
20	G, J, K, M	500
22	G, J, K, M	500
24	G, J, K, M	500
27	G, J, K, M	500
30	G, J, K, M	500
33	G, J, K, M	500
36	G, J, K, M	500
39	G, J, K, M	500
43	G, J, K, M	500
47	G, J, K, M	500
51	G, J, K, M	500
56	G, J, K, M	500
62	G, J, K, M	500
68	G, J, K, M	500
75	G, J, K, M	500
82	G, J, K, M	500
91	G, J, K, M	500
100	G, J, K, M	500

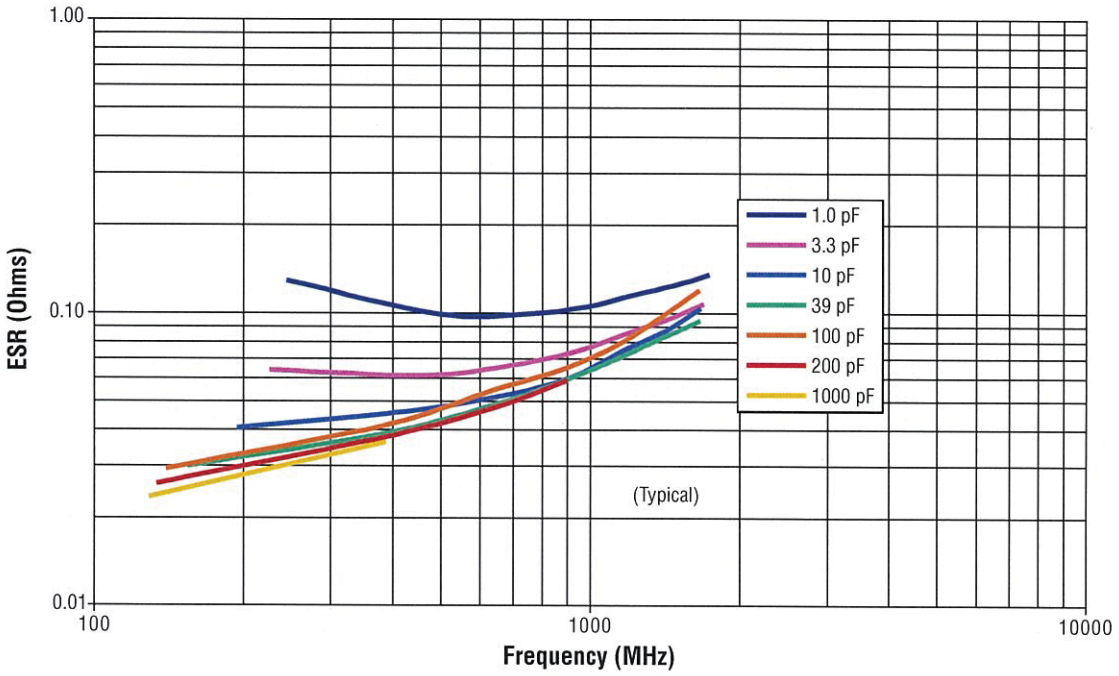
UQCA ESR vs. Frequency



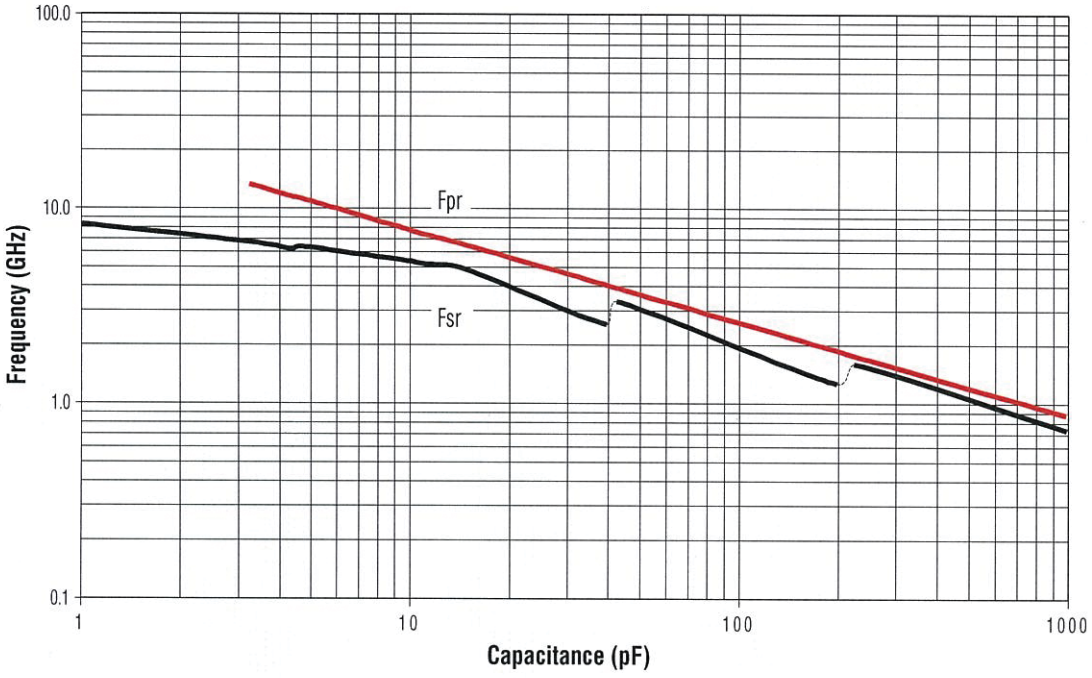
UQCA FSR & FPR vs. Capacitance



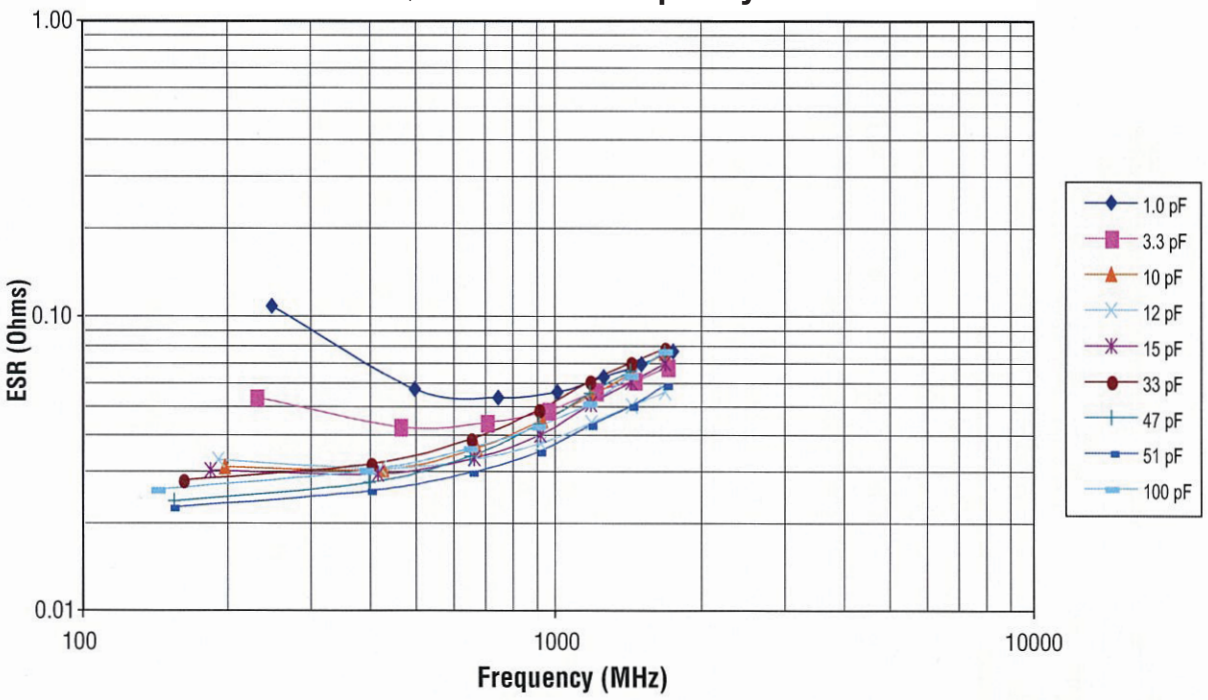
UQCB ESR vs. Frequency



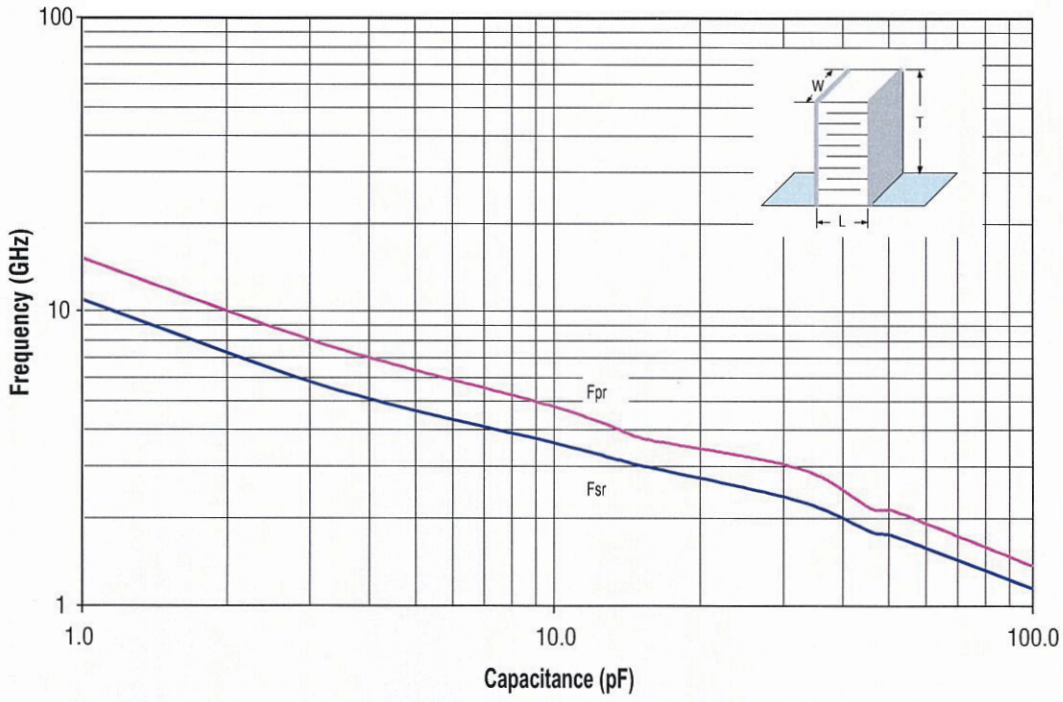
UQCB FSR & FPR vs. Capacitance

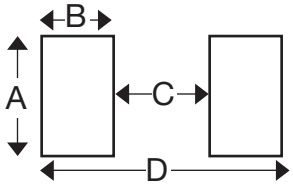


UQCR ESR vs. Frequency



UQCR Resonance Horizontal Orientation





MOUNTING PAD DIMENSIONS CASE A: inches (millimeters)

	Pad Size	A min	B min	C min	D min
Vertical Mount	Normal	0.070 (1.778)	0.050 (1.270)	0.030 (0.762)	0.130 (3.302)
	High Density	0.050 (1.270)	0.030 (0.762)	0.030 (0.762)	0.090 (2.286)
Horizontal Mount	Normal	0.080 (2.032)	0.050 (1.270)	0.030 (0.762)	0.130 (3.302)
	High Density	0.060 (1.524)	0.030 (0.762)	0.030 (0.762)	0.090 (2.286)

MOUNTING PAD DIMENSIONS CASE B: inches (millimeters)

	Cap Value	Pad Size	A min	B min	C min	D min
Vertical Mount	0.1 pF	Normal	0.065 (1.651)	0.050 (1.270)	0.075 (1.905)	0.175 (4.445)
		High Density	0.045 (1.143)	0.030 (0.762)	0.075 (1.905)	0.135 (3.429)
	0.2 pF	Normal	0.090 (2.286)	0.050 (1.270)	0.075 (1.905)	0.175 (4.445)
		High Density	0.070 (1.778)	0.030 (0.762)	0.075 (1.905)	0.135 (3.429)
	0.3 to 510 pF	Normal	0.110 (2.794)	0.050 (1.270)	0.075 (1.905)	0.175 (4.445)
		High Density	0.090 (2.286)	0.030 (0.762)	0.075 (1.905)	0.135 (3.429)
	> 510 pF	Normal	0.120 (3.048)	0.050 (1.270)	0.075 (1.905)	0.175 (4.445)
		High Density	0.100 (2.540)	0.030 (0.762)	0.075 (1.905)	0.135 (3.429)
Horizontal Mount	All Values	Normal	0.130 (3.302)	0.050 (1.270)	0.075 (1.905)	0.175 (4.445)
		High Density	0.100 (2.794)	0.030 (0.762)	0.075 (1.905)	0.135 (3.429)