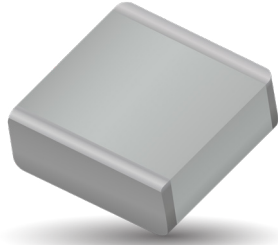


# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### AQ Series



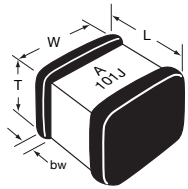
These porcelain and ceramic dielectric multilayer capacitor (MLC) chips are best suited for RF/ Microwave applications typically ranging from 10 MHz to 4.2 GHz. Characteristic is a fine grained, high density, high purity dielectric material impervious to moisture with heavy internal palladium electrodes.

These characteristics lend well to applications requiring:

- 1) high current carrying capabilities;
- 2) high quality factors;
- 3) very low equivalent series resistance;
- 4) very high series resonance;
- 5) excellent stability under stresses of changing voltage, frequency, time and temperature.

### MECHANICAL DIMENSIONS:

inches (millimeters)



Case	Length (L)	Width (W)	Thickness (T)	Band Width (bw)
AQ11	.055±.015 (1.40±.381)	.055±.015 (1.40±.381)	.020/.057 (.508/1.45)	.010 + .010 - .005 (.254 + .254 - .127)
AQ12	.055 + .015 - .010 (1.40+ .381 - .254)	.055±.015 (1.40±.381)	.020/.057 (.508/1.45)	.010 + .010 - .005 (.254 + .254 - .127)
AQ13	.110±.020 (2.79±.508)	.110±.020 (2.79±.508)	.030/.102 (.762/2.59)	.015±.010 (.381±.254)
AQ14	.110 + .020 - .010 (2.79 + .889 - .254)	.110±.010 (2.79±.508)	.030/.102 (.762/2.59)	.015±.010 (.381±.254)

### HOW TO ORDER

<p><b>AQ</b></p> <p>AVX Style AQ</p>	<p><b>11</b></p> <p>Case Size (See Chart)</p>	<p><b>E</b></p> <p>Voltage Code 5 = 50V 1 = 100V E = 150V 2 = 200V 9 = 300V 7 = 500V</p>	<p><b>M</b></p> <p>Temperature Coefficient Code M = +90±20ppm/°C (AQ11/12/13/14) A = 0±30ppm/°C (AQ11/12/13/14) C = 15% ("J" Termination only) (AQ12/14)</p>	<p><b>100</b></p> <p>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.</p>	<p><b>J</b></p> <p>Capacitance Tolerance Code B = ±.1 pF C = ±.25 pF D = ±.5 pF F = ±1% G = ±2% J = ±5% K = ±10% M = ±20% N = ±30%</p>	<p><b>A</b></p> <p>Failure Rate Code A = Not Applicable</p>	<p><b>T</b></p> <p>Termination Style Code 7 = Ag/Ni/Au (AQ11/13 only) J = Nickel Barrier Sn/Pb (60/40) - (AQ12/14 only) T = 100% Tin (AQ12/14 only)</p>	<p><b>ME</b></p> <p>Packaging* Code 3A = 13" Reel Unmarked ME = 7" Reel Marked RE = 13" Reel Marked WE = Waffle Pack Marked BE = Bulk Marked</p>
--	---	--	--	---	--	---	---	--

### PACKAGING

Standard Packaging = Waffle Pack (maximum quantity is 80)

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

- 8mm carrier
- 7" reel: ≤0.040" thickness = 2000 pcs  
≤0.075" thickness = 2000 pcs
- 13" reel: ≤0.075" thickness = 10,000 pcs

Not RoHS Compliant



For RoHS compliant products, please select correct termination style.

# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### AQ Series



#### ELECTRICAL SPECIFICATIONS

AQ11, AQ12, AQ13, AQ14		
	M & A	C
Temperature Coefficient (TCC)	(M) +90 ± 20 PPM/°C (-55°C to +125°C) (M) +90 ± 30 PPM/°C (+125°C to +175°C) (A) 0 ± 30 PPM/°C	±15% (-55°C to 125°C)
Capacitance Range	(M) 0.1 pF to 1000 pF (A) 0.1 pF to 5100 pF	0.001µF to 0.1µF
Operating Temperature	0.1 pF to 330 pF: from -55°C to +175°C 360 pF to 5100 pF: from -55°C to +125°C	-55°C to +125°C
Quality Factor (Q)	M Dielectric A & B Case	Greater than 10,000 at 1 MHz
	A Dielectric B Case	Greater than 10,000 at 1 MHz Greater than 2,000 at 1 MHz Greater than 2,000 at 1 KHz
	A Dielectric A Case	Greater than 10,000 at 1 MHz Greater than 2,000 at 1 MHz
Insulation Resistance (IR)	0.1 pF to 470 pF 10 <sup>5</sup> Megohms min. @ 25°C at rated WVDC 10 <sup>5</sup> Megohms min. @ 125°C at rated WVDC 510 pF to 5100 pF 10 <sup>5</sup> Megohms min. @ 25°C at rated WVDC 10 <sup>4</sup> Megohms min. @ 125°C at rated WVDC	10 <sup>4</sup> Megohms min. @ 25°C at rated WVDC 10 <sup>3</sup> Megohms min. @ 125°C at rated WVDC
Working Voltage (WVDC)	See Capacitance Values table	See Capacitance Values table
Dielectric Withstanding Voltage (DWV)	250% of rated WVDC for 5 secs (for 500V rated 150% of rated voltage)	250% of rated WVDC for 5 secs
Aging Effects	None	<3% per decade hour
Piezoelectric Effects	None	None
Capacitance Drift	± (0.02% or 0.02 pF), whichever is greater	Not Applicable

#### ENVIRONMENTAL CHARACTERISTICS

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

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

# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### AQ Series Available Capacitance/Size/WVDC/T.C.



**TABLE I: TC: M (+90±20PPM/°C) CASE SIZE 11, 12, 13 & 14**

**DIMENSIONS:**

inches (millimeters)

Case	Length	Width	Thickness	Band Width	Avail. Term.
11	.055±.015 (1.40±.381)	.055±.015 (1.40±.381)	.020/.057 (.508/1.45)	.010 +.010 -.005 (.254 +.254 -.127)	7
12	.055±.025 (1.40±.635)	.055±.015 (1.40±.381)	.020/.057 (.508/1.45)	.010 +.010 -.005 (.254 +.254 -.127)	T & J
13	.110±.020 (2.79±.508)	.110±.020 (2.79±.508)	.030/.102 (.762/2.59)	.015±.010 (.381±.254)	7
14	.110 +0.035 -0.020 (2.79 +.889 -.508)	.110±.020 (2.79±.508)	.030/.102 (.762/2.59)	.015±.010 (.381±.254)	T & J

**Case: AQ11, AQ12**

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

**Case: AQ13, AQ14**

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



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at [www.avx.com/disclaimer/](http://www.avx.com/disclaimer/) by reference and should be reviewed in full before placing any order.

# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### AQ Series Available Capacitance/Size/WVDC/T.C.



TABLE II: TC: A (0±30PPM/°C)

CASE SIZE 11, 12, 13 & 14

DIMENSIONS: inches (millimeters)

Case	Length	Width	Thickness	Band Width	Avail. Term.
11	.055±.015 (1.40±.381)	.055±.015 (1.40±.381)	.020/.057 (.508/1.45)	.010 +.010 -.005 (.254 +.254 -.127)	7
12	.055±.025 (1.40±.635)	.055±.015 (1.40±.381)	.020/.057 (.508/1.45)	.010 +.010 -.005 (.254 +.254 -.127)	T & J
13	.110±.020 (2.79±.508)	.110±.020 (2.79±.508)	.030/.102 (.762/2.59)	.015±.010 (.381±.254)	7
14	.110 +0.035 -0.020 (2.79 +.889 -.508)	.110±.020 (2.79±.508)	.030/.102 (.762/2.59)	.015±.010 (.381±.254)	T & J

Case: AQ11, AQ12

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

Case: AQ13, AQ14

Cap. pF	Cap. Tol.	WVDC	Cap. pF	Cap. Tol.	WVDC	Cap. pF	Cap. Tol.	WVDC
0.1	B	500	20	F, G, J, K, M	500	1200	F, G, J, K, M	50
0.2	B	500	22	F, G, J, K, M	500	1300	F, G, J, K, M	50
0.3	B,C	500	24	F, G, J, K, M	500	1500	F, G, J, K, M	50
0.4	B,C	500	27	F, G, J, K, M	500	1600	F, G, J, K, M	50
0.5	B, C, D	500	30	F, G, J, K, M	500	1800	F, G, J, K, M	50
0.6	B, C, D	500	33	F, G, J, K, M	500	2000	F, G, J, K, M	50
0.7	B, C, D	500	36	F, G, J, K, M	500	2200	F, G, J, K, M	50
0.8	B, C, D	500	39	F, G, J, K, M	500	2400	F, G, J, K, M	50
0.9	B, C, D	500	43	F, G, J, K, M	500	2700	F, G, J, K, M	50
1.0	B, C, D	500	47	F, G, J, K, M	500	3000	F, G, J, K, M	50
1.1	B, C, D	500	51	F, G, J, K, M	500	3300	F, G, J, K, M	50
1.2	B, C, D	500	56	F, G, J, K, M	500	3600	F, G, J, K, M	50
1.3	B, C, D	500	62	F, G, J, K, M	500	3900	F, G, J, K, M	50
1.4	B, C, D	500	68	F, G, J, K, M	500	4300	F, G, J, K, M	50
1.5	B, C, D	500	75	F, G, J, K, M	500	4700	F, G, J, K, M	50
1.6	B, C, D	500	82	F, G, J, K, M	500	5000	F, G, J, K, M	50
1.7	B, C, D	500	91	F, G, J, K, M	500	5100	F, G, J, K, M	50
1.8	B, C, D	500	100	F, G, J, K, M	500			
1.9	B, C, D	500	110	F, G, J, K, M	300			
2.0	B, C, D	500	120	F, G, J, K, M	300			
2.2	B, C, D	500	130	F, G, J, K, M	300			
2.4	B, C, D	500	150	F, G, J, K, M	300			
2.7	B, C, D	500	160	F, G, J, K, M	300			
3.0	B, C, D	500	180	F, G, J, K, M	300			
3.3	B, C, D	500	200	F, G, J, K, M	300			
3.6	B, C, D	500	220	F, G, J, K, M	200			
3.9	B, C, D	500	240	F, G, J, K, M	200			
4.3	B, C, D	500	270	F, G, J, K, M	200			
4.7	B, C, D	500	300	F, G, J, K, M	200			
5.1	B, C, D	500	330	F, G, J, K, M	200			
5.6	B, C, D	500	360	F, G, J, K, M	200			
6.2	B, C, D	500	390	F, G, J, K, M	200			
6.8	B, C, J, K, M	500	430	F, G, J, K, M	200			
7.5	B, C, J, K, M	500	470	F, G, J, K, M	200			
8.2	B, C, J, K, M	500	510	F, G, J, K, M	150			
9.1	B, C, J, K, M	500	560	F, G, J, K, M	150			
10	F, G, J, K, M	500	620	F, G, J, K, M	150			
11	F, G, J, K, M	500	680	F, G, J, K, M	150			
12	F, G, J, K, M	500	750	F, G, J, K, M	150			
13	F, G, J, K, M	500	820	F, G, J, K, M	150			
15	F, G, J, K, M	500	910	F, G, J, K, M	150			
16	F, G, J, K, M	500	1000	F, G, J, K, M	150			
18	F, G, J, K, M	500	1100	F, G, J, K, M	50			

TABLE III: TC: C (±15%)

CASE SIZE 12 & 14

Case: AQ12

Cap. pF	Cap. Tol.	WVDC	Cap. pF	Cap. Tol.	WVDC	Cap. pF	Cap. Tol.	WVDC
1000	K, M, N	50	2700	K, M, N	50	6800	K, M, N	50
1200	K, M, N	50	3300	K, M, N	50	8200	K, M, N	50
1500	K, M, N	50	3900	K, M, N	50	10000	K, M, N	50
1800	K, M, N	50	4700	K, M, N	50			
2000	K, M, N	50	5100	K, M, N	50			
2200	K, M, N	50	5600	K, M, N	50			

Case: AQ14

Cap. pF	Cap. Tol.	WVDC	Cap. pF	Cap. Tol.	WVDC	Cap. pF	Cap. Tol.	WVDC
5000	K, M, N	50	15000	K, M, N	50	47000	K, M, N	50
6800	K, M, N	50	18000	K, M, N	50	68000	K, M, N	50
8200	K, M, N	50	27000	K, M, N	50	82000	K, M, N	50
10000	K, M, N	50	33000	K, M, N	50	100000	K, M, N	50
12000	K, M, N	50	39000	K, M, N	50			

