BENEFITS OF USING CAPACITOR ARRAYS

AVX capacitor arrays offer designers the opportunity to lower placement costs, increase assembly line output through lower component count per board and to reduce real estate requirements.

Reduced Costs

Placement costs are greatly reduced by effectively placing one device instead of four or two. This results in increased throughput and translates into savings on machine time. Inventory levels are lowered and further savings are made on solder materials, etc.

Space Saving

Space savings can be quite dramatic when compared to the use of discrete chip capacitors. As an example, the 0508 4-element array offers a space reduction of >40% vs. 4 x 0402 discrete capacitors and of >70% vs. 4 x 0603 discrete capacitors. (This calculation is dependent on the spacing of the discrete components.)

Increased Throughput

Assuming that there are 220 passive components placed in a mobile phone:

A reduction in the passive count to 200 (by replacing discrete components with arrays) results in an increase in throughput of approximately 9%.

A reduction of 40 placements increases throughput by 18%.

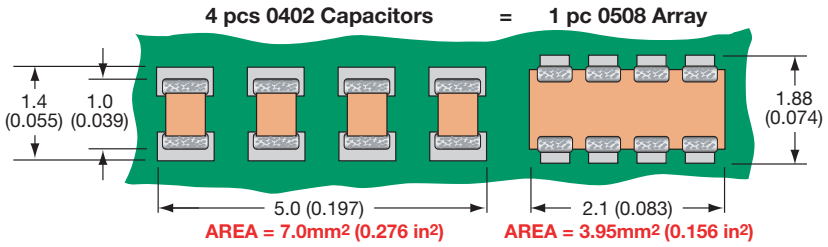
For high volume users of cap arrays using the very latest placement equipment capable of placing 10 components per second, the increase in throughput can be very significant and can have the overall effect of reducing the number of placement machines required to mount components:

If 120 million 2-element arrays or 40 million 4-element arrays were placed in a year, the requirement for placement equipment would be reduced by one machine.

During a 20Hr operational day a machine places 720K components. Over a working year of 167 days the machine can place approximately 120 million. If 2-element arrays are mounted instead of discrete components, then the number of placements is reduced by a factor of two and in the scenario where 120 million 2-element arrays are placed there is a saving of one pick and place machine.

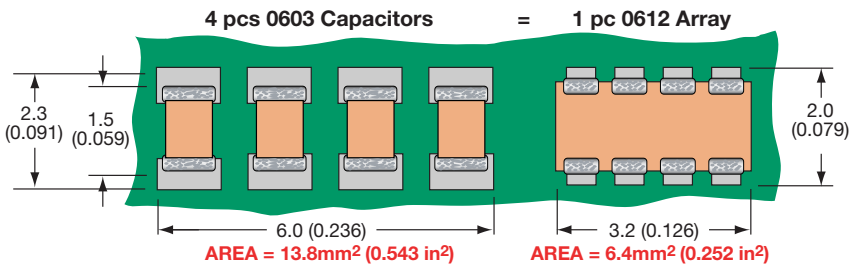
Smaller volume users can also benefit from replacing discrete components with arrays. The total number of placements is reduced thus creating spare capacity on placement machines. This in turn generates the opportunity to increase overall production output without further investment in new equipment.

W2A (0508) Capacitor Arrays



The 0508 4-element capacitor array gives a PCB space saving of over 40% vs four 0402 discretes and over 70% vs four 0603 discrete capacitors.

W3A (0612) Capacitor Arrays



The 0612 4-element capacitor array gives a PCB space saving of over 50% vs four 0603 discretes and over 70% vs four 0805 discrete capacitors.

Automotive Capacitor Array (IPC)

0508 - 4 Element

0612 - 4 Element

As the market leader in the development and manufacture of capacitor arrays AVX is pleased to offer a range of AEC-Q200 qualified arrays to compliment our product offering to the Automotive industry. Both the AVX 0612 and 0508 4-element capacitor array styles are qualified to the AEC-Q200 automotive specifications.

AEC-Q200 is the Automotive Industry qualification standard and a detailed qualification package is available on request.

All AVX automotive capacitor array production facilities are certified to ISO/TS 16949:2002.

HOW TO ORDER

W	3	A	4	Y	C	104	K	4	T	2A
Style W = RoHS L = SnPb	**Case Size** 2 = 0508 3 = 0612	**Array**	**Number of Caps**	**Voltage** Z = 10V Y = 16V 3 = 25V 5 = 50V 1 = 100V	**Dielectric** A = NP0 C = X7R F = X8R	**Capacitance Code (In pF)** Significant Digits + Number of Zeros e.g. 10µF=106	**Capacitance Tolerance** *J = ±5% *K = ±10% M = ±20%	**Failure Rate** 4 = Automotive	**Terminations** *T = Plated Ni and Sn *Z = FLEXITERM® B = 5% min lead X = FLEXITERM® with 5% min lead *RoHS compliant	**Packaging & Quantity Code** 2A = 7" Reel (4000) 4A = 13" Reel (10000) 2F = 7" Reel (1000)

*Contact factory for availability by part number for K = ±10% and J = ±5% tolerance.

NP0/C0G

SIZE		W2 = 0508				W3 = 0612			
No. of Elements		4				4			
	WVDC	16	25	50	100	16	25	50	100
1R0 1R2 1R5	Cap 1.0 (pF) 1.2 1.5								
1R8 2R2 2R7	1.8 2.2 2.7								
3R3 3R9 4R7	3.3 3.9 4.7								
5R6 6R8 8R2	5.6 6.8 8.2								
100 120 150	10 12 15	■	■	■	■	■	■	■	■
180 220 270	18 22 27	■	■	■	■	■	■	■	■
330 390 470	33 39 47	■	■	■	■	■	■	■	■
560 680 820	56 68 82	■	■	■		■	■	■	■
101 121 151	100 120 150	■	■	■		■	■	■	■
181 221 271	180 220 270					■	■	■	
331 391 471	330 390 470					■	■	■	
561 681 821	560 680 820								
102 122 152	1000 1200 1500								
182 222 272	1800 2200 2700								
332 392 472	3300 3900 4700								
562 682 822	5600 6800 8200								

■ = NPO/COG

X7R

SIZE		W2 = 0508				W2 = 0508				W3 = 0612				
No. of Elements		2				4				4				
	WVDC	16	25	50	100	16	25	50	100	10	16	25	50	100
101 121 151	Cap 100 (pF) 120 150													
181 221 271	180 220 270					■	■	■	■	■	■	■	■	■
331 391 471	330 390 470	■	■	■		■	■	■	■	■	■	■	■	■
561 681 821	560 680 820	■	■	■		■	■	■	■	■	■	■	■	■
102 122 152	1000 1200 1500	■	■	■	■	■	■	■	■	■	■	■	■	■
182 222 272	1800 2200 2700	■	■	■	■	■	■	■	■	■	■	■	■	■
332 392 472	3300 3900 4700	■	■	■	■	■	■	■	■	■	■	■	■	■
562 682 822	5600 6800 8200	■	■	■	■	■	■	■		■	■	■	■	■
103 123 153	Cap 0.010 (µF) 0.012 0.015	■	■	■	■	■	■	■		■	■	■	■	■
183 223 273	0.018 0.022 0.027	■	■	■		■	■	■		■	■	■	■	■
333 393 473	0.033 0.039 0.047	■	■	■		■				■	■	■	■	
563 683 823	0.056 0.068 0.082	■	■	■		■				■	■			
104 124 154	0.10 0.12 0.15	■	■	■		■				■	■			
224	0.22													

■ = X7R

Not RoHS Compliant

LEAD-FREE

LEAD-FREE COMPATIBLE COMPONENT

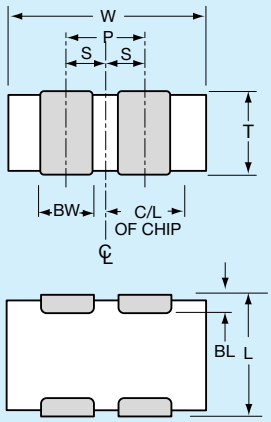
RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

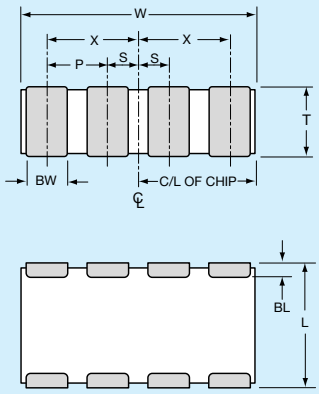
PART & PAD LAYOUT DIMENSIONS

millimeters (inches)

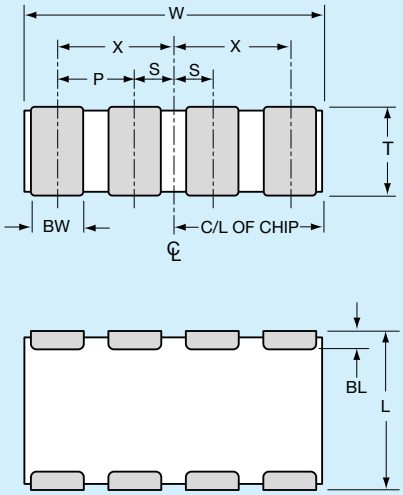
0508 - 2 Element



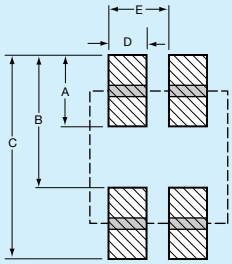
0508 - 4 Element



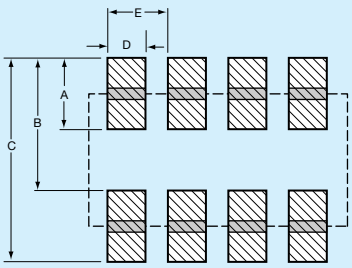
0612 - 4 Element



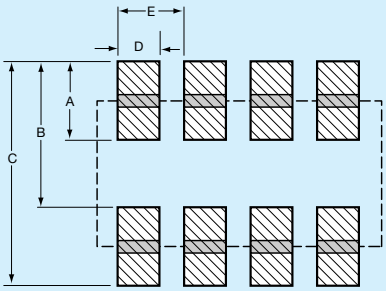
PAD LAYOUT



PAD LAYOUT



PAD LAYOUT



PART DIMENSIONS

0508 - 2 Element

L	W	T	BW	BL	P	S
1.30 ± 0.15 (0.051 ± 0.006)	2.10 ± 0.15 (0.083 ± 0.006)	0.94 MAX (0.037 MAX)	0.43 ± 0.10 (0.017 ± 0.004)	0.33 ± 0.08 (0.013 ± 0.003)	1.00 REF (0.039 REF)	0.50 ± 0.10 (0.020 ± 0.004)

0508 - 4 Element

L	W	T	BW	BL	P	X	S
1.30 ± 0.15 (0.051 ± 0.006)	2.10 ± 0.15 (0.083 ± 0.006)	0.94 MAX (0.037 MAX)	0.25 ± 0.06 (0.010 ± 0.003)	0.20 ± 0.08 (0.008 ± 0.003)	0.50 REF (0.020 REF)	0.75 ± 0.10 (0.030 ± 0.004)	0.25 ± 0.10 (0.010 ± 0.004)

0612 - 4 Element

L	W	T	BW	BL	P	X	S
1.60 ± 0.20 (0.063 ± 0.008)	3.20 ± 0.20 (0.126 ± 0.008)	1.35 MAX (0.053 MAX)	0.41 ± 0.10 (0.016 ± 0.004)	$0.18^{+0.25}_{-0.08}$ ($0.007^{+0.010}_{-0.003}$)	0.76 REF (0.030 REF)	1.14 ± 0.10 (0.045 ± 0.004)	0.38 ± 0.10 (0.015 ± 0.004)

PAD LAYOUT DIMENSIONS

0508 - 2 Element

A	B	C	D	E
0.68 (0.027)	1.32 (0.052)	2.00 (0.079)	0.46 (0.018)	1.00 (0.039)

0508 - 4 Element

A	B	C	D	E
0.56 (0.022)	1.32 (0.052)	1.88 (0.074)	0.30 (0.012)	0.50 (0.020)

0612 - 4 Element

A	B	C	D	E
0.89 (0.035)	1.65 (0.065)	2.54 (0.100)	0.46 (0.018)	0.76 (0.030)