Capacitor Array

Capacitor Array (IPC)

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%.

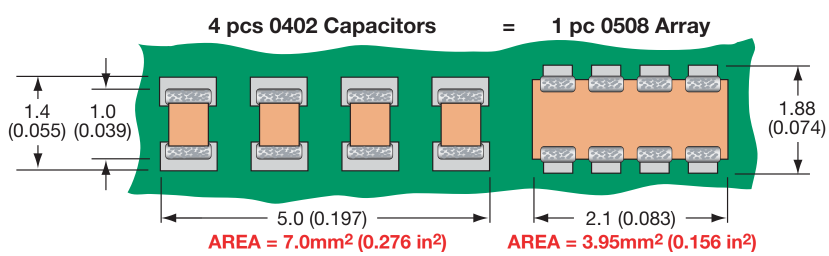
For high volume users of cap arrays using the very latest placement equipment capable of placing 10 components per second, the increase in throughput can be very significant and can have the overall effect of reducing the number of placement machines required to mount components:

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.

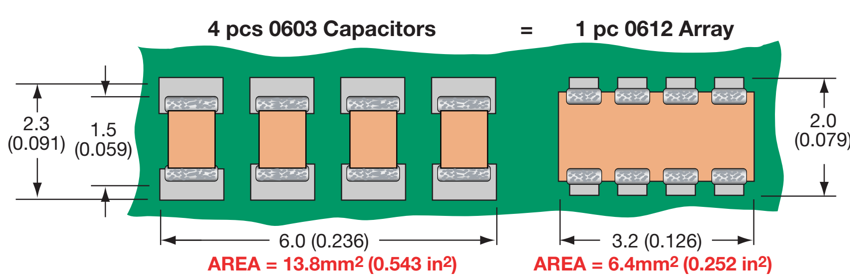
Smaller volume users can also benefit from replacing discrete components with arrays. The total number of placements is reduced thus creating spare capacity on placement machines. This in turn generates the opportunity to increase overall production output without further investment in new equipment.

W2A (0508) Capacitor Arrays



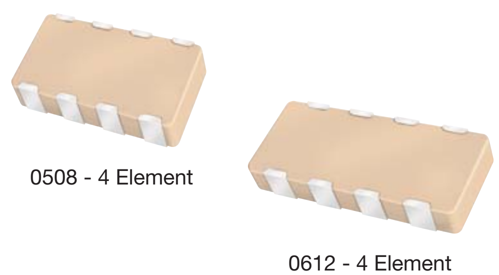
The 0508 4-element capacitor array gives a PCB space saving of over 40% vs four 0402 discretes and over 70% vs four 0603 discrete capacitors.

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)



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	Cap 1.0								
1R2	(pF) 1.2								
1R5	1.5								
1R8	1.8								
2R2	2.2								
2R7	2.7								
3R3	3.3								
3R9	3.9								
4R7	4.7								
5R6	5.6								
6R8	6.8								
8R2	8.2								
100	10	■	■	■	■	■	■	■	■
120	12	■	■	■	■	■	■	■	■
150	15	■	■	■	■	■	■	■	■
180	18	■	■	■	■	■	■	■	■
220	22	■	■	■	■	■	■	■	■
270	27	■	■	■	■	■	■	■	■
330	33	■	■	■	■	■	■	■	■
390	39	■	■	■	■	■	■	■	■
470	47	■	■	■	■	■	■	■	■
560	56	■	■	■	■	■	■	■	■
680	68	■	■	■	■	■	■	■	■
820	82	■	■	■		■	■	■	■
101	100	■	■	■		■	■	■	■
121	120					■	■	■	
151	150					■	■	■	
181	180					■	■	■	
221	220					■	■	■	
271	270					■	■	■	
331	330					■	■	■	
391	390					■	■	■	
471	470					■	■	■	
561	560								
681	680								
821	820								
102	1000								
122	1200								
152	1500								
182	1800								
222	2200								
272	2700								
332	3300								
392	3900								
472	4700								
562	5600								
682	6800								
822	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	Cap 100													
121	(pF) 120													
151	150													
181	180													
221	220					■	■	■	■	■	■	■	■	■
271	270					■	■	■	■	■	■	■	■	■
331	330					■	■	■	■	■	■	■	■	■
391	390					■	■	■	■	■	■	■	■	■
471	470	■	■	■		■	■	■	■	■	■	■	■	■
561	560	■	■	■		■	■	■	■	■	■	■	■	■
681	680	■	■	■		■	■	■	■	■	■	■	■	■
821	820	■	■	■		■	■	■	■	■	■	■	■	■
102	1000	■	■	■	■	■	■	■	■	■	■	■	■	■
122	1200	■	■	■	■	■	■	■	■	■	■	■	■	■
152	1500	■	■	■	■	■	■	■	■	■	■	■	■	■
182	1800	■	■	■	■	■	■	■	■	■	■	■	■	■
222	2200	■	■	■	■	■	■	■	■	■	■	■	■	■
272	2700	■	■	■	■	■	■	■	■	■	■	■	■	■
332	3300	■	■	■	■	■	■	■	■	■	■	■	■	■
392	3900	■	■	■	■	■	■	■	■	■	■	■	■	■
472	4700	■	■	■	■	■	■	■	■	■	■	■	■	■
562	5600	■	■	■	■	■	■	■		■	■	■	■	■
682	6800	■	■	■	■	■	■	■		■	■	■	■	■
822	8200	■	■	■	■	■	■	■		■	■	■	■	■
103	Cap 0.010	■	■	■	■	■	■	■		■	■	■	■	■
123	(μF) 0.012	■	■	■		■	■	■		■	■	■	■	■
153	0.015	■	■	■		■	■	■		■	■	■	■	■
183	0.018	■	■	■		■	■	■		■	■	■	■	■
223	0.022	■	■	■		■	■	■		■	■	■	■	■
273	0.027	■	■	■		■	■			■	■	■	■	
333	0.033	■	■	■		■				■	■	■	■	
393	0.039	■	■	■		■				■	■	■	■	
473	0.047	■	■	■		■				■	■	■	■	
563	0.056	■	■	■		■				■	■			
683	0.068	■	■	■		■				■	■			
823	0.082	■	■	■		■				■	■			
104	0.10	■	■	■		■				■	■			
124	0.12													
154	0.15													
224	0.22													

■ = X7R

Not RoHS Compliant

LEAD-FREE COMPATIBLE COMPONENT

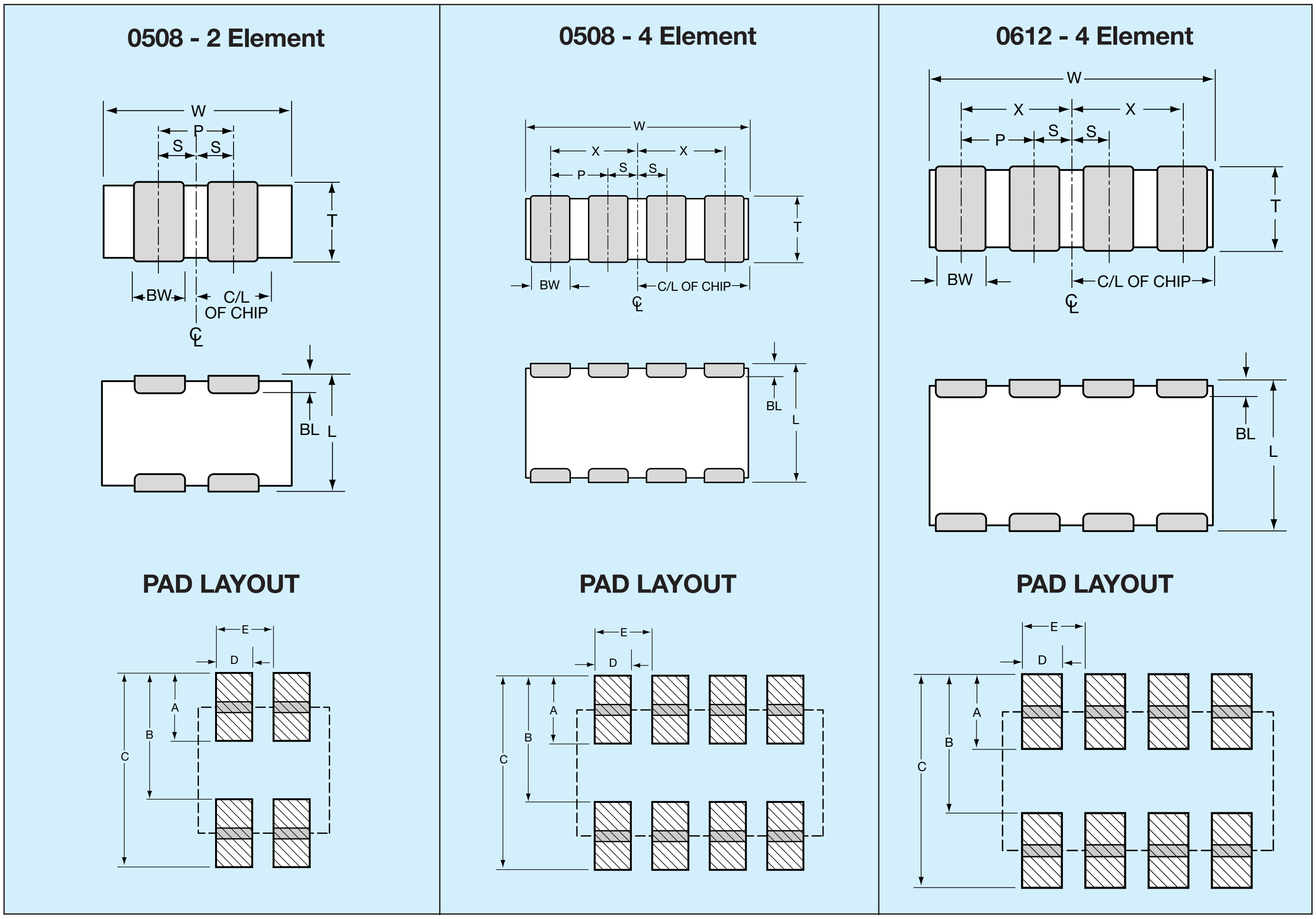
RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

Capacitor Array

PART & PAD LAYOUT DIMENSIONS

millimeters (inches)



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)