

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%.

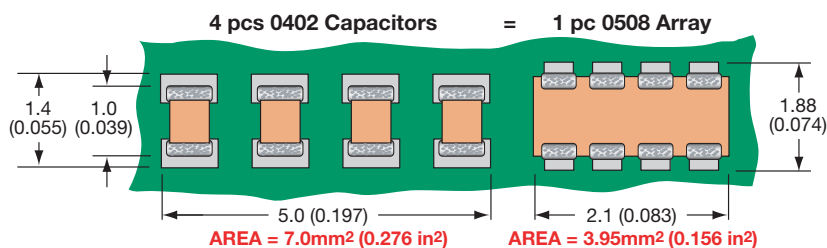
For high volume users of cap arrays using the very latest placement equipment capable of placing 10 components per second, the increase in throughput can be very significant and can have the overall effect of reducing the number of placement machines required to mount components:

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.

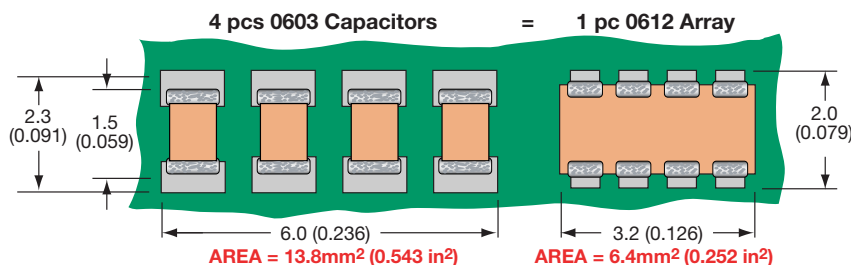
Smaller volume users can also benefit from replacing discrete components with arrays. The total number of placements is reduced thus creating spare capacity on placement machines. This in turn generates the opportunity to increase overall production output without further investment in new equipment.

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

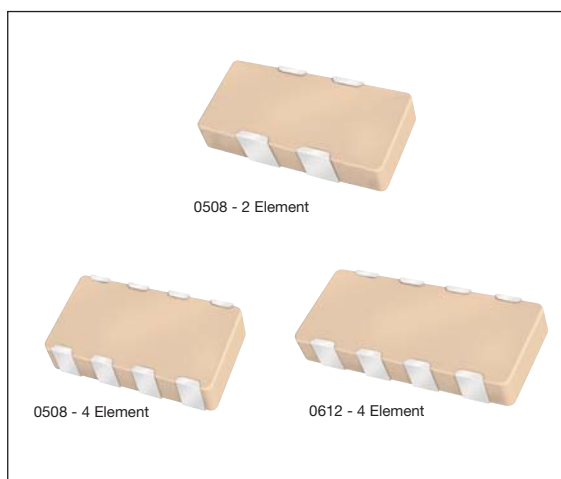


The 0612 4-element capacitor array gives a PCB space saving of over 50% vs four 0603 discretes and over 70% vs four 0805 discrete capacitors.

Capacitor Array



Capacitor Array (IPC)



GENERAL DESCRIPTION

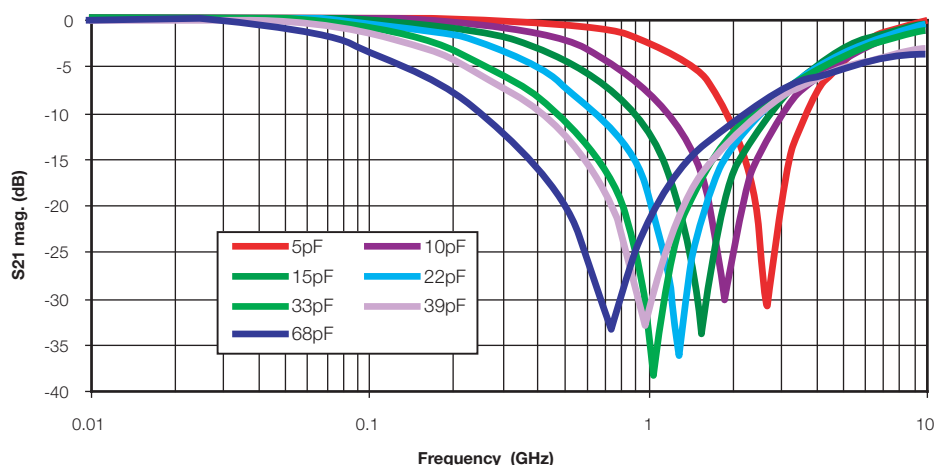
AVX is the market leader in the development and manufacture of capacitor arrays. The array family of products also includes the 0612 4-element device as well as 0508 2-element and 4-element series, all of which have received widespread acceptance in the marketplace.

AVX capacitor arrays are available in X5R, X7R and NP0 (C0G) ceramic dielectrics to cover a broad range of capacitance values. Voltage ratings from 6.3 Volts up to 100 Volts are offered. AVX also now offers a range of automotive capacitor arrays qualified to AEC-Q200 (see separate table).

Key markets for capacitor arrays are Mobile and Cordless Phones, Digital Set Top Boxes, Computer Motherboards and Peripherals as well as Automotive applications, RF Modems, Networking Products, etc.

AVX Capacitor Array - W2A41A***K

S21 Magnitude



HOW TO ORDER

W	2	A	4	3	C	103	M	A	T	2A
Style W = RoHS L = SnPb	Case Size 2 = 0508 3 = 0612	Array	Number of Caps 2 = 2 Element 4 = 4 Element	Voltage 6 = 6V Z = 10V Y = 16V 3 = 25V 5 = 50V 1 = 100V	Dielectric A = NP0 C = X7R D = X5R	Capacitance Code 2 Sig Digits + Number of Zeros	Capacitance Tolerance J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$	Failure Rate A = Commercial 4 = Automotive	Termination Code *T = Plated Ni and Sn *Z = FLEXITERM® *B = 5% min lead *X = FLEXITERM® with 5% min lead	Packaging & Quantity Code 2A = 7" Reel (4000) 4A = 13" Reel (10000) 2F = 7" Reel (1000)
									*RoHS Compliant	
									*Not RoHS Compliant	



NOTE: Contact factory for availability of Termination and Tolerance Options for Specific Part Numbers.



Capacitor Array

Capacitance Range – NP0/C0G

SIZE		W2 = 0508			W3 = 0612		
# Elements		4			4		
Soldering		Reflow/Wave			Reflow/Wave		
Packaging		Paper/Embossed			Paper/Embossed		
Length	mm (in.)	1.30 ± 0.15 (0.051 ± 0.006)			1.60 ± 0.150 (0.063 ± 0.006)		
Width	mm (in.)	2.10 ± 0.15 (0.083 ± 0.006)			3.20 ± 0.20 (0.126 ± 0.008)		
Max. Thickness	mm (in.)	0.94 (0.037)			1.35 (0.053)		
WVDC		16	25	50	16	25	50
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						

= Supported Values

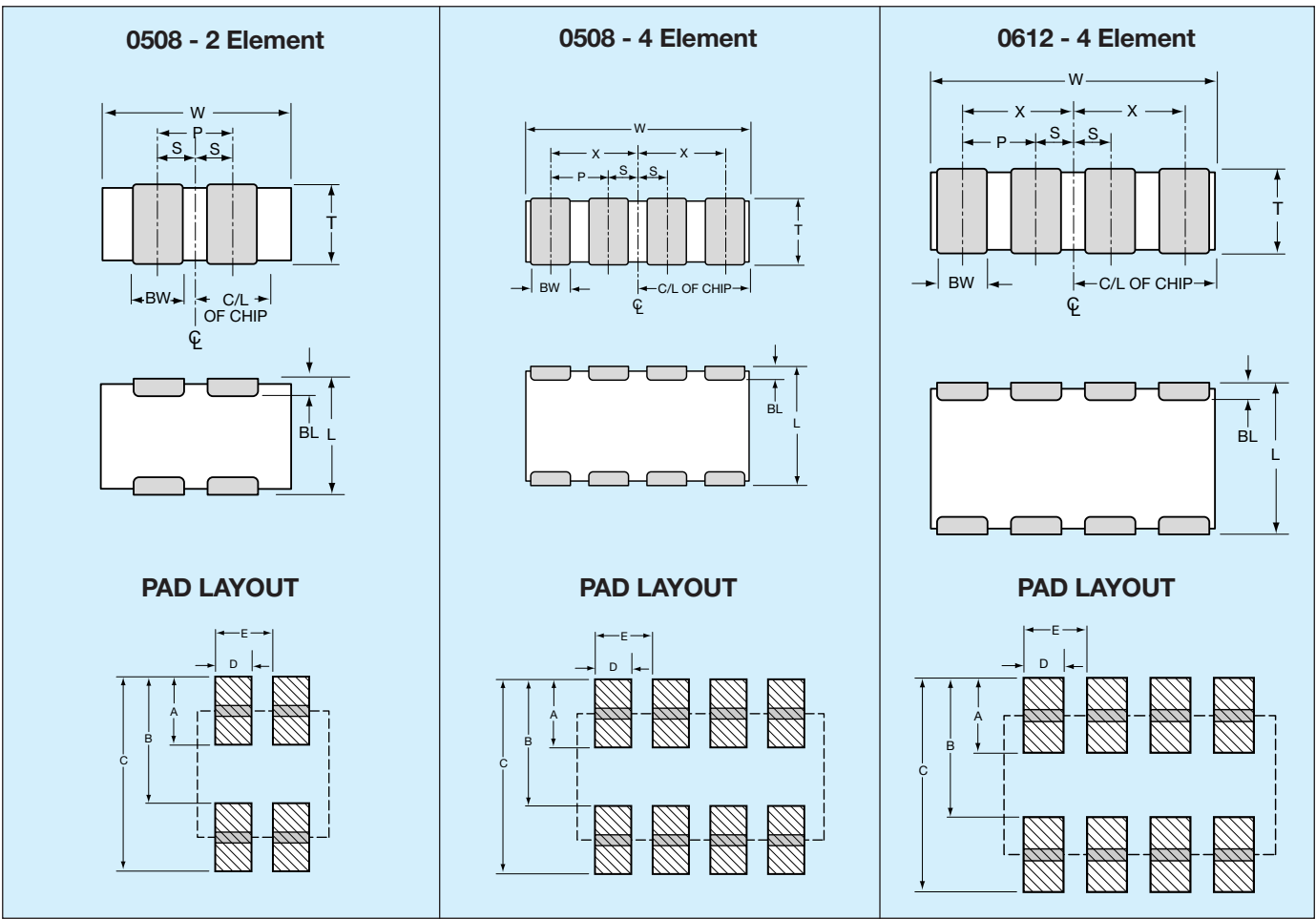
Capacitor Array

Capacitance Range – X7R

SIZE			W2 = 0508							W2 = 0508							W3 = 0612						
# Elements			2							4							4						
Soldering			Reflow/Wave							Reflow/Wave							Reflow/Wave						
Packaging			All Paper							Paper/Embossed							Paper/Embossed						
Length	mm		1.30 ± 0.15							1.30 ± 0.15							1.60 ± 0.150						
	(in.)		(0.051 ± 0.006)							(0.051 ± 0.006)							(0.063 ± 0.006)						
Width	mm		2.10 ± 0.15							2.10 ± 0.15							3.20 ± 0.20						
	(in.)		(0.083 ± 0.006)							(0.083 ± 0.006)							(0.126 ± 0.008)						
Max. Thickness	mm		0.94							0.94							1.35						
	(in.)		(0.037)							(0.037)							(0.053)						
WVDC			6	10	16	25	50	100	6	10	16	25	50	100	6	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																					
184		0.18																					
224		0.22																					
274		0.27																					
334		0.33																					
474		0.47																					
564		0.56																					
684		0.68																					
824		0.82																					
105		1.0																					
125		1.2																					
155		1.5																					
185		1.8																					
225		2.2																					
335		3.3																					
475		4.7																					
106		10																					
226		22																					
476		47																					
107		100																					

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 (0.007 ± 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)