

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%.

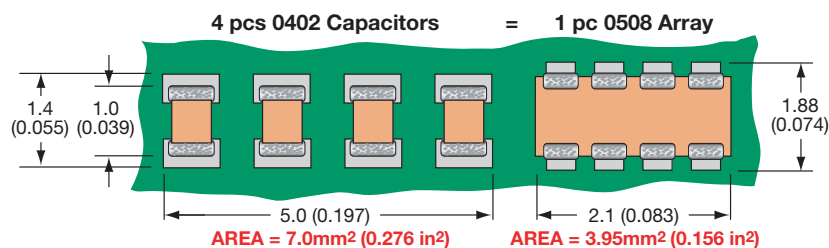
For high volume users of cap arrays using the very latest placement equipment capable of placing 10 components per second, the increase in throughput can be very significant and can have the overall effect of reducing the number of placement machines required to mount components:

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.

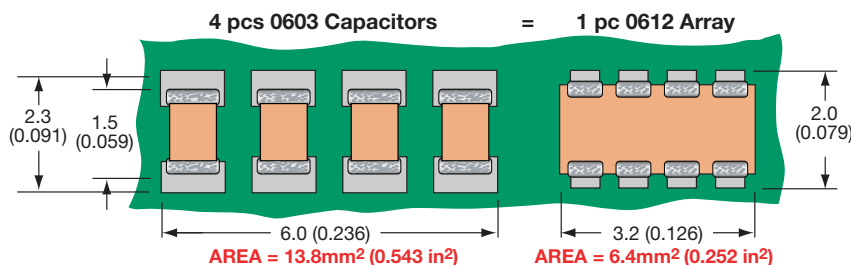
Smaller volume users can also benefit from replacing discrete components with arrays. The total number of placements is reduced thus creating spare capacity on placement machines. This in turn generates the opportunity to increase overall production output without further investment in new equipment.

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

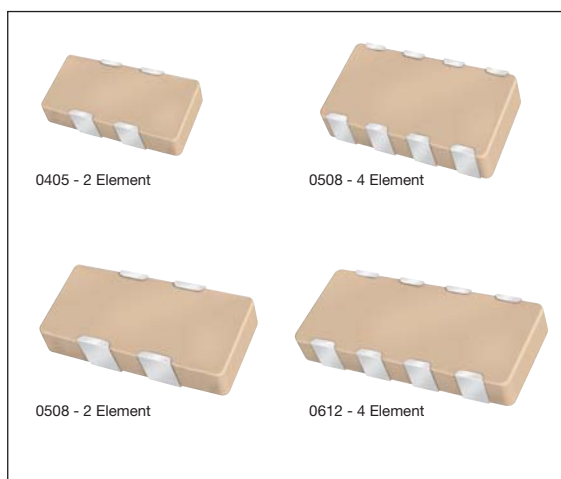


The 0612 4-element capacitor array gives a PCB space saving of over 50% vs four 0603 discretes and over 70% vs four 0805 discrete capacitors.

Capacitor Array



Capacitor Array (IPC)



GENERAL DESCRIPTION

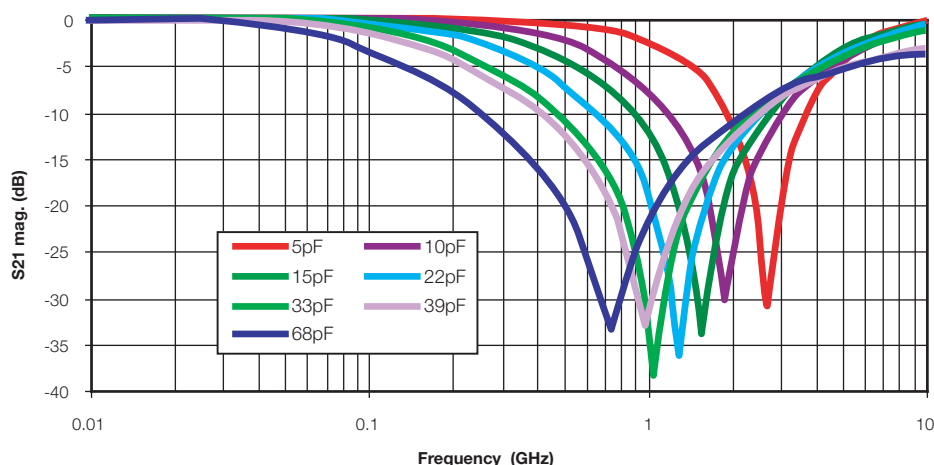
AVX is the market leader in the development and manufacture of capacitor arrays. The smallest array option available from AVX, the 0405 2-element device, has been an enormous success in the Telecommunications market. The array family of products also includes the 0612 4-element device as well as 0508 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 1 = 0405 2 = 0508 3 = 0612	Array	Number of Caps	Voltage 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

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

Capacitor Array

Capacitance Range – NP0/C0G

SIZE		0405				0508				0508				0612			
# Elements		2				2				4				4			
Soldering		Reflow Only				Reflow/Wave				Reflow/Wave				Reflow/Wave			
Packaging		All Paper				All Paper				Paper/Embossed				Paper/Embossed			
Length	mm (in.)	1.00 ± 0.15 (0.039 ± 0.006)				1.30 ± 0.15 (0.051 ± 0.006)				1.30 ± 0.15 (0.051 ± 0.006)				1.60 ± 0.150 (0.063 ± 0.006)			
Width	mm (in.)	1.37 ± 0.15 (0.054 ± 0.006)				2.10 ± 0.15 (0.083 ± 0.006)				2.10 ± 0.15 (0.083 ± 0.006)				3.20 ± 0.20 (0.126 ± 0.008)			
Max. Thickness	mm (in.)	0.66 (0.026)				0.94 (0.037)				0.94 (0.037)				1.35 (0.053)			
WVDC		16	25	50		16	25	50	100	16	25	50	100	16	25	50	100
1R0	Cap																
1R2	(pF)																
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																

SIZE		0306				0405					0508						0508						0612					
# Elements		4				2					2						4						4					
Soldering		Reflow Only				Reflow Only					Reflow/Wave						Reflow/Wave						Reflow/Wave					
Packaging		All Paper				All Paper					All Paper						Paper/Embossed						Paper/Embossed					
Length	mm (in.)	1.60 ± 0.15 (0.063 ± 0.006)				1.00 ± 0.15 (0.039 ± 0.006)					1.30 ± 0.15 (0.051 ± 0.006)						1.30 ± 0.15 (0.051 ± 0.006)						1.60 ± 0.150 (0.063 ± 0.006)					
Width	mm (in.)	0.81 ± 0.15 (0.032 ± 0.006)				1.37 ± 0.15 (0.054 ± 0.006)					2.10 ± 0.15 (0.083 ± 0.006)						2.10 ± 0.15 (0.083 ± 0.006)						3.20 ± 0.20 (0.126 ± 0.008)					
Max. Thickness	mm (in.)	0.50 (0.020)				0.66 (0.026)					0.94 (0.037)						0.94 (0.037)						1.35 (0.053)					
WWDC		6	10	16	25	6	10	16	25	50	6	10	16	25	50	100	6	10	16	25	50	100	6	10	16	25	50	100
101	Cap	100																										
121	(µF)	120																										
151	150																											
181	180																											
221	220																											
271	270																											
331	330																											
391	390																											
471	470																											
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332	3300																											
392	3900																											
472	4700																											
562	5600																											
682	6800																											
822	8200																											
103	Cap	0.010		</																								

 = Under development X5R, contact factory for advance samples

Mouser Electronics

Authorized Distributor

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[AVX:](#)

[W1A23C102MAT4A](#)