

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 discretés 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 discretés 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 (COG) 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 5 = 0306	Array	Number of Caps	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 = ±5% K = ±10% M = ±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)

Not RoHS Compliant

**RoHS compliant



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

For RoHS compliant products,
please select correct termination style



Capacitor Array

Capacitance Range – NP0/COG



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	1.00 ± 0.15			1.30 ± 0.15				1.30 ± 0.15				1.60 ± 0.150			
	(in.)	(0.039 ± 0.006)			(0.051 ± 0.006)				(0.051 ± 0.006)				(0.063 ± 0.006)			
Width	mm	1.37 ± 0.15			2.10 ± 0.15				2.10 ± 0.15				3.20 ± 0.20			
	(in.)	(0.054 ± 0.006)			(0.083 ± 0.006)				(0.083 ± 0.006)				(0.126 ± 0.008)			
Max. Thickness	mm	0.66			0.94				0.94				1.35			
	(in.)	(0.026)			(0.037)				(0.037)				(0.053)			
WVDC		16	25	50	16	25	50	100	16	25	50	100	16	25	50	100
1R0	1.0															
1R2	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															



Capacitor Array



Capacitance Range – X7R/X5R

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)
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)
Max. Thickness	mm (in.)	0.50 (0.020)	0.66 (0.026)	0.94 (0.037)	0.94 (0.037)
WVDC	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	Available	Available	Available	Available	Available
121 (pF) 120	Available	Available	Available	Available	Available
151 150	Available	Available	Available	Available	Available
181 180	Available	Available	Available	Available	Available
221 220	Available	Available	Available	Available	Available
271 270	Available	Available	Available	Available	Available
331 330	Available	Available	Available	Available	Available
391 390	Available	Available	Available	Available	Available
471 470	Available	Available	Available	Available	Available
561 560	Available	Available	Available	Available	Available
681 680	Available	Available	Available	Available	Available
821 820	Available	Available	Available	Available	Available
102 1000	Available	Available	Available	Available	Available
122 1200	Available	Available	Available	Available	Available
152 1500	Available	Available	Available	Available	Available
182 1800	Available	Available	Available	Available	Available
222 2200	Available	Available	Available	Available	Available
272 2700	Available	Available	Available	Available	Available
332 3300	Available	Available	Available	Available	Available
392 3900	Available	Available	Available	Available	Available
472 4700	Available	Available	Available	Available	Available
562 5600	Available	Available	Available	Available	Available
682 6800	Available	Available	Available	Available	Available
822 8200	Available	Available	Available	Available	Available
103 Cap 0.010	Available	Available	Available	Available	Available
123 (μF) 0.012	Available	Available	Available	Available	Available
153 0.015	Available	Available	Available	Available	Available
183 0.018	Available	Available	Available	Available	Available
223 0.022	Available	Available	Available	Available	Available
273 0.027	Available	Available	Available	Available	Available
333 0.033	Available	Available	Available	Available	Available
393 0.039	Available	Available	Available	Available	Available
473 0.047	Available	Available	Available	Available	Available
563 0.056	Available	Available	Available	Available	Available
683 0.068	Available	Available	Available	Available	Available
823 0.082	Available	Available	Available	Available	Available
104 0.10	Available	Available	Available	Available	Available
124 0.12	Available	Available	Available	Available	Available
154 0.15	Available	Available	Available	Available	Available
184 0.18	Available	Available	Available	Available	Available
224 0.22	Available	Available	Available	Available	Available
274 0.27	Available	Available	Available	Available	Available
334 0.33	Available	Available	Available	Available	Available
474 0.47	Available	Available	Available	Available	Available
564 0.56	Available	Available	Available	Available	Available
684 0.68	Available	Available	Available	Available	Available
824 0.82	Available	Available	Available	Available	Available
105 1.0	Available	Available	Available	Available	Available
125 1.2	Available	Available	Available	Available	Available
155 1.5	Available	Available	Available	Available	Available
185 1.8	Available	Available	Available	Available	Available
225 2.2	Available	Available	Available	Available	Available
335 3.3	Available	Available	Available	Available	Available
475 4.7	Available	Available	Available	Available	Available
106 10	Available	Available	Available	Available	Available
226 22	Available	Available	Available	Available	Available
476 47	Available	Available	Available	Available	Available
107 100	Available	Available	Available	Available	Available

- = Currently available X7R
- = Currently available X5R
- = Under development X7R, contact factory for advance samples
- = Under development X5R, contact factory for advance samples



PART & PAD LAYOUT DIMENSIONS

millimeters (inches)



PART DIMENSIONS

0405 - 2 Element

L	W	T	BW	BL	P	S
1.00 ± 0.15 (0.039 ± 0.006)	1.37 ± 0.15 (0.054 ± 0.006)	0.66 MAX (0.026 MAX)	0.36 ± 0.10 (0.014 ± 0.004)	0.20 ± 0.10 (0.008 ± 0.004)	0.64 REF (0.025 REF)	0.32 ± 0.10 (0.013 ± 0.004)

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

0405 - 2 Element

A	B	C	D	E
0.46 (0.018)	0.74 (0.029)	1.20 (0.047)	0.30 (0.012)	0.64 (0.025)

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)

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JONHON

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