

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**



For RoHS compliant products,
please select correct termination style

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



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	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	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	0.50 (0.020)					0.66 (0.026)					0.94 (0.037)					0.94 (0.037)					1.35 (0.053)							
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	X5R					X7R					X7R					X7R					X7R							
121 120																												
151 150																												
181 180	X5R					X7R					X7R					X7R					X7R							
221 220																												
271 270																												
331 330	X5R					X7R					X7R					X7R					X7R							
391 390																												
471 470																												
561 560	X5R					X7R					X7R					X7R					X7R							
681 680																												
821 820																												
102 1000	X5R					X7R					X7R					X7R					X7R							
122 1200																												
152 1500																												
182 1800	X5R					X7R					X7R					X7R					X7R							
222 2200																												
272 2700																												
332 3300	X5R					X7R					X7R					X7R					X7R							
392 3900																												
472 4700																												
562 5600	X5R					X7R					X7R					X7R					X7R							
682 6800																												
822 8200																												
103 Cap 0.010	X5R					X7R					X7R					X7R					X7R							
123 0.012																												
153 0.015																												
183 0.018	X5R					X7R					X7R					X7R					X7R							
223 0.022																												
273 0.027																												
333 0.033	X5R					X7R					X7R					X7R					X7R							
393 0.039																												
473 0.047																												
563 0.056	X5R					X7R					X7R					X7R					X7R							
683 0.068																												
823 0.082																												
104 0.10	X5R					X7R					X7R					X7R					X7R							
124 0.12																												
154 0.15																												
184 0.18	X5R					X7R					X7R					X7R					X7R							
224 0.22																												
274 0.27																												
334 0.33	X5R					X7R					X7R					X7R					X7R							
474 0.47																												
564 0.56																												
684 0.68	X5R					X7R					X7R					X7R					X7R							
824 0.82																												
105 1.0																												
125 1.2	X5R					X7R					X7R					X7R					X7R							
155 1.5																												
185 1.8																												
225 2.2	X5R					X7R					X7R					X7R					X7R							
335 3.3																												
475 4.7																												
106 10	X5R					X7R					X7R					X7R					X7R							
226 22																												
476 47																												
107 100	X5R					X7R					X7R					X7R					X7R							

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



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 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 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	Packaging & Quantity Code 2A = 7" Reel (4000) 4A = 13" Reel (10000) 2F = 7" Reel (1000)
									**RoHS compliant	

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

NP0/COG												
SIZE	0405	0508	0508				0612					
No. of Elements	2	2	4				4					
WVDC	50	50	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											

Light Blue = NP0/COG
Dark Blue = Under development

X7R													X8R	
SIZE	0508				0612				0612				0405	
No. of Elements	2				4				4				2	
WVDC	16	25	50	100	16	25	50	100	10	16	25	50	100	16
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													

Light Blue = X7R
Dark Blue = X8R
Dark Blue = Under development

Not RoHS Compliant



For RoHS compliant products, please select correct termination style.

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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- Поставка более 17-ти миллионов наименований электронных компонентов;
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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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