

## 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

<b>W</b>	<b>2</b>	<b>A</b>	<b>4</b>	<b>3</b>	<b>C</b>	<b>103</b>	<b>M</b>	<b>A</b>	<b>T</b>	<b>2A</b>
<b>Style</b> W = RoHS L = SnPb	<b>Case Size</b> 1 = 0405 2 = 0508 3 = 0612 5 = 0306	<b>Array</b>	<b>Number of Caps</b>	<b>Voltage</b> 6 = 6V Z = 10V Y = 16V 3 = 25V 5 = 50V 1 = 100V	<b>Dielectric</b> A = NP0 C = X7R D = X5R	<b>Capacitance Code</b> 2 Sig Digits + Number of Zeros	<b>Capacitance Tolerance</b> J = ±5% K = ±10% M = ±20%	<b>Failure Rate</b> A = Commercial 4 = Automotive	<b>Termination Code</b> T = Plated Ni and Sn** Z = FLEXITERM®** B = 5% min lead X = FLEXITERM® with 5% min lead	<b>Packaging &amp; Quantity Code</b> 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					
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					

- = 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

<b>W</b> ↓	<b>3</b> ↓	<b>A</b> ↓	<b>4</b> ↓	<b>Y</b> ↓	<b>C</b> ↓	<b>104</b> ↓	<b>K</b> ↓	<b>4</b> ↓	<b>T</b> ↓	<b>2A</b> ↓
<b>Style</b>	<b>Case Size</b>	<b>Array</b>	<b>Number of Caps</b>	<b>Voltage</b>	<b>Dielectric</b>	<b>Capacitance Code (In pF)</b>	<b>Capacitance Tolerance</b>	<b>Failure Rate</b>	<b>Terminations</b>	<b>Packaging &amp; Quantity Code</b>
W = RoHS L = SnPb	1 = 0405 2 = 0508 3 = 0612			Z = 10V Y = 16V 3 = 25V 5 = 50V 1 = 100V	A = NP0 C = X7R F = X8R	Significant Digits + Number of Zeros e.g. 10µF=106	*J = ±5% *K = ±10% M = ±20%	4 = Automotive	T = Plated Ni and Sn** Z = FLEXITERM®** B = 5% min lead X = FLEXITERM® with 5% min lead	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				0612					
No. of Elements	WVDC	2	2	4				4					
		50	50	16	25	50	100	16	25	50	100		
1R0	Cap 1.0 (pF)												
1R2	1.2 (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												
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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 (µF)												
123	0.012 (µF)												
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												

Light Blue = NP0/COG  
Dark Blue = Under development

		X7R												X8R	
SIZE		0508				0508				0612				0405	
No. of Elements	WVDC	2				4				4				2	
		16	25	50	100	16	25	50	100	10	16	25	50	100	16
101	Cap 100 (pF)														
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														
103	Cap 0.010 (µF)														
123	0.012 (µF)														
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														

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

Not RoHS Compliant

LEAD-FREE  
LEAD-FREE COMPATIBLE COMPONENT  
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 <sup>+0.25</sup> <sub>-0.08</sub> (0.007 <sup>+0.010</sup> <sub>-0.003</sub> )	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)



## Стандарт Электрон Связь

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Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

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С нами вы становитесь еще успешнее!

### Наши контакты:

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