

## 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 discrettes 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 discrettes 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)					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)							
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	X5R					X7R					X7R					X7R					X7R							
121 (pF)																												
151 150																												
181 180	X5R					X7R					X7R					X7R												
221 220	X5R					X7R					X7R					X7R												
271 270	X5R					X7R					X7R					X7R												
331 330	X5R					X7R					X7R					X7R												
391 390	X5R					X7R					X7R					X7R												
471 470	X5R					X7R					X7R					X7R												
561 560	X5R					X7R					X7R					X7R												
681 680	X5R					X7R					X7R					X7R												
821 820	X5R					X7R					X7R					X7R												
102 1000	X5R					X7R					X7R					X7R												
122 1200	X5R					X7R					X7R					X7R												
152 1500	X5R					X7R					X7R					X7R												
182 1800	X5R					X7R					X7R					X7R												
222 2200	X5R					X7R					X7R					X7R												
272 2700	X5R					X7R					X7R					X7R												
332 3300	X5R					X7R					X7R					X7R												
392 3900	X5R					X7R					X7R					X7R												
472 4700	X5R					X7R					X7R					X7R												
562 5600	X5R					X7R					X7R					X7R												
682 6800	X5R					X7R					X7R					X7R												
822 8200	X5R					X7R					X7R					X7R												
103 Cap	X5R					X7R					X7R					X7R												
123 (µF)	X5R					X7R					X7R					X7R												
153 0.015	X5R					X7R					X7R					X7R												
183 0.018	X5R					X7R					X7R					X7R												
223 0.022	X5R					X7R					X7R					X7R												
273 0.027	X5R					X7R					X7R					X7R												
333 0.033	X5R					X7R					X7R					X7R												
393 0.039	X5R					X7R					X7R					X7R												
473 0.047	X5R					X7R					X7R					X7R												
563 0.056	X5R					X7R					X7R					X7R												
683 0.068	X5R					X7R					X7R					X7R												
823 0.082	X5R					X7R					X7R					X7R												
104 0.10	X5R					X7R					X7R					X7R												
124 0.12	X5R					X7R					X7R					X7R												
154 0.15	X5R					X7R					X7R					X7R												
184 0.18	X5R					X7R					X7R					X7R												
224 0.22	X5R					X7R					X7R					X7R												
274 0.27	X5R					X7R					X7R					X7R												
334 0.33	X5R					X7R					X7R					X7R												
474 0.47	X5R					X7R					X7R					X7R												
564 0.56	X5R					X7R					X7R					X7R												
684 0.68	X5R					X7R					X7R					X7R												
824 0.82	X5R					X7R					X7R					X7R												
105 1.0	X5R					X7R					X7R					X7R												
125 1.2	X5R					X7R					X7R					X7R												
155 1.5	X5R					X7R					X7R					X7R												
185 1.8	X5R					X7R					X7R					X7R												
225 2.2	X5R					X7R					X7R					X7R												
335 3.3	X5R					X7R					X7R					X7R												
475 4.7	X5R					X7R					X7R					X7R												
106 10	X5R					X7R					X7R					X7R												
226 22	X5R					X7R					X7R					X7R												
476 47	X5R					X7R					X7R					X7R												
107 100	X5R					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 complement 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>   Style W = RoHS L = SnPb	<b>3</b>   Case Size 1 = 0405 2 = 0508 3 = 0612	<b>A</b>   Array	<b>4</b>   Number of Caps	<b>Y</b>   Voltage Z = 10V Y = 16V 3 = 25V 5 = 50V 1 = 100V	<b>C</b>   Dielectric A = NP0 C = X7R F = X8R	<b>104</b>   Capacitance Code (In pF) Significant Digits + Number of Zeros e.g. 10µF=106	<b>K</b>   Capacitance Tolerance *J = ±5% *K = ±10% M = ±20%	<b>4</b>   Failure Rate 4 = Automotive	<b>T</b>   Terminations T = Plated Ni and Sn** Z = FLEXITERM®** B = 5% min lead X = FLEXITERM® with 5% min lead	<b>2A</b>   Packaging & Quantity Code 2A = 7" Reel (4000) 4A = 13" Reel (10000) 2F = 7" Reel (1000)
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**\*\*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 Cap 1.0 (pF)												
1R2 1.2 (pF)												
1R5 1.5 (pF)												
1R8 1.8 (pF)												
2R2 2.2 (pF)												
2R7 2.7 (pF)												
3R3 3.3 (pF)												
3R9 3.9 (pF)												
4R7 4.7 (pF)												
5R6 5.6 (pF)												
6R8 6.8 (pF)												
8R2 8.2 (pF)												
100 10 (pF)												
120 12 (pF)												
150 15 (pF)												
180 18 (pF)												
220 22 (pF)												
270 27 (pF)												
330 33 (pF)												
390 39 (pF)												
470 47 (pF)												
560 56 (pF)												
680 68 (pF)												
820 82 (pF)												
101 100 (pF)												
121 120 (pF)												
151 150 (pF)												
181 180 (pF)												
221 220 (pF)												
271 270 (pF)												
331 330 (pF)												
391 390 (pF)												
471 470 (pF)												
561 560 (pF)												
681 680 (pF)												
821 820 (pF)												
102 1000 (pF)												
122 1200 (pF)												
152 1500 (pF)												
182 1800 (pF)												
222 2200 (pF)												
272 2700 (pF)												
332 3300 (pF)												
392 3900 (pF)												
472 4700 (pF)												
562 5600 (pF)												
682 6800 (pF)												
822 8200 (pF)												
103 Cap 0.010 (µF)												
123 0.012 (µF)												
153 0.015 (µF)												
183 0.018 (µF)												
223 0.022 (µF)												
273 0.027 (µF)												
333 0.033 (µF)												
393 0.039 (µF)												
473 0.047 (µF)												
563 0.056 (µF)												
683 0.068 (µF)												
823 0.082 (µF)												
104 0.10 (µF)												
124 0.12 (µF)												
154 0.15 (µF)												
224 0.22 (µF)												

Light Blue = NP0/COG  
Dark Blue = Under development

SIZE	X7R												X8R	
	0508				0508				0612					0405
	2				4				4					2
No. of Elements	2				4				4				2	
WVDC	16	25	50	100	16	25	50	100	10	16	25	50	100	16
101 Cap 100 (pF)														
121 120 (pF)														
151 150 (pF)														
181 180 (pF)														
221 220 (pF)														
271 270 (pF)														
331 330 (pF)														
391 390 (pF)														
471 470 (pF)														
561 560 (pF)														
681 680 (pF)														
821 820 (pF)														
102 1000 (pF)														
122 1200 (pF)														
152 1500 (pF)														
182 1800 (pF)														
222 2200 (pF)														
272 2700 (pF)														
332 3300 (pF)														
392 3900 (pF)														
472 4700 (pF)														
562 5600 (pF)														
682 6800 (pF)														
822 8200 (pF)														
103 Cap 0.010 (µF)														
123 0.012 (µF)														
153 0.015 (µF)														
183 0.018 (µF)														
223 0.022 (µF)														
273 0.027 (µF)														
333 0.033 (µF)														
393 0.039 (µF)														
473 0.047 (µF)														
563 0.056 (µF)														
683 0.068 (µF)														
823 0.082 (µF)														
104 0.10 (µF)														
124 0.12 (µF)														
154 0.15 (µF)														
224 0.22 (µF)														

Light Blue = X7R  
Dark Blue = X8R  
Dark Grey = 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 <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)



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

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**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.