

## 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**



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	Cap	1.0														
1R2	(pF)	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	6	10	16	25	50	100
101	Cap	100	X5R																															
121		120	X5R																															
151		150	X5R																															
181		180	X5R																															
221		220	X5R																															
271		270	X5R																															
331		330	X5R																															
391		390	X5R																															
471		470	X5R																															
561		560	X5R																															
681		680	X5R																															
821		820	X5R																															
102		1000	X5R																															
122		1200	X5R																															
152		1500	X5R																															
182		1800	X5R																															
222		2200	X5R																															
272		2700	X5R																															
332		3300	X5R																															
392		3900	X5R																															
472		4700	X5R																															
562		5600	X5R																								X7R							
682		6800	X5R																								X7R							
822		8200	X5R																								X7R							
103	Cap	0.010	X5R																															
123		0.012	X5R																															
153		0.015	X5R																															
183		0.018	X5R																															
223		0.022	X5R																															
273		0.027	X5R																															
333		0.033	X5R																															
393		0.039	X5R																															
473		0.047	X5R																															
563		0.056	X5R																															
683		0.068	X5R																															
823		0.082	X5R																															
104		0.10	X5R																								X7R							
124		0.12	X5R																								X7R							
154		0.15	X5R																								X7R							
184		0.18	X5R																								X7R							
224		0.22	X5R																								X7R							
274		0.27	X5R																								X7R							
334		0.33	X5R																								X7R							
474		0.47	X5R																								X7R							
564		0.56	X5R																								X7R							
684		0.68	X5R																								X7R							
824		0.82	X5R																								X7R							
105		1.0	X5R																								X7R							
125		1.2	X5R																								X7R							
155		1.5	X5R																								X7R							
185		1.8	X5R																								X7R							
225		2.2	X5R																								X7R							
335		3.3	X5R																								X7R							
475		4.7	X5R																								X7R							
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 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

W	3	A	4	Y	C	104	K	4	T	2A
<b>Style</b> W = RoHS L = SnPb	<b>Case Size</b> 1 = 0405 2 = 0508 3 = 0612	<b>Array</b>	<b>Number of Caps</b>	<b>Voltage</b> Z = 10V Y = 16V 3 = 25V 5 = 50V 1 = 100V	<b>Dielectric</b> A = NP0 C = X7R F = X8R	<b>Capacitance Code (In pF)</b> Significant Digits + Number of Zeros e.g. 10µF=106	<b>Capacitance Tolerance</b> *J = ±5% *K = ±10% M = ±20%	<b>Failure Rate</b> 4 = Automotive	<b>Terminations</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)

**\*\*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	16	25	50	100
1R0	Cap 1.0													
1R2	(pF) 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													
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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													
224	0.22													

X7R													X8R	
SIZE	0508		0508				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	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													
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272	2700													
332	3300													
392	3900													
472	4700													
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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													
224	0.22													

□ = X7R  
  = X8R  
  = Under development

  = NP0/COG  
  = 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

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