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%.

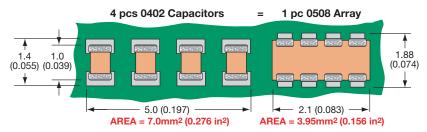
For high volume users of cap arrays using the very latest placement equipment capable of placing 10 components per second, the increase in throughput can be very significant and can have the overall effect of reducing the number of placement machines required to mount components:

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.

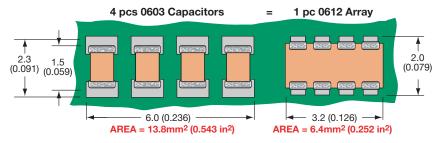
Smaller volume users can also benefit from replacing discrete components with arrays. The total number of placements is reduced thus creating spare capacity on placement machines. This in turn generates the opportunity to increase overall production output without further investment in new equipment.

W2A (0508) Capacitor Arrays



The 0508 4-element capacitor array gives a PCB space saving of over 40% vs four 0402 discretes and over 70% vs four 0603 discrete capacitors.

W3A (0612) Capacitor Arrays

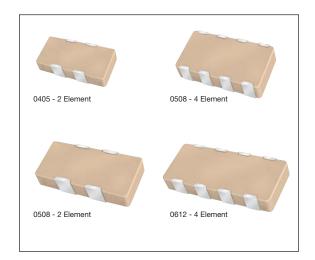


The 0612 4-element capacitor array gives a PCB space saving of over 50% vs four 0603 discretes and over 70% vs four 0805 discrete capacitors.





Capacitor Array (IPC)



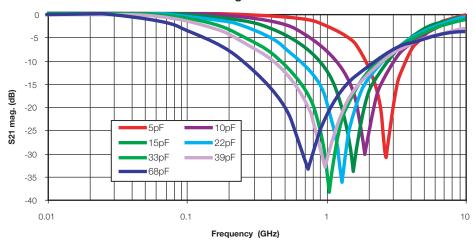
GENERAL DESCRIPTION

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.

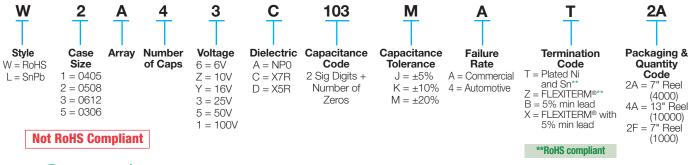
AVX capacitor arrays are available in X5R, X7R and NPO (COG) ceramic dielectrics to cover a broad range of capacitance values. Voltage ratings from 6.3 Volts up to 100 Volts are offered. AVX also now offers a range of automotive capacitor arrays qualified to AEC-Q200 (see separate table).

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



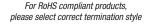
HOW TO ORDER







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







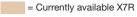
Capacitance Range - NP0/C0G

SIZE		0405			050	08			050	08			06	312	
# Elements		2			2				4					4	$\neg \neg$
Soldering	Re	eflow Only	/		Reflow	/Wave			Reflow	Wave			Reflov	v/Wave	
Packaging		All Paper			All Pa			_		nbosse	b	F	aper/E		
Length mm (in.)		0.15 39 ± 0.00				± 0.15 ± 0.006	5)		1.30 ± .051 ±	0.15 0.006)			1.60 : (0.063	± 0.150 ± 0.00	
Width mm (in.)		37 ± 0.15 54 ± 0.00				± 0.15 ± 0.006	i)		2.10 ± .083 ±	0.15 0.006)			3.20 (0.126	± 0.20 ± 0.00	
Max. mm		0.66			0.	94			0.9	4				.35	
Thickness (in.)		(0.026)				037)		L	(0.00		l	L	<u> </u>	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															$\vdash \vdash$
222 2200 272 2700															
332 3300 392 3900															\Box
472 4700															
562 5600 682 6800 822 8200															



Capacitance Range - X7R/X5R

	SIZE			03	06				0405	5				05	08					05	08					06	12		
	lemer	nts			4				2						2					4									
S	Soldering			Reflov	v Only			Re	flow C	nly			F	Reflow	/Wave)			F	Reflow	/Wave)			F	Reflow	/Wave)	
P	ackaging	1		All P					II Pape					All P							nboss						nboss		
Length	1	mm (in.)			± 0.15 ± 0.00				00 ± 0 39 ± 0						± 0.15 ± 0.00						± 0.15 ± 0.00						0.150		
Width		mm (in.)		0.81 =	± 0.15			1.3	37 ± 0. 54 ± 0.	.15				2.10 =	± 0.15 ± 0.00	,				2.10 ±	£ 0.15					3.20 ±	0.20		
Max. Thickn	ess	mm (in.)		0.0	50 020)				0.66 (0.026					0.0						0.0					•	1.3			
\	MVDC		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
	Сар	100																											
121 151	(pF)	120 150																											
181		180																											
221		220																											
271 331		270 330																											
391		390																											
471		470																											
561 681		560 680																											
821		820				L																							
102		1000																											
122 152		1200 1500																											
182		1800																											
222		2200																											
272 332		2700 3300																											
392		3900																											
472		4700																											
562 682		5600 6800																											
822		8200																											
	Сар	0.010																											
123 153	(μF)	0.012 0.015																											
183		0.018																											
223		0.022																											
273 333		0.027																											\vdash
393		0.033																											
473		0.047																											
563 683		0.056 0.068																											
823		0.082				L				L							L				L	L						L	
104		0.10					///																		111	///			
124 154		0.12 0.15																											
184		0.18																											Н
224 274		0.22 0.27																											
334		0.27																						////					\vdash
474		0.47																////								///			
564		0.56					_																						\sqcup
684 824		0.68 0.82																	1										
105		1.0																											
125		1.2																											
155 185		1.5 1.8																											
225		2.2																											М
335		3.3																											
475 106		4.7	\vdash				\vdash											\vdash						\vdash					$\vdash\vdash$
226		22																											
476		47																											
107		100		do V7																	<u> </u>	<u> </u>							



= Currently available X5R

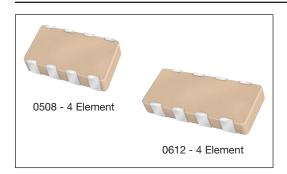
= Under development X7R, contact factory for advance samples

= 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	<u>A</u>	4	<u>Y</u>	C	104	K T	4	<u>T</u>	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 = $\pm 5\%$ *K = $\pm 10\%$ M = $\pm 20\%$	Failure Rate 4 = Automotive	Terminations T = Plated Ni and Sn** Z = FLEXITERM®** B = 5% min lead X = FLEXITERM® with 5% min lead **RoHS compliant	Packaging & Quantity Code 2A = 7" Reel (4000) 4A = 13" Reel (10000) 2F = 7" Reel (1000)

^{*}Contact factory for availability by part number for $K = \pm 10\%$ and $J = \pm 5\%$ tolerance.

				NF	20/0	COG					
S	IZE	0405	0508			06	12				
No. of	Elements	2	2		4 25 50 100				4	1	
	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										

		X7R												X8R	
5	SIZE		05	808			05	80				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														
=	X7R									Ma	4 D	·IIC	0	an li a	
=	X8R									NO	JT K	DH2	Con	1plia	INT

= NPO/COG = Under development







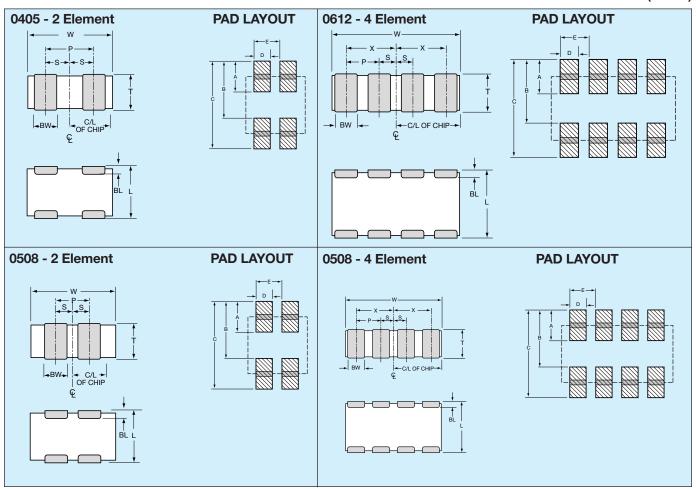
= Under development

For RoHS compliant products, please select correct termination style.



PART & PAD LAYOUT DIMENSIONS

millimeters (inches)



PART DIMENSIONS

0405 - 2 Element

L	W	Т	BW	BL	Р	S
	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 RFF)	0.32 ± 0.10 (0.013 + 0.004)
(0.000 - 0.000)	(/	((0.0	(0.000 - 0.00 .)	(0.0000)	(0.0.0 = 0.00)

0508 - 2 Element

L	W	T	BW	BL	Р	S
=	2.10 ± 0.15	0.94 MAX		0.33 ± 0.08	1.00 REF	0.50 ± 0.10
(0.051 ± 0.006)	(0.083 ± 0.006)	(0.037 MAX)	(0.017 ± 0.004)	(0.013 ± 0.003)	(0.039 REF)	(0.020 ± 0.004)

0508 - 4 Element

L	W	Т	BW	BL	Р	Х	S
	2.10 ± 0.15		0.25 ± 0.06				0.25 ± 0.10
(0.051 ± 0.006)	(0.083 ± 0.006)	(0.037 MAX)	(0.010 ± 0.003)	(0.008 ± 0.003)	(0.020 REF)	(0.030 ± 0.004)	(0.010 ± 0.004)

0612 - 4 Element

L	W	Т	BW	BL	Р	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)	0.00 - 0

PAD LAYOUT DIMENSIONS

0405 - 2 Element

Α	В	С	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

Α	В	С	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

Α	В	С	D	Е
0.56	1.32	1.88	0.30	0.50
(0.022)	(0.052)	(0.074)	(0.012)	(0.020)

0612 - 4 Element

Α	В	С	D	Е
0.89	1.65	2.54	0.46	0.76
(0.035)	(0.065)	(0.100)	(0.018)	(0.030)

