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%.

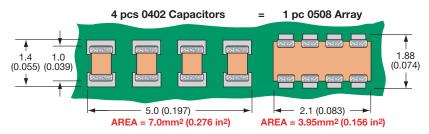
For high volume users of cap arrays using the very latest placement equipment capable of placing 10 components per second, the increase in throughput can be very significant and can have the overall effect of reducing the number of placement machines required to mount components:

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.

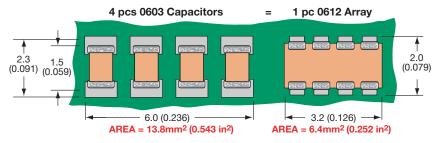
Smaller volume users can also benefit from replacing discrete components with arrays. The total number of placements is reduced thus creating spare capacity on placement machines. This in turn generates the opportunity to increase overall production output without further investment in new equipment.

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

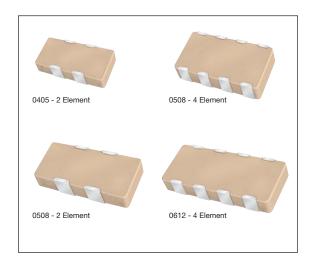


The 0612 4-element capacitor array gives a PCB space saving of over 50% vs four 0603 discretes and over 70% vs four 0805 discrete capacitors.









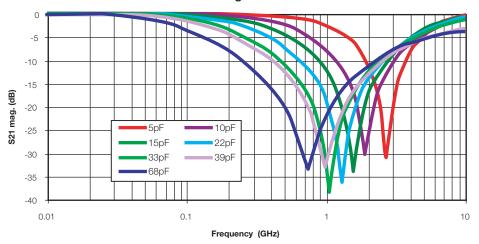
GENERAL DESCRIPTION

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.

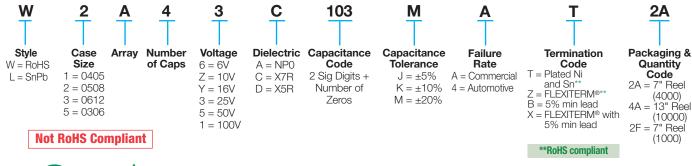
AVX capacitor arrays are available in X5R, X7R and NPO (COG) ceramic dielectrics to cover a broad range of capacitance values. Voltage ratings from 6.3 Volts up to 100 Volts are offered. AVX also now offers a range of automotive capacitor arrays qualified to AEC-Q200 (see separate table).

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.

For RoHS compliant products, please select correct termination style





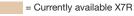
Capacitance Range – NP0/C0G

S	SIZE		0405			05	08			050	08			06	312	
	ements		2			2				4					4	
	Idering	R	eflow Only	/		Reflow				Reflow					v/Wave	,
	ckaging		All Paper			All Pa			_		nbosse	d	F		mboss	
Length	mm (in.)	1.	00 ± 0.15			1.30	± 0.15 ± 0.006	5)		1.30 ±				1.60 =	± 0.150)
Width	mm (in.)		37 ± 0.15				± 0.15 ± 0.006	5)		2.10 ±	0.15				± 0.20 ± 0.00	
Max.	mm		0.66			0.	.94	,		0.9	14			1.	.35	
Thicknes	. ,		(0.026)				037)		L	(0.0				_	053)	
	WVDC	16	25	50	16	25	50	100	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	3.3 3.9															
4R7 5B6	4.7 5.6															
6R8 8R2	6.8 8.2															
100 120 150	10 12 15															
180	18															
220 270	22 27															
330	33															
390 470	39 47															
560 680	56 68															
820	82															
101 121	100 120															
151	150															
181 221 271	180 220 270															
331 391 471	330 390 470															
561 681	560 680															
821	820								_							\sqcup
102 122 152	1000 1200 1500															
182 222	1800 2200															
332 392	2700 3300 3900															
472 562	4700 5600				_											
682 822	6800 8200															



Capacitance Range - X7R/X5R

SIZE			03	06				0405	5				05	08					05	08					06	12		
# Eleme	ents			4				2						2					4						4			
Solderin	ng		Reflov					eflow C						/Wave	-					/Wave					Reflow			
Packagii		_		aper		_		All Pap						aper			_			nboss					oer/En			
Length	mm (in.)		1.60 ±					00 ± 0 39 ± 0						± 0.15 ± 0.00						0.15					.60 ± .063			
	mm	<u> </u>	0.81 =					37 ± 0				_		± 0.00						0.15	_				3.20 ±		٥)	
Width	(in.)		0.032 =					54 ± 0						± 0.00						0.00					.126 ±		3)	
Max.	mm			50				0.66						94					0.9						1.3			
Thickness	(in.)		(0.0)		0.5			(0.026	<u> </u>	1 ==		l	<u> </u>	37)					(0.0)				_		(0.0)			
WVDC 101 Cap	100	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
121 (pF)	120 150																											
181	180																											
221	220																											
271	270																											
331 391	330 390																											
471	470																											
561	560																											
681	680																											
102	820 1000																											
102	1200																											
152	1500																											
182	1800																											
222 272	2200 2700																											
332	3300		///																									
392	3900																											
472	4700																											
562	5600																											
682 822	6800 8200																											
103 Cap	0.010																											
123 (µF)	0.012																											
153	0.015	-																										
183 223	0.018																											
273	0.027																											
333	0.033																											
393 473	0.039 0.047																											
563	0.047																											
683	0.068																											
823	0.082	_																										
104	0.10					///																		///	///			
124 154	0.12 0.15																											
184	0.18																											
224	0.22																											
274 334	0.27	\vdash																					///					
474	0.33																1///								///			
564	0.56	L																										
684	0.68																											
824 105	0.82 1.0																											
125	1.2										////																	
155	1.5																											
185	1.8	_															_											
225 335	2.2 3.3																						///					
475	3.3 4.7																											
106	10																											
226	22																											
476 107	47 100																											
107	100			<u> </u>													L	I										



= Currently available X5R

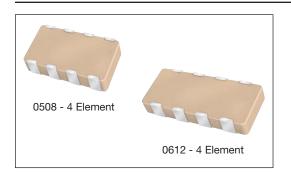
= Under development X7R, contact factory for advance samples

= 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

$\frac{\mathbf{W}}{\parallel}$	3	<u>A</u>	4	<u>Y</u>	C	104	K T	4	<u>T</u>	<u>2A</u>
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 **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.

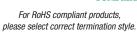
				NF	20/0	COG					
s	IZE	0405	0508		05	08			06	12	
No. of	Elements	2	2			4				4	
1R0	WVDC Cap 1.0	50	50	16	25	50	100	16	25	50	100
1R2 1R5	(pF) 1.2 1.5										
1R8 2R2 2R7	1.8 2.2 2.7										
3R3 3R9 4R7	3.3 3.9 4.7										
5R6 6R8 8R2	5.6 6.8 8.2										
100 120 150	10 12 15										
180 220 270	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		
	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									NI	of Da	чпс	Com	mlic	nd.
=	X8R									INC	JL K	oHS	COL	ihiig	IIIL

= NPO/COG = Under development







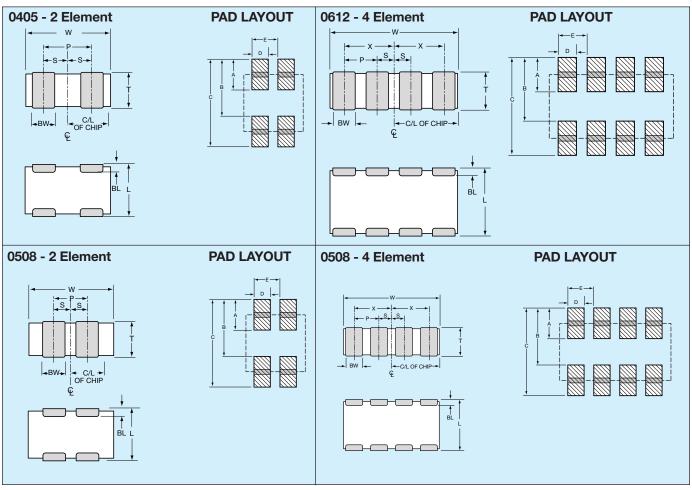


= Under development



PART & PAD LAYOUT DIMENSIONS

millimeters (inches)



PART DIMENSIONS

0405 - 2 Element

	L	W	Т	BW	BL	Р	S
,,	=	1.37 ± 0.15	0.66 MAX	0.36 ± 0.10	0.20 ± 0.10 (0.008 ± 0.004)		0.32 ± 0.10

0508 - 2 Element

L	W	Т	BW	BL	Р	S
 	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	Т	BW	BL	Р	X	S	
1.30 ± 0.15	2.10 ± 0.15	0.94 MAX	0.25 ± 0.06	0.20 ± 0.08	0.50 REF	0.75 ± 0.10	0.25 ± 0.10	ı
(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)	ı

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	Е
0.46	0.74	1.20	0.30	0.64
(0.018)	(0.029)	(0.047)	(0.012)	(0.025)

0508 - 2 Element

Α	В	С	D	Е
0.68	1.32	2.00	0.46	1.00
(0.027)	(0.052)	(0.079)	(0.018)	(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)

