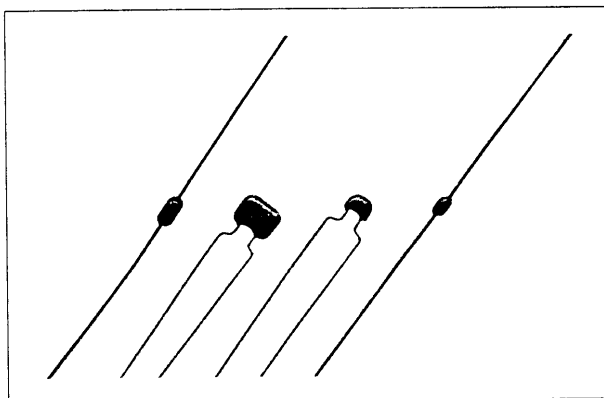


MONO-KAP[®] / MONO-AXIAL[™] Capacitors

BCcomponents ceramic capacitors offer the most complete range of electrical characteristics and mechanical configurations available in the industry. High volume manufacturing capability and a variety of packaging suitable for automatic insertion makes them your best capacitor value.

This catalog lists all standard types of leaded multilayer ceramic capacitors. These are listed in groups defined by dielectric type and voltage rating. Which permits choosing the optimum capacitor with the required capacitance at a reasonable price.



MONO-KAP[®]

Radial Leaded Multilayer Ceramic Capacitors

30

SPECIFICATIONS

ELECTRICAL

Capacitance Range: 10 pF to 2.2 μ F

Working Voltage : 25, 50, 100 V_{DC}

Capacitance Tolerance:

NP0: J = $\pm$ 5 %

K = $\pm$ 10 %

X7R: K = $\pm$ 10 %

M = $\pm$ 20%

Z5U: M = $\pm$ 20%

Z = +80, -20%

Y5V: Z = +80, -20%

Capacitance Test: at 25°C

NP0: 1.0 $\pm$ 0.2 V_{rms} and 1 MHz

(1 kHz for values above 1,000 pF)

X7R: 1.0 $\pm$ 0.2 V_{rms} and 1 kHz

Z5U: 0.5 $\pm$ 0.1 V_{rms} and 1 kHz

Y5V: 1.0 $\pm$ 0.2 V_{rms} and 1 kHz

Dielectric Strength: at 25°C

250% rated voltage with 50mA max. of charging current.

Dissipation Factor : at 25°C

NP0 : C $\leq$ 30 pF, 10/(40+2C)%, 1.0 $\pm$ 0.2 V_{rms} and 1MHz

C > 30 pF, 0.1% maximum, 1.0 $\pm$ 0.2 V_{rms} and 1MHz
(1 kHz for value above 1,000 pF)

X7R : 2.5% maximum, 1.0 $\pm$ 0.2 V_{rms} and 1kHz

Z5U : 4.0% maximum, 0.5 $\pm$ 0.1 V_{rms} and 1kHz

Y5V : 5.0% maximum, 1.0 $\pm$ 0.2 V_{rms} and 1kHz

Insulation Resistance: at 25 °C

NP0, X7R: 100K M Ω or 1,000 M Ω - μ F whichever is less at
rated voltage within 2 minutes of charging.

Y5V, Z5U: 10K M Ω or 1,000 M Ω - μ F whichever is less at
rated voltage within 2 minutes of charging.

Temperature Characteristics:

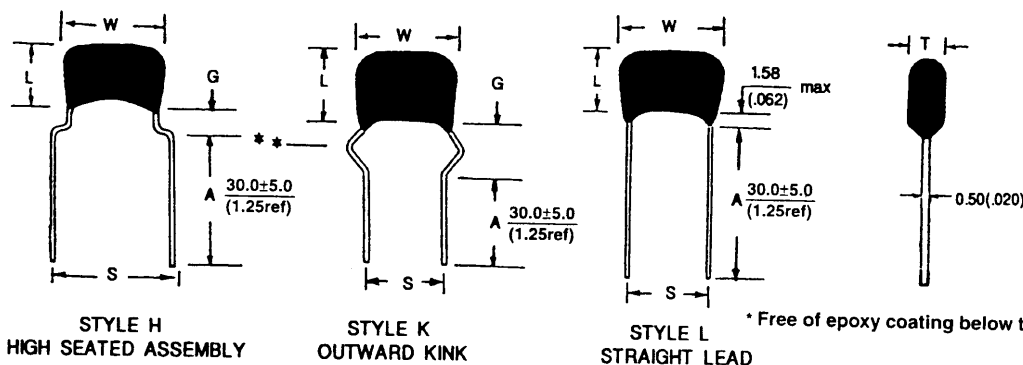
NP0: C $\geq$ 10 pF, 0 $\pm$ 30 ppm/°C, -55°C to +125°C

X7R: $\pm$ 15% Δ C, -55°C to +125°C

Z5U: $\pm$ 22% to -56% Δ C, +10°C to +85°C

Y5V: $\pm$ 22% to -82% Δ C, -30°C to +85°C

MECHANICAL



DIMENSIONS

Dimensions in mm (inch-ref.)

Size Code	Length Max.(L)	Width Max.(W)	Thickness Max.(T)	Lead Spacing (S) $\pm$ 0.8(0.031)	Lead Style	Seat Height Max.(G)	Remarks
15	4.0(.15)	4.0(.15)	2.5(.10)	2.5(.10)	L	—	-Lead spacing 6.4(.25), 7.5(.30) & 10.0(.375) are available upon request.
					K	3.5(.14)	
					H	2.5(.10)	
20	5.0(.20)	5.0(.20)	3.2(.13)	2.5(.10)	L	—	-Trimmed lead is available upon request.
					K	3.5(.14)	
					H	2.5(.10)	
30	7.5(.30)	7.5(.30)	3.8(.15)	5.0(.20)	L	—	-For the specification of taping, reeling and Ammo-pack, please see page 37.
					H	3.2(.13)	

MONO-KAP[®]

Radial Leaded Multilayer Ceramic Capacitors

31

CAPACITANCE RANGE CHART

NP0 (C0G) SERIES

SIZE	15		20		30	
WV _{DC}	50	100	50	100	50	100
CAP.						
10 pF						
12						
15						
18						
22						
27						
33						
39						
47						
56						
68						
82						
100						
120						
150						
180						
220						
270						
330						
390						
470						
560						
680						
820						
1000						
1200						
1500						
1800						
2200						
2700						
3300						
3900						
4700						
5600						
6800						
8200						
0.01 μ F						

X7R SERIES

SIZE	15			20			30	
WV _{DC}	25	50	100	25	50	100	50	100
CAP.								
100~220 pF								
270								
330								
390								
470								
560								
680								
820								
1000								
1200								
1500								
1800								
2200								
2700								
3300								
3900								
4700								
5600								
6800								
8200								
0.01 μ F								
0.012								
0.015								
0.018								
0.022								
0.027								
0.033								
0.039								
0.047								
0.056								
0.068								
0.082								
0.10								
0.15								
0.22								
0.33								
0.47								
0.68								
1.0								

MONO-KAP[®]

Radial Leaded Multilayer Ceramic Capacitors

32

CAPACITANCE RANGE CHART

Z5U SERIES

SIZE	15			20		30	
WV _{DC}							
CAP.	25	50	100	50	100	50	100
1000 pF							
1500							
2200							
3300							
4700							
6800							
0.01 μ F							
0.015							
0.022							
0.033							
0.047							
0.068							
0.10							
0.15							
0.22							
0.33							
0.47							
0.68							
1.00							

Y5V SERIES

SIZE	15		20	
WV _{DC}				
CAP.	25	50	25	50
0.01 μ F				
0.015				
0.022				
0.033				
0.047				
0.068				
0.10				
0.15				
0.22				
0.33				
0.47				
0.68				
1.00				

MONO-KAP[®]

Radial Leaded Multilayer Ceramic Capacitors

33

Standard Program / How to order

This program only lists the most popular items for your requirements with quick delivery. For those items which are not listed, please construct the part number from the ordering information. (See page 38)

Forward either clear text ordering code or 12-digit code(12NC) along with other specifications, packaging, quantities, delivery requirements and shipping data to BCcomponents sales office.

Capacitance	Rated Voltage (V _{dc})	Lead Spacing mm(inch-ref.)	Size Code	Clear Text Ordering Code	12-Digit Code (12NC)			
				□ = Optional Packaging Code 3=Bulk,T=Reel,U*=Ammo	△△ = Optional Packaging Code shown on the Right	Bulk	T&R	Ammo*

NP0 (C0G), ± 5% Tolerance

10 pF	50	5.0(.20)	15	K100J15C0GF5□H5	2252 305 △△ 109	08	10	12
		2.5(.10)		K100J15C0GF5□L2	2252 305 △△ 109	00	02	03
	100	5.0(.20)	15	K100J15C0GH5□H5	2252 306 △△ 109	08	10	12
		2.5(.10)		K100J15C0GH5□L2	2252 306 △△ 109	00	02	03
12	50	5.0(.20)	15	K120J15C0GF5□H5	2252 305 △△ 129	08	10	12
		2.5(.10)		K120J15C0GF5□L2	2252 305 △△ 129	00	02	03
15	50	5.0(.20)	15	K150J15C0GF5□H5	2252 305 △△ 159	08	10	12
		2.5(.10)		K150J15C0GF5□L2	2252 305 △△ 159	00	02	03
18	50	5.0(.20)	15	K180J15C0GF5□H5	2252 305 △△ 189	08	10	12
		2.5(.10)		K180J15C0GF5□L2	2252 305 △△ 189	00	02	03
22	50	5.0(.20)	15	K220J15C0GF5□H5	2252 305 △△ 229	08	10	12
		2.5(.10)		K220J15C0GF5□L2	2252 305 △△ 229	00	02	03
	100	5.0(.20)	15	K220J15C0GH5□H5	2252 306 △△ 229	08	10	12
		2.5(.10)		K220J15C0GH5□L2	2252 306 △△ 229	00	02	03
27	50	5.0(.20)	15	K270J15C0GF5□H5	2252 305 △△ 279	08	10	12
		2.5(.10)		K270J15C0GF5□L2	2252 305 △△ 279	00	02	03
33	50	5.0(.20)	15	K330J15C0GF5□H5	2252 305 △△ 339	08	10	12
		2.5(.10)		K330J15C0GF5□L2	2252 305 △△ 339	00	02	03
39	50	5.0(.20)	15	K390J15C0GF5□H5	2252 305 △△ 399	08	10	12
		2.5(.10)		K390J15C0GF5□L2	2252 305 △△ 399	00	02	03
47	50	5.0(.20)	15	K470J15C0GF5□H5	2252 305 △△ 479	08	10	12
		2.5(.10)		K470J15C0GF5□L2	2252 305 △△ 479	00	02	03
	100	5.0(.20)	15	K470J15C0GH5□H5	2252 306 △△ 479	08	10	12
		2.5(.10)		K470J15C0GH5□L2	2252 306 △△ 479	00	02	03
56	50	5.0(.20)	15	K560J15C0GF5□H5	2252 305 △△ 569	08	10	12
		2.5(.10)		K560J15C0GF5□L2	2252 305 △△ 569	00	02	03
68	50	5.0(.20)	15	K680J15C0GF5□H5	2252 305 △△ 689	08	10	12
		2.5(.10)		K680J15C0GF5□L2	2252 305 △△ 689	00	02	03
82	50	5.0(.20)	15	K820J15C0GF5□H5	2252 305 △△ 829	08	10	12
		2.5(.10)		K820J15C0GF5□L2	2252 305 △△ 829	00	02	03
100	50	5.0(.20)	15	K101J15C0GF5□H5	2252 305 △△ 101	08	10	12
		2.5(.10)		K101J15C0GF5□L2	2252 305 △△ 101	00	02	03
	100	5.0(.20)	15	K101J15C0GH5□H5	2252 306 △△ 101	08	10	12
		2.5(.10)		K101J15C0GH5□L2	2252 306 △△ 101	00	02	03

* AMMO pack is recommended for the automatic insertion process.

* E6 Series as prefer program

MONO-KAP[®]

Radial Leaded Multilayer Ceramic Capacitors

34

Capacitance	Rated Voltage (V _{DC})	Lead Spacing mm(inch-ref.)	Size Code	Clear Text Ordering Code	12-Digit Code (12NC)			
				□=Optional Packaging Code 3 =Bulk,T=Reel,U*= Ammo	△△=Optional Packaging Code Shown on the Right	Bulk	T&R	Ammo*

NP0 (C0G), ± 5% Tolerance

150 pF	50	5.0(.20)	15	K151J15C0GF5□H5	2252 305 △△ 151	08	10	12
		2.5(.10)		K151J15C0GF5□L2	2252 305 △△ 151	00	02	03
220	50	5.0(.20)	15	K221J15C0GF5□H5	2252 305 △△ 221	08	10	12
		2.5(.10)		K221J15C0GF5□L2	2252 305 △△ 221	00	02	03
	100	5.0(.20)	15	K221J15C0GH5□H5	2252 306 △△ 221	08	10	12
		2.5(.10)		K221J15C0GH5□L2	2252 306 △△ 221	00	02	03
330	50	5.0(.20)	15	K331J15C0GF5□H5	2252 305 △△ 331	08	10	12
		2.5(.10)		K331J15C0GF5□L2	2252 305 △△ 331	00	02	03
470	50	5.0(.20)	15	K471J15C0GF5□H5	2252 305 △△ 471	08	10	12
		2.5(.10)		K471J15C0GF5□L2	2252 305 △△ 471	00	02	03
	100	5.0(.20)	15	K471J15C0GH5□H5	2252 306 △△ 471	08	10	12
		2.5(.10)		K471J15C0GH5□L2	2252 306 △△ 471	00	02	03
680	50	5.0(.20)	15	K681J15C0GF5□H5	2252 305 △△ 681	08	10	12
		2.5(.10)		K681J15C0GF5□L2	2252 305 △△ 681	00	02	03
1000	50	5.0(.20)	15	K102J15C0GF5□H5	2252 305 △△ 102	08	10	12
		2.5(.10)		K102J15C0GF5□L2	2252 305 △△ 102	00	02	03
	100	5.0(.20)	20	K102J20C0GH5□H5	2252 306 △△ 102	22	24	26
		2.5(.10)		K102J20C0GH5□L2	2252 306 △△ 102	14	16	17
1500	50	5.0(.20)	15	K152J15C0GF5□H5	2252 305 △△ 152	08	10	12
2200	50	5.0(.20)	15	K222J15C0GF5□H5	2252 305 △△ 222	08	10	12
3300	50	5.0(.20)	20	K332J20C0GF5□H5	2252 305 △△ 332	22	24	26
4700	50	5.0(.20)	20	K472J20C0GF5□H5	2252 305 △△ 472	22	24	26
0.01μF	50	5.0(.20)	20	K103J20C0GF5□H5	2252 305 △△ 103	22	24	26

X7R, ± 10% Tolerance

220 pF	50	5.0(.20)	15	K221K15X7RF5□H5	2252 325 △△ 221	08	10	12
		2.5(.10)		K221K15X7RF5□L2	2252 325 △△ 221	00	02	03
	100	5.0(.20)	15	K221K15X7RH5□H5	2252 326 △△ 221	08	10	12
		2.5(.10)		K221K15X7RH5□L2	2252 326 △△ 221	00	02	03
330	50	5.0(.20)	15	K331K15X7RF5□H5	2252 325 △△ 331	08	10	12
		2.5(.10)		K331K15X7RF5□L2	2252 325 △△ 331	00	02	03
470	50	5.0(.20)	15	K471K15X7RF5□H5	2252 325 △△ 471	08	10	12
		2.5(.10)		K471K15X7RF5□L2	2252 325 △△ 471	00	02	03
	100	5.0(.20)	15	K471K15X7RH5□H5	2252 326 △△ 471	08	10	12
		2.5(.10)		K471K15X7RH5□L2	2252 326 △△ 471	00	02	03
680	50	5.0(.20)	15	K681K15X7RF5□H5	2252 325 △△ 681	08	10	12
		2.5(.10)		K681K15X7RF5□L2	2252 325 △△ 681	00	02	03
1000	50	5.0(.20)	15	K102K15X7RF5□H5	2252 325 △△ 102	08	10	12
		2.5(.10)		K102K15X7RF5□L2	2252 325 △△ 102	00	02	03
	100	5.0(.20)	15	K102K15X7RH5□H5	2252 326 △△ 102	08	10	12
		2.5(.10)		K102K15X7RH5□L2	2252 326 △△ 102	00	02	03

* AMMO pack is recommended for the automatic insertion process.

MONO-KAP[®]

Radial Leaded Multilayer Ceramic Capacitors

35

Capacitance	Rated Voltage (Vdc)	Lead Spacing mm(inch-ref.)	Size Code	Clear Text Ordering Code	12-Digit Code (12NC)			
				□=Optional Packaging Code 3=Bulk, T=Reel, U*= Ammo	△△=Optional Packaging Code Shown on the Right	Bulk	T&R	Ammo*

X7R, ± 10% Tolerance

1500 pF	50	5.0(.20)	15	K152K15X7RF5□H5	2252 325 △△ 152	08	10	12
		2.5(.10)		K152K15X7RF5□L2	2252 325 △△ 152	00	02	03
2200	50	5.0(.20)	15	K222K15X7RF5□H5	2252 325 △△ 222	08	10	12
		2.5(.10)		K222K15X7RF5□L2	2252 325 △△ 222	00	02	03
	100	5.0(.20)	15	K222K15X7RH5□H5	2252 326 △△ 222	08	10	12
		2.5(.10)		K222K15X7RH5□L2	2252 326 △△ 222	00	02	03
3300	50	5.0(.20)	15	K332K15X7RF5□H5	2252 325 △△ 332	08	10	12
		2.5(.10)		K332K15X7RF5□L2	2252 325 △△ 332	00	02	03
4700	50	5.0(.20)	15	K472K15X7RF5□H5	2252 325 △△ 472	08	10	12
		2.5(.10)		K472K15X7RF5□L2	2252 325 △△ 472	00	02	03
	100	5.0(.20)	15	K472K15X7RH5□H5	2252 326 △△ 472	08	10	12
		2.5(.10)		K472K15X7RH5□L2	2252 326 △△ 472	00	02	03
6800	50	5.0(.20)	15	K682K15X7RF5□H5	2252 325 △△ 682	08	10	12
		2.5(.10)		K682K15X7RF5□L2	2252 325 △△ 682	00	02	03
0.01 μF	50	5.0(.20)	15	K103K15X7RF5□H5	2252 325 △△ 103	08	10	12
		2.5(.10)		K103K15X7RF5□L2	2252 325 △△ 103	00	02	03
	100	5.0(.20)	15	K103K15X7RH5□H5	2252 326 △△ 103	08	10	12
		2.5(.10)		K103K15X7RH5□L2	2252 326 △△ 103	00	02	03
0.015	50	5.0(.20)	15	K153K15X7RF5□H5	2252 325 △△ 153	08	10	12
		2.5(.10)		K153K15X7RF5□L2	2252 325 △△ 153	00	02	03
0.022	50	5.0(.20)	15	K223K15X7RF5□H5	2252 325 △△ 223	08	10	12
		2.5(.10)		K223K15X7RF5□L2	2252 325 △△ 223	00	02	03
	100	5.0(.20)	20	K223K20X7RH5□H5	2252 326 △△ 223	22	24	26
		2.5(.10)		K223K20X7RH5□L2	2252 326 △△ 223	14	16	17
0.033	50	5.0(.20)	15	K333K15X7RF5□H5	2252 325 △△ 333	08	10	12
		2.5(.10)		K333K15X7RF5□L2	2252 325 △△ 333	00	02	03
0.047	50	5.0(.20)	15	K473K15X7RF5□H5	2252 325 △△ 473	08	10	12
		2.5(.10)		K473K15X7RF5□L2	2252 325 △△ 473	00	02	03
	100	5.0(.20)	20	K473K20X7RH5□H5	2252 326 △△ 473	22	24	26
		2.5(.10)		K473K20X7RH5□L2	2252 326 △△ 473	14	16	17
0.068	50	5.0(.20)	20	K683K20X7RF5□H5	2252 325 △△ 683	22	24	26
		2.5(.10)		K683K20X7RF5□L2	2252 325 △△ 683	14	16	17
0.1	50	5.0(.20)	20	K104K20X7RF5□H5	2252 325 △△ 104	22	24	26
		2.5(.10)		K104K20X7RF5□L2	2252 325 △△ 104	14	16	17
	100	5.0(.20)	20	K104K20X7RH5□H5	2252 326 △△ 104	22	24	26
		2.5(.10)		K104K20X7RH5□L2	2252 326 △△ 104	14	16	17
0.15	50	5.0(.20)	20	K154K20X7RF5□H5	2252 325 △△ 154	22	24	26
0.22	50	5.0(.20)	20	K224K20X7RF5□H5	2252 325 △△ 224	22	24	26
0.33	50	5.0(.20)	30	K334K30X7RF5□H5	2252 325 △△ 334	46	48	50
0.47	50	5.0(.20)	30	K474K30X7RF5□H5	2252 325 △△ 474	46	48	50

* AMMO pack is recommended for the automatic insertion process.

MONO-KAP[®]

Radial Leaded Multilayer Ceramic Capacitors

36

Capacitance	Rated Voltage (Vdc)	Lead Spacing mm(inch-ref.)	Size Code	Clear Text Ordering Code	12-Digit Code (12NC)			
				□=Optional Packaging Code 3=Bulk, T=Reel, U*=Ammo	△△=Optional Packaging Code Shown on the Right	Bulk	T&R	Ammo*

Z5U, ± 20% Tolerance

0.01 µF	50	5.0(.20)	15	K103M15Z5UF5□H5	2252 345 △△ 103	08	10	12
		2.5(.10)		K103M15Z5UF5□L2	2252 345 △△ 103	00	02	03
	100	5.0(.20)	15	K103M15Z5UH5□H5	2252 346 △△ 103	08	10	12
		2.5(.10)		K103M15Z5UH5□L2	2252 346 △△ 103	00	02	03
0.022	50	5.0(.20)	15	K223M15Z5UF5□H5	2252 345 △△ 223	08	10	12
		2.5(.10)		K223M15Z5UF5□L2	2252 345 △△ 223	00	02	03
0.047	50	5.0(.20)	15	K473M15Z5UF5□H5	2252 345 △△ 473	08	10	12
		2.5(.10)		K473M15Z5UF5□L2	2252 345 △△ 473	00	02	03
0.1	50	5.0(.20)	15	K104M15Z5UF5□H5	2252 345 △△ 104	08	10	12
		2.5(.10)		K104M15Z5UF5□L2	2252 345 △△ 104	00	02	03
	100	5.0(.20)	20	K104M20Z5UH5□H5	2252 346 △△ 104	22	24	26
		2.5(.10)		K104M20Z5UH5□L2	2252 346 △△ 104	14	16	17
0.15	50	5.0(.20)	15	K154M15Z5UF5□H5	2252 345 △△ 154	08	10	12
		2.5(.10)		K154M15Z5UF5□L2	2252 345 △△ 154	00	02	03
0.22	50	5.0(.20)	15	K224M15Z5UF5□H5	2252 345 △△ 224	08	10	12
		2.5(.10)		K224M15Z5UF5□L2	2252 345 △△ 224	00	02	03
0.33	50	5.0(.20)	20	K334M20Z5UF5□H5	2252 345 △△ 334	22	24	26
0.47	50	5.0(.20)	20	K474M20Z5UF5□H5	2252 345 △△ 474	22	24	26
0.68	50	5.0(.20)	20	K684M20Z5UF5□H5	2252 345 △△ 684	22	24	26
1.0	50	5.0(.20)	20	K105M20Z5UF5□H5	2252 345 △△ 105	22	24	26

Y5V, +80,-20% Tolerance

0.1 µF	25	5.0(.20)	15	K104Z15Y5VE5□H5	2252 362 △△ 104	08	10	12
		2.5(.10)		K104Z15Y5VE5□L2	2252 362 △△ 104	00	02	03
	50	5.0(.20)	15	K104Z15Y5VF5□H5	2252 365 △△ 104	08	10	12
		2.5(.10)		K104Z15Y5VF5□L2	2252 365 △△ 104	00	02	03
0.22	25	5.0(.20)	15	K224Z15Y5VE5□H5	2252 362 △△ 224	08	10	12
		2.5(.10)		K224Z15Y5VE5□L2	2252 362 △△ 224	00	02	03
	50	5.0(.20)	15	K224Z15Y5VF5□H5	2252 365 △△ 224	08	10	12
		2.5(.10)		K224Z15Y5VF5□L2	2252 365 △△ 224	00	02	03
0.47	25	5.0(.20)	20	K474Z20Y5VE5□H5	2252 362 △△ 474	22	24	26
		2.5(.10)		K474Z20Y5VE5□L2	2252 362 △△ 474	14	16	17
	50	5.0(.20)	20	K474Z20Y5VF5□H5	2252 365 △△ 474	22	24	26
		2.5(.10)		K474Z20Y5VF5□H5	2252 365 △△ 474	14	16	17
1.0	25	5.0(.20)	20	K105Z20Y5VE5□H5	2252 362 △△ 105	22	24	26
		2.5(.10)		K105Z20Y5VE5□L2	2252 362 △△ 105	14	16	17
	50	5.0(.20)	20	K105Z20Y5VF5□H5	2252 365 △△ 105	22	24	26
		2.5(.10)		K105Z20Y5VF5□L2	2252 365 △△ 105	14	16	17

* AMMO pack is recommended for the automatic insertion process.

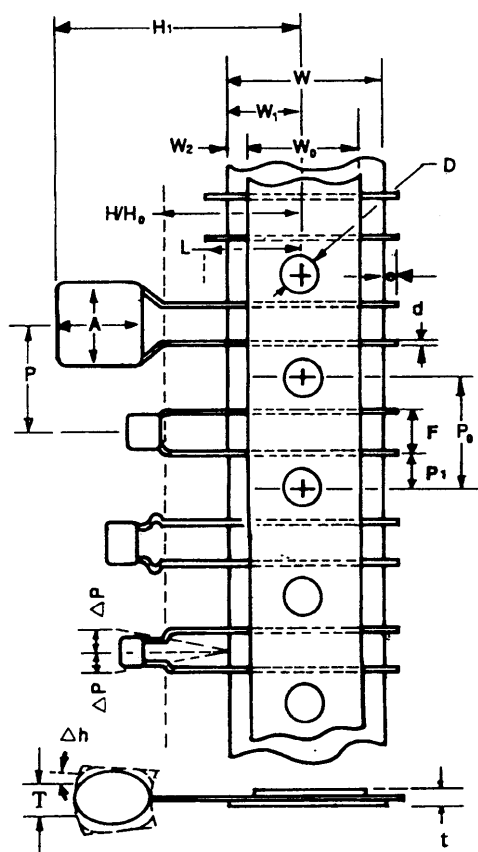
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Radial Leaded Multilayer Ceramic Capacitors

37

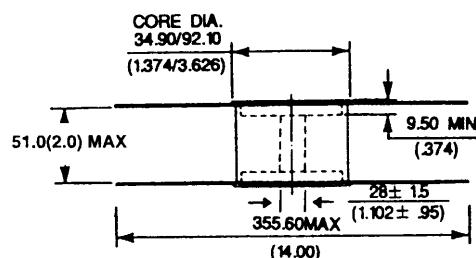
PACKAGING

Tape



DESCRIPTION		mm	inch(Ref)
Body Dimension	A	11.0X11.0 Max	.43 x.43
Body Thickness	T	4.0 Max	.157
Wire Lead Dia.	d	0.5 +0.06/-0.05	.020
Taping Pitch	p	12.7 Ref	.500
Feed Hole Pitch	P ₀	12.7± 0.3	.500
Plane Deviation	Δp	+1.0 Max	.0394
Feed Hole Off Alignment (2e)	p ₁	3.85± 0.7	.150
	(1e) P ₁	5.1± 0.7	.200
Lead Spacing	F	5.0 +0.6/-0.4	.200
	F	2.5 +0.6/-0.4	.100
Body Inclination	Δh	0 ± 1.0	0± .039
Carrier Tape Width	W	18.0 +1.0/-0.5	.709
Adhesive Tape Width	W ₀	5.0 Min.	.200
Feed Hole Height Off Alignment	W ₁	9.0 +0.75/-0.5	.354
Adhesive Tape Margin	W ₂	3.0 Ref	.118
Straight Lead Height	H	20.0+0.5/-1.0	.787
Lead Crimp Height	H ₀	16.0± 0.5	.63
Top of Component Height	H ₁	32 Max	1.2
Lead End Protrusion	e	1.0 Max	.039
Feed Hole Diameter	D ₀	4.0± 0.2	.157
Overall Tape Thickness	t	0.9 Max	.035
Rejected Component Cut Height	L	11.0 Max	.433

Reel

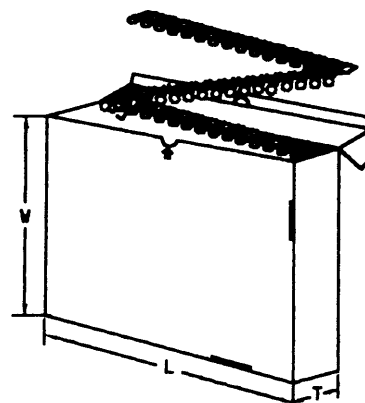


STANDARD PACKING QUANTITY (SPQ)

Type	Cardboard Box Size L X W X T	Size Code	SPQ (pcs.)
Reel	370x370x60 (14.57x14.57x2.36)	15	4,000
		20	3,000
		30	2,500
Ammo	335x290x50 (13.19x11.42x1.97)	15	2,500
		20	2,500
		30	2,000
Bulk	245x120x65	15	5,000
		20	5,000
		30	3,000

Dimensions in mm (inch-ref.)

Ammo Pack



MONO-KAP[®]

Radial Leaded Multilayer Ceramic Capacitors

38

Ordering Information

Clear Text Ordering Code

K 103 K 15 X7R E 5 3 H 5
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① **Product Type**
K= Mono-kap

② **Capacitance Code**
The first two digits are the significant of capacitance (pF), and the third digit signifies the number of zeros.
For example: 103=10,000 pF

③ **Capacitance Tolerance**
J= $\pm 5\%$ M= $\pm 20\%$
K= $\pm 10\%$ Z= $+80\%, -20\%$

④ **Size Code**
Ref. mechanical spec.

⑤ **Temperature Characteristic**
C0G(NP0) Z5U
X7R Y5V

⑥ **Working (rating) Voltage**
E= 25 V_{DC} H= 100 V_{DC}
F= 50 V_{DC}

⑦ **Lead Diameter**
5= 0.5 mm (.020 Ref.)

⑧ **Lead Length / Packing**
3= Bulk, with lead length of 30 $\pm$ 5.0 (1.25" Ref.)

T= Tape & reel
U= Ammo pack

⑨ **Lead Style**
L= Straight lead
H= High seated ass'y
K= Outward kink

⑩ **Lead Spacing**
2= 2.5 (.100" Ref.)
5= 5.0 (.200" Ref.)

12-Digit Code (12NC)

2252 XX X XX XXX
① ② ③ ④ ⑤

① **Product Group Code**

② **Product Families Code**

Code	T.C.	Cap. Tol.
30	NP0	$\pm 5\%$
31	NP0	$\pm 10\%$
32	X7R	$\pm 10\%$
33	X7R	$\pm 20\%$
34	Z5U	$\pm 20\%$
35	Z5U	+80, -20%
36	Y5V	+80, -20%

④ **Size, Lead Style & Packaging**

Size	Lead Spacing mm(inch-ref.)	Lead Style	Bulk*	T&R	Ammo
			Code Number		
15	2.5 (.100)	Straight Lead (L)	00	02	03
		Outward Kink (K)	04	06	07
	5.0 (.200)	High Seated Ass'y (H)	08	10	12
20	2.5 (.100)	Straight Lead (L)	14	16	17
		Outward Kink (K)	18	20	21
	5.0 (.200)	High Seated Ass'y (H)	22	24	26
30	5.0 (.200)	Straight Lead (L)	38	40	41
		High Seated Ass'y (H)	46	48	50

*Lead Length 30 $\pm$ 5 mm (1.25" ref.) for Bulk Package.

③ **Rated Voltage Code**

2= 25 V_{DC}
5= 50 V_{DC}
6= 100 V_{DC}

⑤ **Capacitance Code**

The first two digits are the significant of capacitance (pF), and the third digit is multiplier as below
8=x0.1 3=x1,000
9=x1 4=x10,000
1=x10 5=x100,000
2=x100