

Radial Leaded capacitors

Syfer Technology produces a wide range of dipped radial leaded capacitors. These are available in rated voltages of 50V up to 5kV. Although our catalogue range extends to 5kV, we are able to offer a capability for specials up to 10kV. Our larger case sizes and high voltage versions are particularly in demand, especially for mil/aero and medical power supply applications. Please contact our Sales Office to discuss any special requirements. IECQ-CECC approved parts are also included within the ranges.

- High working voltage - up to 10kVdc
- Large case sizes
- RoHS compliant versions
- Tin-lead plated wire option to reduce tin whiskers



		8111M	8111N	8121M	8121N	8121T	8131M	8131T	8141M	8151M	8161M	8171M
Min. cap values	COG/NPO	4.7pF	4.7pF	4.7pF	4.7pF	4.7pF	10pF	4.7pF	10pF	39pF	68pF	
	X7R	100pF	100pF	100pF	100pF	330pF	100pF	150pF	100pF	470pF	1.0nF	2.2nF
50/63V	COG/NPO	4.7nF	4.7nF	18nF	18nF	18nF	100nF	47nF	150nF	220nF	390nF	680nF
	X7R	220nF	220nF	1.0μF	1.0μF	1.0μF	3.3μF	2.2μF	4.7μF	4.7μF	10μF	15μF
100V	COG/NPO	2.7nF	2.7nF	12nF	12nF	12nF	68nF	27nF	100nF	180nF	330nF	560nF
	X7R	100nF	100nF	470nF	470nF	470nF	1.5μF	1.0μF	2.2μF	3.3μF	6.8μF	10μF
200/250V	COG/NPO	1.0nF	1.0nF	4.7nF	4.7nF	4.7nF	27nF	12nF	47nF	82nF	120nF	270nF
	X7R	56nF	56nF	220nF	220nF	220nF	1.0μF	470nF	1.0μF	1.5μF	3.9μF	8.2μF
500V	COG/NPO	470pF	470pF	3.9nF	3.9nF	3.9nF	22nF	10nF	33nF	56nF	100nF	180nF
	X7R	8.2nF	8.2nF	100nF	100nF	100nF	820nF	270nF	680nF	1.0μF	1.8μF	3.3μF
630V	COG/NPO	270pF	270pF	1.8nF	1.8nF	1.8nF	15nF	5.6nF	22nF	39nF	68nF	150nF
	X7R	-	-	27nF	27nF	27nF	390nF	150nF	470nF	680nF	1.2μF	2.2μF
1kV	COG/NPO	-	-	1.0nF	1.0nF	1.0nF	10nF	3.3nF	15nF	22nF	39nF	68nF
	X7R	-	-	15nF	15nF	15nF	150nF	56nF	150nF	180nF	390nF	1.0μF
1.2kV	COG/NPO	-	-	-	-	-	6.8nF	2.2nF	6.8nF	18nF	33nF	47nF
	X7R	-	-	-	-	-	100nF	33nF	100nF	150nF	220nF	470nF
1.5kV	COG/NPO	-	-	-	-	-	4.7nF	1.5nF	4.7nF	12nF	22nF	33nF
	X7R	-	-	-	-	-	68nF	22nF	68nF	100nF	150nF	330nF
2kV	COG/NPO	-	-	-	-	-	2.2nF	820pF	3.3nF	5.6nF	10nF	18nF
	X7R	-	-	-	-	-	33nF	10nF	47nF	47nF	82nF	150nF
2.5kV	COG/NPO	-	-	-	-	-	1.8nF	680pF	1.8nF	4.7nF	6.8nF	12nF
	X7R	-	-	-	-	-	12nF	3.3pF	12nF	33nF	68nF	100nF
3kV	COG/NPO	-	-	-	-	-	1.5nF	470pF	1.0nF	2.2nF	4.7nF	8.2nF
	X7R	-	-	-	-	-	6.8nF	2.7nF	10nF	18nF	39nF	68nF
4kV	COG/NPO	-	-	-	-	-	1.2nF	-	680pF	1.0nF	2.2nF	4.7nF
	X7R	-	-	-	-	-	5.6nF	-	5.6nF	6.8nF	15nF	33nF
5kV	COG/NPO	-	-	-	-	-	-	-	470pF	560pF	1.5nF	3.3nF
	X7R	-	-	-	-	-	-	-	3.3nF	3.9nF	8.2nF	18nF
8111M 8111N 8121M 8121N 8121T 8131M 8131T 8141M 8151M 8161M 8171M												

Fixed Multilayer Ceramic Radial Capacitor IECQ-CECC Approvals

Dipped	
Climatic category:	55/125/21
Capacitance tolerances:	COG/NPO - 5%, 10% & 20% X7R - 10% & 20%
Approved Rated Voltages:	50V/63V, 100V & 200V

Dipped Product Approval Range

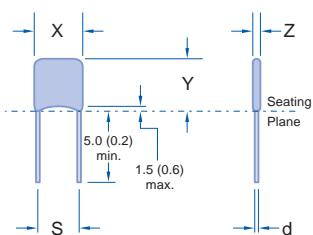
CECC Case Size	Syfer Product Code	
A	8111M	
F	8111N	
B	8121M	
C	8121N	
D	8131M	
Dielectric	Capacitance Range	CECC Specification
COG/NPO	3.9pF to 27nF	CECC 30 601 008
X7R	100pF to 1.0μF	CECC 30 701 013

Radial Leaded capacitors

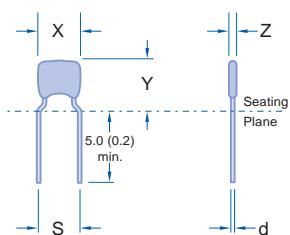
Dimensions - Dipped Radial

	CECC		Width	Height	Thickness	Lead Space	Lead Diameter
	Case reference	Pattern	(X) max. mm inches	(Y) max. mm inches	(Z) max. mm inches	(S) mm inches	(d) mm inches
8111M	A	A	3.81 0.15	5.31 0.21	2.54 0.10	2.54±0.4 0.1±0.016	0.5±0.05 0.02±0.002
8111N	F	B	3.81 0.15	5.31 0.21	2.54 0.10	5.08±0.4 0.2±0.016	0.5±0.05 0.02±0.002
8121M	B	A	5.08 0.20	6.58 0.26	3.18 0.125	2.54±0.4 0.1±0.016	0.5±0.05 0.02±0.002
8121N	C	B	5.08 0.20	6.58 0.26	3.18 0.125	5.08±0.4 0.2±0.016	0.5±0.05 0.02±0.002
8121T		B	10.16 0.40	5.80 0.23	4.50 0.18	7.62±0.4 0.30±0.016	0.5±0.05 0.02±0.002
8131M	D	A	7.62 0.30	9.12 0.36	3.81 0.15	5.08±0.4 0.2±0.016	0.5±0.05 0.02±0.002
8131T		B	10.16 0.40	9.12 0.36	4.50 0.18	7.62±0.4 0.30±0.016	0.5±0.05 0.02±0.002
8141M		A	10.16 0.40	11.66 0.46	3.81 0.15	5.08±0.4 0.2±0.016	0.5±0.05 0.02±0.002
8151M		A	12.70 0.50	14.20 0.56	5.08 0.20	10.1±0.4 0.4±0.016	0.6±0.05 0.025±0.002
8161M		A	18.50 0.73	16.50 0.65	6.00 0.24	14.5±0.5 0.57±0.02	0.6±0.05 0.025±0.002
8171M		A	25.00 0.98	20.00 0.79	6.00 0.24	20.5±0.5 0.81±0.02	0.6±0.05 0.025±0.002

Pattern A



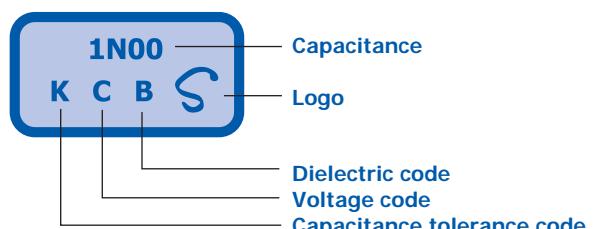
Pattern B



Marking information

All encapsulated capacitors are marked with:- Capacitance value, tolerance, rated d.c. voltage, dielectric, and where size permits the Syfer Technology 'S' logo.

Example: 1000pF ±10% 50V 2X1 dielectric



Ordering information - Radial Leaded capacitors

8111M	100	0102	J	C	□□□
Type No./Size ref	Voltage d.c. (marking code)	Capacitance in picofarads (pF)	Capacitance tolerance	Dielectric Rel Release codes	Suffix
8111M 8111N 8121M 8121N 8121T 8131M 8131T 8141M 8151M 8161M 8171M	050 = 50V 063 = 63V 100 = 100V 200 = 200V 500 = 500V 1K0 = 1kV 2K0 = 2kV 3K0 = 3kV 4K0 = 4kV 5K0 = 5kV	First digit is 0. Second and third digits are significant figures of capacitance code. The fourth digit is number of zeros following. Example: 8P20 = 8.2pF	Ultra stable dielectric D: ± 0.47pF (Cr < 47pF) F: ± 1% (Cr ≥ 47pF) G: ± 2% (Cr ≥ 27pF) J: ± 5% (Cr ≥ 10pF) K: ± 10% (Cr ≥ 10pF) Stable dielectric J: ± 5% (Cr ≥ 10pF) K: ± 10% (Cr ≥ 10pF) M: ± 20% (Cr ≥ 10pF)	C = COG/NP0 (1B/CG; CG/BP) X = X7R (2R1) To Special Order B = 2X1 (BX) R = 2C1 (BZ)	Used for specific customer requirements. "C42" denotes RoHS compliant. A31 or A97 denote non-RoHS tin/lead wires. Contact Sales Office for appropriate non-RoHS code.



Cropped Leads

Cropped leads between 4.0 (0.157) and 30.0 (1.18) are available to special order. Some of the preferred codes are listed below, together with the appropriate suffix code. Dimensions as for standard product except as specified.

suffix code - AE3 All radial ranges	suffix code - AE4 All radial ranges	suffix code - AD7 All radial ranges	suffix code - AD5 All radial ranges
Lead length (L) 6 ± 1 (0.236 ± 0.04) from seating plane	Lead length (L) 4 ± 1 (0.162 ± 0.04) from seating plane	Lead length (L) 5 ± 1 (0.2 ± 0.04) from seating plane	Lead length (L) 10 ± 1 (0.4 ± 0.04) from seating plane

Dimensions mm (inches)

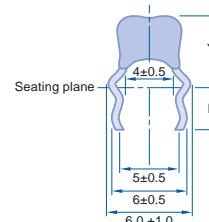
Snap in leads

Various forms of snap in leads (preformed) are available to special order, some of the preferred suffix codes are listed below. Dimensions as for standard product except as specified.

Suffix code - AD1

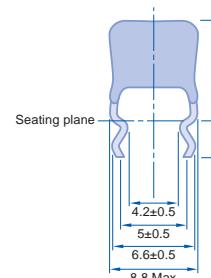
For PCB holes 0.9mm diameter
Types 8121N and 8131M

Dimensions
Y = 8121N 8 (0.315) Max
8131M 10 (0.394) Max
L = Min: 2.75 (0.108)
Max: 3.50 (0.138)

**Suffix code - AD2**

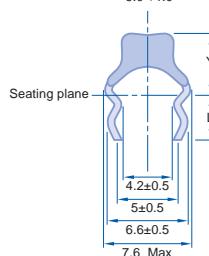
For PCB holes 1.2mm diameter
Types 8131M

Dimensions
Y = 10 (0.294) Max
L = Min: 2.75 (0.108)
Max: 3.50 (0.138)

**Suffix code - AD3**

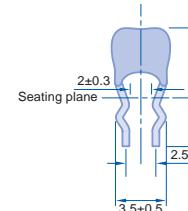
For PCB holes 1.2mm diameter
Types 8121N

Dimensions
Y = 8 (0.315) Max
L = Min: 2.75 (0.108)
Max: 3.50 (0.138)

**Suffix code - AO7**

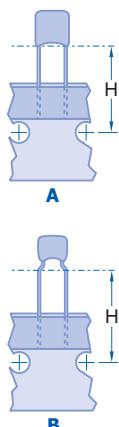
For PCB holes 0.8 to 0.97mm diameter
Types 8121M

Dimensions
Y = 6.58 (0.259) Max
L = Min: 2.75 (0.108)
Max: 3.50 (0.138)

**Bandoliered suffix codes**

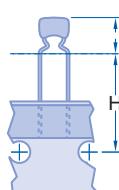
Dipped radial leaded with 2.54 and 5.08mm lead spacing can be supplied bandoliered on reels or in ammo boxes to special order. Some of the preferred suffix codes for bandoliered products are given below.

For bandoliered products the minimum order quantity, pieces, is specified in the tables below, larger orders must be in multiples of this quantity.

Dipped – straight and formed leads

Product code	Lead style	Diagram	H	H ₀	Suffix code		
					Reel	AMMO pack	
8111M	Straight 2.54 crs	A	19±1	—	C01	C02	C11
8111M	Straight 2.54 crs	A	16±0.5	—	C30	C31	C32
8111N	Formed 5.08 crs	B	—	16±0.5	C01	C02	C11
8121M	Straight 2.54 crs	A	19±1	—	C01	C02	C11
8121M	Straight 2.54 crs	A	16±0.5	—	C30	C31	C32
8121N	Formed 5.08 crs	B	—	16±0.5	C01	C02	C11
8131M	Straight 5.08 crs	A	19±1	—	C01	C02	C11
8131M	Straight 5.08 crs	A	16±0.5	—	C30	C31	C32

8121T and 8131T available in bulk packaging only.

Dipped – stand-off lead form

This style has been developed to provide a meniscus-free seating plane with a stress relieving form for auto-insertion.

Product code	Lead style	Y max	H ₀	2500pcs	1000pcs	2000pcs
8111N	Formed 5.08 crs	7.5	16±0.5	C12	C23	C22
8111N	Formed 5.08 crs	7.5	19±1	C13	C25	C24
8121N	Formed 5.08 crs	8.5	16±0.5	C12	C23	C22
8121N	Formed 5.08 crs	8.5	19±1	C13	C25	C24

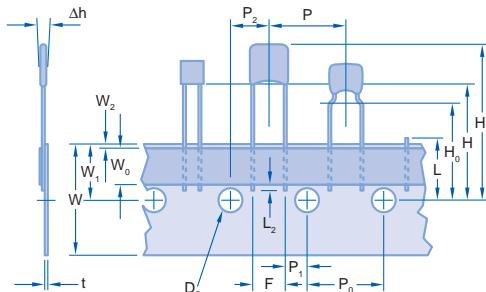
A maximum of 3 consecutive components may be missing from the bandolier, followed by at least 6 filled positions. Components missing from the bandolier are included in the total quantity, whereby the number of missing components may not exceed 0.25% of this total per packing module. At the beginning and end of a reel the bandolier will exhibit at least 10 blank positions.

Minimum pull strength of product from tape = 5N.

Each reel/carton is provided with a label showing the:

Manufacturer, product style, batch identification, quantity and date code.

Labelling with bar codes (code 39) is available on request.

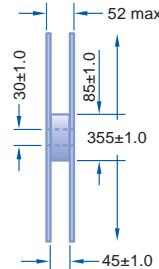
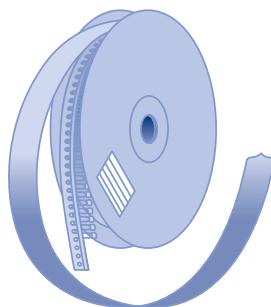


In accordance with IEC 60286 part 2

Dimensions mm (inches)

Description	Symbol	2.5mm lead space	5mm lead space	Tolerance
Lead wire diameter	d	0.5 (0.02) 0.6 (0.025)	0.5 (0.02) 0.6 (0.025)	±0.05 (0.002)
Component pitch	P	12.7 (0.5)	12.7 (0.5)	1.00 (0.04)
Feed hole pitch	P ₀	12.7 (0.5)	12.7 (0.5)	±0.30 (0.01)
Feed hole centre to lead	P ₁	5.08 (0.2)	3.81 (0.15)	±0.70 (0.03)
Feed hole centre to component	P ₂	6.35 (0.25)	6.35 (0.25)	±0.70 (0.03)
Lead spacing	F	2.54 (0.10)	5.08 (0.20)	+0.6 (0.02) -0.1 (0.004)
Component alignment	Δh	0	0	±2.00(0.08)
Tape width	W	18.0 (0.70)	18.0 (0.70)	+1.00 (0.04) -0.50 (0.02)
Hold down tape width	W ₀	6.0 (0.23)	6.0 (0.23)	±0.30 (0.01)
Hole position	W ₁	9.0 (0.35)	9.0 (0.35)	±0.50 (0.02)
Hold down tape position	W ₂	0.50 (0.02)	0.50 (0.02)	Max
Height to seating plane from tape centre (straight leads) (2)	H	16 (0.63) to 20 (0.79)	16 (0.63) to 20 (0.79)	As required
Height to seating plane from tape centre (formed leads) (2)	H ₀	16 (0.63) to 20 (0.79)	16 (0.63) to 20 (0.79)	As required
Height to top of component from tape centre	H ₁	32.2 (1.26)	32.2 (1.26)	Max
Feed hole diameter	D ₀	4.0 (0.16)	4.0 (0.16)	±0.20 (0.008)
Carrier tape plus adhesive tape thickness	t	0.7 (0.03)	0.7 (0.03)	±0.20 (0.008)
Carrier tape thickness	-	0.5 (0.02)	0.5 (0.02)	±0.10 (0.004)
Cut out component snipped lead length from tape centre	L	11.0 (0.43)	11.0 (0.43)	Max
Lead wire protrusion from hold down	L ₂	2.0 (0.08)	2.0 (0.08)	Max

Bandoliered reels



The adhesive tape faces outwards. The dispensing direction is as shown. For the protection of the components a paper inlay is inserted between the windings of the bandolier. At the end of the bandolier this paper inlay continues for at least a further two rotations.

Bandoliered ammo packing

2 carton sizes

