

# Type SN 85 °C Non-Polar Aluminum Electrolytic Capacitors

## 85 °C, Radial Leaded Non-Polar Aluminum Electrolytic



Type SN is a non-polar radial leaded aluminum electrolytic capacitor with a +85 °C, 1000 hours life rating. The SN is ideal for applications where the polarity is unknown or reversed such as signal coupling circuits and speakers.

### Highlights

- Non-polar
- +85 °C
- Good for unknown polarity applications
- Available in T&R and ammo pack

### Specifications

<b>Capacitance Range:</b>	0.47 to 2200 µF
<b>Voltage Range:</b>	6.3 to 100 WVNP
<b>Capacitance Tolerance:</b>	±20%
<b>Operating Temperature Range:</b>	-40 °C to +85 °C
<b>DC Leakage Current:</b>	After 2 minutes, +20 °C at rated voltage

$$I = .03CV + 4 \mu A \text{ Max}$$

C = Capacitance in (µF)  
V = Rated voltage  
I = Leakage current in µA

#### Dissipation Factor @ 120 Hz, +25 °C:

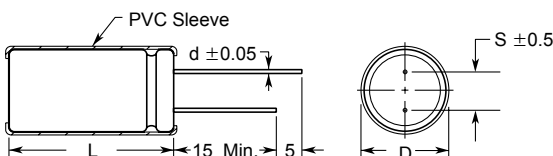
WV (V)	6.3	10	16	25	35	50	100
DF(%)	24	20	17	15	14	12	10

For capacitance values > 1000 µF, the DF (%) value is increased 2% for every additional 1000 µF

**Load Life:** Apply WVNP for 1,000 hours at +85 °C with polarity inverted every 250 hours  
Capacitance change within 20% of initial limit  
DC leakage current meets initial limits  
ESR ≤ 200% of initial value

**Shelf Life:** 500 hrs with no voltage applied at +85 °C  
Cap change within 25% from initial limits  
DC leakage ≤ 200% of initial value  
ESR ≤ 200% of initial value

### Outline Drawing



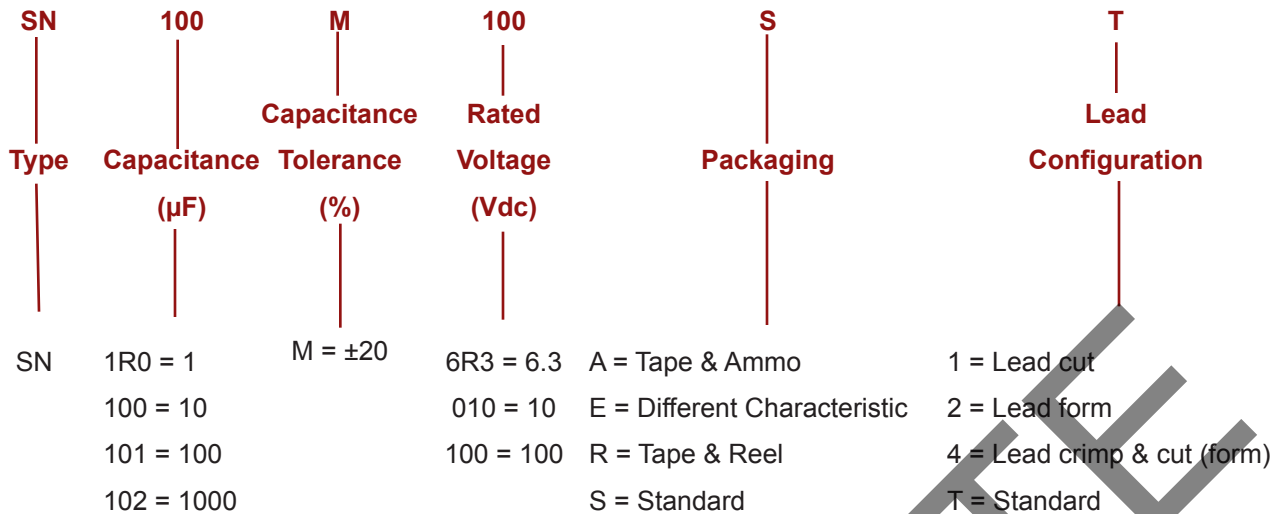
Case vented on diameters 6.3 and greater.

Vinyl sleeve adds .5 Max. to diameter and 2.0 Max. to length.

Dimensions in (millimeters)

# Type SN 85 °C Non-Polar Aluminum Electrolytic Capacitors

## Part Numbering System



## Ratings

Cap (µF)	Catalog Part Number	Max ESR 120 Hz +25 °C (Ω)	Max Ripple 120 Hz +85 °C (mA)	Size in. (mm)			
				Diameter (D)	Length (L)	Lead Space (S)	Lead Dia. (d)
<b>6.3 WVNP (8 VNP Surge)</b>							
33	SN330M6R3ST	9.65	63	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
47	SN470M6R3ST	6.78	84	.236 (6.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
100	SN101M6R3ST	3.18	140	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
220	SN221M6R3ST	1.45	235	.394 (10.0)	.472 (12.0)	.197 (5.0)	.0236 (0.6)
330	SN331M6R3ST	0.97	310	.394 (10.0)	.630 (16.0)	.197 (5.0)	.0236 (0.6)
470	SN471M6R3ST	0.68	400	.394 (10.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
1000	SN102M6R3ST	0.32	690	.512 (13.0)	.984 (25.0)	.197 (5.0)	.0236 (0.6)
2200	SN222M6R3ST	0.16	1250	.630 (16.0)	1.26 (32.0)	.295 (7.5)	.0315 (0.8)
<b>10 WVNP (13 VNP Surge)</b>							
10	SN100M010ST	26.54	42	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
22	SN220M010ST	12.06	57	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
33	SN330M010ST	8.04	77	.236 (6.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
47	SN470M010ST	5.65	93	.236 (6.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
100	SN101M010ST	2.65	193	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
220	SN221M010ST	1.21	255	.394 (10.0)	.630 (16.0)	.197 (5.0)	.0236 (0.6)
330	SN331M010ST	0.80	380	.394 (10.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
470	SN471M010ST	0.56	470	.512 (13.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
1000	SN102M010ST	0.27	885	.630 (16.0)	.984 (25.0)	.295 (7.5)	.0315 (0.8)
2200	SN222M010ST	0.13	1450	.630 (16.0)	1.42 (36.0)	.295 (7.5)	.0315 (0.8)
<b>16 WVNP (20 VNP Surge)</b>							
10	SN100M016ST	22.56	42	.236 (6.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
22	SN220M016ST	10.25	69	.236 (6.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
33	SN330M016ST	6.84	98	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
47	SN470M016ST	4.80	115	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
100	SN101M016ST	2.26	205	.394 (10.0)	.630 (16.0)	.197 (5.0)	.0236 (0.6)
220	SN221M016ST	1.03	330	.394 (10.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
330	SN331M016ST	0.68	445	.512 (13.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
470	SN471M016ST	0.48	570	.512 (13.0)	.984 (25.0)	.197 (5.0)	.0236 (0.6)
1000	SN102M016ST	0.23	1020	.630 (16.0)	1.26 (32.0)	.295 (7.5)	.0315 (0.8)

# Type SN 85 °C Non-Polar Aluminum Electrolytic Capacitors

## Ratings

Cap (µF)	Catalog Part Number	Max ESR 120 Hz +25 °C (Ω)	Max Ripple 120 Hz +85 °C (mA)	Size in. (mm)			
				Diameter (D)	Length (L)	Lead Space (S)	Lead Dia. (d)
<b>25 WVNP (32 VNP Surge)</b>							
1.0	SN010M025ST	199.04	17	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
2.2	SN2R2M025ST	90.47	25	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
4.7	SN4R7M025ST	42.35	34	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
10	SN100M025ST	19.90	50	.236 (6.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
22	SN220M025ST	9.05	86	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
33	SN330M025ST	6.03	105	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
47	SN470M025ST	4.23	140	.394 (10.0)	.472 (12.0)	.197 (5.0)	.0236 (0.6)
100	SN101M025ST	1.99	240	.394 (10.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
220	SN221M025ST	0.90	390	.512 (13.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
330	SN331M025ST	0.60	580	.630 (16.0)	.984 (25.0)	.295 (7.5)	.0315 (0.8)
470	SN471M025ST	0.42	690	.630 (16.0)	.984 (25.0)	.295 (7.5)	.0315 (0.8)
<b>35 WVNP (44 VNP Surge)</b>							
3.3	SN3R3M035ST	56.30	27	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
4.7	SN4R7M035ST	39.53	34	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
10	SN100M035ST	18.58	54	.236 (6.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
22	SN220M035ST	8.44	94	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
33	SN330M035ST	5.63	125	.394 (10.0)	.472 (12.0)	.197 (5.0)	.0236 (0.6)
47	SN470M035ST	3.95	165	.394 (10.0)	.630 (16.0)	.197 (5.0)	.0236 (0.6)
100	SN101M035ST	1.86	285	.512 (13.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
220	SN221M035ST	0.84	520	.630 (16.0)	.984 (25.0)	.197 (5.0)	.0236 (0.6)
330	SN331M035ST	0.56	630	.630 (16.0)	.984 (25.0)	.295 (7.5)	.0315 (0.8)
470	SN471M035ST	0.40	820	.630 (16.0)	1.26 (32.0)	.295 (7.5)	.0315 (0.8)
<b>50 WVNP (63 VNP Surge)</b>							
0.47	SNR47M050ST	338.80	11	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
1.0	SN010M050ST	159.24	17	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
2.2	SN2R2M050ST	72.38	25	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
3.3	SN3R3M050ST	48.25	31	.236 (6.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
4.7	SN4R7M050ST	33.88	41	.236 (6.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
10	SN100M050ST	15.92	70	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
22	SN220M050ST	7.24	115	.394 (10.0)	.472 (12.0)	.197 (5.0)	.0236 (0.6)
33	SN330M050ST	4.83	150	.394 (10.0)	.630 (16.0)	.197 (5.0)	.0236 (0.6)
47	SN470M050ST	3.39	190	.394 (10.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
100	SN101M050ST	1.59	310	.512 (13.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
220	SN221M050ST	0.72	570	.630 (16.0)	.984 (25.0)	.295 (7.5)	.0315 (0.8)
330	SN331M050ST	0.48	790	.630 (16.0)	1.42 (36.0)	.295 (7.5)	.0315 (0.8)
<b>63 WVNP (79 VNP Surge)</b>							
1.0	SN010M063ST	159.24	17	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
2.2	SN2R2M063ST	72.38	25	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
3.3	SN3R3M063ST	48.25	37	.197 (5.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
4.7	SN4R7M063ST	33.88	44	.236 (6.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
10.0	SN100M063ST	15.92	74	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
22	SN220M063ST	7.24	130	.394 (10.0)	.630 (16.0)	.197 (5.0)	.0236 (0.6)
33	SN330M063ST	4.83	175	.394 (10.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
47	SN470M063ST	3.39	230	.512 (13.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
100	SN101M063ST	1.59	410	.630 (16.0)	.984 (25.0)	.295 (7.5)	.0315 (0.8)
220	SN221M063ST	0.72	660	.630 (16.0)	1.26 (32.0)	.295 (7.5)	.0315 (0.8)

Parts highlighted in yellow are obsolete.

# Type SN 85 °C Non-Polar Aluminum Electrolytic Capacitors

## Ratings

Cap ( $\mu$ F)	Catalog Part Number	Max ESR 120 Hz +25 °C ( $\Omega$ )	Max Ripple 120 Hz +85 °C (mA)	Size in. (mm)			
				Diameter (D)	Length (L)	Lead Space (S)	Lead Dia. (d)
<b>100 WVNP (125 VNP Surge)</b>							
0.47	SNR47M100ST	282.33	14	.197 (5.0)	.433 (11.0)	.079 (2.0)	.0197 (0.5)
1.0	SN010M100ST	132.70	21	.197 (5.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
2.2	SN2R2M100ST	60.32	34	.236 (6.0)	.433 (11.0)	.098 (2.5)	.0197 (0.5)
3.3	SN3R3M100ST	40.21	49	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
4.7	SN4R7M100ST	28.23	58	.315 (8.0)	.453 (11.5)	.138 (3.5)	.0197 (0.5)
10.0	SN100M100ST	13.27	100	.394 (10.0)	.472 (12.0)	.197 (5.0)	.0236 (0.6)
22	SN220M100ST	6.03	180	.512 (13.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
33	SN330M100ST	4.02	220	.512 (13.0)	.787 (20.0)	.197 (5.0)	.0236 (0.6)
47	SN470M100ST	2.82	285	.512 (13.0)	.984 (25.0)	.197 (5.0)	.0236 (0.6)
100	SN101M100ST	1.33	510	.630 (16.0)	1.26 (32.0)	.295 (7.5)	.0315 (0.8)

Parts highlighted in yellow are obsolete.

**Notice and Disclaimer:** All product drawings, descriptions, specifications, statements, information and data (collectively, the "Information") in this datasheet or other publication are subject to change. The customer is responsible for checking, confirming and verifying the extent to which the Information contained in this datasheet or other publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without any guarantee, warranty, representation or responsibility of any kind, expressed or implied. Statements of suitability for certain applications are based on the knowledge that the Cornell Dubilier company providing such statements ("Cornell Dubilier") has of operating conditions that such Cornell Dubilier company regards as typical for such applications, but are not intended to constitute any guarantee, warranty or representation regarding any such matter – and Cornell Dubilier specifically and expressly disclaims any guarantee, warranty or representation concerning the suitability for a specific customer application, use, storage, transportation, or operating environment. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by Cornell Dubilier with reference to the use of any Cornell Dubilier products is given gratis (unless otherwise specified by Cornell Dubilier), and Cornell Dubilier assumes no obligation or liability for the advice given or results obtained. Although Cornell Dubilier strives to apply the most stringent quality and safety standards regarding the design and manufacturing of its products, in light of the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies or other appropriate protective measures) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage. Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated in such warnings, cautions and notes, or that other safety measures may not be required.