

# Non-Polar Aluminum Electrolytic Capacitors

NRE-SN Series

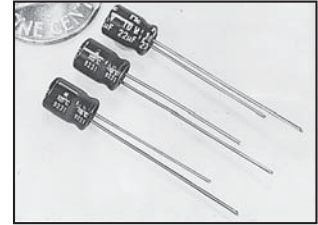
LOW PROFILE, SUB-MINIATURE, RADIAL LEADS,  
NON-POLAR ALUMINUM ELECTROLYTIC

## FEATURES

- BI-POLAR
- 7mm HEIGHT / LOW PROFILE

**RoHS Compliant**  
includes all homogeneous materials

\*See Part Number System for Details



## CHARACTERISTICS

Rated Voltage Range	6.3 ~ 50Vdc						
Capacitance Range	1.0 ~ 47 $\mu$ F						
Operating Temperature Range	-40 ~ +85°C						
Capacitance Tolerance	$\pm$ 20%(M)						
Max. Leakage Current After 1 minutes At +20°C	0.05CV or 10 $\mu$ A whichever is greater						
Surge Voltage & Max. Tan $\delta$ @ 120Hz/+20°C	W.V. (Vdc)	6.3	10	16	25	35	50
	S.V. (Vdc)	8	13	20	32	44	63
	Tan $\delta$	0.24	0.20	0.16	0.16	0.14	0.12
Low Temperature Stability (Impedance Ratio @ 120Hz)	Z-25°C/Z+20°C	4	3	2	2	2	2
	Z-40°C/Z+20°C	8	6	4	4	3	3
Load Life Test at Rated W.V. +85°C 1,000 Hours (Polarity Shall Be Reversed Every 250 Hours)	Capacitance Change	Within $\pm$ 25% of initial measured value					
	Tan $\delta$	Less than 200% of specified maximum value					
	Leakage Current	Less than specified maximum value					

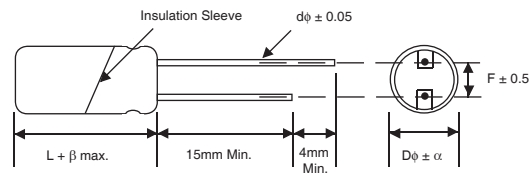
## STANDARD PRODUCTS AND CASE SIZE TABLE D $\phi$ x L (mm)

Cap. ( $\mu$ F)	Code	Working Voltage (Vdc)					
		6.3	10	16	25	35	50
1.0	1R0	-	-	-	-	-	4x7
2.2	2R2	-	-	-	-	4x7	5x7
3.3	3R3	-	-	-	4x7	5x7	5x7
4.7	4R7	-	-	-	4x7	5x7	6.3x7
10	100	-	4x7	4x7	5x7	6.3x7	-
22	220	5x7	5x7	6.3x7	6.3x7	-	-
33	330	5x7	6.3x7	6.3x7	-	-	-
47	470	6.3x7	6.3x7	6.3x7	-	-	-

## LEAD SPACING AND DIAMETER (mm)

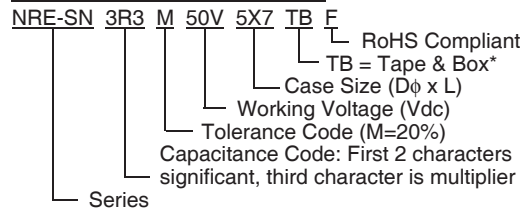
Case Dia. (D $\phi$ )	4	5	6.3
Lead Dia. (d $\phi$ )	0.45	0.45	0.45
Lead Space (F)	1.5	2.0	2.5

## DIMENSIONS (mm)



Drawing is representative of parts as supplied in bulk or straight lead format, please see taping specification for details on taped format packaging.

## PART NUMBER SYSTEM



\*see taping specifications for details

## PRECAUTIONS

Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capacitor catalog.

Also found at [www.niccomp.com/precautions](http://www.niccomp.com/precautions)

If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: [tpmg@niccomp.com](mailto:tpmg@niccomp.com)



### STANDARD PRODUCT, SPECIFICATIONS AND CASE SIZES D $\phi$ x L (mm)

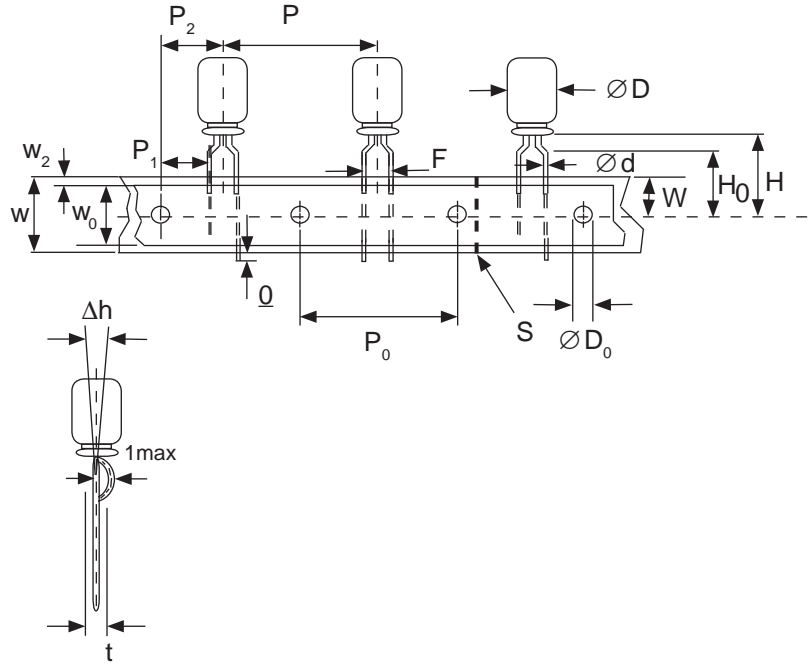
Part Number	Cap. ( $\mu$ F)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (mA) +85°C/120Hz	Max. ESR ( $\Omega$ ) +20°C/120Hz	Load Life Hours @ +85°C
NRE-SN330M6.3V5x7F	33	6.3	0.24	42	12.1	1,000
NRE-SN470M6.3V6.3x7F	47		0.24	55	8.47	1,000
NRE-SN100M10V4x7F	10	10	0.20	24	33.2	1,000
NRE-SN220M10V5x7F	22		0.20	40	15.1	1,000
NRE-SN330M10V6.3x7F	33		0.20	56	10.1	1,000
NRE-SN470M10V6.3x7F	47		0.20	67	7.06	1,000
NRE-SN100M16V4x7F	10		16	0.16	30	26.6
NRE-SN220M16V6.3x7F	22	0.16		51	9.09	1,000
NRE-SN330M16V6.3x7F	33	0.16		63	8.05	1,000
NRE-SN470M16V6.3x7F	47	0.16		68	5.65	1,000
NRE-SN3R3M25V4x7F	3.3	25		0.16	18	80.4
NRE-SN4R7M25V4x7F	4.7		0.16	20	56.5	1,000
NRE-SN100M25V5x7F	10		0.16	35	26.6	1,000
NRE-SN220M25V6.3x7F	22		0.16	53	9.09	1,000
NRE-SN2R2M35V4x7F	2.2		35	0.14	10	105.6
NRE-SN3R3M35V5x7F	3.3	0.14		16	70.4	1,000
NRE-SN4R7M35V5x7F	4.7	0.14		22	49.4	1,000
NRE-SN100M35V6.3x7F	10	0.14		37	23.2	1,000
NRE-SN1R0M50V4x7F	1.0	50		0.12	10	199
NRE-SN2R2M50V5x7F	2.2		0.12	14	90.5	1,000
NRE-SN3R3M50V5x7F	3.3		0.12	20	60.4	1,000
NRE-SN4R7M50V6.3x7F	4.7		0.12	27	42.4	1,000

# Miniature Aluminum Electrolytic Capacitors Taping Specifications

## STANDARD RADIAL TAPING (5mm LEAD SPACING, FORMED LEADS) TB

Taping Dimensions (mm)

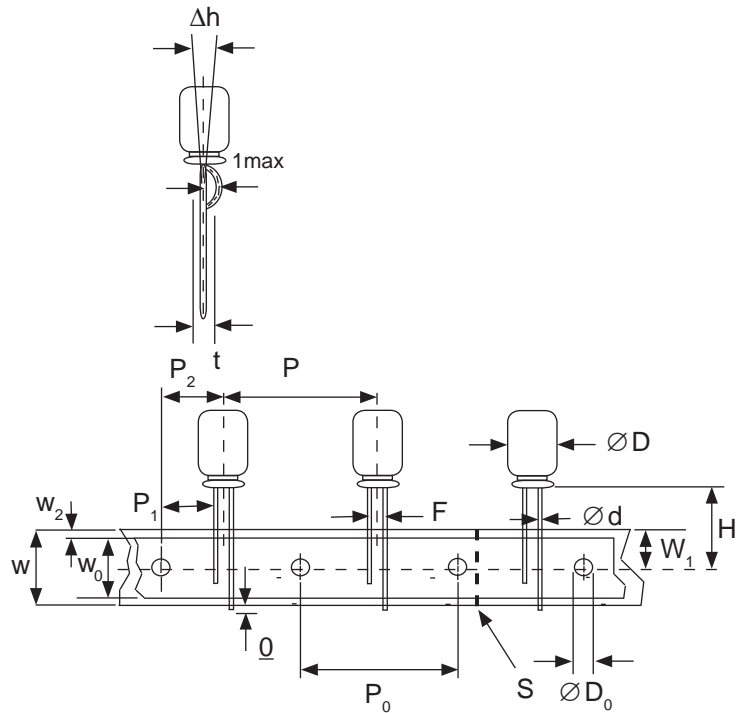
Case Dia. (D $\phi$ )	4	5	6.3	8
Case Size	4x5 4x7	5x5 5x7	5x11	6.3x5 6.3x7 6.3x11 8x11.5
d $\phi$ $\pm$ 0.05	0.45	0.45	0.5	0.45
H $\pm$ 0.75	17.5	17.5	18.5	17.5
F +0.8 ~ -0.2	5.0 -0.2 ~ +0.8			
P	12.7 $\pm$ 1.0			
P <sub>0</sub>	12.7 $\pm$ 0.2			
P <sub>1</sub>	3.85 $\pm$ 0.5 (at end of tape)			
P <sub>2</sub>	6.35 $\pm$ 1.0			
W	18.0 $\pm$ 0.5			
W <sub>0</sub>	11.5 min.			
W <sub>1</sub>	9.0 $\pm$ 0.5			
W <sub>2</sub>	0 ~ 2.5			
H <sub>0</sub>	16.0 $\pm$ 0.5			
l	1.0 max.			
D <sub>0</sub> $\phi$	4.0 $\pm$ 0.2			
$\Delta$ h	0 $\pm$ 1.0 (at top of can)			
t	0.7 $\pm$ 0.2 (not including lead)			



## STANDARD RADIAL TAPING (5mm LEAD SPACING, STRAIGHT LEADS) TB

Taping Dimensions (mm)

Case Dia. (D $\phi$ )	10	12.5
Case Size	All	All
d $\phi$ $\pm$ 0.05	0.6	0.6
H $\pm$ 0.75	19.0	19.0
F +0.8 ~ -0.2	5.0	5.0
P $\pm$ 1.0	25.4*	
P <sub>0</sub>	12.7 $\pm$ 0.2	
P <sub>1</sub>	3.85	
P <sub>2</sub>	6.35 $\pm$ 1.0	
W	18.0 $\pm$ 0.5	
W <sub>0</sub>	11.5 min	
W <sub>1</sub>	9.0 $\pm$ 0.5	
W <sub>2</sub>	0 ~ 2.5	
H <sub>0</sub>	16.0 $\pm$ 0.5	
l	1.0 max.	
D <sub>0</sub> $\phi$	4.0 $\pm$ 0.2	
$\Delta$ h	0 $\pm$ 1.0 (at top of can)	
t	0.7 $\pm$ 0.2 (not including lead)	



### \*Optional Taping Specifications

10mm diameter available with P dim. = 12.7mm  
(P/N Suffix: TB12.7MMP)

12.5mm diameter available with P dim. = 15mm, P<sub>1</sub> = 5.0mm,  
P<sub>0</sub> = 15.0mm & P<sub>2</sub> = 7.5mm (P/N Suffix: TB15MMP)

**NOTE:** ANODE (+) LEAD FEEDS OFF FIRST.  
FOR OPTION OF NEGATIVE (-) LEAD FIRST,  
SPECIFY "TBN".

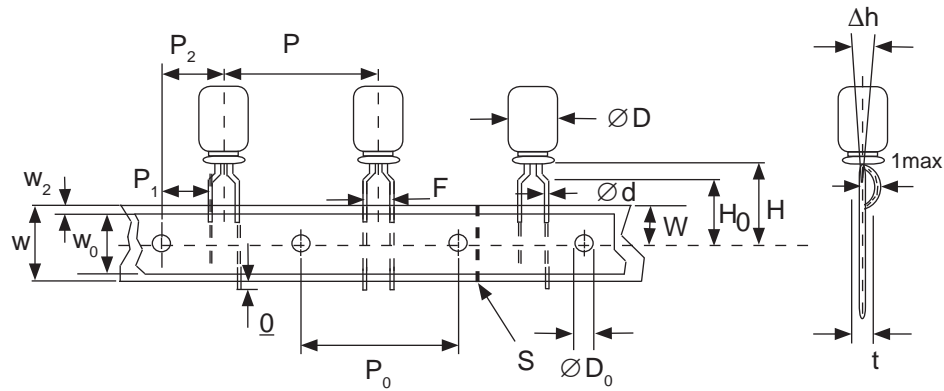


# Miniature Aluminum Electrolytic Capacitors Taping Specifications

## SPECIAL RADIAL TAPING (2.5mm LEAD SPACING, FORMED LEADS) TBF1

Taping Dimensions (mm)

Case Dia. (D $\phi$ )	4		5	
Case Size Dim.	4x5 4x7	5x5 5x7	5x11	
d $\phi$ $\pm$ 0.05	0.45	0.45	0.5	
H $\pm$ 0.75	17.5	17.5	18.5	
H <sub>0</sub> $\pm$ 0.5	16.0	-	-	
F	2.5 -0.2 ~ +0.8			
P	12.7 $\pm$ 1.0			
P <sub>0</sub>	12.7 $\pm$ 0.2			
P <sub>1</sub>	5.1 $\pm$ 0.5			
P <sub>2</sub>	6.35 $\pm$ 1.0			
W	18.0 $\pm$ 0.5			
W <sub>0</sub>	11.5 min.			
W <sub>1</sub>	9.0 $\pm$ 0.5			
W <sub>2</sub>	0 ~ 1.5			
l	1.0 max.			
D <sub>0</sub> $\phi$	4.0 $\pm$ 0.2			
$\Delta$ h	0 $\pm$ 1.0			
t	0.7 $\pm$ 0.2			

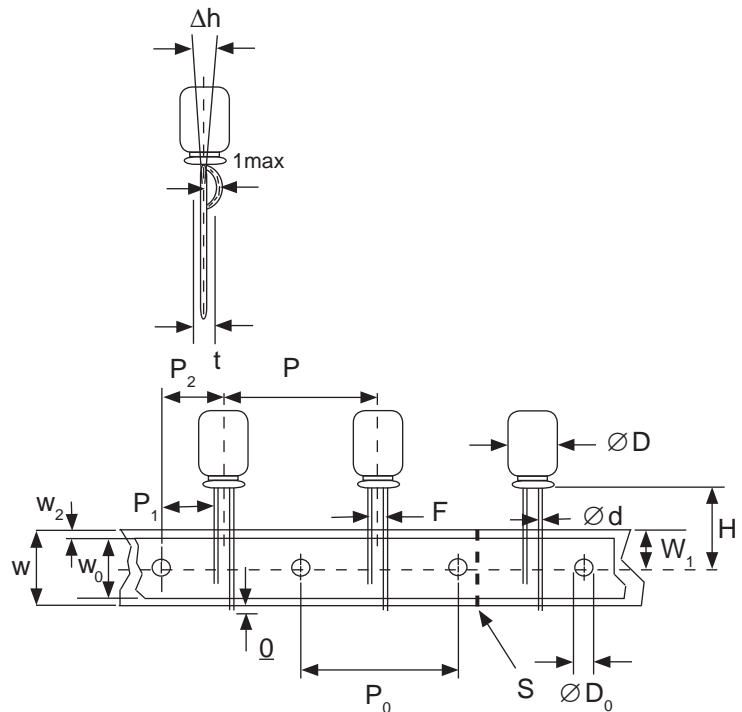


## SPECIAL STRAIGHT LEAD TAPING TBST

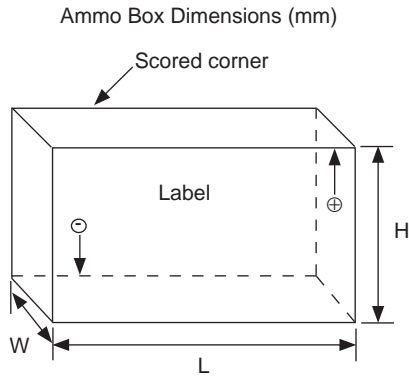
Taping Dimensions (mm)

Case Dia. (D $\phi$ )	4			5			6.3		8	
Case Size Dim.	4x5 4x7	5x5 5x7	5x11		6.3x5 6.3x7	6.3x11	8x11.5			
d $\phi$ $\pm$ 0.05	0.45	0.45	0.5	0.45	0.5	0.6				
H $\pm$ 0.75	17.5	17.5	18.5	17.5	18.5	20.0				
F +0.8 ~ -0.2	2.0*	2.0	2.0	2.5	2.5	3.5				
P $\pm$ 1.0	12.7 $\pm$ 0.2									
P <sub>0</sub>	12.7 $\pm$ 0.2									
P <sub>1</sub>	5.1	5.1	5.1	5.1	5.1	4.6				
P <sub>2</sub>	6.35 $\pm$ 1.0									
W	18.0 $\pm$ 0.5									
W <sub>0</sub>	11.5 min.									
W <sub>1</sub>	9.0 $\pm$ 0.5									
W <sub>2</sub>	0 ~ 2.5									
H <sub>0</sub>	16.0 $\pm$ 0.5									
l	1.0 max.									
D <sub>0</sub> $\phi$	4.0 $\pm$ 0.2									
$\Delta$ h	0 $\pm$ 1.0 (at top of can)									
t	0.7 $\pm$ 0.2 (not including lead)									

\* Parts with 4mm diameter are taped with a slight flare in the lead and a 2.0mm lead-space.



## RADIAL TAPED PACKAGING



Ammo Box (Tape & Box) TB, TBF1, TBST

Size of box and component quantity

Case Dia (D $\phi$ ) or Case Size	Q'ty per Box (pcs)	Dim. L	Dim. H	Dim. W
4x5, 4x7	2,000	331	175	43
5x5, 5x7	2,000	331	220	43
5x11	2,000	340	255	55
6.3x5, 6.3x7	2,000	331	280	43
6.3x11	2,000	331	280	48
8x11.5, 8x12.5	1,000	335	235	53
10x12.5*	500	335	190	53
10x16*	500	335	300	53
10x20*	500	335	300	55
12.x20*	500	335	300	55
12.5x25*	500	335	300	61

\*Special Taping Consult Factory For Availability