

# Miniature Aluminum Electrolytic Capacitors

NRSJ Series

ULTRA LOW IMPEDANCE AT HIGH FREQUENCY, RADIAL LEADS

## FEATURES

- VERY LOW IMPEDANCE
- LONG LIFE AT 105°C (2000 hrs.)
- HIGH STABILITY AT LOW TEMPERATURE

**RoHS  
Compliant**

includes all homogeneous materials

\*See Part Number System for Details



## CHARACTERISTICS

Rated Voltage Range	6.3 ~ 50Vdc						
Capacitance Range	100 ~ 2,700 $\mu$ F						
Operating Temperature Range	-25° ~ +105°C						
Capacitance Tolerance	$\pm$ 20% (M)						
Maximum Leakage Current After 2 Minutes at 20°C	0.01CV or 3 $\mu$ A whichever is greater						
Max. Tan $\delta$ at 120Hz/20°C	W.V. (Vdc)	6.3	10	16	25	35	50
	S.V. (Vdc)	8	13	20	32	44	63
	C < 1,500 $\mu$ F	0.22	0.19	0.16	0.14	0.12	0.10
	C = 2,200 $\mu$ F ~ 2,700 $\mu$ F	0.24	0.21	0.18	0.16	-	-
Low Temperature Stability Impedance Ratio @ 120Hz	Z-25°C/Z+20°C	3	3	3	3	3	3
Load Life Test at Rated W.V. 105°C 2,000 Hrs.	Capacitance Change	Within $\pm$ 25% of initial measured value					
	Tan $\delta$	Less than 200% of specified value					
	Leakage Current	Less than specified value					

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

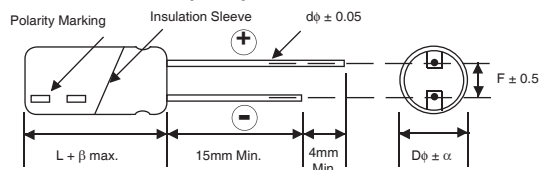
Cap ( $\mu$ F)	Code	Working Voltage (Vdc)					
		6.3	10	16	25	35	
220	221	-	-	-	-	-	10x12.5
330	331	-	-	-	-	10x12.5	10x16
390	391	-	-	-	-	-	8x20
470	471	-	-	10x12.5	10x16	10x20	10x20
680	681	-	10x12.5	10x16	10x20	-	-
1000	102	10x12.5	10x16	10x16	10x20	-	-
				10x20			
1500	152	10x16	10x20	10x20	-	-	-
2200	222	10x20	-	-	-	-	-

## DIAMETER AND LEADSPACE (mm)

Case Dia. (D $\phi$ )	8	10
Lead Dia. (d $\phi$ )	0.6	0.6
Lead Spacing (F)	3.5	5.0
Dim. $\alpha$	0.5	0.5

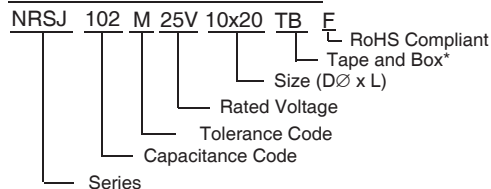
$\beta = L \leq 16\text{mm} = 1.5\text{mm}, L \geq 20\text{mm} = 2.0\text{mm}$

## 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 tape specification 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 PRODUCTS, CASE SIZES AND SPECIFICATIONS D $\phi$ x L (mm)

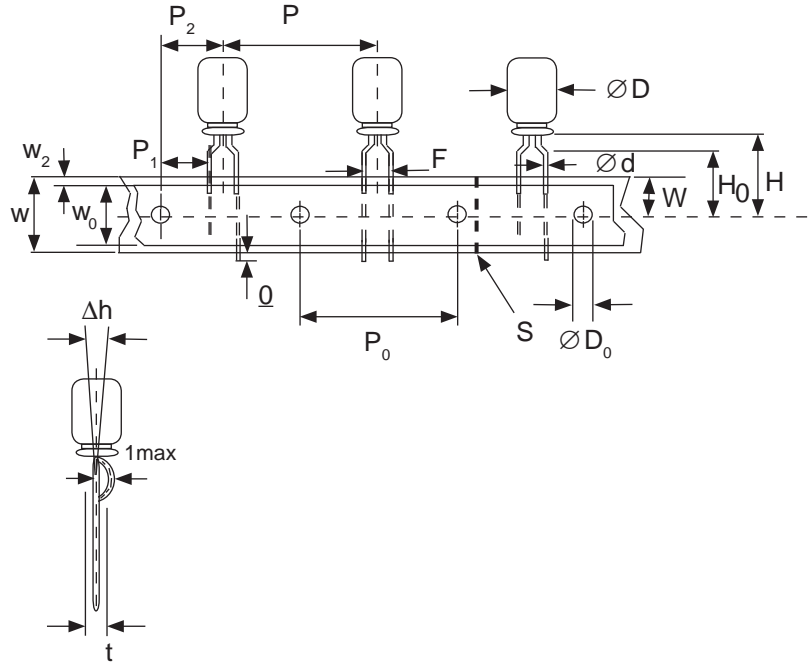
Part Number	Cap ( $\mu$ F)	W.V (Vdc)	Max. Tan $\delta$	Max. Z ( $\Omega$ ) 100KHz & 20°C	Max. Ripple Current (mA) 100KHz & 105°C	Load Life Hours @ +105°C	
NRSJ102M6.3V10X12.5F	1000	6.3	0.22	0.025	1540	2000	
NRSJ152M6.3V10X16F	1500		0.22	0.018	2000	2000	
NRSJ222M6.3V10X20F	2200		0.24	0.013	2550	2000	
NRSJ681M10V10X12.5F	680	10	0.19	0.025	1540	2000	
NRSJ102M10V10X16F	1000		0.19	0.018	2000	2000	
NRSJ152M10V10X20F	1500		0.19	0.013	2550	2000	
NRSJ471M16V10X12.5F	470	16	0.16	0.025	1540	2000	
NRSJ681M16V10X16F	680		0.16	0.018	2000	2000	
NRSJ102M16V10X16F	1000		0.16	0.018	2000	2000	
NRSJ102M16V10X20F	1000		0.16	0.013	2550	2000	
NRSJ152M16V10X20F	1500		0.16	0.013	2550	2000	
NRSJ331M25V10X12.5F	330		25	0.14	0.025	1440	2000
NRSJ471M25V10X16F	470	0.14		0.020	1920	2000	
NRSJ681M25V10X20F	680	0.14		0.016	2180	2000	
NRSJ102M25V10X20F	1000	0.14		0.018	2060	2000	
NRSJ221M35V10X12.5F	220	35		0.12	0.025	1440	2000
NRSJ331M35V10X16F	330			0.12	0.020	1920	2000
NRSJ391M35V8X20F	390		0.12	0.020	1720	2000	
NRSJ471M35V10X20F	470		0.12	0.016	2180	2000	

# Miniature Aluminum Electrolytic Capacitors Taping Specifications

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

Taping Dimensions (mm)

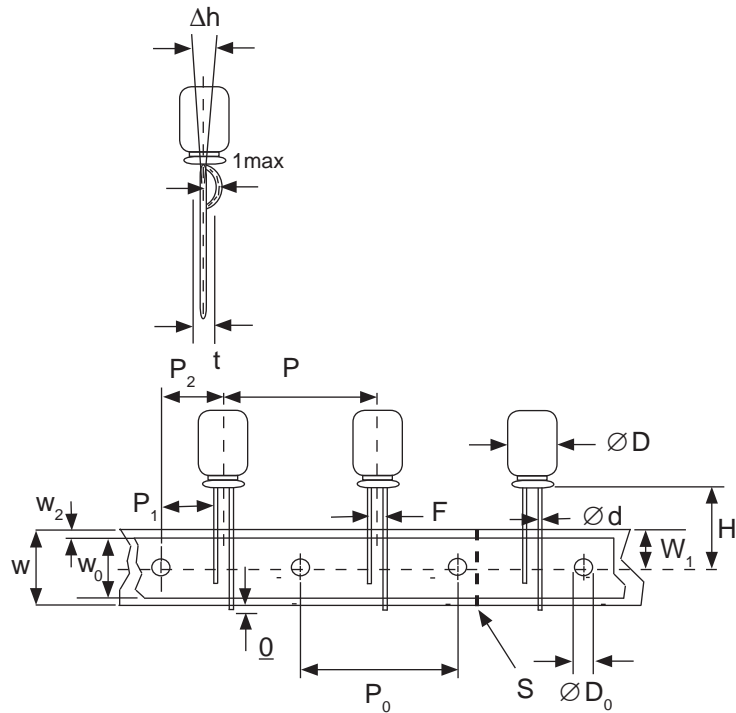
Case Dia. (D $\phi$ )	4	5	6.3	8
Case Size	4x5	5x5	6.3x5	8x11.5
Dim.	4x7	5x7	6.3x7	6.3x11
d $\phi$ $\pm$ 0.05	0.45	0.45	0.5	0.5
H $\pm$ 0.75	17.5	17.5	18.5	17.5
F +0.8 ~ -0.2	5.0 -0.2 ~ +0.8			
P	12.7 $\pm$ 1.0			
P <sub>0</sub>	12.7 $\pm$ 0.2			
P <sub>1</sub>	3.85 $\pm$ 0.5 (at end of tape)			
P <sub>2</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
Dim.	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".

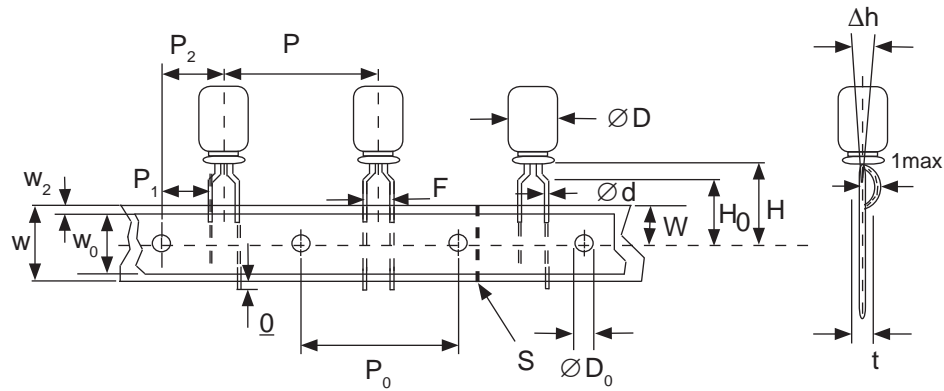


# Miniature Aluminum Electrolytic Capacitors Taping Specifications

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

Taping Dimensions (mm)

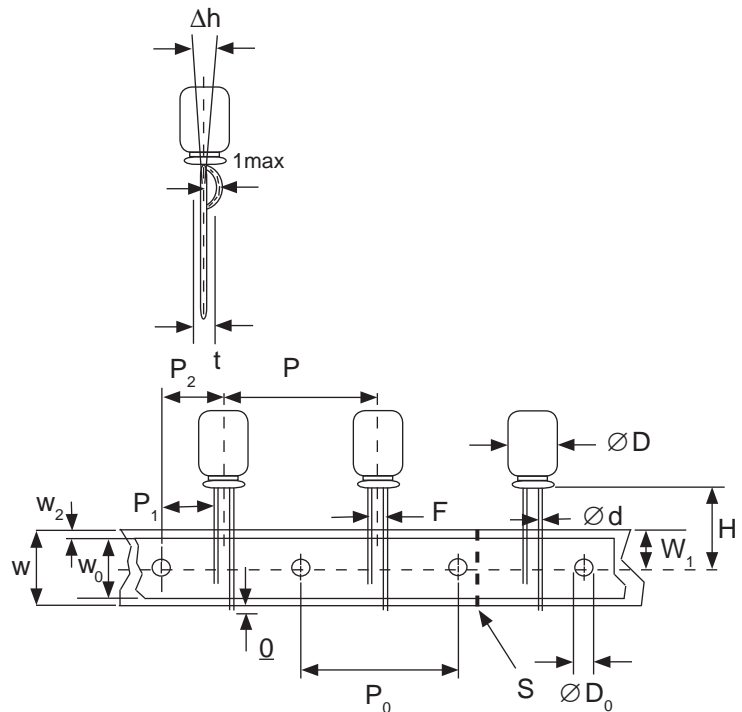
Case Dia. (D $\phi$ )	4		5	
Case Size Dim.	4x5 4x7	5x5 5x7	5x11	
d $\phi$ $\pm$ 0.05	0.45	0.45	0.5	
H $\pm$ 0.75	17.5	17.5	18.5	
H <sub>0</sub> $\pm$ 0.5	16.0	-	-	
F	2.5 -0.2 ~ +0.8			
P	12.7 $\pm$ 1.0			
P <sub>0</sub>	12.7 $\pm$ 0.2			
P <sub>1</sub>	5.1 $\pm$ 0.5			
P <sub>2</sub>	6.35 $\pm$ 1.0			
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)

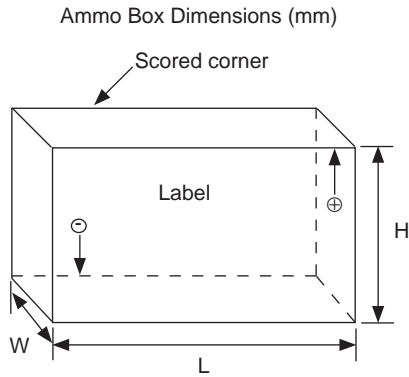
Case Dia. (D $\phi$ )	4			5			6.3		8	
Case Size Dim.	4x5 4x7	5x5 5x7	5x11		6.3x5 6.3x7	6.3x11		8x11.5		
d $\phi$ $\pm$ 0.05	0.45	0.45	0.5		0.45	0.5		0.6		
H $\pm$ 0.75	17.5	17.5	18.5		17.5	18.5		20.0		
F +0.8 ~ -0.2	2.0*	2.0	2.0		2.5	2.5		3.5		
P $\pm$ 1.0	12.7 $\pm$ 0.2									
P <sub>0</sub>	12.7 $\pm$ 0.2									
P <sub>1</sub>	5.1	5.1	5.1	5.1	5.1	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