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June 17th 2013 (Update)

SUB: EOL – End of Life Notification

Products impacted by this notice: NRSA series of Radial Leaded (LDD) Aluminum Electrolytic Capacitors

NIC Part Numbers affected: See below [Discontinued Part Numbers](#) table

Effective: May 31th 2013

Last order supporting business from established customers: November 29th 2013

Last delivery: May 30th 2014

REASON FOR CHANGE: Migration to reduced case sizes

Series Cross Tool

Discontinued part number tables (see below) show possible replacement and alternate part numbers. Please also use **NIC QuickBUILDER Series Cross Tool** to select, review and compare potential replacement part numbers.

TIP: Multiple replacement NIC series can be compared, by **Ctrl** + selecting multiple items

➔ **Series Cross Tool:** www.niccomp.com/quickbuilder/series_capacitor.php

Home > >QuickBUILDER> Series Cross

Capacitors

Aluminum - Double Layer - Tantalum
Ceramic - Film

NIC QuickBUILDER

Text & Parametric Searches
Individual Part Specifications
Compare Parts Side-By-Side
And Much More...

Jump to

Parametric Search Families or Go To --

Current NIC Series

- NRLR
- NRLRW
- NRSA**
- NRSG
- NRSH

Replacement NIC Series

- NRSJ
- NRSK
- NRSS**
- NRSY
- NRSZ

Replace with NIC "Focus" Items

- NIC Focus
- NIC Active
- NIC Preferred
- Non-Standard (NFND)

Compare Checked Parts (Select up to 5 parts max.)

Part Number	Series	Size (mm)	Capacitance	Voltage	RCR	ESR	Load Life	Tools
<input type="checkbox"/> NRSA331M6.3V6.3x11F	● NRSA	6.3x11	330µF	6.3Vdc	340mA	1.31Ω	2000Hrs	
<input type="checkbox"/> NRSS331M6.3V6.3x11F	● NRSS	6.3x11						
<input type="checkbox"/> NRWA331M6.3V6.3x11F	● NRWA	6.3x11						
<input type="checkbox"/> NRSA471M6.3V8x11.5F	● NRSA	8x11.5						
<input type="checkbox"/> NRSS471M6.3V6.3x11F	● NRSS	6.3x11						
<input type="checkbox"/> NRWA471M6.3V8x11.5F	● NRWA	8x11.5						
<input type="checkbox"/> NRSA681M6.3V10x12.5F	● NRSA	10x12.5						
<input type="checkbox"/> NRSA102M6.3V10x12.5F	● NRSA	10x12.5						
<input type="checkbox"/> NRSS102M6.3V8x11.5F	● NRSS	8x11.5						
<input type="checkbox"/> NRWA102M6.3V10x12.5F	● NRWA	10x12.5	1000µF	6.3Vdc	400mA	0.36Ω	1000Hrs	Stock Samples
<input type="checkbox"/> NRSA152M6.3V10x20F	● NRSA	10x20	1500µF	6.3Vdc	790mA	0.27Ω	2000Hrs	
<input type="checkbox"/> NRSA222M6.3V12.5x20F	● NRSA	12.5x20	2200µF	6.3Vdc	940mA	0.18Ω	2000Hrs	
<input type="checkbox"/> NRSS222M6.3V10x16F	● NRSS	10x16	2200µF	6.3Vdc	900mA	0.23Ω	2000Hrs	Stock Samples
<input type="checkbox"/> NRWA222M6.3V12.5x20F	● NRWA	12.5x20	2200µF	6.3Vdc	760mA	0.18Ω	1000Hrs	Stock Samples

Suggested replacement series for NRSA series:

- NRSS
- NRWA
- NRWS
- NRWP
- NRSZ



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Discontinued Part Numbers | Higher voltage rated replacement part numbers are highlighted in **green**

Voltage Rating	Cap Value	Discontinued Part Numbers	Suggested Replacement (Same Diameter) Part Numbers	Suggested Replacement Reduced Size Part Numbers
6.3 VDC	330 uF	NRSA331M6.3V6.3X11F	NRSS331M6.3V6.3X11F	NRWS331M6.3V6.3X11F
6.3 VDC	470 uF	NRSA471M6.3V8X11.5F	NRSS471M16V8X11.5F	NRSS471M6.3V6.3X11F
6.3 VDC	680 uF	NRSA681M6.3V10X12.5F	NRZS681M10V10X12.5F	NRWP681M6.3V6.3X11F
6.3 VDC	1000 uF	NRSA102M6.3V10X12.5F	NRSS102M10V10X12.5F	NRWP102M6.3V8X11.5F
6.3 VDC	1500 uF	NRSA152M6.3V10X20F	NRSG152M6.3V10X20F	NRZJ152M6.3V8X20F
6.3 VDC	2200 uF	NRSA222M6.3V12.5X20F	NRSS222M16V12.5X20F	NRSS222M10V10X20F
6.3 VDC	3300 uF	NRSA332M6.3V12.5X20F	NRSS332M10V12.5X20F	NRSS332M6.3V10X20F
6.3 VDC	4700 uF	NRSA472M6.3V16X25F	NRSS472M16V16X25F	NRSS472M6.3V12.5X20F
6.3 VDC	6800 uF	NRSA682M6.3V16X25F	NRSS682M10V16X25F	NRSS682M6.3V12.5X25F
6.3 VDC	10,000 uF	NRSA103M6.3V16X31F	NRSS103M10V16X31.5F	NRSS103M6.3V16X25F
10 VDC	47 uF	NRSA470M10V5X11F	NRSS470M10V5X11F	NRSS470M25V5X11F
10 VDC	100 uF	NRSA101M10V5X11F	NRSS101M10V5X11F	NRSS101M16V5X11F
10 VDC	150 uF	NRSA151M10V5X11F	NRSH151M10V5X11F	---
10 VDC	220uF	NRSA221M10V6.3X11F	NRSS221M16V6.3X11F	NRSS221M10V5X11F
10 VDC	330 uF	NRSA331M10V8X11.5F	NRSS331M16V8X11.5F	NRSS331M10V6.3X11F
10 VDC	470 uF	NRSA471M10V8X11.5F	NRSS471M16V8X11.5F	NRSS471M10V6.3X11F
10 VDC	1000 uF	NRSA102M10V10X16F	NRSS102M16V10X16F	NRSS102M10V10X12.5F
10 VDC	1500 uF	NRSA152M10V12.5X20F	NRZX152M10V12.5X20F	NRSH152M10V10X16F
10 VDC	2200 uF	NRSA222M10V12.5X20F	NRSS222M16V12.5X20F	NRSS222M10V10X20F
10 VDC	3300 uF	NRSA332M10V12.5X25F	NRSS332M16V12.5X25F	NRSS332M10V12.5X20F
10 VDC	4700 uF	NRSA472M10V16X25F	NRSS472M16V16X25F	NRSS472M10V12.5X25F
10 VDC	6800 uF	NRSA682M10V16X31F	NRSS682M16V16X31.5F	NRSS682M10V16X25F
10 VDC	10,000 uF	NRSA103M10V18X36F	NRSS103M16V18X35.5F	NRSS103M10V16X31.5F
16 VDC	10 uF	NRSA100M16V5X11F	NRSS100M16V5X11F	---
16 VDC	22 uF	NRSA220M16V5X11F	NRSS220M16V5X11F	---
16 VDC	33 uF	NRSA330M16V5X11F	NRSS330M16V5X11F	---
16 VDC	47 uF	NRSA470M16V5X11F	NRSS470M16V5X11F	---
16 VDC	100 uF	NRSA101M16V6.3X11F	NRSS101M25V6.3X11F	NRSS101M16V5X11F
16 VDC	150 uF	NRSA151M16V6.3X11F	NRZS151M16V6.3X11F	---
16 VDC	220uF	NRSA221M16V8X11.5F	NRSS221M25V8X11.5F	NRSS221M16V6X11F
16 VDC	330 uF	NRSA331M16V8X11.5F	NRSS331M16V8X11.5F	NRWP331M16V6.3X11F
16 VDC	470 uF	NRSA471M16V10X12.5F	NRSS471M25V10X12.5F	NRSS471M16V8X11.5F
16 VDC	1000 uF	NRSA102M16V10X20F	NRSS102M16V10X16F	NRWP102M16V10X12.5F
16 VDC	1500 uF	NRSA152M16V12.5X25F	NRZS152M16V12.5X25F	NRSG152M16V12.5X20F
16 VDC	2200 uF	NRSA222M16V12.5X25F	NRSS222M16V12.5X20F	NRWP222M16V10X20F
16 VDC	3300 uF	NRSA332M16V16X25F	NRSS332M25V16X25F	NRSS332M16V12.5X25F
16 VDC	4700 uF	NRSA472M16V16X31.5F	NRSS472M16V16X25F	NRWP472M16V12.5X25F
16 VDC	6800 uF	NRSA682M16V18X36F	NRWA682M16V18X35.5F	NRSS682M16V16X31.5F
16 VDC	10,000 uF	NRSA103M16V22X36F	---	NRSS103M16V18X35.5F
25 VDC	22 uF	NRSA220M25V5X11F	NRSS220M25V5X11F	---
25 VDC	33 uF	NRSA330M25V5X11F	NRSS330M25V5X11F	---
25 VDC	47 uF	NRSA470M25V5X11F	NRSS470M25V5X11F	---
25 VDC	100 uF	NRSA101M25V6.3X11F	NRSS101M25V6.3X11F	NRWP101M25V5X11F



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Voltage Rating	Cap Value	Discontinued Part Numbers	Suggested Replacement (Same Diameter) Part Numbers	Suggested Replacement Reduced Size Part Numbers
25 VDC	150 uF	NRSA151M25V8X11.5F	NRSZ151M25V8X11.5F	NRSS151M25V6.3X11F
25 VDC	220uF	NRSA221M25V8X11.5F	NRSS221M25V8X11.5F	NRE-JL221M25V6.3X11F
25 VDC	330 uF	NRSA331M25V10X12.5F	NRSS331M 35V 10X12.5F	NRSS331M25V8X11.5F
25 VDC	470 uF	NRSA471M25V10X16F	NRSS471M25V10X12.5F	NRWP471M25V8X11.5F
25 VDC	1000 uF	NRSA102M25V12.5X20F	NRSS102M 35V 12.5X20F	NRSS102M25V10X20F
25 VDC	1500 uF	NRSA152M25V12.5X25F	NRSG152M25V12.5X25F	NRZJ152M25V12.5X20F
25 VDC	2200 uF	NRSA222M25V16X25F	NRSS222M 50V 16X31.5F	NRSS222M25V12.5X25F
25 VDC	3300 uF	NRSA332M25V16X31.5F	NRE-HL332M25V16X31.5F	NRSS332M25V16X25F
25 VDC	4700 uF	NRSA472M25V18X35.5F	NRSS472M 35V 18X35.5F	NRSS472M25V16X31.5F
25 VDC	6800 uF	NRSA682M25V22X36F	---	NRSS682M25V18X35.5F
25 VDC	10,000 uF	NRSA103M25V22X36F	---	NRWP103M25V18X35.5F
35 VDC	10 uF	NRSA100M35V5X11F	NRSS100M35V5X11F	---
35 VDC	22 uF	NRSA220M35V5X11F	NRSS220M35V5X11F	---
35 VDC	33 uF	NRSA330M35V5X11F	NRSS330M35V5X11F	---
35 VDC	47 uF	NRSA470M35V6.3X11F	NRSS470M35V5X11F	---
35 VDC	100 uF	NRSA101M35V8X11.5F	NRSS101M 50V 8X11.5F	NRSS101M35V6.3X11F
35 VDC	150 uF	NRSA151M35V8X11.5F	NRE-HL151M35V8X11.5F	---
35 VDC	220uF	NRSA221M35V10X12.5F	NRSS221M 50V 10X12.5F	NRSS221M35V8X11.5F
35 VDC	330 uF	NRSA331M35V10X16F	NRWA331M35V10X16F	NRSS331M35V10X12.5F
35 VDC	470 uF	NRSA471M35V10X20F	NRWA471M35V10X20F	NRSS471M35V10X16F
35 VDC	1000 uF	NRSA102M35V12.5X25F	NRWA102M35V12.5X25F	NRSS102M35V12.5X20F
35 VDC	1500 uF	NRSA152M35V16X25F	NRSZ152M35V16X25F	NRZJ152M35V16X20F
35 VDC	2200 uF	NRSA222M35V16X31.5F	NRSS222M35V16X31.5F	NRSS222M35V16X25F
35 VDC	3300 uF	NRSA332M35V18X35.5F	NRSS332M 50V 18X35.5F	NRSS332M35V16X31.5F
35 VDC	4700 uF	NRSA472M35V22X36F	---	NRSS472M35V18X36F
50 VDC	1.0 uF	NRSA1R0M50V5X11F	NRWA1R0M50V5X11F	---
50 VDC	2.2 uF	NRSA2R2M50V5X11F	NRSS2R2M50V5X11F	---
50 VDC	3.3 uF	NRSA3R3M50V5X11F	NRSS3R3M50V5X11F	---
50 VDC	4.7 uF	NRSA4R7M50V5X11F	NRSS4R7M50V5X11F	---
50 VDC	10 uF	NRSA100M50V5X11F	NRSS100M50V5X11F	---
50 VDC	22 uF	NRSA220M50V5X11F	NRSS220M50V5X11F	---
50 VDC	33 uF	NRSA330M50V6.3X11F	NRSS330M 63V 6.3X11F	NRSS330M50V5X11F
50 VDC	47 uF	NRSA470M50V6.3X11F	NRSS470M50V6.3X11F	---
50 VDC	100 uF	NRSA101M50V8X11.5F	NRSS101M50V8X11.5F	---
50 VDC	150 uF	NRSA151M50V10X12.5F	NRSG151M50V10X12.5F	---
50 VDC	220uF	NRSA221M50V10X16F	NRWA221M50V10X16F	NRSS221M50V10X12.5F
50 VDC	330 uF	NRSA331M50V10X20F	NRWA331M50V10X20F	NRSS331M50V10X16F
50 VDC	470 uF	NRSA471M50V12.5X20F	NRSS471M 63V 12.5X20F	NRSS471M50V10X20F
50 VDC	1000 uF	NRSA102M50V16X25F	NRSS102M 63V 16X25F	NRSS102M50V12.5X25F
50 VDC	1500 uF	NRSA152M50V16X31F	---	---
50 VDC	2200 uF	NRSA222M50V18X35.5F	NRE-HL222M50V18X35.5F	NRSS222M50V16X31.5F
50 VDC	3300 uF	NRSA332M50V22X36F	---	NRSS332M50V18X36F
50 VDC	4700 uF	NRSA472M50V22X42F	---	---
63 VDC	4.7 uF	NRSA4R7M63V5X11F	NRSS4R7M63V5X11F	---
63 VDC	10 uF	NRSA100M63V5X11F	NRSS100M63V5X11F	---
63 VDC	22 uF	NRSA220M63V6.3X11F	NRWA220M63V6.3X11F	NRSS220M63V5X11F
63 VDC	33 uF	NRSA330M63V6.3X11F	NRSS330M63V6.3X11F	---



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Voltage Rating	Cap Value	Discontinued Part Numbers	Suggested Replacement (Same Diameter) Part Numbers	Suggested Replacement Reduced Size Part Numbers
63 VDC	47 uF	NRSA470M63V8X11.5F	NRWA470M63V8X11.5F	NRSS470M63V6.3X11F
63 VDC	100 uF	NRSA101M63V10X12.5F	NRWA101M63V10X12.5F	NRSS101M63V8X11.5F
63 VDC	150 uF	NRSA151M63V10X16F	NRSZ151M63V10X16F	NRSH151M63V8X20F
63 VDC	220uF	NRSA221M63V10X20F	NRSS221M63V10X16F	NRWS221M63V10X16F
63 VDC	330 uF	NRSA331M63V12.5X20F	NRSS331M100V12.5X25F	NRSS331M63V10X20F
63 VDC	470 uF	NRSA471M63V12.5X25F	NRSS471M63V12.5X20F	NRWS471M63V12.5X20F
63 VDC	1000 uF	NRSA102M63V16X31.5F	NRSS102M63V16X25F	NRWP102M63V16X25F
63 VDC	1500 uF	NRSA152M63V18X36F	NRSH152M63V18X31.5F	NRSH152M63V16X35.5F
63 VDC	2200 uF	NRSA222M63V18X35.5F	NRWP222M63V18X31.5F	NRSH222M63V18X40F
63 VDC	3300 uF	NRSA332M63V22X42F	---	---
100 VDC	1.0 uF	NRSA1R0M100V5X11F	NRWA1R0M100V5X11F	---
100 VDC	2.2 uF	NRSA2R2M100V5X11F	NRSS2R2M100V5X11F	---
100 VDC	3.3 uF	NRSA3R3M100V5X11F	NRSS3R3M100V5X11F	---
100 VDC	4.7 uF	NRSA4R7M100V5X11F	NRSS4R7M100V5X11F	---
100 VDC	10 uF	NRSA100M100V6.3X11F	NRWA100M100V6.3X11F	NRWP100M100V5X11F
100 VDC	22 uF	NRSA220M100V8X11.5F	NRWA220M100V8X11.5F	NRWP220M100V6.3X11F
100 VDC	33 uF	NRSA330M100V10X12.5F	NRWA330M100V10X12.5F	NRWP330M100V8X11.5F
100 VDC	47 uF	NRSA470M100V10X16F	NRWA470M100V10X16F	NRWP470M100V8X11.5F
100 VDC	100 uF	NRSA101M100V12.5X20F	NRWA101M100V12.5X20F	NRWP101M100V10X16F
100 VDC	150 uF	NRSA151M100V12.5X20F	NRSH151M100V12.5X20F	---
100 VDC	220 uF	NRSA221M100V16X25F	NRWA221M100V16X25F	NRWP221M100V12.5X20F
100 VDC	330 uF	NRSA331M100V16X25F	NRWA331M100V16X25F	NRWP331M100V12.5X25F
100 VDC	470 uF	NRSA471M100V16X31.5F	NRWA471M100V16X31.5F	NRWP471M100V16X25F

Complete **Discontinued Part Number** Listing (showing optional taping formats) is shown on **Attachment "A"**

Prepared by: Technical Product Marketing Group / tpmg@niccomp.com

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Attachment "A"

Voltage Rating	Cap Value	Discontinued Part Numbers	Package Type
6.3 VDC	330 uF	NRSA331M6.3V6.3X11F	Bulk
6.3 VDC	330 uF	NRSA331M6.3V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
6.3 VDC	330 uF	NRSA331M6.3V6.3X11TBSTF	Tape and Box, Straight Leads
6.3 VDC	470 uF	NRSA471M6.3V8X11.5F	Bulk
6.3 VDC	470 uF	NRSA471M6.3V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
6.3 VDC	470 uF	NRSA471M6.3V8X11.5TBSTF	Tape and Box, Straight Leads
6.3 VDC	680 uF	NRSA681M6.3V10X12.5F	Bulk
6.3 VDC	680 uF	NRSA681M6.3V10X12.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
6.3 VDC	1000 uF	NRSA102M6.3V10X12.5F	Bulk
6.3 VDC	1000 uF	NRSA102M6.3V10X12.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
6.3 VDC	1500 uF	NRSA152M6.3V10X20F	Bulk
6.3 VDC	1500 uF	NRSA152M6.3V10X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
6.3 VDC	2200 uF	NRSA222M6.3V12.5X20F	Bulk
6.3 VDC	2200 uF	NRSA222M6.3V12.5X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
6.3 VDC	3300 uF	NRSA332M6.3V12.5X20F	Bulk
6.3 VDC	3300 uF	NRSA332M6.3V12.5X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
6.3 VDC	4700 uF	NRSA472M6.3V16X25F	Bulk
6.3 VDC	6800 uF	NRSA682M6.3V16X25F	Bulk
6.3 VDC	10,000 uF	NRSA103M6.3V16X31F	Bulk
10 VDC	47 uF	NRSA470M10V5X11F	Bulk
10 VDC	47 uF	NRSA470M10V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
10 VDC	47 uF	NRSA470M10V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
10 VDC	47 uF	NRSA470M10V5X11TBSTF	Tape and Box, Straight Leads
10 VDC	100 uF	NRSA101M10V5X11F	Bulk
10 VDC	100 uF	NRSA101M10V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
10 VDC	100 uF	NRSA101M10V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
10 VDC	100 uF	NRSA101M10V5X11TBSTF	Tape and Box, Straight Leads
10 VDC	150 uF	NRSA151M10V5X11F	Bulk
10 VDC	150 uF	NRSA151M10V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
10 VDC	150 uF	NRSA151M10V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
10 VDC	150 uF	NRSA151M10V5X11TBSTF	Tape and Box, Straight Leads
10 VDC	330 uF	NRSA331M10V8X11.5F	Bulk
10 VDC	330 uF	NRSA331M10V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
10 VDC	330 uF	NRSA331M10V8X11.5TBSTF	Tape and Box, Straight Leads
10 VDC	470 uF	NRSA471M10V8X11.5F	Bulk
10 VDC	470 uF	NRSA471M10V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
10 VDC	470 uF	NRSA471M10V8X11.5TBSTF	Tape and Box, Straight Leads



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Voltage Rating	Cap Value	Discontinued Part Numbers	Package Type
10 VDC	1000 uF	NRSA102M10V10X16F	Bulk
10 VDC	1000 uF	NRSA102M10V10X16TBF	Tape and Box, Formed LS = 5MM = 0.20"
10 VDC	1500 uF	NRSA152M10V12.5X20F	Bulk
10 VDC	1500 uF	NRSA152M10V12.5X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
10 VDC	2200 uF	NRSA222M10V12.5X20F	Bulk
10 VDC	2200 uF	NRSA222M10V12.5X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
10 VDC	3300 uF	NRSA332M10V12.5X25F	Bulk
10 VDC	3300 uF	NRSA332M10V12.5X25TBF	Tape and Box, Formed LS = 5MM = 0.20"
10 VDC	4700 uF	NRSA472M10V16X25F	Bulk
10 VDC	6800 uF	NRSA682M10V16X31F	Bulk
10 VDC	10,000 uF	NRSA103M10V18X36F	Bulk
10 VDC	220uF	NRSA221M10V6.3X11F	Bulk
10 VDC	220uF	NRSA221M10V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
10 VDC	220uF	NRSA221M10V6.3X11TBSTF	Tape and Box, Straight Leads
16 VDC	10 uF	NRSA100M16V5X11F	Bulk
16 VDC	10 uF	NRSA100M16V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	10 uF	NRSA100M16V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
16 VDC	10 uF	NRSA100M16V5X11TBSTF	Tape and Box, Straight Leads
16 VDC	22 uF	NRSA220M16V5X11F	Bulk
16 VDC	22 uF	NRSA220M16V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	22 uF	NRSA220M16V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
16 VDC	22 uF	NRSA220M16V5X11TBSTF	Tape and Box, Straight Leads
16 VDC	33 uF	NRSA330M16V5X11F	Bulk
16 VDC	33 uF	NRSA330M16V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	33 uF	NRSA330M16V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
16 VDC	33 uF	NRSA330M16V5X11TBSTF	Tape and Box, Straight Leads
16 VDC	47 uF	NRSA470M16V5X11F	Bulk
16 VDC	47 uF	NRSA470M16V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	47 uF	NRSA470M16V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
16 VDC	47 uF	NRSA470M16V5X11TBSTF	Tape and Box, Straight Leads
16 VDC	100 uF	NRSA101M16V6.3X11F	Bulk
16 VDC	100 uF	NRSA101M16V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	100 uF	NRSA101M16V6.3X11TBSTF	Tape and Box, Straight Leads
16 VDC	150 uF	NRSA151M16V6.3X11F	Bulk
16 VDC	150 uF	NRSA151M16V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	150 uF	NRSA151M16V6.3X11TBSTF	Tape and Box, Straight Leads
16 VDC	330 uF	NRSA331M16V8X11.5F	Bulk
16 VDC	330 uF	NRSA331M16V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	330 uF	NRSA331M16V8X11.5TBSTF	Tape and Box, Straight Leads



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Voltage Rating	Cap Value	Discontinued Part Numbers	Package Type
16 VDC	470 uF	NRSA471M16V10X12.5F	Bulk
16 VDC	470 uF	NRSA471M16V10X12.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	1000 uF	NRSA102M16V10X20F	Bulk
16 VDC	1000 uF	NRSA102M16V10X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	1500 uF	NRSA152M16V12.5X25F	Bulk
16 VDC	1500 uF	NRSA152M16V12.5X25TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	2200 uF	NRSA222M16V12.5X25F	Bulk
16 VDC	2200 uF	NRSA222M16V12.5X25TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	3300 uF	NRSA332M16V16X25F	Bulk
16 VDC	4700 uF	NRSA472M16V16X31.5F	Bulk
16 VDC	6800 uF	NRSA682M16V18X36F	Bulk
16 VDC	10,000 uF	NRSA103M16V22X36F	Bulk
16 VDC	220uF	NRSA221M16V8X11.5F	Bulk
16 VDC	220uF	NRSA221M16V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
16 VDC	220uF	NRSA221M16V8X11.5TBSTF	Tape and Box, Straight Leads
25 VDC	22 uF	NRSA220M25V5X11F	Bulk
25 VDC	22 uF	NRSA220M25V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
25 VDC	22 uF	NRSA220M25V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
25 VDC	22 uF	NRSA220M25V5X11TBSTF	Tape and Box, Straight Leads
25 VDC	33 uF	NRSA330M25V5X11F	Bulk
25 VDC	33 uF	NRSA330M25V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
25 VDC	33 uF	NRSA330M25V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
25 VDC	33 uF	NRSA330M25V5X11TBSTF	Tape and Box, Straight Leads
25 VDC	47 uF	NRSA470M25V5X11F	Bulk
25 VDC	47 uF	NRSA470M25V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
25 VDC	47 uF	NRSA470M25V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
25 VDC	47 uF	NRSA470M25V5X11TBSTF	Tape and Box, Straight Leads
25 VDC	100 uF	NRSA101M25V6.3X11F	Bulk
25 VDC	100 uF	NRSA101M25V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
25 VDC	100 uF	NRSA101M25V6.3X11TBSTF	Tape and Box, Straight Leads
25 VDC	150 uF	NRSA151M25V8X11.5F	Bulk
25 VDC	150 uF	NRSA151M25V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
25 VDC	150 uF	NRSA151M25V8X11.5TBSTF	Tape and Box, Straight Leads
25 VDC	330 uF	NRSA331M25V10X12.5F	Bulk
25 VDC	330 uF	NRSA331M25V10X12.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
25 VDC	470 uF	NRSA471M25V10X16F	Bulk
25 VDC	470 uF	NRSA471M25V10X16TBF	Tape and Box, Formed LS = 5MM = 0.20"
25 VDC	1000 uF	NRSA102M25V12.5X20F	Bulk
25 VDC	1000 uF	NRSA102M25V12.5X20TBF	Tape and Box, Formed LS = 5MM = 0.20"



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Voltage Rating	Cap Value	Discontinued Part Numbers	Package Type
25 VDC	1500 uF	NRSA152M25V12.5X25F	Bulk
25 VDC	1500 uF	NRSA152M25V12.5X25TBF	Tape and Box, Formed LS = 5MM = 0.20"
25 VDC	2200 uF	NRSA222M25V16X25F	Bulk
25 VDC	3300 uF	NRSA332M25V16X31.5F	Bulk
25 VDC	4700 uF	NRSA472M25V18X35.5F	Bulk
25 VDC	6800 uF	NRSA682M25V22X36F	Bulk
25 VDC	10,000 uF	NRSA103M25V22X36F	Bulk
25 VDC	220uF	NRSA221M25V8X11.5F	Bulk
25 VDC	220uF	NRSA221M25V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
25 VDC	220uF	NRSA221M25V8X11.5TBSTF	Tape and Box, Straight Leads
35 VDC	10 uF	NRSA100M35V5X11F	Bulk
35 VDC	10 uF	NRSA100M35V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
35 VDC	10 uF	NRSA100M35V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
35 VDC	10 uF	NRSA100M35V5X11TBSTF	Tape and Box, Straight Leads
35 VDC	22 uF	NRSA220M35V5X11F	Bulk
35 VDC	22 uF	NRSA220M35V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
35 VDC	22 uF	NRSA220M35V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
35 VDC	22 uF	NRSA220M35V5X11TBSTF	Tape and Box, Straight Leads
35 VDC	33 uF	NRSA330M35V5X11F	Bulk
35 VDC	33 uF	NRSA330M35V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
35 VDC	33 uF	NRSA330M35V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
35 VDC	33 uF	NRSA330M35V5X11TBSTF	Tape and Box, Straight Leads
35 VDC	47 uF	NRSA470M35V6.3X11F	Bulk
35 VDC	47 uF	NRSA470M35V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
35 VDC	47 uF	NRSA470M35V6.3X11TBSTF	Tape and Box, Straight Leads
35 VDC	100 uF	NRSA101M35V8X11.5F	Bulk
35 VDC	100 uF	NRSA101M35V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
35 VDC	100 uF	NRSA101M35V8X11.5TBSTF	Tape and Box, Straight Leads
35 VDC	150 uF	NRSA151M35V8X11.5F	Bulk
35 VDC	150 uF	NRSA151M35V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
35 VDC	150 uF	NRSA151M35V8X11.5TBSTF	Tape and Box, Straight Leads
35 VDC	330 uF	NRSA331M35V10X16F	Bulk
35 VDC	330 uF	NRSA331M35V10X16TBF	Tape and Box, Formed LS = 5MM = 0.20"
35 VDC	470 uF	NRSA471M35V10X20F	Bulk
35 VDC	470 uF	NRSA471M35V10X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
35 VDC	1000 uF	NRSA102M35V12.5X25F	Bulk
35 VDC	1000 uF	NRSA102M35V12.5X25TBF	Tape and Box, Formed LS = 5MM = 0.20"
35 VDC	1500 uF	NRSA152M35V16X25F	Bulk
35 VDC	2200 uF	NRSA222M35V16X31.5F	Bulk



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Voltage Rating	Cap Value	Discontinued Part Numbers	Package Type
35 VDC	3300 uF	NRSA332M35V18X35.5F	Bulk
35 VDC	4700 uF	NRSA472M35V22X36F	Bulk
35 VDC	220uF	NRSA221M35V10X12.5F	Bulk
35 VDC	220uF	NRSA221M35V10X12.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	1.0 uF	NRSA1R0M50V5X11F	Bulk
50 VDC	1.0 uF	NRSA1R0M50V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	1.0 uF	NRSA1R0M50V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
50 VDC	1.0 uF	NRSA1R0M50V5X11TBSTF	Tape and Box, Straight Leads
50 VDC	2.2 uF	NRSA2R2M50V5X11F	Bulk
50 VDC	2.2 uF	NRSA2R2M50V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	2.2 uF	NRSA2R2M50V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
50 VDC	2.2 uF	NRSA2R2M50V5X11TBSTF	Tape and Box, Straight Leads
50 VDC	3.3 uF	NRSA3R3M50V5X11F	Bulk
50 VDC	3.3 uF	NRSA3R3M50V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	3.3 uF	NRSA3R3M50V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
50 VDC	3.3 uF	NRSA3R3M50V5X11TBSTF	Tape and Box, Straight Leads
50 VDC	4.7 uF	NRSA4R7M50V5X11F	Bulk
50 VDC	4.7 uF	NRSA4R7M50V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	4.7 uF	NRSA4R7M50V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
50 VDC	4.7 uF	NRSA4R7M50V5X11TBSTF	Tape and Box, Straight Leads
50 VDC	10 uF	NRSA100M50V5X11F	Bulk
50 VDC	10 uF	NRSA100M50V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	10 uF	NRSA100M50V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
50 VDC	10 uF	NRSA100M50V5X11TBSTF	Tape and Box, Straight Leads
50 VDC	22 uF	NRSA220M50V5X11F	Bulk
50 VDC	22 uF	NRSA220M50V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	22 uF	NRSA220M50V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
50 VDC	22 uF	NRSA220M50V5X11TBSTF	Tape and Box, Straight Leads
50 VDC	33 uF	NRSA330M50V6.3X11F	Bulk
50 VDC	33 uF	NRSA330M50V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	33 uF	NRSA330M50V6.3X11TBSTF	Tape and Box, Straight Leads
50 VDC	47 uF	NRSA470M50V6.3X11F	Bulk
50 VDC	47 uF	NRSA470M50V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	47 uF	NRSA470M50V6.3X11TBSTF	Tape and Box, Straight Leads
50 VDC	100 uF	NRSA101M50V8X11.5F	Bulk
50 VDC	100 uF	NRSA101M50V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	100 uF	NRSA101M50V8X11.5TBSTF	Tape and Box, Straight Leads
50 VDC	150 uF	NRSA151M50V10X12.5F	Bulk
50 VDC	150 uF	NRSA151M50V10X12.5TBF	Tape and Box, Formed LS = 5MM = 0.20"



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Voltage Rating	Cap Value	Discontinued Part Numbers	Package Type
50 VDC	330 uF	NRSA331M50V10X20F	Bulk
50 VDC	330 uF	NRSA331M50V10X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	470 uF	NRSA471M50V12.5X20F	Bulk
50 VDC	470 uF	NRSA471M50V12.5X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
50 VDC	1000 uF	NRSA102M50V16X25F	Bulk
50 VDC	1500 uF	NRSA152M50V16X31F	Bulk
50 VDC	2200 uF	NRSA222M50V18X35.5F	Bulk
50 VDC	3300 uF	NRSA332M50V22X36F	Bulk
50 VDC	4700 uF	NRSA472M50V22X42F	Bulk
50 VDC	220uF	NRSA221M50V10X16F	Bulk
50 VDC	220uF	NRSA221M50V10X16TBF	Tape and Box, Formed LS = 5MM = 0.20"
63 VDC	4.7 uF	NRSA4R7M63V5X11F	Bulk
63 VDC	4.7 uF	NRSA4R7M63V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
63 VDC	4.7 uF	NRSA4R7M63V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
63 VDC	4.7 uF	NRSA4R7M63V5X11TBSTF	Tape and Box, Straight Leads
63 VDC	10 uF	NRSA100M63V5X11F	Bulk
63 VDC	10 uF	NRSA100M63V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
63 VDC	10 uF	NRSA100M63V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
63 VDC	10 uF	NRSA100M63V5X11TBSTF	Tape and Box, Straight Leads
63 VDC	22 uF	NRSA220M63V6.3X11F	Bulk
63 VDC	22 uF	NRSA220M63V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
63 VDC	22 uF	NRSA220M63V6.3X11TBSTF	Tape and Box, Straight Leads
63 VDC	33 uF	NRSA330M63V6.3X11F	Bulk
63 VDC	33 uF	NRSA330M63V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
63 VDC	33 uF	NRSA330M63V6.3X11TBSTF	Tape and Box, Straight Leads
63 VDC	47 uF	NRSA470M63V8X11.5F	Bulk
63 VDC	47 uF	NRSA470M63V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
63 VDC	47 uF	NRSA470M63V8X11.5TBSTF	Tape and Box, Straight Leads
63 VDC	100 uF	NRSA101M63V10X12.5F	Bulk
63 VDC	100 uF	NRSA101M63V10X12.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
63 VDC	150 uF	NRSA151M63V10X16F	Bulk
63 VDC	150 uF	NRSA151M63V10X16TBF	Tape and Box, Formed LS = 5MM = 0.20"
63 VDC	330 uF	NRSA331M63V12.5X20F	Bulk
63 VDC	330 uF	NRSA331M63V12.5X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
63 VDC	470 uF	NRSA471M63V12.5X25F	Bulk
63 VDC	470 uF	NRSA471M63V12.5X25TBF	Tape and Box, Formed LS = 5MM = 0.20"
63 VDC	1000 uF	NRSA102M63V16X31.5F	Bulk
63 VDC	1500 uF	NRSA152M63V18X36F	Bulk
63 VDC	2200 uF	NRSA222M63V18X35.5F	Bulk



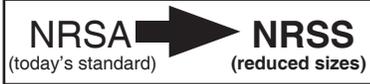
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Voltage Rating	Cap Value	Discontinued Part Numbers	Package Type
63 VDC	3300 uF	NRSA332M63V22X42F	Bulk
63 VDC	220uF	NRSA221M63V10X20F	Bulk
63 VDC	220uF	NRSA221M63V10X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	1.0 uF	NRSA1R0M100V5X11F	Bulk
100 VDC	1.0 uF	NRSA1R0M100V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	1.0 uF	NRSA1R0M100V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
100 VDC	1.0 uF	NRSA1R0M100V5X11TBSTF	Tape and Box, Straight Leads
100 VDC	2.2 uF	NRSA2R2M100V5X11F	Bulk
100 VDC	2.2 uF	NRSA2R2M100V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	2.2 uF	NRSA2R2M100V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
100 VDC	2.2 uF	NRSA2R2M100V5X11TBSTF	Tape and Box, Straight Leads
100 VDC	3.3 uF	NRSA3R3M100V5X11F	Bulk
100 VDC	3.3 uF	NRSA3R3M100V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	3.3 uF	NRSA3R3M100V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
100 VDC	3.3 uF	NRSA3R3M100V5X11TBSTF	Tape and Box, Straight Leads
100 VDC	4.7 uF	NRSA4R7M100V5X11F	Bulk
100 VDC	4.7 uF	NRSA4R7M100V5X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	4.7 uF	NRSA4R7M100V5X11TBF1F	Tape and Box, Formed LS = 2.5mm = 0.10"
100 VDC	4.7 uF	NRSA4R7M100V5X11TBSTF	Tape and Box, Straight Leads
100 VDC	10 uF	NRSA100M100V6.3X11F	Bulk
100 VDC	10 uF	NRSA100M100V6.3X11TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	10 uF	NRSA100M100V6.3X11TBSTF	Tape and Box, Straight Leads
100 VDC	22 uF	NRSA220M100V8X11.5F	Bulk
100 VDC	22 uF	NRSA220M100V8X11.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	22 uF	NRSA220M100V8X11.5TBSTF	Tape and Box, Straight Leads
100 VDC	33 uF	NRSA330M100V10X12.5F	Bulk
100 VDC	33 uF	NRSA330M100V10X12.5TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	47 uF	NRSA470M100V10X16F	Bulk
100 VDC	47 uF	NRSA470M100V10X16TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	100 uF	NRSA101M100V12.5X20F	Bulk
100 VDC	100 uF	NRSA101M100V12.5X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	150 uF	NRSA151M100V12.5X20F	Bulk
100 VDC	150 uF	NRSA151M100V12.5X20TBF	Tape and Box, Formed LS = 5MM = 0.20"
100 VDC	220 uF	NRSA221M100V16X25F	Bulk
100 VDC	330 uF	NRSA331M100V16X25F	Bulk
100 VDC	470 uF	NRSA471M100V16X31.5F	Bulk

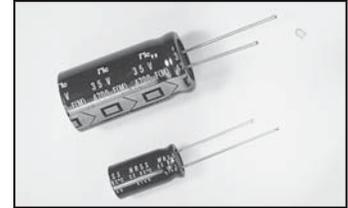
Miniature Aluminum Electrolytic Capacitors

NRSA Series

RADIAL LEADS, POLARIZED, STANDARD CASE SIZING



RoHS Compliant
includes all homogeneous materials



CHARACTERISTICS

*See Part Number System for Details

Rated Voltage Range	6.3 ~ 100Vdc	
Capacitance Range	0.47 ~ 10,000 μ F	
Operating Temperature Range	-40 ~ +85°C	
Capacitance Tolerance	\pm 20%(M)	
Max. Leakage Current @ +20°C	After 1 min.	0.03CV or 4 μ A, whichever is greater
	After 2 min.	0.01CV or 3 μ A, whichever is greater
Max. Tan δ @ 120Hz/+20°C	W.V. (Vdc)	6.3 10 16 25 35 50 63 100
	S.V. (Vdc)	8 13 20 32 44 63 79 125
	C \leq 1,000 μ F	0.24 0.20 0.16 0.14 0.12 0.10 0.10 0.10
	C = 2,200 μ F	0.24 0.21 0.18 0.16 0.14 0.12 0.11 -
	C = 3,300 μ F	0.26 0.23 0.20 0.18 0.16 0.14 0.13 -
	C = 4,700 μ F	0.28 0.25 0.22 0.20 0.18 0.20 - -
	C = 6,800 μ F	0.32 0.29 0.26 0.24 - - - -
Low Temperature Stability Impedance Ratio @ 120Hz	Z-25°C/Z+20°C	4 3 2 2 2 2 2 2
	Z-40°C/Z+20°C	10 8 6 4 3 3 3 3
Load Life Test at Rated W.V. +85°C 2,000 Hours	Capacitance Change	Within \pm 20% of initial measured value
	Tan δ	Less than 200% of specified maximum value
Shelf Life Test +85°C 1,000 Hours No Load	Leakage Current	Less than specified maximum value
	Capacitance Change	Within \pm 20% of initial measured value
	Tan δ	Less than 200% of specified maximum value
Leakage Current	Leakage Current	Less than specified maximum value

Note: Capacitors shall conform to JIS-C-5141, unless otherwise specified here.

STANDARD PRODUCTS AND CASE SIZE TABLE: D ϕ x L (mm)

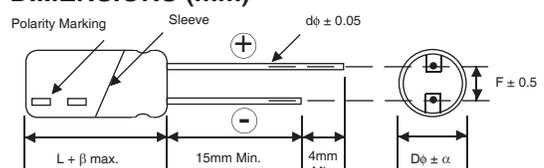
Cap. (μ F)	Code	Working Voltage (Vdc)							
		6.3	10	16	25	35	50	63	100
0.47	R47	-	-	-	-	-	-	-	5x11
1.0	1R0	-	-	-	-	-	5.11	-	5x11
2.2	2R2	-	-	-	-	-	5x11	-	5x11
3.3	3R3	-	-	-	-	-	5x11	-	5x11
4.7	4R7	-	-	-	-	-	5x11	5x11	5x11
10	100	-	-	5x11	-	5x11	5x11	5x11	6.3x11
22	220	-	-	5x11	5x11	5x11	5x11	6.3x11	8x11.5
33	330	-	-	5x11	5x11	5x11	6.3x11	6.3x11	10x12.5
47	470	-	5x11	5x11	5x11	6.3x11	6.3x11	8x11.5	10x16
100	101	-	5x11	6.3x11	6.3x11	8x11.5	8x11.5	10x12.5	12.5x20
150	151	-	5x11	6.3x11	8x11.5	8x11.5	10x12.5	10x16	12.5x20
220	221	-	6.3x11	8x11.5	8x11.5	10x12.5	10x16	10x20	16x25
330	331	6.3x11	8x11.5	8x11.5	10x12.5	10x16	10x20	12.5x20	16x25
470	471	8x11.5	8x11.5	10x12.5	10x16	10x20	12.5x20	12.5x25	16x31.5
680	681	10x12.5	-	-	-	-	-	-	-
1,000	102	10x12.5	10x16	10x20	12.5x20	12.5x25	16x25	16x31.5	-
1,500	152	10x20	12.5x20	12.5x25	12.5x25	16x25	-	18x36	-
2,200	222	12.5x20	12.5x20	12.5x25	16x25	16x31.5	18x35.5	18x35.5	-
3,300	332	12.5x20	12.5x25	16x25	16x31.5	18x35.5	-	-	-
4,700	472	16x25	16x25	16x31.5	18x35.5	-	-	-	-
6,800	682	16x25	16x31	18x36	-	-	-	-	-
10,000	103	16x31	18x36	-	-	-	-	-	-

LEAD SPACING AND DIAMETER (mm)

Case Dia. (D ϕ)	5	6.3	8	10	12.5	16	18	22
Lead Dia. (d ϕ)	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
Lead Spacing (F)	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Dim. α	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0

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

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.



STANDARD PRODUCT, SPECIFICATIONS AND CASE SIZES D ϕ x L (mm)

Part Number	Cap. (μ F)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (mA) +85°C/120Hz	Max. ESR (Ω) +20°C/120Hz	Load Life Hours @ +85°C
NRSA331M6.3V6.3x11F	330	6.3	0.24	240	1.11	2,000
NRSA471M6.3V8x11.5F	470		0.24	330	0.777	2,000
NRSA681M6.3V10x12.5F	680		0.24	460	0.526	2,000
NRSA102M6.3V10x12.5F	1,000		0.24	570	0.365	2,000
NRSA152M6.3V10x20F	1,500		0.24	790	0.243	2,000
NRSA222M6.3V12.5x20F	2,200		0.24	940	0.181	2,000
NRSA332M6.3V12.5x20F	3,300		0.26	1100	0.131	2,000
NRSA472M6.3V16x25F	4,700		0.28	1300	0.0988	2,000
NRSA682M6.3V16x25F	6,800		0.32	1600	0.0781	2,000
NRSA103M6.3V16x31F	10,000		0.40	1800	0.0663	2,000
NRSA470M10V5x11F	47	10	0.20	70	7.05	2,000
NRSA101M10V5x11F	100		0.20	130	3.16	2,000
NRSA151M10V5x11F	150		0.20	170	1.68	2,000
NRSA221M10V6.3x11F	220		0.20	210	1.44	2,000
NRSA331M10V8x11.5F	330		0.20	290	0.956	2,000
NRSA471M10V8x11.5F	470		0.20	350	0.671	2,000
NRSA102M10V10x16F	1,000		0.20	660	0.316	2,000
NRSA152M10V12.5x20F	1,500		0.20	870	0.210	2,000
NRSA222M10V12.5x20F	2,200		0.21	1000	0.159	2,000
NRSA332M10V12.5x25F	3,300		0.23	1200	0.116	2,000
NRSA472M10V16x25F	4,700		0.25	1500	0.0883	2,000
NRSA682M10V16x31F	6,800		0.29	1700	0.0708	2,000
NRSA103M10V18x36F	10,000		0.37	1900	0.0614	2,000
NRSA100M16V5x11F	10		16	0.16	28	26.5
NRSA220M16V5x11F	22	0.16		50	7.53	2,000
NRSA330M16V5x11F	33	0.16		80	8.05	2,000
NRSA470M16V5x11F	47	0.16		95	5.65	2,000
NRSA101M16V6.3x11F	100	0.16		160	2.66	2,000
NRSA151M16V6.3x11F	150	0.16		210	1.42	2,000
NRSA221M16V8x11.5F	220	0.16		260	1.21	2,000
NRSA331M16V8x11.5F	330	0.16		330	0.805	2,000
NRSA471M16V10x12.5F	470	0.16		440	0.565	2,000
NRSA102M16V10x20F	1,000	0.16		760	0.266	2,000
NRSA152M16V12.5x25F	1,500	0.16		1050	0.177	2,000
NRSA222M16V12.5x25F	2,200	0.18		1200	0.136	2,000
NRSA332M16V16x25F	3,300	0.20		1400	0.101	2,000
NRSA472M16V16x31.5F	4,700	0.22		1700	0.0777	2,000
NRSA682M16V18x36F	6,800	0.26		2000	0.0653	2,000
NRSA220M25V5x11F	22	25		0.14	70	10.6
NRSA330M25V5x11F	33		0.14	85	7.04	2,000
NRSA470M25V5x11F	47		0.14	100	4.94	2,000
NRSA101M25V6.3x11F	100		0.14	170	2.33	2,000
NRSA151M25V8x11.5F	150		0.14	220	1.24	2,000
NRSA221M25V8x11.5F	220		0.14	270	1.06	2,000
NRSA331M25V10x12.5F	330		0.14	400	0.704	2,000
NRSA471M25V10x16F	470		0.14	510	0.494	2,000
NRSA102M25V12.5x20F	1,000		0.14	900	0.233	2,000
NRSA152M25V12.5x25F	1,500		0.14	1100	0.155	2,000
NRSA222M25V16x25F	2,200		0.16	1300	0.121	2,000
NRSA332M25V16x31.5F	3,300		0.18	1600	0.0905	2,000
NRSA472M25V18x35.5F	4,700		0.20	1900	0.0706	2,000



STANDARD PRODUCT, SPECIFICATIONS AND CASE SIZES D ϕ x L (mm)

Part Number	Cap. (μ F)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (mA) +85°C/120Hz	Max. ESR (Ω) +20°C/120Hz	Load Life Hours @ +85°C
NRSA100M35V5x11F	10	35	0.12	50	19.9	2,000
NRSA220M35V5x11F	22		0.12	75	9.05	2,000
NRSA330M35V5x11F	33		0.12	95	6.04	2,000
NRSA470M35V6.3x11F	47		0.12	120	4.24	2,000
NRSA101M35V8x11.5F	100		0.12	210	1.99	2,000
NRSA151M35V8x11.5F	150		0.12	290	1.08	2,000
NRSA221M35V10x12.5F	220		0.12	370	0.905	2,000
NRSA331M35V10x16F	330		0.12	470	0.604	2,000
NRSA471M35V10x20F	470		0.12	600	0.424	2,000
NRSA102M35V12.5x25F	1,000		0.12	960	0.199	2,000
NRSA152M35V16x25F	1,500		0.12	1200	0.133	2,000
NRSA222M35V16x31.5F	2,200		0.14	1400	0.106	2,000
NRSA332M35V18x35.5F	3,300		0.16	1700	0.0805	2,000
NRSA1R0M50V5.11F	1.0	50	0.10	12	166	2,000
NRSA2R2M50V5x11F	2.2		0.10	20	75.4	2,000
NRSA3R3M50V5x11F	3.3		0.10	26	50.3	2,000
NRSA4R7M50V5x11F	4.7		0.10	33	35.3	2,000
NRSA100M50V5x11F	10		0.10	55	16.6	2,000
NRSA220M50V5x11F	22		0.10	85	7.54	2,000
NRSA330M50V6.3x11F	33		0.10	110	5.03	2,000
NRSA470M50V6.3x11F	47		0.10	140	3.53	2,000
NRSA101M50V8x11.5F	100		0.10	230	1.66	2,000
NRSA151M50V10x12.5F	150		0.10	330	0.88	2,000
NRSA221M50V10x16F	220		0.10	420	0.754	2,000
NRSA331M50V10x20F	330		0.10	580	0.503	2,000
NRSA471M50V12.5x20F	470		0.10	730	0.353	2,000
NRSA102M50V16x25F	1,000		0.10	1100	0.166	2,000
NRSA152M50V16x31F	1,500		0.10	1500	0.111	2,000
NRSA222M50V18x35.5F	2,200		0.12	1700	0.0905	2,000
NRSA4R7M63V5x11F	4.7		63	0.10	35	31.8
NRSA100M63V5x11F	10	0.10		60	15.0	2,000
NRSA220M63V6.3x11F	22	0.10		100	6.79	2,000
NRSA330M63V6.3x11F	33	0.10		140	4.53	2,000
NRSA470M63V8x11.5F	47	0.10		190	3.18	2,000
NRSA101M63V10x12.5F	100	0.10		300	1.50	2,000
NRSA151M63V10x16F	150	0.10		400	0.800	2,000
NRSA221M63V10x20F	220	0.10		490	0.679	2,000
NRSA331M63V12.5x20F	330	0.10		680	0.453	2,000
NRSA471M63V12.5x25F	470	0.10		880	0.318	2,000
NRSA102M63V16x31.5F	1,000	0.10		1300	0.150	2,000
NRSA152M63V18x36F	1,500	0.10		1600	0.099	2,000
NRSA222M63V18x35.5F	2,200	0.11		2200	0.083	2,000

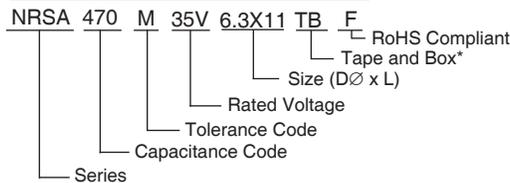
STANDARD PRODUCT, SPECIFICATIONS AND CASE SIZES D ϕ x L (mm)

Part Number	Cap. (μ F)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (mA) +85°C/120Hz	Max. ESR (Ω) +20°C/120Hz	Load Life Hours @ +85°C
NRSAR47M100V5x11F	0.47	100	0.10	11	283	2,000
NRSA1R0M100V5x11F	1.0		0.10	15	133	2,000
NRSA2R2M100V5x11F	2.2		0.10	25	60.4	2,000
NRSA3R3M100V5x11F	3.3		0.10	35	40.3	2,000
NRSA4R7M100V5x11F	4.7		0.10	45	28.3	2,000
NRSA100M100V6.3x11F	10		0.10	70	13.3	2,000
NRSA220M100V8x11.5F	22		0.10	120	6.04	2,000
NRSA330M100V10x12.5F	33		0.10	170	4.03	2,000
NRSA470M100V10x16F	47		0.10	230	2.83	2,000
NRSA101M100V12.5x20F	100		0.10	370	1.33	2,000
NRSA151M100V12.5x20F	150		0.10	490	0.710	2,000
NRSA221M100V16x25F	220		0.10	600	0.604	2,000
NRSA331M100V16x25F	330		0.10	700	0.403	2,000
NRSA471M100V16x31.5F	470		0.10	930	0.283	2,000

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency (Hz)	50	120	300	1K	10K
~ 47 μ F	0.75	1.00	1.35	1.57	2.00
100 ~ 470 μ F	0.80	1.00	1.23	1.34	1.50
1,000 μ F ~	0.85	1.00	1.10	1.13	1.15
2,200 ~ 10,000 μ F	0.85	1.00	1.03	1.05	1.08

PART NUMBERING 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

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

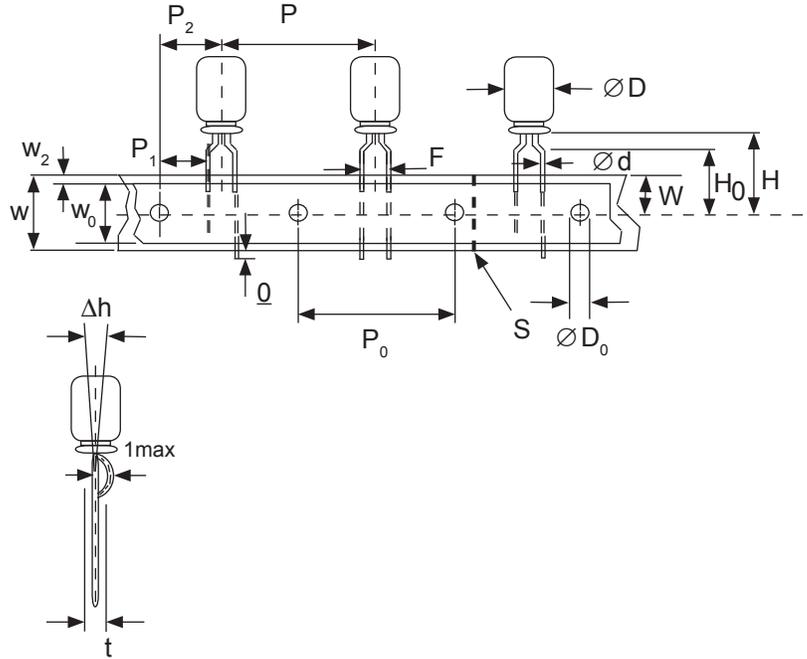


Miniature Aluminum Electrolytic Capacitors Taping Specifications

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

Taping Dimensions (mm)

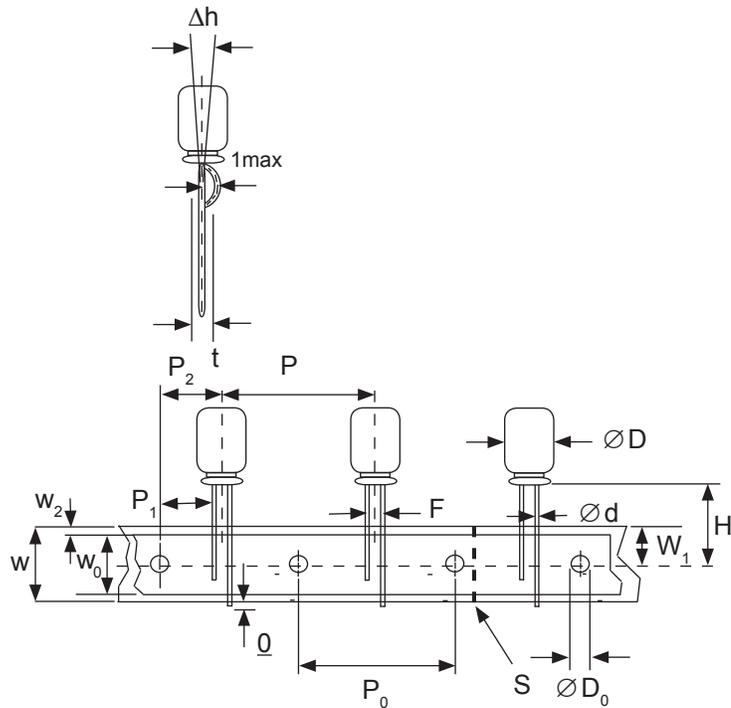
Case Dia. (D ϕ)	4	5	6.3	8		
Case Size	4x5 4x7	5x5 5x7	5x11	6.3x5 6.3x7 6.3x11	8x11.5	
d ϕ \pm 0.05	0.45	0.45	0.5	0.45	0.5	0.6
H \pm 0.75	17.5	17.5	18.5	17.5	18.5	20.0
F +0.8 ~ -0.2	5.0 -0.2 ~ +0.8					
P	12.7 \pm 1.0					
P ₀	12.7 \pm 0.2					
P ₁	3.85 \pm 0.5 (at end of tape)					
P ₂	6.35 \pm 1.0					
W	18.0 \pm 0.5					
W ₀	11.5 min.					
W ₁	9.0 \pm 0.5					
W ₂	0 ~ 2.5					
H ₀	16.0 \pm 0.5					
l	1.0 max.					
D ₀ ϕ	4.0 \pm 0.2					
Δ 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 ϕ)	10	12.5
Case Size	All	All
Dim.	All	All
d ϕ \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 ₀	12.7 \pm 0.2	
P ₁	3.85	
P ₂	6.35 \pm 1.0	
W	18.0 \pm 0.5	
W ₀	11.5 min	
W ₁	9.0 \pm 0.5	
W ₂	0 ~ 2.5	
H ₀	16.0 \pm 0.5	
l	1.0 max.	
D ₀ ϕ	4.0 \pm 0.2	
Δ 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 Suf x: TB12.7MMP)

12.5mm diameter available with P dim. = 15mm, P₁ = 5.0mm,
P₀ = 15.0mm & P₂ = 7.5mm (P/N Suf x: TB15MMP)

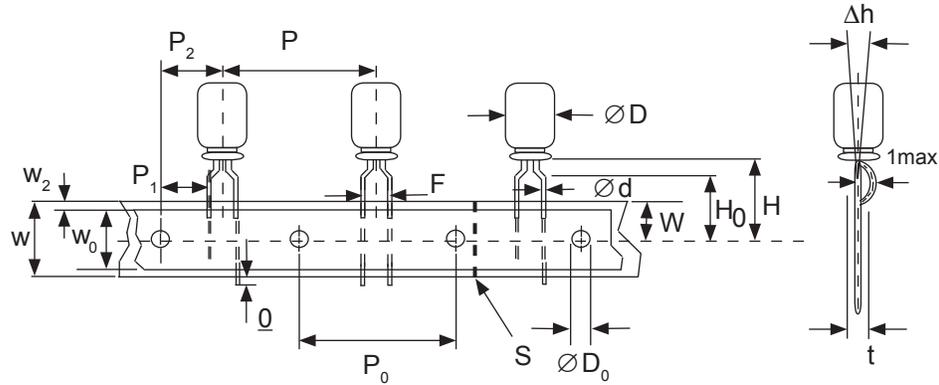
NOTE: ANODE (+) LEAD FEEDS OFF FIRST.
FOR OPTION OF NEGATIVE (-) LEAD FIRST,
SPECIFY "TBN".



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

Taping Dimensions (mm)

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

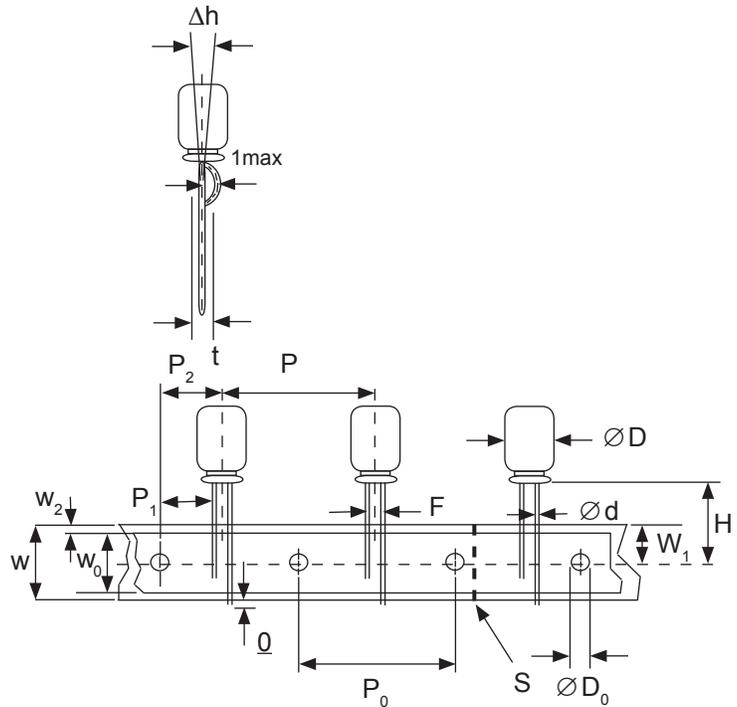


SPECIAL STRAIGHT LEAD TAPING TBST

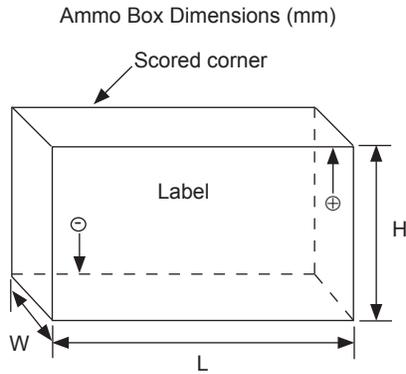
Taping Dimensions (mm)

Case Dia. (D ϕ)	4		5		6.3		8
Case Size Dim.	4x5 4x7	5x5 5x7	5x11	6.3x5 6.3x7	6.3x11	8x11.5	
d ϕ \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 ₀	12.7 \pm 0.2						
P ₁	5.1	5.1	5.1	5.1	5.1	4.6	
P ₂	6.35 \pm 1.0						
W	18.0 \pm 0.5						
W ₀	11.5 min.						
W ₁	9.0 \pm 0.5						
W ₂	0 ~ 2.5						
H ₀	16.0 \pm 0.5						
l	1.0 max.						
D ₀ ϕ	4.0 \pm 0.2						
Δ 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 curve 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 ϕ) 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