

NRB-XY Series

High Ripple Current Radial Leaded Aluminum Electrolytic Capacitors



HIGH RIPPLE CURRENT, RADIAL LEADS, POLARIZED, ALUMINUM ELECTROLYTIC

FEATURES

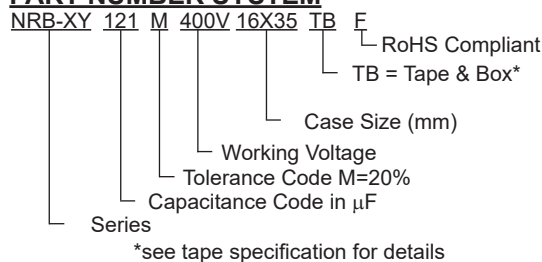
- LONG LIFE AT 105°C (5,000 hrs.)
- HIGH VOLTAGE (UP TO 450V)
- HIGH RIPPLE CURRENT (UP TO 1.59A)

CHARACTERISTICS

Rated Voltage Range	180 ~ 450Vdc							
Capacitance Range	10 ~ 680 μ F							
Operating Temperature Range	-40°C ~ +105°C							
Capacitance Tolerance	$\pm 20\%$ (M)							
Maximum Leakage Current at 20°C	3 * $\sqrt{CV}$ after 5 minutes							
Max. Tan δ at 120Hz/20°C	W.V. (Vdc)	180	200	250	350	400	420	450
	S.V. (Vdc)	225	250	300	400	450	470	500
	Tan δ	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)	225	250	300	400	400	420	450
	Z-25°C/Z+20°C	3	3	3	5	5	6	6
Load Life Hours Load Life Test at Rated W.V. & 105°C	Test	5,000 Hours						
	Capacitance Change	Within $\pm 20\%$ of initial measured value						
	Tan δ	Less than 200% of specified value						
	Leakage Current	Less than specified value						



PART NUMBER SYSTEM



PRECAUTIONS

Please review the notes on correct use, safety and precautions found at <https://www.niccomp.com/resource/files/aluminum/AlumApplInfoCautions.pdf>
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: tpmg@niccomp.com

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Aluminum Electrolytic Capacitors



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 (Arms) +105°C/120Hz	Max. ESR (Ω) 120Hz	Load Life Hours @+105°C
NRB-XY121M180V10X40F	120	180	0.2	0.53	2.77	5,000
NRB-XY151M180V10X45F	150		0.2	0.61	2.21	5,000
NRB-XY181M180V10X50F	180		0.2	0.69	1.85	5,000
NRB-XY221M180V12.5X40F	220		0.2	0.80	1.51	5,000
NRB-XY221M180V14.5X31.5F	220		0.2	0.80	1.51	5,000
NRB-XY271M180V12.5X45F	270		0.2	0.91	1.23	5,000
NRB-XY271M180V14.5X35F	270		0.2	0.90	1.23	5,000
NRB-XY271M180V16X31.5F	270		0.2	0.92	1.23	5,000
NRB-XY331M180V14.5X45F	330		0.2	1.09	1.01	5,000
NRB-XY331M180V16X35F	330		0.2	1.04	1.01	5,000
NRB-XY331M180V18X31.5F	330		0.2	1.03	1.01	5,000
NRB-XY391M180V16X40F	390		0.2	1.17	0.85	5,000
NRB-XY391M180V18X35F	390		0.2	1.14	0.85	5,000
NRB-XY471M180V16X45F	470		0.2	1.31	0.71	5,000
NRB-XY471M180V18X40F	470		0.2	1.29	0.71	5,000
NRB-XY561M180V18X45F	560		0.2	1.44	0.60	5,000
NRB-XY681M180V18X50F	680		0.2	1.59	0.49	5,000
NRB-XY121M200V10X40F	120	200	0.2	0.54	2.77	5,000
NRB-XY151M200V10X45F	150		0.2	0.62	2.21	5,000
NRB-XY181M200V12.5X40F	180		0.2	0.74	1.85	5,000
NRB-XY221M200V12.5X45F	220		0.2	0.84	1.51	5,000
NRB-XY221M200V14.5X35F	220		0.2	0.83	1.51	5,000
NRB-XY221M200V16X31.5F	220		0.2	0.85	1.51	5,000
NRB-XY271M200V12.5X50F	270		0.2	0.94	1.23	5,000
NRB-XY271M200V14.5X40F	270		0.2	0.96	1.23	5,000
NRB-XY331M200V14.5X45F	330		0.2	1.08	1.01	5,000
NRB-XY331M200V16X40F	330		0.2	1.10	1.01	5,000
NRB-XY331M200V18X31.5F	330		0.2	1.02	1.01	5,000
NRB-XY391M200V16X45F	390		0.2	1.23	0.85	5,000
NRB-XY391M200V18X35F	390		0.2	1.13	0.85	5,000
NRB-XY471M200V16X50F	470		0.2	1.37	0.71	5,000
NRB-XY471M200V18X40F	470		0.2	1.29	0.71	5,000
NRB-XY561M200V18X45F	560		0.2	1.44	0.60	5,000
NRB-XY820M250V10X40F	82	250	0.2	0.45	4.05	5,000
NRB-XY101M250V10X45F	100		0.2	0.52	3.32	5,000
NRB-XY121M250V10X50F	120		0.2	0.59	2.77	5,000
NRB-XY151M250V12.5X40F	150		0.2	0.65	2.21	5,000
NRB-XY151M250V14.5X31.5F	150		0.2	0.68	2.21	5,000
NRB-XY181M250V12.5X45F	180		0.2	0.77	1.85	5,000
NRB-XY181M250V14.5X35F	180		0.2	0.77	1.85	5,000
NRB-XY181M250V16X31.5F	180		0.2	0.79	1.85	5,000
NRB-XY221M250V14.5X40F	220		0.2	0.88	1.51	5,000
NRB-XY221M250V16X35F	220		0.2	0.89	1.51	5,000
NRB-XY221M250V18X31.5F	220		0.2	0.88	1.51	5,000
NRB-XY271M250V16X40F	270		0.2	1.01	1.23	5,000
NRB-XY271M250V18X35F	270		0.2	0.99	1.23	5,000
NRB-XY331M250V16X45F	330		0.2	1.15	1.01	5,000
NRB-XY331M250V18X40F	330		0.2	1.13	1.01	5,000
NRB-XY391M250V18X45F	390		0.2	1.27	0.85	5,000
NRB-XY471M250V18X50F	470		0.2	1.41	0.71	5,000

NRB-XY Series

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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 (Arms) +105°C/120Hz	Max. ESR (Ω) 120Hz	Load Life Hours @+105°C
NRB-XY560M350V10X40F	56	350	0.2	0.37	5.93	5,000
NRB-XY680M350V10X45F	68		0.2	0.43	4.88	5,000
NRB-XY101M350V12.5X40F	100		0.2	0.56	3.32	5,000
NRB-XY101M350V14.5X31.5F	100		0.2	0.56	3.32	5,000
NRB-XY121M350V12.5X50F	120		0.2	0.66	2.77	5,000
NRB-XY121M350V14.5X35F	120		0.2	0.63	2.77	5,000
NRB-XY121M350V16X31.5F	120		0.2	0.65	2.77	5,000
NRB-XY151M350V14.5X45F	150		0.2	0.76	2.21	5,000
NRB-XY151M350V16X35F	150		0.2	0.74	2.21	5,000
NRB-XY151M350V18X31.5F	150		0.2	0.74	2.21	5,000
NRB-XY181M350V16X40F	180		0.2	0.84	1.85	5,000
NRB-XY181M350V18X35F	180		0.2	0.83	1.85	5,000
NRB-XY221M350V16X50F	220		0.2	0.99	1.51	5,000
NRB-XY221M350V18X40F	220		0.2	0.93	1.51	5,000
NRB-XY271M350V18X45F	270		0.2	1.03	1.23	5,000
NRB-XY150M400V8X25F	15	400	0.2	0.16	22.11	5000
NRB-XY180M400V8X30F	18		0.2	0.19	18.43	5000
NRB-XY220M400V8X35F	22		0.2	0.22	15.08	5000
NRB-XY270M400V8X40F	27		0.2	0.25	12.28	5000
NRB-XY330M400V8X45F	33		0.2	0.29	10.05	5000
NRB-XY390M400V10X40F	39		0.2	0.37	8.51	5,000
NRB-XY470M400V10X45F	47		0.2	0.42	7.06	5,000
NRB-XY560M400V10X50 F	56		0.2	0.47	5.92	5,000
NRB-XY680M400V12.5X40F	68		0.2	0.54	4.88	5,000
NRB-XY820M400V12.5X45F	82		0.2	0.61	4.05	5,000
NRB-XY820M400V14.5X31.5F	82		0.2	0.57	4.05	5,000
NRB-XY101M400V12.5X50F	100		0.2	0.68	3.32	5,000
NRB-XY101M400V14.5X40F	100		0.2	0.69	3.32	5,000
NRB-XY101M400V16X31.5F	100		0.2	0.71	3.32	5,000
NRB-XY121M400V14.5X45F	120		0.2	0.79	2.77	5,000
NRB-XY121M400V16X35F	120		0.2	0.80	2.77	5,000
NRB-XY151M400V16X40F	150		0.2	0.92	2.21	5,000
NRB-XY151M400V18X31.5F	150		0.2	0.89	2.21	5,000
NRB-XY151M400V18X40F	150		0.2	1.05	2.21	5,000
NRB-XY181M400V16X50F	180		0.2	1.08	1.85	5,000
NRB-XY181M400V18X40F	180		0.2	1.06	1.85	5,000
NRB-XY221M400V18X45F	220		0.2	1.20	1.51	5,000

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NRB-XY120M420V8X25F	12	420	0.2	0.10	27.64	5,000
NRB-XY150M420V8X30F	15		0.2	0.12	22.11	5,000
NRB-XY180M420V8X35F	18		0.2	0.16	18.43	5,000
NRB-XY220M420V8X40F	22		0.2	0.19	15.08	5,000
NRB-XY390M420V10X40F	39		0.2	0.36	8.51	5,000
NRB-XY470M420V10X50F	47		0.2	0.43	7.06	5,000
NRB-XY560M420V12.5X40F	56		0.2	0.48	5.93	5,000
NRB-XY680M420V12.5X40F	68		0.2	0.52	4.88	5,000
NRB-XY680M420V14.5X31.5F	68		0.2	0.52	4.88	5,000
NRB-XY820M420V12.5X45F	82		0.2	0.59	4.05	5,000
NRB-XY820M420V14.5X35F	82		0.2	0.59	4.05	5,000
NRB-XY101M420V14.5X40F	100		0.2	0.67	3.32	5,000
NRB-XY101M420V16X31.5F	100		0.2	0.69	3.32	5,000
NRB-XY121M420V14.5X45F	120		0.2	0.75	2.77	5,000
NRB-XY121M420V16X35F	120		0.2	0.78	2.77	5,000
NRB-XY121M420V18X31.5F	120		0.2	0.80	2.77	5,000
NRB-XY151M420V16X45F	150		0.2	0.94	2.21	5,000
NRB-XY151M420V18X35F	150		0.2	0.92	2.21	5,000
NRB-XY181M420V16X50F	180		0.2	1.05	1.85	5,000
NRB-XY181M420V18X40F	180		0.2	1.04	1.85	5,000
NRB-XY221M420V18X50F	220		0.2	1.22	1.51	5,000
NRB-XY100M450V8X25F	10	450	0.2	0.12	33.16	5,000
NRB-XY120M450V8X30F	12		0.2	0.14	27.64	5,000
NRB-XY150M450V8X35F	15		0.2	0.16	22.11	5,000
NRB-XY180M450V8X40F	18		0.2	0.18	18.43	5,000
NRB-XY220M450V8X50F	22		0.2	0.22	15.08	5,000
NRB-XY330M450V10X40F	33		0.2	0.34	10.05	5,000
NRB-XY390M450V10X45F	39		0.2	0.38	8.51	5,000
NRB-XY470M450V12.5X40F	47		0.2	0.44	7.06	5,000
NRB-XY560M450V12.5X40F	56		0.2	0.49	5.93	5,000
NRB-XY680M450V12.5X45F	68		0.2	0.55	4.88	5,000
NRB-XY680M450V14.5X31.5F	68		0.2	0.52	4.88	5,000
NRB-XY820M450V12.5X50F	82		0.2	0.62	4.05	5,000
NRB-XY820M450V14.5X40F	82		0.2	0.63	4.05	5,000
NRB-XY820M450V16X31.5F	82		0.2	0.64	4.05	5,000
NRB-XY101M450V14.5X45F	100		0.2	0.71	3.32	5,000
NRB-XY101M450V16X35F	100		0.2	0.73	3.32	5,000
NRB-XY121M450V14.5X50F	120		0.2	0.79	2.77	5,000
NRB-XY121M450V16X40F	120		0.2	0.82	2.77	5,000
NRB-XY121M450V18X31.5F	120		0.2	0.80	2.77	5,000
NRB-XY121M450V18X40F	120		0.2	0.85	2.77	5,000
NRB-XY151M450V16X50F	150		0.2	0.98	2.21	5,000
NRB-XY151M450V18X40F	150		0.2	0.97	2.21	5,000
NRB-XY181M450V18X45F	180		0.2	1.09	1.85	5,000
NRB-XY221M450V18X50F	220		0.2	1.22	1.51	5,000

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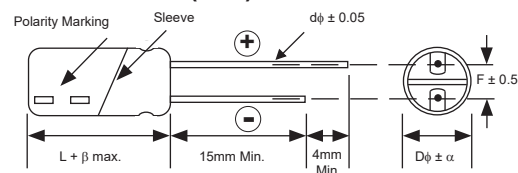
RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency (Hz)	60	120	500	1K	≥10K
180 ~ 350V	0.65	1.0	1.25	1.40	1.50
400 ~ 450V	0.80	1.0	1.25	1.40	1.50

DIAMETER AND LEADSPACE (mm)

Case Dia. (D ϕ)	8	10	12.5	14.5	16	18
Lead Dia. (d ϕ)	0.6	0.6	0.6	0.8	0.8	0.8
Lead Spacing (F)	3.5	5.0	5.0	7.5	7.5	7.5
Dim. α	0.5	0.5	0.5	0.5	0.5	0.5
Dim. β	2.0	2.0	2.0	2.0	2.0	2.0

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.

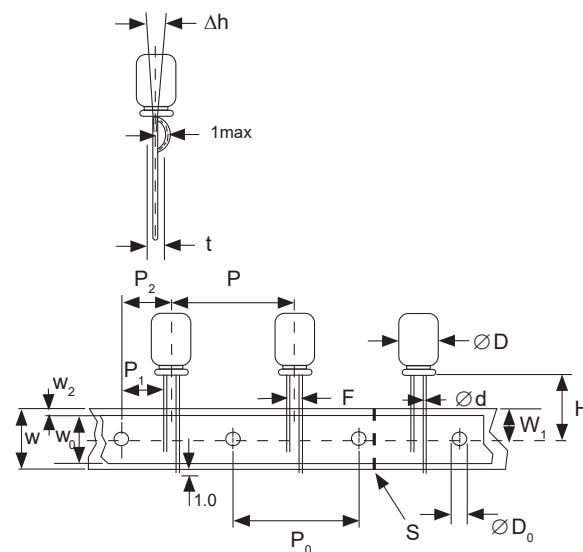
RADIAL TAPING (5mm LEAD SPACING) TB

Taping Dimensions (mm)

Case Dia. (D ϕ)	10	12.5
Case Size	23mm max. height	25mm max. height
Dim.		
d ϕ	0.6 ± 0.05	
H	18.5 +1.5/-0.5	18.5 +0.75/-0.5
F	5.0 ± 0.8	
P	12.7 ± 1.0	15.0 ± 1.0
P ₀	12.7 ± 0.2	15.0 ± 0.2
P ₁	3.85	5.0 ± 0.5
P ₂	6.35 ± 1.0	7.50 ± 1.0
W	18.0 ± 0.5	
W ₀	5.0 min	
W ₁	9.0 ± 0.5	
W ₂	0 ~ 2.5	
D ₀ ϕ	4.0 ± 0.2	
Δh	0 ± 1.0 (at top of can)	
t	0.6 ± 0.3 (not including lead)	

*Optional Taping Specifications

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



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

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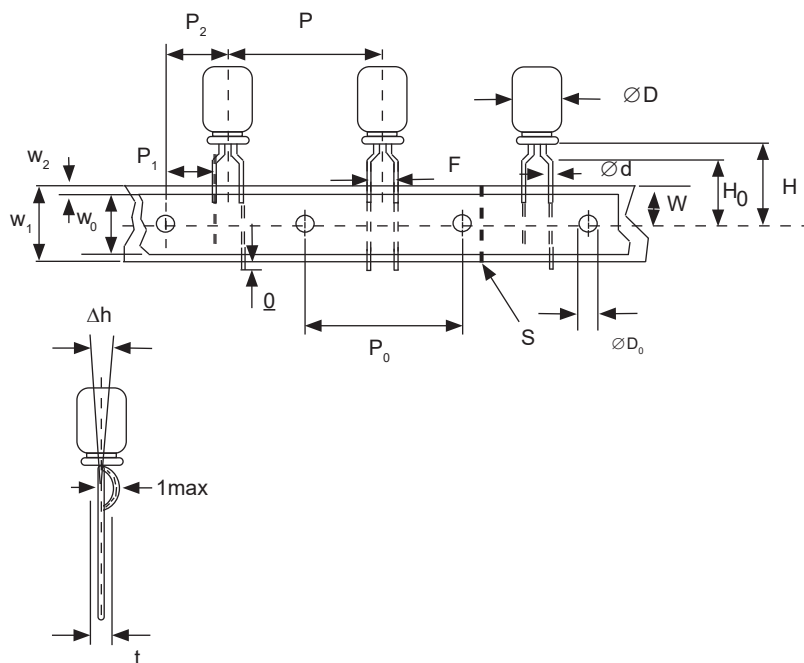


8mm DIAMETER RADIAL TAPING (5mm LEAD SPACING) TB

Taping Dimensions (mm)

Case Dia. (D ϕ)	8
Case Size Dim.	20mm max. height
d ϕ ± 0.05	0.6
H ± 0.75	20.0
F	5.0 -0.2 ~ +0.8
P	12.7 ± 1.0
P ₀	12.7 ± 0.2
P ₁	3.85 ± 0.5 (at end of tape)
P ₂	6.35 ± 1.0
W	18.0 ± 0.5
W ₀	11.5 min.
W ₁	9.0 ± 0.5
W ₂	0 ~ 2.5
H ₀	16.0 ± 0.5
l	1.0 max.
Q	1.0 max.
D ₀ ϕ	4.0 ± 0.2
Δh	0 ± 1.0 (at top of can)
t	0.7 ± 0.2 (not including lead)

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



NRB-XY Series

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8mm DIAMETER RADIAL TAPING (3.5mm LEAD SPACING) TBST

Taping Dimensions (mm)

Case Dia. (D ϕ)	8
Case Size	20mm max. height
Dim.	
d ϕ	0.6 $\pm$ 0.05
H	20 $\pm$ 0.75
F	3.5 +0.8/-0.2
P	12.7 $\pm$ 1.0
P ₀	12.7 $\pm$ 0.2
P ₁	4.60 $\pm$ 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 ~ 2.5
D ₀ ϕ	4.0 $\pm$ 0.2
Δh	0 $\pm$ 1.0 (at top of can)
t	0.7 $\pm$ 0.2 (not including lead)

NOTE: ANODE (+) LEAD FEEDS OFF FIRST.
FOR OPTION OF NEGATIVE (–) LEAD FIRST,
SPECIFY “TBSTN”.

