Miniature Aluminum Electrolytic Capacitors

NRB-XF Series

REDUCED SIZE, RADIAL LEADS, POLARIZED, ALUMINUM ELECTROLYTIC

FEATURES

- LONG LIFE AT 105°C (10,000 hrs.)
- HIGH VOLTAGE (UP TO 450V)
- REDUCED SIZE FROM NRWS SERIES

RoHS Compliant
includes all homogeneous materials

*See Part Number System for Details

CHARACTERISTICS

Rated Voltage Range	160 ~ 450Vdc						
Capacitance Range	10 ~ 220µF						
Operating Temperature Range	-25°C ~ +105°C						
Capacitance Tolerance	±20% (M)						
Maximum Leakage Current at 20°C	1 minute 0.04CV +100µA						
	5 minutes 0.02CV +25µA						
Max. Tan δ at 120Hz/20°C	W.V. (Vdc)	160	200	250	350	400	450
	S.V. (Vdc)	200	250	300	400	450	500
	Tan δ	0.15	0.15	0.15	0.20	0.20	0.20
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)	160	200	250	350	400	450
	Z-25°C/Z+20°C	3	3	3	6	6	6
Load Life Hours Load Life Test at Rated W.V. & 105°C	Test	10,000 Hours					
	Capacitance Change	Within ±25% of initial measured value					
	Tan δ	Less than 200% of specified value					
	Leakage Current	Less than specified value					

PART NUMBER SYSTEM

NRB-XF 180 M 400V 10X20 TB F

- F — RoHS Compliant
- TB = Tape & Box*
- 10X20 — Case Size (mm)
- 400V — Working Voltage
- M — Tolerance Code M=20%
- 180 — Capacitance Code in µF
- NRB-XF — Series

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

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

Part Number	Cap. (µF)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (mArms) +105°C/100KHz	Max. ESR (Ω) 120Hz	Load Life Hours @+105°C
NRB-XF470M160V10X16F	47	160	0.15	650	5.29	10,000
NRB-XF680M160V10X20F	68		0.15	800	3.66	10,000
NRB-XF820M160V16X16F	82		0.15	1350	3.03	10,000
NRB-XF101M160V12.5X20F	100		0.15	1350	2.49	10,000
NRB-XF101M160V18X16F	100		0.15	1550	2.49	10,000
NRB-XF181M160V16X20F	180		0.15	1800	1.38	10,000
NRB-XF221M160V18X20F	220		0.15	2250	1.13	10,000
NRB-XF330M200V10X16F	33	200	0.15	650	7.54	10,000
NRB-XF470M200V10X20F	47		0.15	800	5.29	10,000
NRB-XF560M200V16X16F	56		0.15	1350	4.44	10,000
NRB-XF680M200V12.5X20F	68		0.15	1350	3.66	10,000
NRB-XF820M200V18X16F	82		0.15	1550	3.03	10,000
NRB-XF121M200V16X20F	120		0.15	1800	2.07	10,000
NRB-XF181M200V18X20F	180		0.15	2250	1.38	10,000
NRB-XF270M250V10X16F	27	250	0.15	650	9.22	10,000
NRB-XF390M250V10X20F	39		0.15	800	6.38	10,000
NRB-XF470M250V16X16F	47		0.15	1350	5.29	10,000
NRB-XF560M250V12.5X20F	56		0.15	1350	4.44	10,000
NRB-XF560M250V18X16F	56		0.15	1550	4.44	10,000
NRB-XF101M250V16X20F	100		0.15	1800	2.49	10,000
NRB-XF121M250V18X20F	120		0.15	2250	2.07	10,000
NRB-XF180M350V10X16F	18	350	0.2	450	18.43	10,000
NRB-XF220M350V10X20F	22		0.2	500	15.08	10,000
NRB-XF270M350V16X16F	27		0.2	780	12.29	10,000
NRB-XF330M350V12.5X20F	33		0.2	850	10.05	10,000
NRB-XF330M350V18X16F	33		0.2	960	10.05	10,000
NRB-XF560M350V16X20F	56		0.2	1200	5.92	10,000
NRB-XF820M350V18X20F	82		0.2	1300	4.05	10,000
NRB-XF120M400V10X16F	12	400	0.2	450	27.65	10,000
NRB-XF180M400V10X20F	18		0.2	500	18.43	10,000
NRB-XF180M400V16X16F	18		0.2	780	18.43	10,000
NRB-XF270M400V12.5X20F	27		0.2	850	12.29	10,000
NRB-XF270M400V18X16F	27		0.2	960	12.29	10,000
NRB-XF470M400V16X20F	47		0.2	1200	7.06	10,000
NRB-XF560M400V18X20F	56		0.2	1300	5.92	10,000
NRB-XF100M450V10X16F	10	450	0.2	350	33.17	10,000
NRB-XF150M450V10X20F	15		0.2	400	22.12	10,000
NRB-XF150M450V16X16F	15		0.2	700	22.12	10,000
NRB-XF220M450V12.5X20F	22		0.2	700	15.08	10,000
NRB-XF220M450V18X16F	22		0.2	850	15.08	10,000
NRB-XF330M450V16X20F	33		0.2	970	10.05	10,000
NRB-XF470M450V18X20F	47		0.2	1170	7.06	10,000

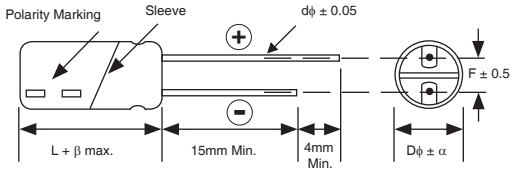
RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency (Hz) 6.3V ~ 50V	120	1K	10K	≤100K
10 ~ 18	0.30	0.60	0.80	1.00
22 ~ 82	0.40	0.70	0.90	1.00
100 ~ 220	0.45	0.75	0.90	1.00

DIAMETER AND LEADSPACE (mm)

Case Dia. (Dϕ)	10	12.5	16	18
Lead Dia. (dϕ)	0.6	0.6	0.8	0.8
Lead Spacing (F)	5.0	5.0	7.5	7.5
Dim. α	0.5	0.5	0.5	0.5
Dim. β	2.0	2.0	2.0	2.0

DIMENSIONS (mm)

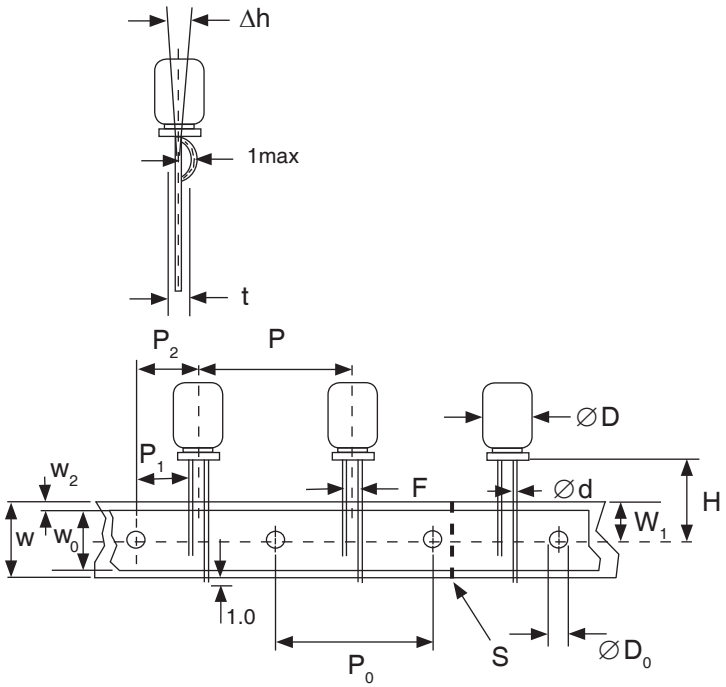


Drawing is representative of parts as supplied in bulk or straight lead format, please see taping specification for details on taped format packaging.

RADIAL TAPING (5mm LEAD SPACING) TB

Taping Dimensions (mm)

Case Dia. (Dϕ)	10	12.5
Case Size	All	
Dim.		
dϕ	0.6 ± 0.05	
H	18.5 +0.75/-0.5	
F	5.0 +0.8/-0.2	
P	12.7 ± 1.0	25.4* ± 1.0
P_0	12.7 ±0.2	
P_1	3.85	
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	
I	1.0 max.	
$D_0\phi$	4.0 ± 0.2	
Δh	0 ±1.0 (at top of can)	
t	0.7 ± 0.2 (not including lead)	
***Optional Taping Specifications**		
12.5mm diameter available with P dim. = 15mm, P_1 = 5.0mm, P_0 = 15.0mm & P_2 = 7.5mm (P/N Suffix: TB15MMP)		



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