Miniature Aluminum Electrolytic Capacitors

NRB-XS Series

HIGH TEMPERATURE, EXTENDED LOAD LIFE, RADIAL LEADS, POLARIZED

FEATURES

- HIGH RIPPLE CURRENT AT HIGH TEMPERATURE (105°C)
- IDEAL FOR HIGH VOLTAGE LIGHTING BALLAST
- REDUCED SIZE (FROM NRBX)

CHARACTERISTICS

Rated Voltage Range		160 ~ 450VDC						
Capacitance Range		1.0 ~ 220µF						
Operating Temperature Range		-25°C ~ +105°C						
Capacitance Tolerance		±20% (M)						
Maximum Leakage Current @ +20°C		CV ≤ 1,000µF			CV > 1,000µF			
		0.1CV +40µA (1 minute) 0.03CV +15µA (5 minutes)			0.04CV +100µA (1 minute) 0.02CV +25µA (5 minutes)			
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	Z-25°C/Z+20°C	3	3	3	6	6	6	
Load Life at W.V. & 105°C 8x11.5mm, 10x12.5mm: 5,000 Hours 10x16mm, 10x20mm: 8,000 Hours φD ≥ 12.5mm: 10,000 Hours	Δ Capacitance	Within ±20% of initial measured value						
	Δ Tan δ	Less than 200% of specified value						
	Δ LC	Less than specified value						

MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA AT 100KHz AND 105°C)

Cap. (µF)	Working Voltage (Vdc)					
	160	200	250	350	400	450
1.0	-	-	-	-	60	-
					70	
1.5	-	-	-	-	90	-
					100	
1.8	-	-	-	-	95	-
					120	
2.2	-	-	-	-	95	-
					140	
3.3	-	-	-	-	150	-
					180	
4.7	-	-	160	150	220	220
5.6	-	-	-	180	250	250
6.8	-	-	250	280	280	280
10	320	320	320	350	350	450
15	-	-	-	-	550	600
22	500	500	500	650	760	730
33	650	650	800	900	900	980
47	750	980	980	1080	1180	1200
68	1180	1300	1300	1470	1470	-
82	-	1380	1380	1530	-	-
100	1420	1420	1530	-	-	-
150	1890	1890	1940	-	-	-
220	2370	-	-	-	-	-

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Cap. (µF)	120Hz	1KHz	10KHz	100KHz ~ up
1 ~ 4.7	0.2	0.4	0.8	1.0
6.8 ~ 15	0.3	0.6	0.9	1.0
22 ~ 82	0.4	0.7	0.9	1.0
100 ~ 220	0.45	0.75	0.9	1.0

MAXIMUM ESR (Ω AT 120Hz AND 20°C)

Cap. (µF)	Working Voltage (Vdc)					
	160	200	250	350	400	450
1.0	-	-	-	-	332	-
1.5	-	-	-	-	221	-
1.8	-	-	-	-	184	-
2.2	-	-	-	-	151	-
3.3	-	-	-	-	101	-
4.7	-	-	52.9	70.6	70.6	70.6
5.6	-	-	-	59.2	59.2	59.2
6.8	-	-	36.6	48.8	48.8	48.8
10	24.9	24.9	24.9	33.2	33.2	33.2
15	-	-	-	-	22.1	22.1
22	11.3	11.3	11.3	15.1	15.1	15.1
33	7.54	7.54	7.54	10.1	10.1	10.1
47	5.29	5.29	5.29	7.06	7.06	7.06
68	3.66	3.66	3.66	4.88	4.88	-
82	-	3.03	3.03	4.05	-	-
100	2.49	2.49	2.49	-	-	-
150	1.66	1.66	1.66	-	-	-
220	1.13	-	-	-	-	-

PART NUMBER SYSTEM

NRB-XS 1R0 M 400V 8X11.5 F

- F — RoHS Compliant
- 8X11.5 — Case Size (Dϕ x L)
- 400V — Working Voltage (Vdc)
- M — Tolerance Code (M=20%)
- 1R0 — Capacitance Code: First 2 characters significant, third character is multiplier
- NRB-XS — Series

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 AND CASE SIZE TABLE D ϕ x L (mm)

Cap. (µF)	Code	Working Voltage (Vdc)					
		160	200	250	350	400	450
1.0	1R0	-	-	-	-	8X11.5 10X12.5	-
1.5	1R5	-	-	-	-	8X11.5 10X12.5	-
1.8	1R8	-	-	-	-	8X11.5 10X12.5	-
2.2	2R2	-	-	-	-	8X11.5 10X12.5	-
3.3	3R3	-	-	-	-	10X12.5 10X16	-
4.7	4R7	-	-	8X11.5	10X12.5	10X16	10X20
5.6	5R6	-	-	-	10X12.5	10X16	10X20
6.8	6R8	-	-	10X12.5	10X16	10X16	10X20
10	100	10X16	10X16	10X16	10X20	10X20	12.5X20
15	150	-	-	-	-	12.5X20	12.5X25
22	220	10X20	10X20	10X20	12.5X20	12.5X25 16X20	16X20
33	330	10X20	10X20	12.5X20	16X20	16X20	16X25
47	470	10X20	12.5X20	12.5X20	16X20	16X25 18X20	18X25
68	680	12.5x20	12.5x25 16x20	16x20	18x25	18x25	-
82	820	-	16x20	16x20	18x25	-	-
100	101	12.5x25 16x20	16x20	16x25	-	-	-
150	151	16x25	16x25	18x25	-	-	-
220	221	18x25	-	-	-	-	-

LEAD SPACING AND DIAMETER (mm)

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