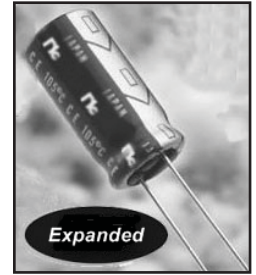


HIGH TEMPERATURE, EXTENDED LOAD LIFE, RADIAL LEADS, POLARIZED

FEATURES

- HIGH RIPPLE CURRENT
- LONG LIFE AT HIGH TEMPERATURE (10,000 Hours @ +105°C)



CHARACTERISTICS

Rated Voltage Range		35 ~ 450VDC								
Capacitance Range		12 ~ 1,800 μ F								
Operating Temperature Range	35V ~ 100V	-40°C ~ +105°C								
	160V ~ 450V	-40°C ~ +105°C								
Capacitance Tolerance		\pm 20% (M)								
Maximum Leakage Current @ +20°C	35V ~ 100V	0.01CV or 3 μ A whichever is greater after 2 minutes at rated voltage								
	160V ~ 450V	3x \sqrt{CV} after 5 minute at rated voltage								
Max. Tan δ at 120Hz/20°C	W.V. (Vdc)	35	50	63	80	100	160	200		
	S.V. (Vdc)	44	63	80	100	125	200	250		
	Tan δ	0.12	0.10	0.09	0.08	0.08	0.20	0.20		
	W.V. (Vdc)	220	250	350	400	420	450	-		
	S.V. (Vdc)	270	300	400	450	470	500	-		
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)	35	50	63	80	100	160~250	350~400	420~450	
	Z-25°C/Z+20°C	2	2	2	2	2	3	5	6	
	Z-40°C/Z+20°C	3	3	3	3	3	-	-	-	
Load Life at W.V. & 105°C 8 ~ 18mm: 10,000 Hours	Δ Capacitance	35V ~ 100V	Within \pm 25% of initial measured value							
		160V ~ 450V	Within \pm 20% of initial measured value							
	Δ Tan δ	Less than 200% of specified value								
Δ LC	Less than specified value									

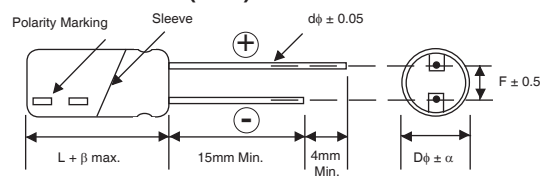
LEAD SPACING AND DIAMETER (mm)

Case Dia. (D ϕ)	8	10	12.5	16	18
Lead Dia. (D ϕ)	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	35 ~ 100V	2.0		-	
	160 ~ 450V	2.5			

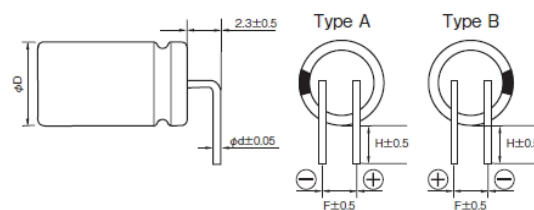
HORIZONTAL MOUNT LEAD FORMING (mm)

Case Dia. (D ϕ)	8	10 & 12	16 & 18	
Lead Dia. (ϕ d)	0.6	0.6	0.8	
Lead Space (F)	3.5	5.0	7.5	
Forming Code	RI	RK	RX	SG
Form Type	A	B	A	B
Lead Length (H)	4.0		3.5	

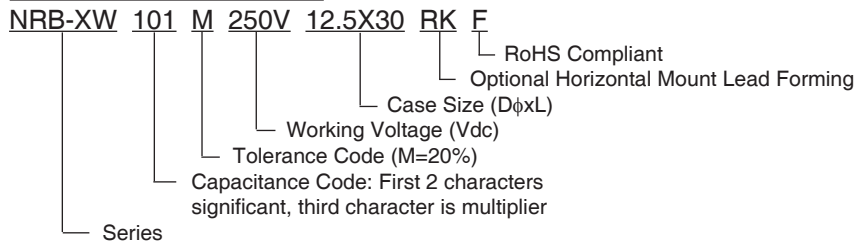
DIMENSIONS (mm)



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



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 VALUES, SPECIFICATIONS AND CASE SIZES (mm)

Part Number	Cap. (μF)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (Arms) +105°C/120Hz	Max. ESR (Ω) +20°C/120Hz	Load Life Hours @+105°C
NRB-XW391M35V8X25F	390	35	0.12	0.951	0.51	10000
NRB-XW471M35V8X30F	470		0.12	1.11	0.42	10000
NRB-XW681M35V8X40F	680		0.12	1.41	0.29	10000
NRB-XW821M35V8X50F	820		0.12	1.82	0.24	10000
NRB-XW821M35V10X30F	820		0.12	1.48	0.24	10000
NRB-XW122M35V10X40F	1200		0.12	1.87	0.17	10000
NRB-XW152M35V10X50F	1500		0.12	2.21	0.13	10000
NRB-XW221M50V8X25F	220	50	0.10	0.74	0.75	10000
NRB-XW271M50V8X30F	270		0.10	0.87	0.61	10000
NRB-XW391M50V8X40F	390		0.10	1.22	0.43	10000
NRB-XW471M50V8X50F	470		0.10	1.45	0.35	10000
NRB-XW471M50V10X30F	470		0.10	1.22	0.35	10000
NRB-XW681M50V10X40F	680		0.10	1.55	0.24	10000
NRB-XW821M50V10X50F	820		0.10	2.02	0.20	10000
NRB-XW181M63V8X25F	180	63	0.09	0.665	0.83	10000
NRB-XW221M63V8X30F	220		0.09	0.785	0.68	10000
NRB-XW331M63V8X40F	330		0.09	1.11	0.45	10000
NRB-XW391M63V8X50F	390		0.09	1.32	0.38	10000
NRB-XW391M63V10X30F	390		0.09	1.16	0.38	10000
NRB-XW561M63V10X40F	560		0.09	1.43	0.27	10000
NRB-XW681M63V10X50F	680		0.09	1.71	0.22	10000
NRB-XW101M80V8X25F	100	80	0.08	0.665	1.33	10000
NRB-XW121M80V8X30F	120		0.08	0.785	1.11	10000
NRB-XW181M80V8X40F	180		0.08	1.01	0.74	10000
NRB-XW221M80V8X50F	220		0.08	1.20	0.60	10000
NRB-XW221M80V10X30F	220		0.08	1.05	0.60	10000
NRB-XW271M80V10X40F	270		0.08	1.30	0.49	10000
NRB-XW391M80V10X50F	390		0.08	1.71	0.34	10000
NRB-XW820M100V8X25F	82	100	0.08	0.665	1.62	10000
NRB-XW101M100V8X30F	100		0.08	0.785	1.33	10000
NRB-XW121M100V8X40F	120		0.08	1.01	1.11	10000
NRB-XW151M100V8X50F	150		0.08	1.20	0.88	10000
NRB-XW151M100V10X30F	150		0.08	1.05	0.88	10000
NRB-XW221M100V10X40F	220		0.08	1.30	0.60	10000
NRB-XW271M100V10X50F	270		0.08	1.56	0.49	10000
NRB-XW560M160V8X25F	56	160	0.20	0.32	5.92	10000
NRB-XW680M160V8X30F	68		0.20	0.37	4.88	10000
NRB-XW820M160V10X25F	82		0.20	0.43	4.05	10000
NRB-XW101M160V8X40F	100		0.20	0.49	3.32	10000
NRB-XW121M160V10X30F	120		0.20	0.54	2.76	10000
NRB-XW151M160V10X40F	150		0.20	0.67	2.21	10000
NRB-XW151M160V12.5X25F	150		0.20	0.66	2.21	10000
NRB-XW181M160V10X50F	180		0.20	0.80	1.84	10000
NRB-XW181M160V12.5X30F	180		0.20	0.77	1.84	10000
NRB-XW221M160V12.5X35F	220		0.20	0.89	1.51	10000
NRB-XW221M160V16X25F	220		0.20	0.93	1.51	10000
NRB-XW271M160V12.5X40F	270		0.20	1.01	1.23	10000
NRB-XW331M160V12.5X50F	330		0.20	1.20	1.01	10000
NRB-XW331M160V16X30F	330		0.20	1.20	1.01	10000
NRB-XW331M160V18X25F	330		0.20	1.18	1.01	10000
NRB-XW391M160V12.5X55F	390		0.20	1.35	0.85	10000
NRB-XW391M160V16X35F	390		0.20	1.34	0.85	10000
NRB-XW391M160V18X30F	390		0.20	1.40	0.85	10000
NRB-XW471M160V16X40F	470		0.20	1.52	0.71	10000
NRB-XW471M160V18X35F	470		0.20	1.58	0.71	10000
NRB-XW561M160V16X50F	560		0.20	1.79	0.59	10000
NRB-XW561M160V18X40F	560		0.20	1.78	0.59	10000
NRB-XW681M160V18X45F	680		0.20	2.00	0.49	10000
NRB-XW821M160V18X50F	820	0.20	2.23	0.40	10000	



STANDARD VALUES, SPECIFICATIONS AND CASE SIZES (mm)

Part Number	Cap. (μF)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (Arms) +105°C/120Hz	Max. ESR (Ω) +20°C/120Hz	Load Life Hours @+105°C	
NRB-XW390M200V8X25F	39	200	0.20	0.30	8.51	10000	
NRB-XW560M200V8X30F	56		0.20	0.37	5.92	10000	
NRB-XW680M200V8X40F	68		0.20	0.45	4.88	10000	
NRB-XW680M200V10X25F	68		0.20	0.43	4.88	10000	
NRB-XW820M200V8X45F	82		0.20	0.51	4.05	10000	
NRB-XW820M200V10X30F	82		0.20	0.50	4.05	10000	
NRB-XW101M200V10X40F	100		0.20	0.63	3.32	10000	
NRB-XW121M200V10X45F	120		0.20	0.75	2.76	10000	
NRB-XW121M200V12.5X25F	120		0.20	0.65	2.76	10000	
NRB-XW151M200V10X50F	150		0.20	0.83	2.21	10000	
NRB-XW151M200V12.5X30F	150		0.20	0.80	2.21	10000	
NRB-XW181M200V12.5X35F	180		0.20	0.92	1.84	10000	
NRB-XW181M200V16X25F	180		0.20	0.85	1.84	10000	
NRB-XW221M200V12.5X45F	220		0.20	1.09	1.51	10000	
NRB-XW221M200V16X30F	220		0.20	1.01	1.51	10000	
NRB-XW221M200V18X25F	220		0.20	1.00	1.51	10000	
NRB-XW271M200V12.5X50F	270		0.20	1.26	1.23	10000	
NRB-XW271M200V16X30F	270		0.20	1.18	1.23	10000	
NRB-XW271M200V18X30F	270		0.20	1.16	1.23	10000	
NRB-XW331M200V12.5X60F	330		0.20	1.36	1.01	10000	
NRB-XW331M200V16X40F	330		0.20	1.31	1.01	10000	
NRB-XW331M200V18X30F	330		0.20	1.30	1.01	10000	
NRB-XW391M200V16X45F	390		0.20	1.43	0.85	10000	
NRB-XW391M200V18X35F	390		0.20	1.43	0.85	10000	
NRB-XW471M200V16X50F	470		0.20	1.58	0.71	10000	
NRB-XW471M200V18X40F	470		0.20	1.58	0.71	10000	
NRB-XW561M200V18X45F	560		0.20	1.77	0.59	10000	
NRB-XW101M220V10X40F	100		220	0.20	0.66	3.32	10000
NRB-XW121M220V10X45F	120			0.20	0.75	2.76	10000
NRB-XW121M220V12.5X30F	120			0.20	0.74	2.76	10000
NRB-XW151M220V12.5X35F	150	0.20		0.86	2.21	10000	
NRB-XW151M220V16X25F	150	0.20		0.8	2.21	10000	
NRB-XW181M220V12.5X40F	180	0.20		0.99	1.84	10000	
NRB-XW181M220V16X30F	180	0.20		0.94	1.84	10000	
NRB-XW221M220V12.5X50F	220	0.20		1.08	1.51	10000	
NRB-XW221M220V16X30F	220	0.20		1.01	1.51	10000	
NRB-XW221M220V18X25F	220	0.20		0.94	1.51	10000	
NRB-XW271M220V16X35F	270	0.20		1.19	1.23	10000	
NRB-XW271M220V18X30F	270	0.20		1.13	1.23	10000	
NRB-XW331M220V18X35F	330	0.20		1.3	1.01	10000	
NRB-XW391M220V18X40F	390	0.20		1.49	0.85	10000	
NRB-XW471M220V18X45F	470	0.20		1.69	0.71	10000	
NRB-XW270M250V8X25F	27	250		0.20	0.30	12.29	10000
NRB-XW390M250V8X30F	39			0.20	0.37	8.51	10000
NRB-XW470M250V10X25F	47			0.20	0.37	7.06	10000
NRB-XW560M250V8X40F	56			0.20	0.51	5.92	10000
NRB-XW560M250V10X30F	56			0.20	0.42	5.92	10000
NRB-XW680M250V8X50F	68		0.20	0.59	4.88	10000	
NRB-XW680M250V10X35F	68		0.20	0.49	4.88	10000	
NRB-XW820M250V10X40F	82		0.20	0.61	4.05	10000	
NRB-XW820M250V12.5X25F	82		0.20	0.54	4.05	10000	
NRB-XW101M250V10X45F	100		0.20	0.68	3.32	10000	
NRB-XW101M250V12.5X30F	100		0.20	0.69	3.32	10000	
NRB-XW121M250V12.5X35F	120		0.20	0.79	2.76	10000	
NRB-XW121M250V16X25F	120		0.20	0.74	2.76	10000	
NRB-XW151M250V12.5X40F	150		0.20	0.92	2.21	10000	
NRB-XW151M250V16X30F	150		0.20	0.89	2.21	10000	
NRB-XW181M250V12.5X50F	180		0.20	0.97	1.84	10000	
NRB-XW181M250V16X30F	180		0.20	0.95	1.84	10000	
NRB-XW181M250V18X25F	180		0.20	0.88	1.84	10000	



Part Number	Cap. (µF)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (Arms) +105°C/120Hz	Max. ESR (Ω) +20°C/120Hz	Load Life Hours @+105°C
NRB-XW221M250V12.5X55F	220	250	0.20	1.13	1.51	10000
NRB-XW221M250V16X35F	220		0.20	1.11	1.51	10000
NRB-XW221M250V18X30F	220		0.20	1.10	1.51	10000
NRB-XW271M250V16X40F	270		0.20	1.27	1.23	10000
NRB-XW271M250V18X35F	270		0.20	1.23	1.23	10000
NRB-XW331M250V16X50F	330		0.20	1.48	1.01	10000
NRB-XW331M250V18X40F	330		0.20	1.42	1.01	10000
NRB-XW391M250V18X45F	390		0.20	1.59	0.85	10000
NRB-XW471M250V18X50F	470		0.20	1.83	0.71	10000
NRB-XW220M350V8X30F	22	350	0.20	0.25	15.08	10000
NRB-XW330M350V8X40F	33		0.20	0.33	10.05	10000
NRB-XW330M350V10X25F	33		0.20	0.31	10.05	10000
NRB-XW390M350V8X45F	39		0.20	0.37	8.51	10000
NRB-XW390M350V10X30F	39		0.20	0.36	8.51	10000
NRB-XW470M350V10X35F	47		0.20	0.41	7.06	10000
NRB-XW560M350V10X40F	56	400	0.20	0.47	5.92	10000
NRB-XW120M400V8X25F	12		0.20	0.17	27.65	10000
NRB-XW150M400V8X30F	15		0.20	0.20	22.12	10000
NRB-XW220M400V8X40F	22		0.20	0.26	15.08	10000
NRB-XW220M400V10X25F	22		0.20	0.24	15.08	10000
NRB-XW270M400V8X45F	27		0.20	0.30	12.29	10000
NRB-XW270M400V10X30F	27		0.20	0.29	12.29	10000
NRB-XW330M400V10X35F	33		0.20	0.33	10.0	10000
NRB-XW390M400V10X40F	39		0.20	0.40	8.51	10000
NRB-XW390M400V12.5X25F	39		0.20	0.36	8.51	10000
NRB-XW470M400V10X45F	47		0.20	0.45	7.06	10000
NRB-XW470M400V12.5X30F	47		0.20	0.44	7.06	10000
NRB-XW560M400V10X50F	56	400	0.20	0.52	5.92	10000
NRB-XW560M400V12.5X35F	56		0.20	0.50	5.92	10000
NRB-XW680M400V12.5X40F	68		0.20	0.58	4.88	10000
NRB-XW680M400V16X25F	68		0.20	0.51	4.88	10000
NRB-XW820M400V12.5X45F	82		0.20	0.65	4.05	10000
NRB-XW820M400V16X30F	82		0.20	0.61	4.05	10000
NRB-XW820M400V18X25F	82		0.20	0.61	4.05	10000
NRB-XW101M400V12.5X60F	100		0.20	0.75	3.32	10000
NRB-XW101M400V16X35F	100		0.20	0.74	3.32	10000
NRB-XW101M400V18X30F	100		0.20	0.74	3.32	10000
NRB-XW121M400V16X40F	120		0.20	0.8	2.76	10000
NRB-XW121M400V18X35F	120		0.20	0.79	2.76	10000
NRB-XW151M400V16X50F	150	0.20	0.95	2.21	10000	
NRB-XW151M400V18X40F	150	0.20	0.91	2.21	10000	
NRB-XW181M400V18X45F	180	0.20	1.04	1.84	10000	
NRB-XW120M420V8X30F	12	420	0.25	0.13	34.6	10000
NRB-XW180M420V8X40F	18		0.25	0.2	23.0	10000
NRB-XW220M420V8X50F	22		0.25	0.25	18.8	10000
NRB-XW330M420V10X40F	33		0.25	0.37	12.6	10000
NRB-XW390M420V10X45F	39		0.25	0.41	10.6	10000
NRB-XW390M420V12.5X30F	39		0.25	0.39	10.6	10000
NRB-XW470M420V12.5X35F	47		0.25	0.45	8.82	10000
NRB-XW560M420V12.5X40F	56		0.25	0.52	7.40	10000
NRB-XW560M420V16X25F	56		0.25	0.46	7.40	10000
NRB-XW680M420V12.5X45F	68		0.25	0.58	6.10	10000
NRB-XW680M420V16X30F	68		0.25	0.55	6.10	10000
NRB-XW820M420V12.5X50F	82		0.25	0.66	5.06	10000
NRB-XW820M420V16X35F	82		0.25	0.63	5.06	10000
NRB-XW820M420V18X25F	82		0.25	0.56	5.06	10000
NRB-XW101M420V16X40F	100		0.25	0.73	4.15	10000
NRB-XW101M420V18X30F	100		0.25	0.67	4.15	10000
NRB-XW121M420V18X35F	120		0.25	0.77	3.46	10000
NRB-XW151M420V18X40F	150		0.25	0.90	2.76	10000



Part Number	Cap. (μF)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (Arms) +105°C/120Hz	Max. ESR (Ω) +20°C/120Hz	Load Life Hours @+105°C
NRB-XW120M450V8X30F	12	450	0.25	0.15	34.56	10000
NRB-XW150M450V8X40F	15		0.25	0.19	27.65	10000
NRB-XW180M450V8X45F	18		0.25	0.21	23.04	10000
NRB-XW330M450V10X40F	33		0.25	0.36	12.57	10000
NRB-XW330M450V12.5X30F	33		0.25	0.37	12.57	10000
NRB-XW390M450V10X50F	39		0.25	0.41	10.63	10000
NRB-XW390M450V12.5X35F	39		0.25	0.42	10.63	10000
NRB-XW470M450V12.5X40F	47		0.25	0.48	8.82	10000
NRB-XW470M450V16X25F	47		0.25	0.44	8.82	10000
NRB-XW560M450V12.5X45F	56		0.25	0.53	7.40	10000
NRB-XW560M450V16X30F	56		0.25	0.51	7.40	10000
NRB-XW680M450V12.5X50F	68		0.25	0.62	6.10	10000
NRB-XW680M450V16X35F	68		0.25	0.59	6.10	10000
NRB-XW680M450V18X25F	68		0.25	0.57	6.10	10000
NRB-XW820M450V16X40F	82		0.25	0.68	5.06	10000
NRB-XW820M450V18X30F	82		0.25	0.65	5.06	10000
NRB-XW101M450V18X35F	100		0.25	0.74	4.15	10000
NRB-XW121M450V18X40F	120		0.25	0.83	3.46	10000
NRB-XW151M450V18X45F	150		0.25	0.95	2.76	10000

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Cap. Values	120Hz	500Hz	1KHz	10KHz ~ up
≤ 33μF	0.42	0.70	0.90	1.00
39 ~ 270μF	0.50	0.73	0.92	1.00
330 ~ 680μF	0.55	0.77	0.94	1.00
820 ~ 1800μF	0.60	0.80	0.96	1.00

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR (160V ~ 450V)

Voltage Rating	60 (50)Hz	120Hz	500Hz	1KHz	10KHz ~ up
160 ~ 250Vdc	0.8	1.0	1.20	1.30	1.40
350 ~ 450Vdc	0.8	1.0	1.25	1.40	1.50

