

Miniature Aluminum Electrolytic Capacitors

NRE-WY Series

+130°C WIDE TEMPERATURE RANGE, RADIAL LEADS, POLARIZED

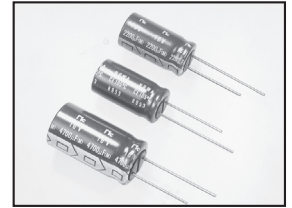
FEATURES

- -40°C** ~ +130°C EXTENDED OPERATING TEMPERATURE RANGE
- LONG LIFE (1,000 ~ 4,000 Hours @ 130C)
- MEETS THE REQUIREMENTS OF AEC-Q200*

*Contact NIC for supporting test data

**200V and up -25°C ~ +130°C

**RoHS
Compliant**
includes all homogeneous materials

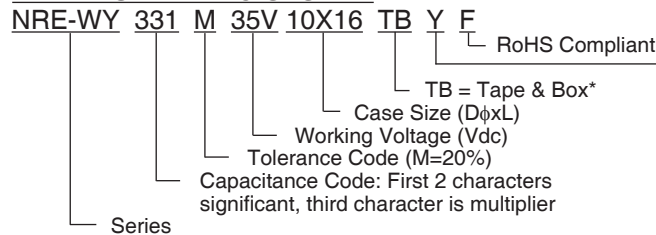


*See Part Number System for Details

CHARACTERISTICS

Rated Voltage Range	10 ~ 400Vdc									
Capacitance Range	1.0 ~ 4,700 μ F									
Operating Temperature Range	-40 ~ +130°C (10 to 100Vdc), -25°C ~ +130°C (200 to 400Vdc)									
Capacitance Tolerance	\pm 20% (M)									
Max. Leakage Current	After 2 minutes	10 ~ 100Vdc: 0.01CV or 3 μ A whichever is greater								
	After 1 minute	200Vdc, 400Vdc: 0.1CV+40 μ A								
	After 5 minutes	200Vdc, 400Vdc: 0.03CV+15 μ A								
Max. Tan δ @ 120Hz/20°C	W.V. (Vdc)	10	16	25	35	50	63	100	200	400
	S.V. (Vdc)	13	20	32	44	63	79	125	250	450
	C \leq 1000 μ F	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.20
	C = 1,500 μ F	-	-	-	-	-	0.09	-	-	-
	C = 2,200 μ F	0.22	0.18	0.16	0.14	0.12	-	-	-	-
	C = 3,300 μ F	0.24	0.20	0.18	0.16	-	-	-	-	-
Low Temperature Stability Impedance Ratio @ 120Hz	Z-25°C/Z+20°C	3	2	2	2	2	2	2	3	6
	Z-40°C/Z+20°C	6	4	3	3	3	3	3	-	-
Load Life Test at Rated W.V. 1000 ~ 4000Hrs @ 130°C (See part number table for hours)	10V ~ 100V	Cap. Change	Within \pm 30% of initial measured value							
		Tan δ	Less than 300% of specified max. value							
		Leakage Current	Less than specified maximum vlaue							
	200V ~ 400V	Cap. Change	Within \pm 20% of initial measured value							
		Tan δ	Less than 200% of specified max. value							
		Leakage Current	Less than specified maximum vlaue							
Shelf Life Test +130°C 1000Hrs	Capacitance Change	Within \pm 30% of intial measured value								
	Tan δ	Less than 300% of specified max. value								
	Leakage Current	Not more than 500% of specified max. value								

PART NUMBERING SYSTEM



*see tape specification for details

Optional: For automotive equipment, sourced to special production and inspection at TS-16949 certified production site

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



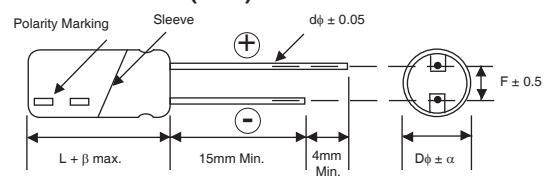
STANDARD PRODUCT AND CASE SIZE D φxL (mm)

Cap. (μF)	Code	Working Voltage (VDC)								
		10	16	25	35	50	63	100	200	400
1.0	1R0	-	-	-	-	-	-	-	-	6.3X11
		-	-	-	-	-	-	-	-	8X11.5
1.5	1R5	-	-	-	-	-	-	-	-	6.3X11
		-	-	-	-	-	-	-	-	8X16
1.8	1R8	-	-	-	-	-	-	-	-	6.3X11
		-	-	-	-	-	-	-	-	8X16
2.2	2R2	-	-	-	-	-	-	-	-	8X11.5
		-	-	-	-	-	-	-	-	8X16
		-	-	-	-	-	-	-	-	8X20
2.7	2R7	-	-	-	-	-	-	-	-	8X16
		-	-	-	-	-	-	-	-	8X20
3.3	3R3	-	-	-	-	-	-	-	-	8X16
		-	-	-	-	-	-	-	-	8X20
4.7	4R7	-	-	-	-	8X11.5	-	8X11.5	6.3X11	8X20
		-	-	-	-	-	-	-	8X11.5	10X16
5.6	5R6	-	-	-	-	-	-	-	8X11.5	10X16
		-	-	-	-	-	-	-	8X16	10X20
6.8	6R8	-	-	-	-	-	-	-	8X11.5	10X20
		-	-	-	-	-	-	-	8X16	
10	10	-	-	-	-	8X11.5	-	8X11.5	8X16	-
		-	-	-	-	-	-	-	8X20	
15	150	-	-	-	-	-	-	-	8X16	-
		-	-	-	-	-	-	-	8X20	
22	220	-	-	-	-	8X11.5	-	8X11.5	8X20	-
		-	-	-	-	-	-	-	10X16	
33	330	-	-	-	-	8X11.5	8X11.5	10X12.5	10X20	-
47	470	-	-	-	-	8X11.5	10X12.5	10X16	-	-
100	101	-	-	-	8X11.5	10X12.5	10X16	12.5X20	-	-
220	221	-	-	8X11.5	10X12.5	10X20	12.5X20	16X25	-	-
330	331	8X11.5	8X11.5	10X12.5	10X16	12.5X20	12.5X25	16X31.5	-	-
470	471	10X12.5	10X12.5	10X16	10X20	12.5X25	16X25	18X31.5	-	-
1000	102	10X20	10X20	12.5X20	12.5X25	16X31.5	16X31.5	-	-	-
1500	152	-	-	-	-	-	18X40	-	-	-
2200	222	12.5X25	12.5X25	16X31.5	16X35.5	18X40	-	-	-	-
3300	332	16X25	16X31.5	16X35.5	18X35.5	-	-	-	-	-
4700	472	16X31.5	16X35.5	-	-	-	-	-	-	-

DIAMETER AND LEADSPACE (mm)

Case Dia. (Dφ)	6.3	8	10	12.5	16	18
Lead Dia. (dφ)	0.5	0.6		0.8		
Lead Spacing (F)	2.5	3.5	5.0	7.5		
Dim. α	0.5		1.0			
Dim. β	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.



Part Number	Cap. (µF)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (mA) +130°C/100KHz	Max. Impedance (Ω) +20°C/100KHz	Load Life Hours @+130°C	
NRE-WY331M10V8X11.5F	330	10	0.20	360	0.22	2,000	
NRE-WY471M10V10X12.5F	470		0.20	620	0.15	2,000	
NRE-WY102M10V10X20F	1000		0.20	960	0.073	2,000	
NRE-WY222M10V12.5X25F	2200		0.22	1430	0.040	4,000	
NRE-WY332M10V16X25F	3300		0.24	1900	0.038	4,000	
NRE-WY472M10V16X31.5F	4700		0.26	2300	0.034	4,000	
NRE-WY331M16V8X11.5F	330	16	0.16	360	0.22	2,000	
NRE-WY471M16V10X12.5F	470		0.16	620	0.15	2,000	
NRE-WY102M16V10X20F	1000		0.16	960	0.073	2,000	
NRE-WY222M16V12.5X25F	2200		0.18	1430	0.040	4,000	
NRE-WY332M16V16X31.5F	3300		0.20	2300	0.034	4,000	
NRE-WY472M16V16X35.5F	4700		0.22	2550	0.031	4,000	
NRE-WY221M25V8X11.5F	220	25	0.14	360	0.22	2,000	
NRE-WY331M25V10X12.5F	330		0.14	620	0.15	2,000	
NRE-WY471M25V10X16F	470		0.14	800	0.10	2,000	
NRE-WY102M25V12.5X20F	1000		0.14	1100	0.055	4,000	
NRE-WY222M25V16X31.5F	2200		0.16	2300	0.034	4,000	
NRE-WY332M25V16X35.5F	3300		0.18	2550	0.031	4,000	
NRE-WY101M35V8X11.5F	100	35	0.12	360	0.22	2,000	
NRE-WY221M35V10X12.5F	220		0.12	620	0.15	2,000	
NRE-WY331M35V10X16F	330		0.12	800	0.10	2,000	
NRE-WY471M35V10X20F	470		0.12	960	0.073	2,000	
NRE-WY102M35V12.5X25F	1000		0.12	1430	0.040	4,000	
NRE-WY222M35V16X35.5F	2200		0.14	2550	0.031	4,000	
NRE-WY332M35V18X35.5F	3300	0.16	2800	0.028	4,000		
NRE-WY4R7M50V8X11.5F	4.7	50	0.10	100	0.85	2,000	
NRE-WY100M50V8X11.5F	10		0.10	200	0.60	2,000	
NRE-WY220M50V8X11.5F	22		0.10	260	0.35	2,000	
NRE-WY330M50V8X11.5F	33		0.10	300	0.28	2,000	
NRE-WY470M50V8X11.5F	47		0.10	300	0.28	2,000	
NRE-WY101M50V10X12.5F	100		0.10	520	0.18	2,000	
NRE-WY221M50V10X20F	220		0.10	890	0.082	2,000	
NRE-WY331M50V12.5X20F	330		0.10	1000	0.065	4,000	
NRE-WY471M50V12.5X25F	470		0.10	1200	0.051	4,000	
NRE-WY102M50V16X31.5F	1000		0.10	2180	0.037	4,000	
NRE-WY222M50V18X40F	2200		0.12	2800	0.029	4,000	
NRE-WY330M63V8X11.5F	33		63	0.09	250	0.40	2,000
NRE-WY470M63V10X12.5F	47			0.09	400	0.27	2,000
NRE-WY101M63V10X16F	100			0.09	450	0.20	2,000
NRE-WY221M63V12.5X20	220	0.09		820	0.10	4,000	
NRE-WY331M63V12.5X25F	330	0.09		1000	0.072	4,000	
NRE-WY471M63V16X25F	470	0.09		1500	0.069	4,000	
NRE-WY102M63V16X31.5F	1000	0.09		1850	0.056	4,000	
NRE-WY152M63V18X40F	1500	0.09		2350	0.043	4,000	
NRE-WY4R7M100V8X11.5F	4.7	100	0.08	100	1.3	2,000	
NRE-WY100M100V8X11.5F	10		0.08	200	1.0	2,000	
NRE-WY220M100V8X11.5F	22		0.08	220	0.67	2,000	
NRE-WY330M100V10X12.5F	33		0.08	260	0.45	2,000	
NRE-WY470M100V10X16F	47		0.08	330	0.33	2,000	
NRE-WY101M100V12.5X20F	100		0.08	670	0.17	4,000	
NRE-WY221M100V16X25F	220		0.08	1100	0.13	4,000	
NRE-WY331M100V16X31.5F	330		0.08	1300	0.10	4,000	
NRE-WY471M100V18X31.5F	470		0.08	1600	0.092	4,000	

RIPPLE CURRENT CORRECTION FACTOR (10V ~ 100V)

Frequency (Hz)	60 (50)	120Hz	1KHz	10K	100K
1.0µF ~ 4.7µF	0.35	0.42	0.60	0.80	1.0
10µF ~ 33µF	0.45	0.55	0.75	0.90	1.0
47µF ~ 330µF	0.60	0.70	0.85	0.95	1.0
470µF ~ 1500µF	0.65	0.75	0.90	0.98	1.0
2200µF ~ 4700µF	0.75	0.80	0.95	1.0	1.0



Part Number	Cap. (μF)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (mA) +130°C/100KHz	Max. ESR (Ω) +20°C/120Hz	Load Life Hours @+130°C
NRE-WY4R7M200V6.3X11F	4.7	200	0.15	100	52.94	1,000
NRE-WY4R7M200V8X11.5F			0.15	120	52.94	2,000
NRE-WY5R6M200V8X11.5F	5.6		0.15	130	44.43	2,000
NRE-WY5R6M200V8X16F			0.15	180	44.43	2,000
NRE-WY6R8M200V8X11.5F	6.8		0.15	130	36.59	2,000
NRE-WY6R8M200V8X16F			0.15	180	36.59	2,000
NRE-WY100M200V8X16F	10		0.15	200	24.88	2,000
NRE-WY100M200V8X20F			0.15	240	24.88	2,000
NRE-WY150M200V8X16F	15		0.15	200	16.59	2,000
NRE-WY150M200V8X20F			0.15	240	16.59	2,000
NRE-WY220M200V8X20F	22		0.15	240	11.31	2,000
NRE-WY220M200V10X16F			0.15	240	11.31	2,000
NRE-WY330M200V10X20F	33	0.15	320	7.54	2,000	
NRE-WY1R0M400V6.3X11F	1.0	400	0.20	60	331.74	1,000
NRE-WY1R0M400V8X11.5F			0.20	65	331.74	2,000
NRE-WY1R5M400V8X11.5F	1.5		0.20	75	221.16	2,000
NRE-WY1R5M400V8X16F			0.20	80	221.16	2,000
NRE-WY1R8M400V8X11.5F	1.8		0.20	75	184.30	2,000
NRE-WY1R8M400V8X16F			0.20	85	184.30	2,000
NRE-WY2R2M400V8X11.5F	2.2		0.20	75	150.79	2,000
NRE-WY2R2M400V8X16F			0.20	90	150.79	2,000
NRE-WY2R2M400V8X20F	2.7		0.20	110	150.79	2,000
NRE-WY2R7M400V8X16F			0.20	95	122.87	2,000
NRE-WY2R7M400V8X20F	3.3		0.20	115	122.87	2,000
NRE-WY3R3M400V8X16F			0.20	100	100.53	2,000
NRE-WY3R3M400V8X20F	4.7	0.20	120	100.53	2,000	
NRE-WY4R7M400V8X20F		0.20	120	70.58	2,000	
NRE-WY4R7M400V10X16F	5.6	0.20	125	70.58	2,000	
NRE-WY5R6M400V10X16F		0.20	130	59.24	2,000	
NRE-WY5R6M400V10X20F	6.8	0.20	145	59.24	2,000	
NRE-WY6R8M400V10X20F		0.20	150	48.79	2,000	

RIPPLE CURRENT CORRECTION FACTOR (200V ~ 400V)

Frequency (Hz)	120Hz	1KHz	10K	100K
1.0μF ~ 5.6μF	0.20	0.40	0.80	1.0
6.8μF ~ 15μF	0.30	0.60	0.90	1.0
22μF	0.50	0.80	0.90	1.0