

# Miniature Aluminum Electrolytic Capacitors

NRE-LW Series

LOW PROFILE, WIDE TEMPERATURE, RADIAL LEAD, POLARIZED

## FEATURES

- LOW PROFILE APPLICATIONS
- WIDE TEMPERATURE 105°C
- HIGH STABILITY AND PERFORMANCE

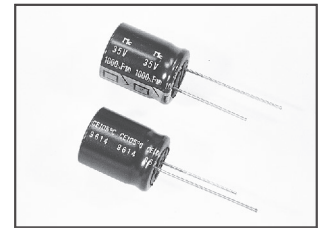
## CHARACTERISTICS

Rated Voltage Range		10 ~ 100Vdc							
Capacitance Range		47 ~ 4,700 $\mu$ F							
Operating Temperature Range		-40 ~ +105°C							
Capacitance Tolerance		$\pm$ 20% (M)							
Max. Leakage Current @ 20°C	After 1 min.	0.03CV or 4 $\mu$ A whichever is greater							
	After 2 min.	0.01CV or 3 $\mu$ A whichever is greater							
Max. Tan $\delta$ @ 120Hz/20°C	W.V. (Vdc)	10	16	25	35	50	63	100	
	S.V. (Vdc)	13	20	32	44	63	79	125	
	C $\leq$ 1,000 $\mu$ F	0.20	0.16	0.14	0.12	0.10	0.09	0.08	
	C $\leq$ 2,200 $\mu$ F	0.22	0.18	0.16	-	-	-	-	
	C $\leq$ 3,300 $\mu$ F	0.24	0.20	0.18	-	-	-	-	
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)	10	16	25	35	50	63	100	
	Z-25°C/Z+20°C	3	3	2	2	2	2	2	
	Z-40°C/Z+20°C	8	6	4	3	3	3	3	
Load Life Test at Rated W.V. 105°C 1,000 Hours	Capacitance Change	Within 20% of initial measured value							
	Tan $\delta$	Less than 200% of specified maximum value							
	Leakage Current	Less than specified maximum value							

**RoHS Compliant**

includes all homogeneous materials

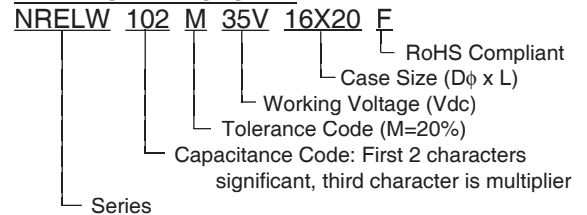
\*See Part Number System for Details



## STANDARD PRODUCT AND CASE SIZE TABLE D $\phi$ x L (mm)

Cap ( $\mu$ F)	Code	Working Voltage (Vdc)						
		10	16	25	35	50	63	100
47	470	-	-	-	-	-	-	10x12.5
100	101	-	-	-	-	-	10x12.5	16x16
220	221	-	-	-	10x12.5	10x12.5	16x16	16x21
330	331	-	-	10x12.5	12.5x16	16x16	16x21	-
470	471	-	10x12.5	12.5x16	16x16	16x21	-	-
1,000	102	12.5x15	16x16	16x21	16x21	-	-	-
2,200	222	16x16	16x21	16x21	-	-	-	-
3,300	332	16x21	-	-	-	-	-	-
4,700	472	18x21	-	-	-	-	-	-

## PART NUMBER SYSTEM



## MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA rms AT 120Hz AND 105°C)

Cap. ( $\mu$ F)	Working Voltage (Vdc)						
	10	16	25	35	50	63	100
47	-	-	-	-	-	-	240
100	-	-	-	-	-	210	275
220	-	-	-	270	310	380	490
330	-	-	310	350	440	525	-
470	-	340	390	490	570	-	-
1000	470	630	720	840	-	-	-
2200	780	940	1080	-	-	-	-
3300	1000	-	-	-	-	-	-
4700	1200	-	-	-	-	-	-

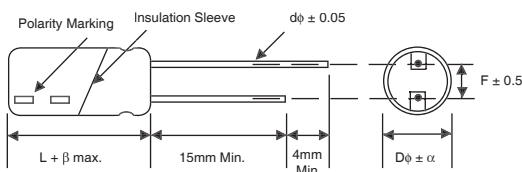
## RIPPLE CURRENT CORRECTION FACTORS

### Frequency Factor

W.V. (Vdc)	Cap ( $\mu$ F)	Working Voltage (Vdc)			
		50	120	1K	10K
6.3~16	ALL	0.8	1.0	1.1	1.2
25~35	$\leq$ 1000	0.8	1.0	1.5	1.7
	1000<	0.8	1.0	1.2	1.3
50~100	$\leq$ 1000	0.8	1.0	1.6	1.9
	1000<	0.8	1.0	1.2	1.3

## LEAD SPACING AND DIAMETER (mm)

Case Dia. (D $\phi$ )	5	6.3	8	10	12.5	16	18	22
Lead Dia. (D $\phi$ )	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
Lead Spacing (F)	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10
Dim. $\alpha$	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0



## MAXIMUM ESR ( $\Omega$ AT 120Hz AND 20°C)

Cap. ( $\mu$ F)	Working Voltage (Vdc)						
	10	16	25	35	50	63	100
47	-	-	-	-	-	-	2.82
100	-	-	-	-	-	1.49	1.33
220	-	-	-	0.90	0.75	0.25	0.60
330	-	-	0.70	0.60	0.50	0.68	-
470	-	0.56	0.49	0.42	0.35	-	-
1000	0.33	0.27	0.23	0.20	-	-	-
2200	0.17	0.14	0.12	-	-	-	-
3300	0.12	-	-	-	-	-	-
4700	0.09	-	-	-	-	-	-

## 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](http://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](mailto:tpmg@niccomp.com)

