

# Large Can Aluminum Electrolytic Capacitors

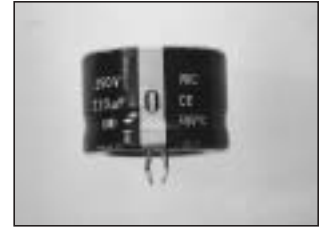
NRLF Series

## FEATURES

- LOW PROFILE (20mm HEIGHT)
- LOW DISSIPATION FACTOR AND LOW ESR
- HIGH RIPPLE CURRENT
- WIDE CV SELECTION
- SUITABLE FOR SWITCHING POWER SUPPLIES

**RoHS Compliant**  
includes all homogeneous materials

\*See Part Number System for Details

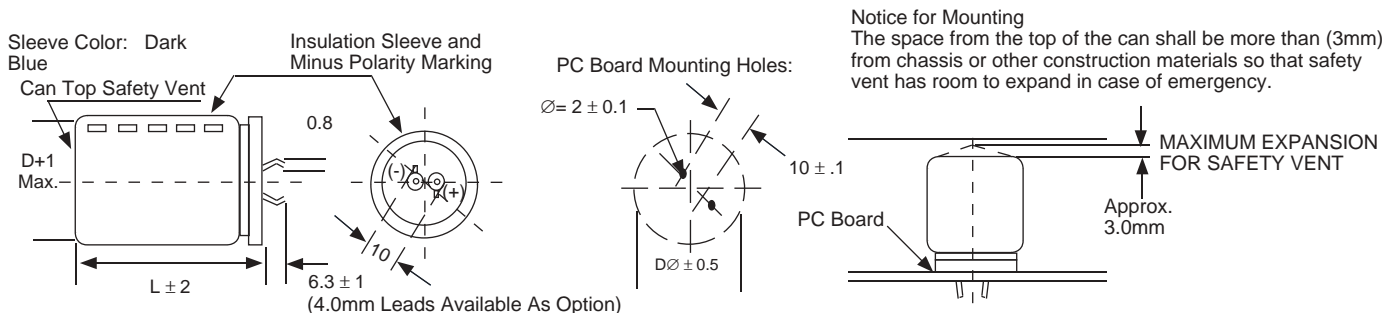


## SPECIFICATIONS

Operating Temperature Range		-40 ~ +85°C				-25 ~ +85°C				
Rated Voltage Range		16 ~ 250Vdc				350 ~ 450Vdc				
Rated Capacitance Range		100 ~ 15,000µF				33 ~ 150µF				
Capacitance Tolerance		±20% (M)								
Max. Leakage Current (µA) After 5 minutes (20°C)		$3 \times \sqrt{C(\mu F)V}$								
Max. Tan δ at 120Hz/20°C	W.V. (Vdc)	16	25	35	50	63	80	100	160~450	
	Tan δ max.	0.50	0.40	0.35	0.30	0.25	0.20	0.20	0.15	
Surge Voltage	W.V. (Vdc)	16	25	35	50	63	80	100	160	
	S.V. (Vdc)	20	32	44	63	79	100	125	200	
	W.V. (Vdc)	180	200	250	350	400	450	-	-	
	S.V. (Vdc)	220	250	300	400	450	500	-	-	
Ripple Current Correction Factors	Frequency (Hz)	50	60	100	120	500	1K	10K ~ 50K	-	
	Multiplier at 85°C	16 ~ 100Vdc	0.93	0.95	0.99	1.00	1.05	1.08	1.15	-
		160 ~ 450Vdc	0.75	0.80	0.95	1.0	1.20	1.25	1.40	-
Low Temperature Stability (16 to 250Vdc)	Temperature (°C)	0	-25	-40	-	-	-	-	-	
	Capacitance Change	-5%	-10	-30%	-	-	-	-	-	
	Impedance Ratio	1.5	3	9	-	-	-	-	-	
Load Life Test 2,000 hours at +85°C	Capacitance Change	Within ±20% of initial measured value								
	Tan δ	Less than 200% of specified maximum value								
	Leakage Current	Less than specified maximum value								
Shelf Life Test 1,000 hours at +85°C (no load)	Capacitance Change	Within ±20% of initial measured value								
	Tan δ	Less than 200% of specified maximum value								
	Leakage Current	Less than specified maximum value								
Surge Voltage Test Per JIS-C-5141 (table #6, #4) Surge voltage applied: 30 seconds "On" and 5.5 minutes no voltage "Off"	Capacitance Change	Within ±20% of initial measured value								
	Tan δ	Less than 200% of specified maximum value								
	Leakage Current	Less than specified maximum value								
Soldering Effect Refer to MIL-STD-202F Method 210A	Capacitance Change	Within ±10% of initial measured value								
	Tan δ	Less than specified maximum value								
	Leakage Current	Less than specified maximum value								

## MECHANICAL CHARACTERISTICS:

1. Safety Vent:: The capacitors are provided with a pressure sensitive safety vent on the top. The vent is designed to rupture in the event that high internal gas pressure is developed by circuit malfunction or mis-use like reverse voltage.
2. Terminal Strength: Each terminal of the capacitor shall withstand an axial pull force of 4.5Kg for a period 10 seconds or a radial bent force of 2.5Kg for a period of 30 seconds.



## 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)



### STANDARD PRODUCT LIST, CASE SIZE AND SPECIFICATIONS

W.V.	Cap (μF)	Case Size	ESR (Ω @ 20°C)		Max. Ripple Current (Arms@85°C)	
			120Hz	20KHz	120Hz	10K ~ 50KHz
16	4,700	22x20	0.159	0.135	1.60	1.84
	6,800	25x20	0.110	0.093	1.80	2.07
	10,000	30x20	0.083	0.070	2.40	2.76
	15,000	35x20	0.055	0.047	3.20	3.68
25	3,300	22x20	0.176	0.141	1.60	1.84
	4,700	25x20	0.123	0.099	1.80	2.07
	6,800	30x20	0.078	0.062	2.30	2.65
	10,000	35x20	0.061	0.049	2.70	3.11
35	2,200	22x20	0.181	0.136	1.40	1.61
	3,300	25x20	0.121	0.090	1.70	1.96
	4,700	30x20	0.088	0.066	2.00	2.30
	6,800	35x20	0.071	0.053	2.40	2.76
50	1,500	22x20	0.254	0.191	1.20	1.38
	2,200	25x20	0.173	0.130	1.40	1.612
	3,300	30x20	0.116	0.087	1.70	1.96
	4,700	35x20	0.081	0.061	2.10	2.42
63	1,000	22x20	0.381	0.286	1.20	1.38
	1,500	25x20	0.254	0.191	1.30	1.50
	2,200	30x20	0.173	0.130	1.50	1.96
	3,300	35x20	0.126	0.094	1.70	1.96
80	680	22x20	0.439	0.329	1.00	1.15
	1,000	25x20	0.298	0.244	1.20	1.38
	1,500	30x20	0.199	0.149	1.40	1.61
	2,200	35x20	0.136	0.102	1.70	1.96
100	470	22x20	0.529	0.344	1.00	1.15
	680	25x20	0.366	0.238	1.10	1.27
	1,000	30x20	0.249	0.162	1.20	1.38
	1,500	35x20	0.177	0.115	1.50	1.73
160	220	22x20	0.980	0.490	0.75	1.05
	270	25x20	0.798	0.399	0.87	1.22
	390	30x20	0.595	0.298	1.10	1.54
	560	35x20	0.414	0.207	1.30	1.82
200	150	22x20	1.326	0.597	0.65	0.91
	220	25x20	0.904	0.407	0.87	1.22
	330	30x20	0.653	0.294	1.00	1.40
	470	35x20	0.459	0.206	1.30	1.82
250	120	22x20	1.658	0.663	0.45	0.63
	150	25x20	1.326	0.531	0.65	0.91
	220	30x20	0.754	0.301	0.87	1.22
	330	35x20	0.553	0.221	1.10	1.54
400	47	22x20	3.527	1.235	0.25	0.35
	68	25x20	2.926	1.024	0.35	0.49
	100	30x20	1.989	0.696	0.47	0.66
	150	35x20	1.326	0.464	0.60	0.84
450	33	22x20	6.028	2.411	0.20	0.28
	47	25x20	4.233	1.693	0.29	0.41
	68	30x20	2.926	1.17	0.38	0.53
	100	35x20	1.989	0.796	0.52	0.73

#### PART NUMBER SYSTEM

