

# Large Can Aluminum Electrolytic Capacitors

NRLMW Series

## FEATURES

- LONG LIFE (105°C, 2000 HOURS)
- LOW PROFILE AND HIGH DENSITY DESIGN OPTIONS
- EXPANDED CV VALUE RANGE
- HIGH RIPPLE CURRENT
- CAN-TOP SAFETY VENT
- DESIGNED AS INPUT FILTER OF SMPS
- STANDARD 10mm (.400") SNAP-IN SPACING

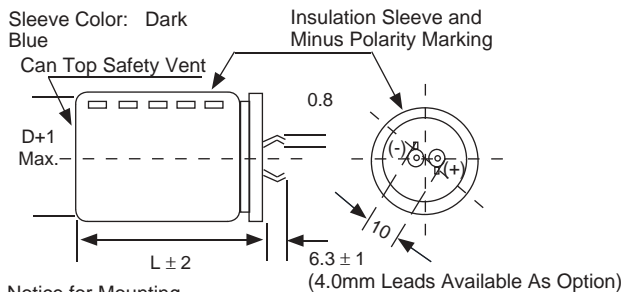
**RoHS Compliant**  
includes all homogeneous materials

\*See Part Number System for Details



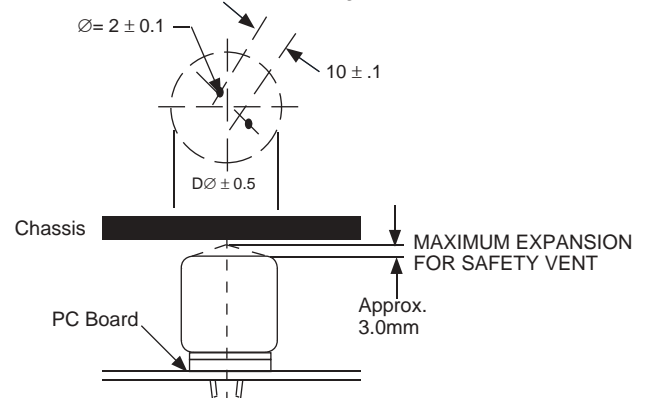
## SPECIFICATIONS

Operating Temperature Range	-40 ~ +105°C	-25 ~ +105°C									
Rated Voltage Range	10 ~ 250Vdc	450Vdc									
Rated Capacitance Range	180 ~ 68,000µF	56 ~ 470µF									
Capacitance Tolerance	±20% (M) at 120Hz, +20°C										
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)	10	16	25	35	50	63	80	100 ~ 400	450	
	Tan δ max.	0.55	0.45	0.35	0.30	0.25	0.20	0.17	0.15	0.20	
Surge Voltage	W.V. (Vdc)	10	16	25	35	50	63	80	100	160	
	S.V. (Vdc)	13	20	32	44	63	79	100	125	200	
	W.V. (Vdc)	180	200	250	400	450	-	-	-	-	
	S.V. (Vdc)	220	250	300	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	1.0	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 (10 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 +105°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 +105°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									



**Notice for Mounting**  
The space from the top of the can shall be more than (3mm) from chassis or other construction materials so that safety vent has room to expand in case of emergency.

Recommended PC Board Mounting Holes:



## 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)



# Large Can Aluminum Electrolytic Capacitors

NRLMW Series

## 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
10	6,800	20x25	0.110	0.093	1.30	1.50
	8,200	20x30	0.091	0.077	1.60	1.84
	10,000	22x25	0.075	0.063	1.80	2.07
	15,000	25x25	0.053	0.045	2.30	2.65
	22,000	25x35	0.038	0.032	2.60	2.99
		30x25				
	33,000	25x45	0.027	0.023	3.40	3.91
		30x35				
	47,000	35x30	0.023	0.020	4.20	4.83
		30x45				
68,000	35x50	0.021	0.020	5.50	6.33	
16	6,800	22x25	0.085	0.068	2.20	2.53
	8,200	22x30	0.071	0.057	2.40	2.76
	10,000	25x25	0.066	0.053	2.60	2.99
	15,000	25x35	0.046	0.037	3.20	3.68
		30x30				
	22,000	25x45	0.033	0.028	3.80	4.37
		30x35				
	33,000	35x30	0.023	0.020	4.70	5.41
		30x45				
	47,000	35x45	0.020	0.018	5.50	6.33
56,000	35x50	0.019	0.017	6.00	6.90	
25	4,700	22x25	0.106	0.079	2.00	2.30
	6,800	25x25	0.073	0.055	2.40	2.76
	8,200	25x30	0.061	0.045	2.70	3.11
		30x25				
	10,000	25x35	0.051	0.039	3.00	3.45
		30x30				
	15,000	25x45	0.036	0.031	3.60	4.14
		30x35				
	22,000	35x30	0.025	0.022	4.30	4.95
		30x45				
33,000	35x50	0.018	0.016	5.50	6.33	
35	3,300	22x25	0.121	0.090	1.90	2.19
	4,700	25x25	0.088	0.066	2.20	2.53
	6,800	25x35	0.061	0.046	2.60	2.99
		30x30				
	8,200	25x40	0.051	0.038	2.90	3.34
		30x30				
	10,000	35x25	0.041	0.031	3.20	3.68
		25x45				
	15,000	30x35	0.030	0.022	3.90	4.49
		35x30				
22,000	35x50	0.023	0.017	5.00	5.75	

W.V.	Cap (μF)	Case Size	ESR (Ω @ 20°C)		Max. Ripple Current (Arms@85°C)	
			120Hz	20KHz	120Hz	10K ~ 50KHz
50	2,200	22x30	0.105	0.079	1.70	1.96
	3,300	25x30	0.070	0.053	2.00	2.30
		25x40				
	4,700	30x30	0.053	0.040	2.50	2.88
		35x25				
	6,800	25x50	0.046	0.035	3.30	3.80
		30x40				
	8,200	35x30	0.038	0.029	3.60	4.14
		30x45				
	10,000	30x50	0.033	0.025	4.00	4.60
35x40						
15,000	35x50	0.022	0.018	4.80	5.52	
63	1,500	22x30	0.188	0.141	1.50	1.73
	2,200	25x30	0.128	0.096	2.00	2.30
		25x40				
	3,300	30x30	0.090	0.068	2.50	2.88
		35x25				
	4,700	25x50	0.063	0.048	3.00	3.45
		30x40				
	6,800	35x30	0.049	0.037	3.60	4.14
		30x50				
	8,200	35x45	0.040	0.030	3.90	4.49
10,000	35x50	0.033	0.028	4.40	5.06	
80	1,000	25x25	0.182	0.119	1.30	1.50
	1,500	25x30	0.133	0.093	1.70	1.96
		25x35				
	2,200	30x30	0.090	0.063	2.10	2.42
		35x25				
	3,300	25x50	0.065	0.049	2.60	2.99
		30x40				
	4,700	35x30	0.049	0.037	2.60	2.99
		30x50				
	6,800	35x40	0.041	0.031	3.90	4.49
820	25x25	0.202	0.121	1.40	2.10	
100	1,000	25x30	0.182	0.109	1.70	2.55
		25x40				
	1,500	30x30	0.122	0.079	2.10	3.15
		35x25				
	2,200	25x50	0.090	0.059	2.60	3.90
		30x40				
	3,300	35x30	0.075	0.053	3.20	4.80
		30x50				
	4,700	35x50	0.053	0.040	3.80	5.70



## 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
160	220	20x25	0.829	0.373	1.00	1.40
	330	22x30	0.553	0.249	1.20	1.68
	470	25x30	0.459	0.208	1.40	1.96
	680	25x35	0.317	0.143	1.70	2.38
		30x30				
	820	25x40	0.263	0.118	2.00	2.80
		30x30				
	1,000	25x45	0.216	0.108	2.20	3.08
		30x35				
	1,500	30x45	0.166	0.083	2.50	3.50
35x35						
1,800	30x45	0.129	0.064	2.70	3.78	
2,200	35x50	0.113	0.057	2.90	4.06	
200	220	22x25	0.754	0.339	1.00	1.40
	330	25x25	0.502	0.226	1.20	1.68
	470	22x40	0.353	0.159	1.40	1.96
		25x35				
		30x25				
	680	25x40	0.244	0.110	1.70	2.38
		30x30				
	820	25x50	0.222	0.111	2.00	2.80
		30x35				
		35x30				
1,000	30x45	0.199	0.099	2.20	3.08	
	35x35					
1,500	35x50	0.144	0.072	2.50	3.50	
250	220	25x25	0.754	0.377	1.00	1.40
	330	25x35	0.502	0.251	1.20	1.68
		30x25				
	470	25x45	0.353	0.176	1.40	1.96
		30x35				
		35x30				
	680	30x45	0.244	0.122	1.70	2.38
		35x35				
820	30x50	0.202	0.101	2.00	2.80	
	35x40					
1,000	35x45	0.199	0.099	2.20	3.08	

W.V.	Cap (μF)	Case Size	ESR (Ω @ 20°C)		Max. Ripple Current (Arms@85°C)	
			120Hz	20KHz	120Hz	10K ~ 50KHz
400	68	25x25	1.950	0.683	0.56	0.78
	82	25x25	1.617	0.566	0.64	0.90
	100	25x30	1.325	0.464	0.69	0.97
	150	25x40	0.884	0.309	0.82	1.15
		30x30				
	220	30x40	0.603	0.211	1.10	1.54
		35x30				
	330	30x50	0.402	0.161	1.35	1.89
		35x40				
	470	35x50	0.282	0.127	1.75	2.45
450	56	22x25	2.368	0.947	0.40	0.56
	68	25x25	1.950	0.683	0.50	0.70
	82	22x35	1.617	0.647	0.56	0.78
	100	25x30	1.326	0.531	0.64	0.90
		30x25				
	150	25x40	0.884	0.354	0.79	1.11
		30x30				
	220	30x40	0.678	0.271	1.00	1.40
		35x30				
	330	30x50	0.502	0.201	1.38	1.93
35x40						
470	35x50	0.353	0.123	1.74	2.44	

### PART NUMBER SYSTEM

