

# Large Can Aluminum Electrolytic Capacitors

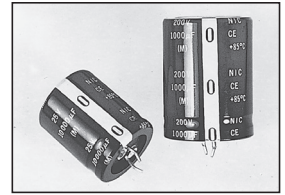
NRLQW Series

## FEATURES

- EXPANDED VALUE RANGE
- LONG LIFE AT +105°C (UP to 3,000 HOURS)
- HIGH RIPPLE CURRENT IN SMALL SIZE
- SUITABLE FOR SWITCHING POWER SUPPLIES

## EXPANDED VALUE RANGE

**RoHS Compliant**  
includes all homogeneous materials



## SPECIFICATIONS

\*See Part Number System for Details

Operating Temperature Range		-25 ~ +105°C							
Rated Voltage Range		400 ~ 600Vdc							
Rated Capacitance Range		39 ~ 1200μF							
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)	400	420	450	475	500	550	600	
	Tan δ max.	0.20	0.20	0.20	0.25	0.25	0.25	0.25	
Surge Voltage	W.V. (Vdc)	400	420	450	475	500	550	600	
	S.V. (Vdc)	450	470	500	525	550	600	650	
Low Temperature Stability	W.V. (Vdc)	400	420	450	475	500	550	600	
	Z-25°C/Z+20°C	8 max.			10 max.			12 max.	
Ripple Current Frequency Correction Factors	Frequency (Hz)	50 (60)	100 (120)	300	500	1K	10K		
	Multiplier	0.80	1.00	1.15	1.20	1.25	1.40		
Load Life Test 2,000 hours at +105°C 400~500V 3,000 hours at +105°C 550~600V	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							
Resistance to Soldering Heat Immersion +260°C ± 5°C for 10 ± 1 seconds up to 2.0mm from capacitor body	Capacitance Change	Within ±10% of initial measured value							
	Tan δ	Less than specified maximum value							
	Leakage Current	Less than specified maximum value							

## MECHANICAL CHARACTERISTICS:

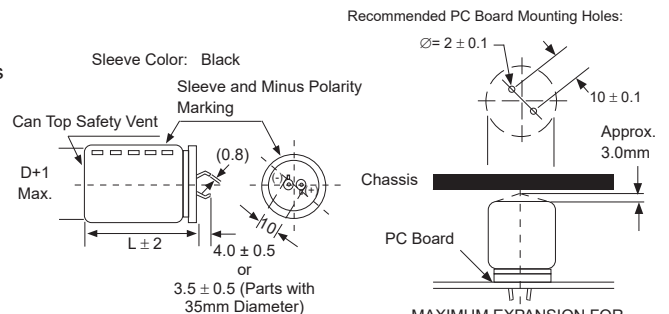
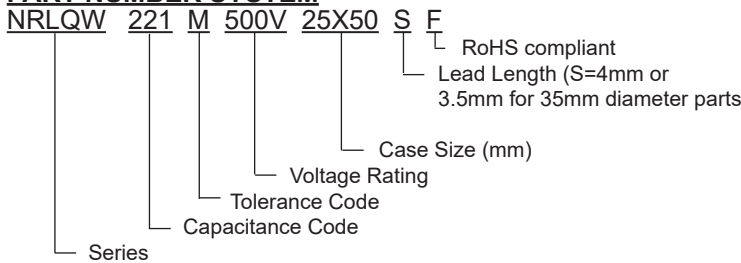
### 1. Safety Vent:

The capacitors are provided with a pressure sensitive safety vent on the top of can. 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 2.0Kg for a period 10 seconds or a radial bent force of 2.5Kg for a period of 30 seconds.

## PART NUMBER SYSTEM



### 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.

## PRECAUTIONS

Please review the notes on correct use, safety and precautions found at <https://www.niccomp.com/resource/files/aluminum/AlumApplInfoCautions.pdf>  
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)



NIC COMPONENTS CORP.

[www.niccomp.com](http://www.niccomp.com)

SPECIFICATIONS ARE SUBJECT TO CHANGE

## STANDARD PRODUCT LIST, CASE SIZE AND SPECIFICATIONS

Part Number	Cap. (μF)	W.V. (Vdc)	Case Size DxD (mm)	Leakage Current (μA)	ESR (Ω@20°C)	Max. Ripple Current (Arms @ 105°C)		
					120Hz	120Hz	10K ~ 50KHz	
NRLQW121M400V22X25SF	120	400	22X25	657	2.76	0.92	1.288	
NRLQW151M400V22X30SF	150		22X30	734	2.21	1.08	1.512	
NRLQW181M400V22X30SF	180		22X30	804	1.84	1.15	1.610	
NRLQW181M400V25X25SF	180		25X25	804	1.84	1.12	1.568	
NRLQW221M400V22X35SF	220		22X35	889	1.50	1.32	1.848	
NRLQW221M400V25X30SF	220		25X30	889	1.50	1.30	1.820	
NRLQW271M400V22X40SF	270		22X40	985	1.22	1.50	2.100	
NRLQW271M400V25X35SF	270		25X35	985	1.22	1.49	2.086	
NRLQW271M400V30X25SF	270		30X25	985	1.22	1.33	1.862	
NRLQW331M400V22X50SF	330		22X50	1089	1.00	1.76	2.464	
NRLQW331M400V25X40SF	330		25X40	1089	1.00	1.68	2.352	
NRLQW331M400V30X30SF	330		30X30	1089	1.00	1.55	2.170	
NRLQW331M400V35X25SF	330		35X25	1089	1.00	1.44	2.016	
NRLQW391M400V22X55SF	390		22X55	1184	0.85	1.94	2.716	
NRLQW391M400V25X45SF	390		25X45	1184	0.85	1.86	2.604	
NRLQW391M400V30X35SF	390		30X35	1184	0.85	1.75	2.450	
NRLQW391M400V35X30SF	390		35X30	1184	0.85	1.63	2.282	
NRLQW471M400V25X50SF	470		25X50	1300	0.70	2.07	2.898	
NRLQW471M400V30X40SF	470		30X40	1300	0.70	1.97	2.758	
NRLQW471M400V35X30SF	470		35X30	1300	0.70	1.68	2.352	
NRLQW561M400V25X60SF	560		25X60	1419	0.59	2.37	3.318	
NRLQW561M400V30X45SF	560		30X45	1419	0.59	2.18	3.052	
NRLQW561M400V35X35SF	560		35X35	1419	0.59	1.92	2.688	
NRLQW681M400V30X50SF	680		30X50	1564	0.48	2.41	3.374	
NRLQW681M400V35X40SF	680		35X40	1564	0.48	2.15	3.010	
NRLQW821M400V30X60SF	820		30X60	1718	0.40	2.76	3.864	
NRLQW821M400V35X45SF	820		35X45	1718	0.40	2.37	3.318	
NRLQW102M400V35X55SF	1000		35X55	1897	0.33	2.78	3.892	
NRLQW122M400V35X60SF	1200		35X60	2078	0.27	2.95	4.130	
NRLQW101M420V22X25SF	100		420	22X25	614	3.31	0.85	1.190
NRLQW121M420V22X30SF	120			22X30	673	2.76	0.98	1.372
NRLQW151M420V22X30SF	150			22X30	752	2.21	1.06	1.484
NRLQW151M420V25X25SF	150			25X25	752	2.21	1.04	1.456
NRLQW181M420V22X35SF	180			22X35	824	1.84	1.20	1.680
NRLQW181M420V25X30SF	180			25X30	824	1.84	1.20	1.680
NRLQW221M420V22X40SF	220			22X40	911	1.50	1.37	1.918
NRLQW221M420V25X30SF	220			25X30	911	1.50	1.28	1.792
NRLQW221M420V30X25SF	220			30X25	911	1.50	1.24	1.736
NRLQW271M420V22X50SF	270			22X50	1010	1.22	1.62	2.268
NRLQW271M420V25X35SF	270			25X35	1010	1.22	1.47	2.058
NRLQW271M420V30X30SF	270	30X30		1010	1.22	1.44	2.016	
NRLQW271M420V35X25SF	270	35X25		1010	1.22	1.32	1.848	
NRLQW331M420V22X60SF	330	22X60		1116	1.00	1.87	2.618	
NRLQW331M420V25X45SF	330	25X45		1116	1.00	1.75	2.450	
NRLQW331M420V30X35SF	330	30X35		1116	1.00	1.65	2.310	
NRLQW331M420V35X30SF	330	35X30		1116	1.00	1.56	2.184	
NRLQW391M420V25X50SF	390	25X50		1214	0.85	1.93	2.702	
NRLQW391M420V30X40SF	390	30X40		1214	0.85	1.84	2.576	
NRLQW391M420V35X30SF	390	35X30		1214	0.85	1.62	2.268	
NRLQW471M420V25X60SF	470	25X60		1332	0.70	2.21	3.094	
NRLQW471M420V30X45SF	470	30X45		1332	0.70	2.05	2.870	
NRLQW471M420V35X35SF	470	35X35		1332	0.70	1.86	2.604	
NRLQW561M420V30X50SF	560	30X50		1454	0.59	2.25	3.150	
NRLQW561M420V35X40SF	560	35X40		1454	0.59	2.10	2.940	
NRLQW681M420V30X60SF	680	30X60		1603	0.48	2.59	3.626	
NRLQW681M420V35X45SF	680	35X45		1603	0.48	2.29	3.206	
NRLQW821M420V35X50SF	820	35X50		1760	0.40	2.50	3.500	
NRLQW102M420V35X60SF	1000	35X60		1944	0.33	2.88	4.032	

## STANDARD PRODUCT LIST, CASE SIZE AND SPECIFICATIONS

Part Number	Cap. (μF)	W.V. (Vdc)	Case Size DxL (mm)	Leakage Current (μA)	ESR (Ω@20°C)		Max. Ripple Current (Arms @ 105°C)	
					120Hz	10K ~ 50KHz	120Hz	10K ~ 50KHz
NRLQW101M450V22X25SF	100	450	22X25	636	3.31	0.85	1.190	
NRLQW121M450V22X30SF	120		22X30	697	2.76	0.98	1.372	
NRLQW121M450V25X25SF	120		25X25	697	2.76	0.96	1.344	
NRLQW151M450V22X35SF	150		22X35	779	2.21	1.13	1.582	
NRLQW151M450V25X30SF	150		25X30	779	2.21	1.12	1.568	
NRLQW181M450V22X40SF	180		22X40	853	1.84	1.28	1.792	
NRLQW181M450V25X30SF	180		25X30	853	1.84	1.20	1.680	
NRLQW181M450V30X25SF	180		30X25	853	1.84	1.18	1.652	
NRLQW221M450V22X45SF	220		22X45	943	1.50	1.44	2.016	
NRLQW221M450V25X35SF	220		25X35	943	1.50	1.37	1.918	
NRLQW221M450V30X30SF	220		30X30	943	1.50	1.36	1.904	
NRLQW271M450V22X50SF	270		22X50	1045	1.22	1.61	2.254	
NRLQW271M450V25X40SF	270		25X40	1045	1.22	1.56	2.184	
NRLQW271M450V30X30SF	270		30X30	1045	1.22	1.44	2.016	
NRLQW271M450V35X25SF	270		35X25	1045	1.22	1.33	1.862	
NRLQW331M450V22X60SF	330		22X60	1156	1.00	1.86	2.604	
NRLQW331M450V25X50SF	330		25X50	1156	1.00	1.82	2.548	
NRLQW331M450V30X35SF	330		30X35	1156	1.00	1.64	2.296	
NRLQW331M450V35X30SF	330		35X30	1156	1.00	1.54	2.156	
NRLQW391M450V25X55SF	390		25X55	1256	0.85	2.01	2.814	
NRLQW391M450V30X40SF	390		30X40	1256	0.85	1.83	2.562	
NRLQW391M450V35X35SF	390		35X35	1256	0.85	1.76	2.464	
NRLQW471M450V25X60SF	470		25X60	1379	0.70	2.21	3.094	
NRLQW471M450V30X45SF	470		30X45	1379	0.70	2.05	2.870	
NRLQW471M450V35X40SF	470		35X40	1379	0.70	1.97	2.758	
NRLQW561M450V30X50SF	560		30X50	1505	0.59	2.26	3.164	
NRLQW561M450V35X45SF	560		35X45	1505	0.59	2.18	3.052	
NRLQW681M450V30X60SF	680		30X60	1659	0.48	2.59	3.626	
NRLQW681M450V35X50SF	680		35X50	1659	0.48	2.38	3.332	
NRLQW821M450V35X60SF	820		35X60	1822	0.40	2.74	3.836	
NRLQW680M475V22X25SF	68		475	22X25	539	6.09	0.67	0.938
NRLQW820M475V22X30SF	82			22X30	592	5.05	0.77	1.078
NRLQW101M475V22X35SF	100			22X35	653	4.14	0.88	1.232
NRLQW101M475V25X25SF	100	25X25		653	4.14	0.83	1.162	
NRLQW121M475V22X40SF	120	22X40		716	3.45	0.99	1.386	
NRLQW121M475V25X30SF	120	25X30		716	3.45	0.96	1.344	
NRLQW151M475V22X45SF	150	22X45		800	2.76	1.14	1.596	
NRLQW151M475V25X35SF	150	25X35		800	2.76	1.10	1.540	
NRLQW151M475V30X25SF	150	30X25		800	2.76	1.04	1.456	
NRLQW181M475V22X50SF	180	22X50		877	2.30	1.27	1.778	
NRLQW181M475V25X40SF	180	25X40		877	2.30	1.24	1.736	
NRLQW181M475V30X30SF	180	30X30		877	2.30	1.19	1.666	
NRLQW181M475V35X25SF	180	35X25		877	2.30	1.15	1.610	
NRLQW221M475V22X60SF	220	22X60		969	1.88	1.47	2.058	
NRLQW221M475V25X45SF	220	25X45		969	1.88	1.40	1.960	
NRLQW221M475V30X35SF	220	30X35		969	1.88	1.36	1.904	
NRLQW221M475V35X30SF	220	35X30		969	1.88	1.33	1.862	
NRLQW271M475V25X55SF	270	25X55		1074	1.53	1.62	2.268	
NRLQW271M475V30X40SF	270	30X40		1074	1.53	1.54	2.156	
NRLQW271M475V35X35SF	270	35X35		1074	1.53	1.52	2.128	
NRLQW331M475V30X45SF	330	30X45		1187	1.25	1.73	2.422	
NRLQW331M475V35X40SF	330	35X40		1187	1.25	1.71	2.394	
NRLQW391M475V30X55SF	390	30X55		1291	1.06	1.98	2.772	
NRLQW391M475V35X40SF	390	35X40		1291	1.06	1.79	2.506	
NRLQW471M475V30X60SF	470	30X60		1417	0.88	2.18	3.052	
NRLQW471M475V35X50SF	470	35X50		1417	0.88	2.09	2.926	
NRLQW561M475V35X55SF	560	35X55		1547	0.74	2.29	3.206	

# Large Can Aluminum Electrolytic Capacitors

## STANDARD PRODUCT LIST, CASE SIZE AND SPECIFICATIONS

Part Number	Cap. (μF)	W.V. (Vdc)	Case Size DxL (mm)	Leakage Current (μA)	ESR (Ω@20°C)		Max. Ripple Current (Arms @ 105°C)	
					120Hz	120Hz	10K ~ 50KHz	
NRLQW560M500V22X25SF	56	500	22X25	501	7.40	0.63	0.882	
NRLQW680M500V22X30SF	68		22X30	553	6.09	0.72	1.008	
NRLQW820M500V22X30SF	82		22X30	607	5.05	0.80	1.120	
NRLQW820M500V25X25SF	82		25X25	607	5.05	0.78	1.092	
NRLQW101M500V22X35SF	100		22X35	670	4.14	0.92	1.288	
NRLQW101M500V25X30SF	100		25X30	670	4.14	0.90	1.260	
NRLQW121M500V22X40SF	120		22X40	734	3.45	1.03	1.442	
NRLQW121M500V25X35SF	120		25X35	734	3.45	1.02	1.428	
NRLQW121M500V30X25SF	120		30X25	734	3.45	0.97	1.358	
NRLQW151M500V22X50SF	150		22X50	821	2.76	1.20	1.680	
NRLQW151M500V25X40SF	150		25X40	821	2.76	1.17	1.638	
NRLQW151M500V30X30SF	150		30X30	821	2.76	1.13	1.582	
NRLQW151M500V35X25SF	150		35X25	821	2.76	1.09	1.526	
NRLQW181M500V22X60SF	180		22X60	900	2.30	1.37	1.918	
NRLQW181M500V25X45SF	180		25X45	900	2.30	1.31	1.834	
NRLQW181M500V30X35SF	180		30X35	900	2.30	1.28	1.792	
NRLQW181M500V35X30SF	180		35X30	900	2.30	1.26	1.764	
NRLQW221M500V25X50SF	220		25X50	994	1.88	1.46	2.044	
NRLQW221M500V30X40SF	220		30X40	994	1.88	1.45	2.030	
NRLQW221M500V35X35SF	220		35X35	994	1.88	1.44	2.016	
NRLQW271M500V25X60SF	270		25X60	1102	1.53	1.70	2.380	
NRLQW271M500V30X45SF	270		30X45	1102	1.53	1.63	2.282	
NRLQW271M500V35X35SF	270		35X35	1102	1.53	1.52	2.128	
NRLQW331M500V30X50SF	330		30X50	1218	1.25	1.81	2.534	
NRLQW331M500V35X40SF	330		35X40	1218	1.25	1.71	2.394	
NRLQW391M500V30X60SF	390		30X60	1324	1.06	2.06	2.884	
NRLQW391M500V35X50SF	390		35X50	1324	1.06	1.99	2.786	
NRLQW471M500V35X55SF	470		35X55	1454	0.88	2.19	3.066	
NRLQW470M550V22X25SF	47		550	22X25	482	8.82	0.56	0.784
NRLQW560M550V22X30SF	56			22X30	526	7.40	0.64	0.896
NRLQW680M550V22X30SF	68			22X30	580	6.09	0.69	0.966
NRLQW680M550V25X25SF	68			25X25	580	6.09	0.69	0.966
NRLQW820M550V22X35SF	82			22X35	637	5.05	0.80	1.120
NRLQW820M550V25X30SF	82	25X30		637	5.05	0.80	1.120	
NRLQW101M550V22X40SF	100	22X40		703	4.14	0.90	1.260	
NRLQW101M550V25X35SF	100	25X35		703	4.14	0.92	1.288	
NRLQW101M550V30X25SF	100	30X25		703	4.14	0.80	1.120	
NRLQW121M550V22X50SF	120	22X50		770	3.45	1.07	1.498	
NRLQW121M550V25X40SF	120	25X40		770	3.45	1.04	1.456	
NRLQW121M550V30X30SF	120	30X30		770	3.45	0.93	1.302	
NRLQW121M550V35X25SF	120	35X25		770	3.45	0.92	1.288	
NRLQW151M550V22X60SF	150	22X60		861	2.76	1.25	1.750	
NRLQW151M550V25X45SF	150	25X45		861	2.76	1.19	1.666	
NRLQW151M550V30X35SF	150	30X35		861	2.76	1.07	1.498	
NRLQW151M550V35X30SF	150	35X30		861	2.76	1.05	1.470	
NRLQW181M550V25X55SF	180	25X55		943	2.30	1.37	1.918	
NRLQW181M550V30X40SF	180	30X40		943	2.30	1.21	1.694	
NRLQW181M550V35X30SF	180	35X30		943	2.30	1.14	1.596	
NRLQW221M550V25X60SF	220	25X60		1043	1.88	1.51	2.114	
NRLQW221M550V30X45SF	220	30X45		1043	1.88	1.36	1.904	
NRLQW221M550V35X35SF	220	35X35		1043	1.88	1.30	1.820	
NRLQW271M550V30X55SF	270	30X55		1156	1.53	1.57	2.198	
NRLQW271M550V35X40SF	270	35X40		1156	1.53	1.47	2.058	
NRLQW331M550V35X50SF	330	35X50		1278	1.25	1.72	2.408	
NRLQW391M550V35X55SF	390	35X55		1389	1.06	1.88	2.632	

New Part Numbers are Highlighted

## STANDARD PRODUCT LIST, CASE SIZE AND SPECIFICATIONS

Part Number	Cap. (μF)	W.V. (Vdc)	Case Size DxL (mm)	Leakage Current (μA)	ESR (Ω@20°C)		Max. Ripple Current (Arms @ 105°C)	
					120Hz	10K ~ 50KHz	120Hz	10K ~ 50KHz
NRLQW390M600V22X25SF	39	600	22X25	458	10.63	0.50	0.700	
NRLQW470M600V22X30SF	47		22X30	503	8.82	0.57	0.798	
NRLQW560M600V22X35SF	56		22X35	549	7.40	0.65	0.910	
NRLQW560M600V25X25SF	56		25X25	549	7.40	0.60	0.840	
NRLQW680M600V22X35SF	68		22X35	605	6.09	0.69	0.966	
NRLQW680M600V25X30SF	68		25X30	605	6.09	0.71	0.994	
NRLQW820M600V22X45SF	82		22X45	665	5.05	0.83	1.162	
NRLQW820M600V25X35SF	82		25X35	665	5.05	0.81	1.134	
NRLQW820M600V30X25SF	82		30X25	665	5.05	0.77	1.078	
NRLQW101M600V22X50SF	100		22X50	734	4.14	0.95	1.330	
NRLQW101M600V25X40SF	100		25X40	734	4.14	0.92	1.288	
NRLQW101M600V30X30SF	100		30X30	734	4.14	0.90	1.260	
NRLQW101M600V35X25SF	100		35X25	734	4.14	0.89	1.246	
NRLQW121M600V22X55SF	120		22X55	804	3.45	1.03	1.442	
NRLQW121M600V25X45SF	120		25X45	804	3.45	1.04	1.456	
NRLQW121M600V30X35SF	120		30X35	804	3.45	1.02	1.428	
NRLQW121M600V35X30SF	120		35X30	804	3.45	1.02	1.428	
NRLQW151M600V25X55SF	150		25X55	900	2.76	1.22	1.708	
NRLQW151M600V30X40SF	150		30X40	900	2.76	1.17	1.638	
NRLQW151M600V35X30SF	150		35X30	900	2.76	1.09	1.526	
NRLQW181M600V30X45SF	180		30X45	985	2.30	1.31	1.834	
NRLQW181M600V35X35SF	180		35X35	985	2.30	1.25	1.750	
NRLQW221M600V30X55SF	220		30X55	1089	1.88	1.53	2.142	
NRLQW221M600V35X40SF	220		35X40	1089	1.88	1.40	1.960	
NRLQW271M600V35X50SF	270		35X50	1207	1.53	1.67	2.338	
NRLQW331M600V35X55SF	330		35X55	1334	1.25	1.82	2.548	

New Part Numbers are Highlighted