

# Surface Mount Aluminum Electrolytic Capacitors NACEW Series

## FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION
- WIDE TEMPERATURE -55 ~ +105°C
- ANTI-SOLVENT (2 MINUTES)
- DESIGNED FOR REFLOW SOLDERING

## RoHS Compliant

includes all homogeneous materials

\*See Part Number System for Details



## CHARACTERISTICS

Rated Voltage Range	6.3 ~ 100Vdc**								
Rate Capacitance Range	0.1 ~ 6,800µF								
Operating Temp. Range	-55°C ~ +105°C (100V -40°C ~ +105 °C)								
Capacitance Tolerance	±20% (M), ±10% (K)*								
Max. Leakage Current After 2 Minutes @ 20°C	0.01CV or 3µA whichever is greater								
Max. Tan δ @ 120Hz/20°C	W.V. (Vdc)	6.3	10	16	25	35	50	63	100
	S.V. (Vdc)	8	13	20	32	44	63	79	125
	4 ~ 6.3mm Dia.	0.24	0.20	0.16	0.14	0.12	0.10	0.12	0.10
	8 & larger	0.28	0.24	0.20	0.16	0.14	0.12	0.12	0.10
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)	6.3	10	16	25	35	50	63	100
	Z-40°C/Z+20°C	3	3	2	2	2	2	2	2
	Z-55°C/Z+20°C	8	6	4	4	3	3	3	-
Load Life Test	4 ~ 6.3mm Dia. & 10x8mm +105°C 1,000 hours +95°C 2,000 hours +85°C 4,000 hours	Capacitance Change	Within ± 25% of initial measured value						
		Tan δ	Less than 200% of specified max. value						
	8 ~ 16mm Dia. +105°C 2,000 hours +95°C 4,000 hours +85°C 8,000 hours	Leakage Current	Less than specified max. value						

\* Optional ± 10% (K) Tolerance - see case size chart.\*\*

For higher voltages, 200V and 400V, see NACV series.

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

Cap. (µF)	Working Voltage (Vdc)							
	6.3	10	16	25	35	50	63	100
0.1	-	-	-	-	-	0.7	0.7	-
0.22	-	-	-	-	-	1.6	1.6	-
0.33	-	-	-	-	-	2.5	2.5	-
0.47	-	-	-	-	-	3.5	3.5	-
1.0	-	-	-	-	-	7.0	7.0	7.0
2.2	-	-	-	-	-	11	11	14
3.3	-	-	-	-	-	13	14	20
4.7	-	-	-	13	14	16	16	25
10	-	-	18	20	21	24	24	35
22	22	25	27	36	38	32	49	84
33	27	30	40	44	42	60	112	133
47	33	41	48	48	49	63	119	240
100	50	-	60	91	84	140	196	-
150	55	62	95	140	155	-	-	500
220	67	105	105	175	190	220	287	-
330	105	195	195	220	300	-	-	-
470	210	210	230	300	410	-	630	-
1000	280	310	-	460	-	655	-	-
1500	310	-	500	-	740	-	-	-
2200	-	510	-	805	-	-	-	-
3300	520	-	840	-	-	-	-	-
4700	-	880	-	-	-	-	-	-
6800	930	-	-	-	-	-	-	-

## MAXIMUM ESR (Ω AT 120Hz AND 20°C)

Cap. (µF)	Working Voltage (Vdc)								
	6.3	10	16	25	35	50	63	100	
0.1	-	-	-	-	-	1660	1990	-	
0.22	-	-	-	-	-	754	905	-	
0.33	-	-	-	-	-	503	604	-	
0.47	-	-	-	-	-	353	424	-	
1.0	-	-	-	-	-	166	199	166	
2.2	-	-	-	-	-	75.4	90.5	75.4	
3.3	-	-	-	-	-	50.3	60.3	50.3	
4.7	-	-	-	49.4	42.3	35.3	42.3	35.3	
10	-	-	26.5	23.2	19.9	16.6	19.9	16.6	
22	18.1	15.1	12.1	10.6	9.05	7.64	9.04	7.64	
33	12.1	10.1	8.04	7.04	6.04	5.03	6.03	5.03	
47	8.47	7.06	5.65	4.95	4.24	3.53	4.24	3.53	
100	3.98	-	2.66	2.32	2.32	1.99	1.99	-	
150	2.66	2.21	1.77	1.77	1.55	-	-	1.10	
220	1.81	1.51	1.21	1.21	1.06	0.91	0.91	-	
330	1.21	1.21	1.00	0.80	0.70	-	-	-	
470	0.99	0.85	0.71	0.57	0.49	-	0.42	-	
1000	0.46	0.40	-	0.27	-	0.20	-	-	
1500	0.31	-	0.23	-	0.15	-	-	-	
2200	-	0.18	-	0.14	-	-	-	-	
3300	0.14	-	0.12	-	-	-	-	-	
4700	-	0.11	-	-	-	-	-	-	
6800	0.093	-	-	-	-	-	-	-	

## 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)

## RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency (Hz)	f ≤ 100	100 > f ≤ 1K	1K > f ≤ 10K	f ≥ 100K
Correction Factor	0.8	1.0	1.3	1.5



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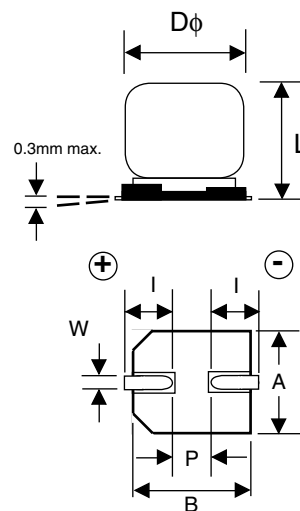
**STANDARD PRODUCT AND CASE SIZE TABLE DφxL (mm)**

Cap. (μF)	Code	Working Voltage (Vdc)							
		6.3	10	16	25	35	50	63	100
0.1	R10	-	-	-	-	-	4x5.5*	4x5.5*	-
0.22	R22	-	-	-	-	-	4x5.5*	4x5.5*	-
0.33	R33	-	-	-	-	-	4x5.5*	4x5.5*	-
0.47	R47	-	-	-	-	-	4x5.5*	4x5.5*	-
1.0	1R0	-	-	-	-	-	4x5.5*	4x5.5*	4x6.3*
2.2	2R2	-	-	-	-	-	4x5.5*	4x5.5*	6.3x6.3*
3.3	3R3	-	-	-	-	-	4x5.5*	5x5.5*	6.3x6.3*
4.7	4R7	-	-	-	4x5.5*	4x5.5*	5x5.5*	5x5.5*	6.3x6.3*
10	100	-	-	4x5.5*	5x5.5*	5x5.5*	6.3x5.5*	6.3x5.5*	6.3x8*
22	220	4x5.5*	5x5.5*	5x5.5*	6.3x5.5*	6.3x5.5*	6.3x6.3*	6.3x8*	8x10.5*
33	330	5x5.5*	5x5.5*	6.3x5.5*	6.3x5.5*	6.3x6.3*	6.3x8*	8x10.5*	10x10.5*
47	470	5x5.5*	6.3x5.5*	6.3x5.5*	6.3x6.3*	6.3x6.3*	6.3x8*	8x10.5*	12.5x14
100	101	6.3x5.5*	-	6.3x5.5*	6.3x8*	6.3x8*	8x10.5*	10x10.5*	-
150	151	6.3x5.5*	6.3x6.3*	6.3x8*	8x10.5*	8x10.5*	10x8*	-	16x17
220	221	6.3x6.3*	6.3x8*	6.3x8*	8x10.5*	8x10.5*	10x10.5	12.5x14	-
330	331	6.3x8*	8x10.5*	8x10.5*	8x10.5*	10x10.5	-	-	-
470	471	8x10.5	8x10.5	8x10.5	10x10.5*	12.5x14	-	16x17	-
1000	102	8x10.5*	10x10.5*	-	12.5x14	-	16x17	-	-
1500	152	10x10.5*	-	12.5x14	-	16x17	-	-	-
2200	222	-	12.5x14	-	16x17	-	-	-	-
3300	332	12.5x14	-	16x17	-	-	-	-	-
4700	472	-	16x17	-	-	-	-	-	-
6800	682	16x17	-	-	-	-	-	-	-

\*Denotes values available in 10% tolerance

## DIMENSIONS (mm)

Case Size	Dφ ±0.5	L max.	A ±0.2	B ±0.2	I ±0.2	W	P ±0.2
4 x 5.5	4.0	5.5	4.3	4.3	1.8	0.5 ~ 0.8	1.0
5 x 5.5	5.0	5.5	5.3	5.3	2.1	0.5 ~ 0.8	1.4
6.3 x 5.5	6.3	5.5	6.6	6.6	2.5	0.5 ~ 0.8	2.2
6.3 x 6.3	6.3	6.3	6.6	6.6	2.5	0.5 ~ 0.8	2.2
6.3 x 8	6.3	8.0	6.6	6.6	2.5	0.5 ~ 0.8	2.2
8 x 6.5	8.0	6.5	8.3	8.3	3.4	0.5 ~ 0.8	2.2
8 X 10.5	8.0	10.5	8.3	8.3	2.9	0.7 ~ 1.0	3.2
10 x 8	10.0	8.0	10.3	10.3	3.2	0.7 ~ 1.4	4.6
10 x 10.5	10.0	10.5	10.3	10.3	3.2	0.7 ~ 1.4	4.6
12.5 x 14	12.5	14.0	12.8	12.8	4.5	0.6 ~ 1.4	4.6
16 x 17	16.0	17.5	17.0	17.0	5.5	0.9 ~ 1.5	6.7



## PART NUMBER SYSTEM

