

Surface Mount Aluminum Electrolytic Capacitors NACEW Series

FEATURES

- CYLINDRICAL V-CHIP
 - WIDE TEMPERATURE -55 ~ +105°C
 - WIDE CV RANGE
 - ANTI-SOLVENT (2 MINUTES)
 - DESIGNED FOR REFLOW SOLDERING
- *See Part Number System for Details

**RoHS
Compliant**



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			
	8 ~ 16mm Dia. +105°C 2,000 hours +95°C 4,000 hours +85°C 8,000 hours	Tan δ					Less than 200% of specified max. value			
		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 20°C AND 120Hz)

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	42.4	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	-	-	-	-	-	-	-

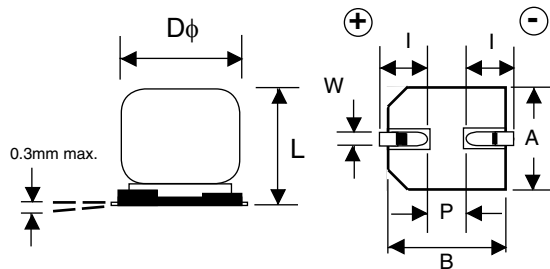


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STANDARD PRODUCT AND CASE SIZE TABLE D ϕ xL (mm)

Cap. (μ F)	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* 10x8*	8x10.5	10x10.5	12.5x14	-
330	331	6.3x8*	8x10.5*	8x10.5* 10x8	8x10.5*	10x10.5	-	-	-
470	471	8x10.5	8x10.5 10x8	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 that are available in optional 10% tolerance



RIPPLE CURRENT CORRECTION FACTOR

Ripple Current Frequency Correction Factors				
Frequency Hz	$f \leq 100$	$100 > f \leq 1K$	$1K > f \leq 10K$	$f \geq 100K$
Correction Factor	0.8	1.0	1.3	1.5
Ripple Current Temperature Correction Factors				
Temperature	$40^{\circ}C \sim 85^{\circ}C$	$> 85^{\circ} \sim 105^{\circ}C$		
Correction Factor	1.42	1.0		

SEE PAGE 38
For Case Size Data
SEE PAGE 39
For Taping/Packaging Data

PART NUMBER SYSTEM

NACEW	101	M	16V	6.3x5.5	TR	13	F
Series	Capacitance Code in mF, first 2 digits are significant Third digit is no. of zeros, "R" indicates decimal for values under 10 μ F	Tolerance Code M=20%, K=10%	Working Voltage	Size in mm	Tape & Reel	330mm (13") Reel	Pb-free/RoHS Compliant* 97% Sn (min.), 3% Bi (max.)

*Add "F" suffix for optional RoHS compliant parts

