

Surface Mount Aluminum Electrolytic Capacitors NACE Series

FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION
- LOW COST, GENERAL PURPOSE, 2000 HOURS AT 85°C
- NEW EXPANDED CV RANGE (up to 6800µF)
- ANTI-SOLVENT (2 MINUTES)
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING



**RoHS
Compliant**
includes all homogeneous materials

*See Part Number System for Details

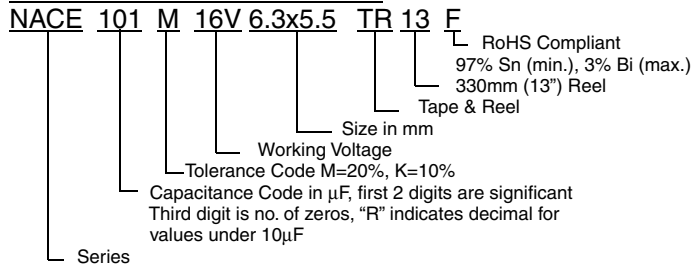
CHARACTERISTICS

Rated Voltage Range	4.0 ~ 100Vdc
Rate Capacitance Range	0.1 ~ 6,800µF
Operating Temp. Range	-40°C ~ +85°C
Capacitance Tolerance	±20% (M), ±10%
Max. Leakage Current After 2 Minutes @ 20°C	0.01CV or 3µA whichever is greater

Tan δ @ 120Hz/20°C	W.V. (Vdc)		4.0	6.3	10	16	25	35	50	63	100
		3mm Dia.		0.40	0.35	0.24	0.19	0.16	0.14	0.14	-
	4 ~ 6.3mm Dia.		0.35	0.26	0.20	0.16	0.14	0.12	0.10	0.10	0.10
	8x6.5mm Dia.		-	0.25	0.26	0.20	0.16	0.14	0.12	-	0.10
8mm Dia. ~ up	C<1000µF		0.40	0.30	0.24	0.20	0.16	0.14	0.12	0.12	0.10
	C<1500µF		-	0.31	0.25	0.21	-	0.15	-	-	-
	C<2200µF		-	0.32	0.32	-	0.18	-	-	-	-
	C<3300µF		-	0.34	-	0.24	-	-	-	-	-
	C<4700µF		-	-	0.36	-	-	-	-	-	-
	C<6800µF		-	0.40	-	-	-	-	-	-	-
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)		4.0	6.3	10	16	25	35	50	63	100
	Z-25°C/Z+20°C		7	3	3	2	2	2	2	2	2
	Z-40°C/Z+20°C		15	8	6	4	4	3	3	3	3
Load Life Test 85°C 2,000 Hours	Capacitance Change		Within ± 25% of initial measured value								
	Tan δ		Less than 200% of specified max. value								
	Leakage Current		Less than specified max. value								

*See standard products and case size table for items available in 10% tolerance

PART NUMBER SYSTEM



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
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: tpmg@niccomp.com



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MAXIMUM RIPPLE CURRENT (mA rms AT 120Hz AND 85°C)

Cap (μ F)	Working Voltage (Vdc)									
	4.0	6.3	10	16	25	35	50	63	100	
0.1	-	-	-	-	-	-	1.0	1.0	-	-
0.22	-	-	-	-	-	-	2.3	2.3	-	-
0.33	-	-	-	-	-	-	3.5	3.5	-	-
0.47	-	-	-	-	-	-	4.0* 5.5	5.0	-	-
1.0	-	-	-	-	-	-	8* 10	10	10	-
2.2	-	-	-	-	-	8*	15	15	20	-
3.3	-	-	-	-	-	10*	15	15	28* 50†	-
4.7	-	-	-	-	12* 19	20	23	23	35	-
10	-	-	-	20* 25	28	30	34	34	50	-
15	-	16*	-	-	-	-	-	-	-	-
22	19*	21* 31	35	39	52	54	58 120†	70	120	-
33	26	39	43	57	63	60 130†	65† 85	160	190	-
47	34	47	59	68	68	70 165†	90	170	330	-
68	52	63	66	75	80	110	120	-	-	-
100	61	71	76	86 200†	91 130†	130	200	280	-	-
150	74	78	88	135	200	220	-	-	560	-
220	82	95	150 250†	150	250	270	320	410	-	-
330	80	150 300†	280	280	310	340	520	-	-	-
470	150	300	300	330	430	590	925	700	-	-
680	-	300	-	450	-	610	-	-	-	-
1000	330	330	450	-	660	-	940	-	-	-
1500	-	450	-	710	-	1060	-	-	-	-
2200	-	-	730	-	1150	-	-	-	-	-
3300	-	750	-	1200	-	-	-	-	-	-
4700	-	-	1200	-	-	-	-	-	-	-
6800	-	1330	-	-	-	-	-	-	-	-

*3x5.5mm Case Size, †8x6.5mm Case Size

MAXIMUM ESR (Ω AT 120Hz AND 20°C)

Cap (μ F)	Working Voltage (Vdc)									
	4.0	6.3	10	16	25	35	50	63	100	
0.1	-	-	-	-	-	-	-	1660	1660	-
0.22	-	-	-	-	-	-	-	754	754	-
0.33	-	-	-	-	-	-	-	503	503	-
0.47	-	-	-	-	-	-	-	353	353	-
1.0	-	-	-	-	-	-	-	166	166	166
2.2	-	-	-	-	-	90.4	75.4	75.4	75.4	-
3.3	-	-	-	-	-	60.3	50.3	50.3	50.3	50.3
4.7	-	-	-	-	49.4	42.3	35.3	35.3	35.3	35.3
10	-	-	-	26.5	23.2	19.9	16.6	16.6	16.6	16.6
15	-	33.1	-	-	-	-	-	-	-	-
22	30.1	26.5* 18.1	15.1	12.1	10.6	9.05	7.54 9.05†	7.54	7.54	-
33	17.6	12.6	10.1	8.04	7.04	6.04 7.04†	5.03 6.04†	6.04	5.03	-
47	12.4	8.47	7.06	5.65	4.95	4.24 4.95†	3.53	4.24	3.53	-
68	8.54	5.86	4.88	3.91	3.42	2.93	2.44	-	-	-
100	5.80	3.98	3.32	2.66 3.32†	2.32 2.66†	1.99	1.99	1.99	-	-
150	3.87	2.66	2.21	1.77	1.55	1.33	-	-	1.11	-
220	2.64	1.96	1.51 1.99†	1.21	1.21	1.06	0.91	0.91	-	-
330	1.76	1.31 1.76†	1.21	1.01	0.81	0.71	0.60	-	-	-
470	1.42	1.06	0.85	0.71	0.57	0.49	0.43	0.43	-	-
680	-	0.59	-	0.49	-	0.34	-	-	-	-
1000	0.67	0.50	0.40	-	0.27	-	0.20	-	-	-
1500	-	0.35	-	0.24	-	0.17	-	-	-	-
2200	-	-	0.24	-	0.14	-	-	-	-	-
3300	-	0.17	-	0.12	-	-	-	-	-	-
4700	-	-	0.13	-	-	-	-	-	-	-
6800	-	0.10	-	-	-	-	-	-	-	-

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

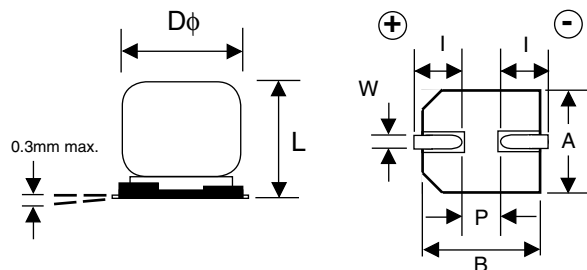
Frequency Hz	100<f≤1K	1K<f≤10K	10K<f≤100K	f ≥100K
C≤4.7 μ F	1.0	1.3	1.5	2.0
4.7 μ F<C≤33 μ F	1.0	1.2	1.3	1.45
C>33 μ F	1.0	1.1	1.2	1.3

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STANDARD PRODUCT AND CASE SIZE TABLE DφxL (mm)

Cap (μF)	Code	Working Voltage (Vdc)								
		4.0	6.3	10	16	25	35	50	63	100
0.1	R10	-	-	-	-	-	-	3X5.5 4X5.5*	4X5.5*	-
0.22	R22	-	-	-	-	-	-	3X5.5 4X5.5*	4X5.5*	-
0.33	R33	-	-	-	-	-	-	3X5.5 4X5.5*	4X5.5*	-
0.47	R47	-	-	-	-	-	-	3X5.5 4X5.5*	4X5.5*	-
1.0	1R0	-	-	-	-	-	-	3X5.5 4X5.5*	4X5.5*	4x6.3*
2.2	2R2	-	-	-	-	-	3X5.5	4X5.5*	4X5.5*	6.3x6.3*
3.3	3R3	-	-	-	-	-	3X5.5	4X5.5*	5X5.5*	6.3x6.3* 8x6.5
4.7	4R7	-	-	-	-	3X5.5 4X5.5	4X5.5*	5X5.5*	5X5.5*	6.3x6.3*
10	100	-	-	-	3X5.5 4X5.5*	5X5.5	5X5.5*	6.3X5.5*	6.3X5.5*	6.3x8*
15	150	-	3X5.5	-	-	-	-	-	-	-
22	220	3X5.5	3X5.5 4X5.5*	5X5.5*	5X5.5*	6.3X5.5	6.3X5.5*	6.3X6.3* 8x6.5	6.3X8*	8x10.5*
33	330	4X5.5*	5X5.5*	5X5.5*	6.3X5.5*	6.3X5.5	6.3X6.3* 8x6.5	6.3X8* 8x6.5	8x10.5*	10x10.5*
47	470	4X5.5*	5X5.5*	6.3X5.5	6.3X5.5*	6.3X6.3	6.3X6.3* 8x6.5	6.3X8*	8x10.5*	12.5x14
68	680	5X5.5*	6.3X5.5*	6.3X5.5*	6.3X5.5*	6.3X6.3	6.3X8	8x10.5*	-	-
100	101	5X5.5*	6.3X5.5*	6.3X5.5*	6.3X5.5* 8x6.5	6.3X8 8x6.5	6.3X8	8x10.5*	10x10.5*	-
150	151	6.3X5.5*	6.3X5.5*	6.3X6.3*	6.3X8*	8x10.5*	8x10.5* 10x8*	-	-	16x17
220	221	6.3X5.5*	6.3X6.3*	6.3X8* 8x6.5	6.3X8*	8x10.5 10x8	8x10.5	10x10.5	12.5x14	-
330	331	6.3X6.3	6.3X8* 8x6.5	8x10.5*	8x10.5 10x8	8x10.5	10x10.5	12.5x14	-	-
470	471	6.3X8*	8x10.5	8x10.5 10x8	8x10.5	10x10.5	12.5x14	16x17	16x17	-
680	681	-	10x8*	-	10x10.5*	-	12.5x14	-	-	-
1000	102	10X8	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	-	-	-	-	-	-	-

*Items available in optional 10% tolerance



DIMENSIONS (mm)

Case Size	Dφ ±0.5	L max.	A ±0.2	B ±0.2	I ±0.2	W	P ±0.2
3 x 5.5	3.0	5.5	3.3	3.3	1.5	0.45 ~ 0.8	0.6
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