

# Surface Mount Aluminum Electrolytic Capacitors NACK Series

## FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- VERY LOW IMPEDANCE (**Up to 60% lower than NACZ**)
- WIDE TEMPERATURE RANGE (-55 +105°C)
- **REDUCED SIZE (Up to 50% smaller than NACZ)**
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING



## CHARACTERISTICS

Rated Voltage Range	6.3 ~ 100Vdc										
Rated Capacitance Range	3.3 ~ 6,800µF										
Operating Temperature Range	-55°C ~ +105°C										
Capacitance Tolerance	±20%(M)										
Maximum Leakage Current after 2 minutes @ 20°C	0.01CV or 3µA, whichever is greater										
Maximum Tanδ @ 120Hz/20°C	W.V. (Vdc)		6.3	10	16	25	35	50	63	80	100
	S.V. (Vdc)		8.0	13	20	32	44	63	79	100	125
	All Case Sizes	C ≤ 1,000µF	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.08	0.07
		C = 2,200µF	-	0.21	-	0.16	-	-	-	-	-
		C = 3,300µF	0.30	-	0.20	0.18	-	-	-	-	-
C = 4,700µF		-	0.25	0.22	-	-	-	-	-	-	
Low Temperature Stability Impedance Ratio @ 120Hz	Z -25°C/Z +20°C		2	2	2	2	2	2	2	2	2
	Z -40°C/Z +20°C		3	3	3	3	3	3	3	3	3
	Z -55°C/Z +20°C		4	4	4	3	3	3	3	3	3
Load Life Test @ 105°C 4 ~ 10mm Dia. 2,000 Hours 12.5 ~ 18mm Dia. 5,000 Hours	Capacitance Change		Within ±30% of initial measured value								
	Tanδ		Less than 200% of specified maximum value								
	Leakage Current		Less than specified maximum value								

**RoHS Compliant**

includes all homogeneous materials

\*See Part Number System for Details

## MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA rms AT 100KHz AND 105°C)

Cap (µF)	Working Voltage (Vdc)									
	6.3	10	16	25	35	50	63	80	100	
3.3	-	-	-	-	-	-	-	25	-	
4.7	-	-	-	-	90	60	50	40	-	
10	-	-	90	90	90	85	80	60	-	
					160	165	80	60	-	
22	90	90	90	160	160	165	120	130	130	
			160	160	165	120	130	130		
33	-	90	-	160	240	195	250	130	200	
		160	-	240	240	195	250	130	200	
47	90	-	160	240	240	195	250	200	500	
68	-	-	240	240	280	-	250	500	500	
100	160	-	240	280	280	350	400	500	793	
	240	-	240	300	600	350	400	500	793	
150	-	240	280	600	600	670	800	500	793	
220	240	160	280	600	600	670	800	-	917	
		300	300	600	600	670	800	-	917	
330	280	600	600	600	850	900	-	793	917	
	300	600	600	600	850	900	-	793	917	
470	600	600	600	850	1100	1610	1410	917	-	
680	-	600	850	-	1100	1610	1690	-	-	
1000	600	850	-	1100	1800	1610	-	-	-	
1500	850	-	1100	-	1800	-	-	-	-	
2200	-	1100	-	1800	-	-	-	-	-	
3300	1100	-	1800	2060	-	-	-	-	-	
4700	-	1800	2060	-	-	-	-	-	-	
6800	1800	2060	-	-	-	-	-	-	-	

## RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency	60Hz	120Hz	1KHz	10KHz	100KHz
Correction Factor	0.7	0.75	0.9	0.95	1.0

## 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)

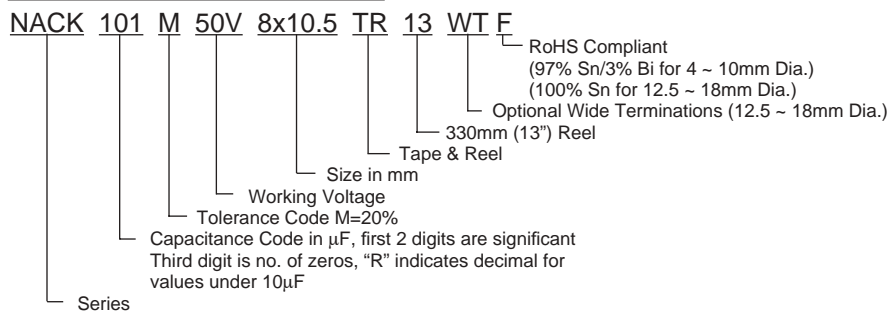


# Surface Mount Aluminum Electrolytic Capacitors NACK Series

## MAXIMUM IMPEDANCE (Ω AT 100KHz AND 20°C)

Cap (μF)	Working Voltage (Vdc)								
	6.3	10	16	25	35	50	63	80	100
3.3	-	-	-	-	-	-	-	5.0	-
4.7	-	-	-	-	1.35	2.9	3.0	3.0	-
10	-	-	1.35	1.35	1.35 0.70	1.52 0.88	1.5	2.4 2.4	-
22	1.35	1.35	1.35 0.70	0.70	0.70	0.88	1.2 1.2	1.3	1.3
33	-	1.35 0.70	-	0.70 0.36	0.36	0.68 0.68	0.65	1.3	0.7
47	1.35 0.70	-	0.70 0.36	0.36	0.36	0.68 0.68	0.65	0.7	0.32
68	-	-	0.36	0.36	0.34	-	0.65	0.32	0.32
100	0.70 0.36	-	0.36	0.34 0.26	0.34 0.16	0.34	0.35	0.32	0.17
150	-	0.36	0.34	0.16	0.16	0.18	0.16	0.32	0.17
220	0.36	0.34 0.26	0.34 0.26	0.16	0.16	0.18	0.16	-	0.153
330	0.34 0.26	0.16	0.16	0.16	0.08	0.12	-	0.17	0.153
470	0.16	0.16	0.16	0.08	0.06	0.073	0.082	0.153	-
680	-	0.16	0.08	-	0.06	0.073	0.08	-	-
1000	0.16	0.08	-	0.06	0.035	0.073	-	-	-
1500	0.08	-	0.06	-	0.035	-	-	-	-
2200	-	0.06	-	0.035	-	-	-	-	-
3300	0.06	-	0.035	0.033	-	-	-	-	-
4700	-	0.035	0.033	-	-	-	-	-	-
6800	0.035	0.033	-	-	-	-	-	-	-

## PART NUMBER SYSTEM



# Surface Mount Aluminum Electrolytic Capacitors

NACK Series

## STANDARD PRODUCT AND CASE SIZE D $\phi$ xL (mm)

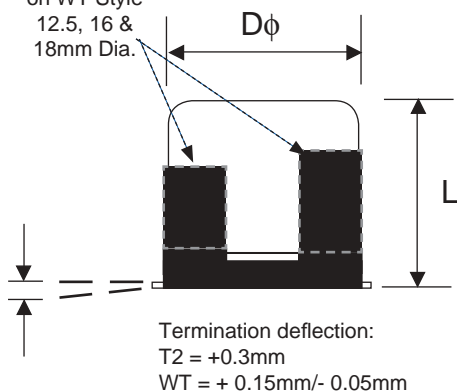
Cap ( $\mu$ F)	Code	Working Voltage (Vdc)								
		6.3	10	16	25	35	50	63	80	100
3.3	3R3	-	-	-	-	-	-	-	5x6.1	-
4.7	4R7	-	-	-	-	4x6.1	4x6.1	5x6.1	6.3x6.1	-
10	100	-	-	4x6.1	4x6.1	4x6.1 5x6.1	5x6.1 6.3x6.1	6.3x6.1	6.3x8 8x6.5	-
22	220	4x6.1	4x6.1	4x6.1 5x6.1	5x6.1	5x6.1	6.3x6.1	6.3x8 8x6.5	8x10.5	8x10.5
33	330	-	4x6.1 5x6.1	-	5x6.1 6.3x6.1	6.3x1	6.3x8 8x6.5	8x10.5	8x10.5	10x10.5
47	470	4x6.1 5x6.1	-	5x6.1 6.3x6.1	6.3x6.1	6.3x6.1	6.3x8 8x6.5	8x10.5	10x10.5	12.5x14
68	680	-	-	6.3x6.1	6.3x6.1	6.3x8	-	8x10.5	12.5x14	12.5x14
100	101	5x6.1 6.3x6.1	-	6.3x6.1	6.3x8 8x6.5	6.3x8 8x10.5	8x10.5	10x10.5	12.5x14	16x17
150	151	-	6.3x6.1	6.3x8	8x10.5	8x10.5	10x10.5	12.5x14	12.5x14	16x17
220	221	6.3x6.1	6.3x8 8x6.5	6.3x8 8x6.5	8x10.5	8x10.5	10x10.5	12.5x14	-	18x17
330	331	6.3x8 8x6.5	8x10.5	8x10.5	8x10.5	10x10.5	12.5x14	-	16x17	18x17
470	471	8x10.5	8x10.5	8x10.5	10x10.5	12.5x14	16x17	16x17	18x17	-
680	681	-	8x10.5	10x10.5	-	12.5x14	16x17	18x17	-	-
1000	102	8x10.5	10x10.5	-	12.5x14	16x17	16x17	-	-	-
1500	152	10x10.5	-	12.5x14	-	16x17	-	-	-	-
2200	222	-	12.5x14	-	16x17	-	-	-	-	-
3300	332	12.5x14	-	16x17	18x17	-	-	-	-	-
4700	472	-	16x17	18x17	-	-	-	-	-	-
6800	682	16x17	18x17	-	-	-	-	-	-	-

## DIMENSIONS (mm)

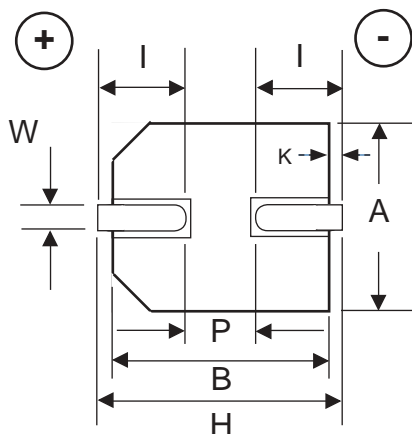
Denotes New Value

Case Size	D $\phi$ $\pm$ 0.5	L max.	A, B $\pm$ 0.2	H max.	I $\pm$ 0.3	P $\pm$ 0.3	W	K	R	S	T
4 x 6.1	4.0	6.1	4.3	5.5	1.8	1.0	0.65 $\pm$ 0.1	0.35 $\pm$ 0.2	-	-	-
5 x 6.1	5.0	6.1	5.3	6.5	2.2	1.5	0.65 $\pm$ 0.1	0.35 $\pm$ 0.2	-	-	-
6.3 6.1	6.3	6.1	6.6	7.8	2.6	1.8	0.65 $\pm$ 0.1	0.35 $\pm$ 0.2	-	-	-
6.3 x 8	6.3	8.0	6.6	7.8	2.6	1.8	0.65 $\pm$ 0.1	0.35 $\pm$ 0.2	-	-	-
8 x 6.5	8.0	6.5	8.3	9.5	3.4	2.2	0.65 $\pm$ 0.1	0.35 $\pm$ 0.2	-	-	-
8 x 10.5	8.0	10.5	8.3	10.0	3.4	3.1	0.9 $\pm$ 0.2	0.7 $\pm$ 0.2	-	-	-
10 x 10.5	10.0	10.5	10.3	12.0	3.5	4.6	0.9 $\pm$ 0.2	0.7 $\pm$ 0.2	-	-	-
12.5 x 14T2	12.5	14.0	13.5	15.0	4.7	4.4	0.9 $\pm$ 0.3	0.7 $\pm$ 0.3	-	-	-
12.5 x 14WT	12.5	14.0	13.5	15.0	4.7	4.4	1.2 $\pm$ 0.3	0.7 $\pm$ 0.3	2.2 $\pm$ 0.2	7.1 $\pm$ 0.2	2.4 $\pm$ 0.2
16 x 17T2	16.0	17.5	17.0	19.0	5.5	6.7	1.2 $\pm$ 0.3	0.7 $\pm$ 0.3	-	-	-
16 x 17WT	16.0	17.5	17.0	19.0	5.5	6.7	1.4 $\pm$ 0.3	0.7 $\pm$ 0.3	3.0 $\pm$ 0.2	9.0 $\pm$ 0.2	1.9 $\pm$ 0.2
18 x 17T2	18.0	17.5	19.0	21.0	6.7	6.7	1.2 $\pm$ 0.2	0.7 $\pm$ 0.3	-	-	-
18 x 17WT	18.0	17.5	19.0	21.0	6.7	6.7	1.4 $\pm$ 0.2	0.7 $\pm$ 0.3	3.0 $\pm$ 0.2	11.0 $\pm$ 0.2	1.9 $\pm$ 0.2

Anti-Vibration Skirt on WT Style 12.5, 16 & 18mm Dia.



## STANDARD



## WT STYLE

