

# Surface Mount Aluminum Electrolytic Capacitors NACZF Series

## FEATURES

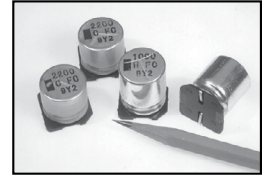
- CYLINDRICAL LEADLESS TYPE FOR SURFACE MOUNTING
- HIGH CAPACITANCE VALUES (UP TO 6800 $\mu$ F)
- LOW IMPEDANCE/HIGH RIPPLE CURRENT AT 100KHZ
- 12.5mm x 17mm ~ 18mm x 22mm CASE SIZES
- WIDE TERMINATION STYLE FOR HIGH VIBRATION APPLICATIONS
- LONG LIFE (5000 HOURS AT +105°C)
- DESIGNED FOR REFLOW SOLDERING
- **MEETS THE REQUIREMENTS OF AEC-Q200\***

\*Contact NIC for supporting test data

**RoHS  
Compliant**

includes all homogeneous materials

\*See Part Number System for Details



## CHARACTERISTICS

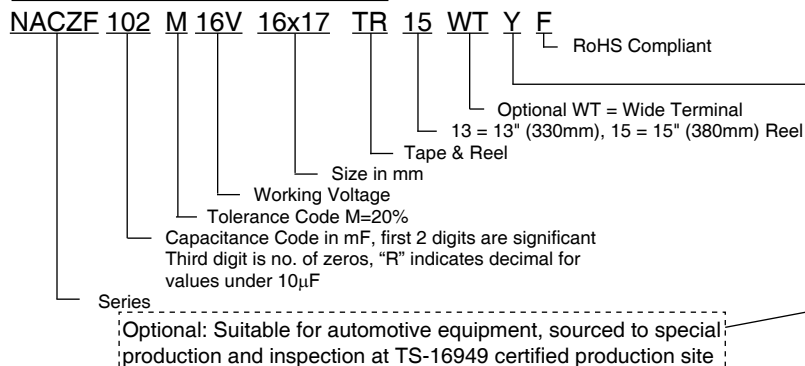
Rated Voltage Range		6.3 ~ 100Vdc							
Rated Capacitance Range		47 ~ 6,800 $\mu$ F							
Operating Temperature Range		-40°C ~ +105°C							
Capacitance Tolerance		$\pm$ 20% (M)							
Max. Leakage Current After 2 Minutes		0.01CV or 3 $\mu$ A whichever is greater							
Working Voltage		6.3Vdc	10Vdc	16Vdc	25Vdc	35Vdc	50Vdc	63Vdc	100Vdc
Surge Voltage		8.0Vdc	13Vdc	20Vdc	32Vdc	44Vdc	63Vdc	79Vdc	125Vdc
Max. Tan $\delta$ at 120Hz & 20°C	C $\leq$ 1000 $\mu$ F	-	0.19	0.16	0.14	0.12	0.10	0.08	0.07
	C = 2200 $\mu$ F	0.24	0.21	0.18	0.16	0.14	-	-	-
	C = 3300 $\mu$ F	0.26	0.23	0.20	0.18	-	-	-	-
	C = 4700 $\mu$ F	0.28	0.25	-	-	-	-	-	-
	C = 6800 $\mu$ F	0.32	0.29	-	-	-	-	-	-
Low Temperature Stability (Impedance Ratio @ 120Hz)	Z-25°C/Z+20°C	2	2	2	2	2	2	2	2
	Z-40°C/Z+20°C	3	3	3	3	3	3	3	3
High Temperature Load Life 5,000 Hours at +105°C Rated WVDC	Capacitance Change	Within $\pm$ 20% of initial measured value							
	Tan $\delta$	Less than 200% of specified value							
	Leakage Current	Less than the specified maximum value							
Resistance to Soldering Heat Within the Recommended Reflow Conditions	Capacitance Change	Within $\pm$ 10% of initial measured value							
	Tan $\delta$	Less than the specified maximum value							
	Leakage Current	Less than the specified maximum value							

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

Cap ( $\mu$ F)	Code	Working Voltage (Vdc)							
		6.3	10	16	25	35	50	63	100
47	470	-	-	-	-	-	-	-	12.5 x 17
68	680	-	-	-	-	-	-	12.5 x 17	12.5 x 17
100	101	-	-	-	-	-	-	12.5 x 17	16 x 17
220	221	-	-	-	-	-	12.5 x 17	16 x 17	18 x 17
330	331	-	-	-	-	12.5 x 17	16 x 17	18 x 17	18 x 22
470	471	-	-	-	12.5 x 17	16 x 17	18 x 17	18 x 22	-
1000	102	-	12.5 x 17	16 x 17	18 x 17	18 x 17	18 x 22	-	-
2200	222	16 x 17	16 x 17	18 x 17	18 x 22	18 x 22	-	-	-
3300	332	18 x 17	18 x 17	18 x 22	18 x 22	-	-	-	-
4700	472	18 x 22	18 x 22	-	-	-	-	-	-
6800	682	18 x 22	18 x 22	-	-	-	-	-	-

Shading denotes parts available with "Y" option (for Automotive Equipment)

## PART NUMBER SYSTEM



# Surface Mount Aluminum Electrolytic Capacitors NACZF Series

## STANDARD VALUES, CASE SIZES AND SPECIFICATIONS

NIC Part Number*	Cap. (µF)	W.V. (Vdc)	Dissipation Factor (Tan δ)	Max. Ripple Current (mA) +105°C, 100KHz	Max. Impedance (Ω) +20°C, 100KHz	Load Life Hours @ +105°C
NACZF222M6.3V16X17TR15T2F	2200	6.3	0.24	1690	0.043	5,000
NACZF332M6.3V18X17TR13T2F	3300		0.26	2000	0.038	5,000
NACZF472M6.3V18X22TR13T2F	4700		0.28	2205	0.029	5,000
NACZF682M6.3V18X22TR13T2F	6800		0.32	2490	0.028	5,000
NACZF102M10V12.5X17TR13T2F	1000	10	0.19	1205	0.065	5,000
NACZF222M10V16X17TR15T2F	2200		0.21	1690	0.043	5,000
NACZF332M10V18X17TR13T2F	3300		0.23	2000	0.038	5,000
NACZF472M10V18X22TR13T2F	4700		0.25	2490	0.028	5,000
NACZF682M10V18X22TR13T2F	6800		0.29	2490	0.028	5,000
NACZF102M16V16X17TR15T2F	1000		16	0.16	1690	0.043
NACZF222M16V18X17TR13T2F	2200	0.18		2000	0.038	5,000
NACZF332M16V18X22TR13T2F	3300	0.20		2490	0.028	5,000
NACZF471M25V12.5X17TR13T2F	470	25	0.14	1205	0.065	5,000
NACZF102M25V18X17TR13T2F	1000		0.14	2000	0.038	5,000
NACZF222M25V18X22TR13T2F	2200		0.16	2490	0.028	5,000
NACZF332M25V18X22TR13T2F	3300		0.18	2490	0.028	5,000
NACZF331M35V12.5X17TR13T2F	330		35	0.12	1205	0.065
NACZF471M35V16X17TR15T2F	470	0.12		1690	0.043	5,000
NACZF102M35V18X17 TR13T2F	1000	0.12		2000	0.038	5,000
NACZF222M35V18X22TR13T2F	2200	0.14		2490	0.028	5,000
NACZF221M50V12.5X17TR13T2F	220	50	0.10	1150	0.110	5,000
NACZF331M50V16X17TR15T2F	330		0.10	1610	0.080	5,000
NACZF471M50V18X17TR13T2F	470		0.10	1900	0.068	5,000
NACZF102M50V18X22TR13T2F	1000		0.10	2420	0.042	5,000
NACZF680M63V12.5X17TR13T2F	68	63	0.08	1020	0.150	5,000
NACZF101M63V12.5X17TR13T2F	100		0.08	1020	0.150	5,000
NACZF221M63V16X17TR15T2F	220		0.08	1410	0.090	5,000
NACZF331M63V18X17TR13T2F	330		0.08	1690	0.086	5,000
NACZF471M63V18X22TR13T2F	470		0.08	2290	0.055	5,000
NACZF470M100V12.5X17TR13T2F	47	100	0.07	511	0.300	5,000
NACZF680M100V12.5X17TR13T2F	68		0.07	511	0.300	5,000
NACZF101M100V16X17TR15T2F	100		0.07	793	0.180	5,000
NACZF221M100V18X17TR13T2F	220		0.07	917	0.155	5,000
NACZF331M100V18X22TR13T2F	330		0.07	1230	0.083	5,000

Available for Automotive Equipment, see part numbering system

\*See part numbering system for how to denote WT termination style

## RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

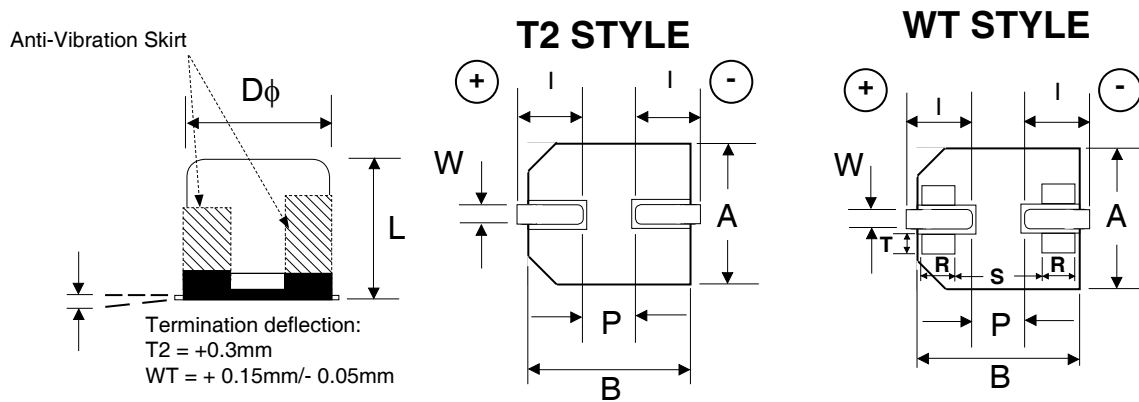
Capacitance (µF)	Frequency				
	50Hz, 60Hz	120Hz	1KHz	10KHz	100KHz
47 ~ 6800	0.70	0.75	0.90	0.95	1.00



# Surface Mount Aluminum Electrolytic Capacitors NACZF Series

## DIMENSIONS (mm)

Case Size	D $\phi$ $\pm 0.5$	L max.	A $\pm 0.2$	B $\pm 0.2$	l typical	W	P typical	R	S	T
12.5 x 17T2	12.5	17.0	13.5	13.5	4.7	0.6 ~ 1.2	4.4	-	-	-
12.5 x 17WT	12.5	17.3	13.5	13.5	4.7	0.9 ~ 1.5	4.4	2.2	7.1	2.4
16 x 17T2	16.0	17.0	16.7 $\pm 0.6$	16.7 $\pm 0.6$	5.2	0.9 ~ 2.1	6.8	-	-	-
16 x 17WT	16.0	17.5	17.0	17.0	5.5	1.2 ~ 2.1	6.8	3.0	9.0	1.9
16 x 22T2	16.0	22.0	17.0	17.0	5.5	0.9 ~ 1.5	6.7	-	-	-
16 x 22WT	16.0	22.3	17.0	17.0	5.5	1.2 ~ 1.6	6.7	3.0	9.0	1.9
18 x 17T2	18.0	17.0	19.0	19.0	6.7	0.9 ~ 1.5	6.7	-	-	-
18 x 17WT	18.0	17.3	19.0	19.0	6.7	1.2 ~ 1.6	6.7	3.0	11.0	1.9
18 x 22T2	18.0	22.0	19.0	19.0	6.7	0.9 ~ 1.5	6.7	-	-	-
18 x 22WT	18.0	22.3	19.0	19.0	6.7	1.2 ~ 1.6	6.7	3.0	11.0	1.9



### PRECAUTIONS

Please review the notes on correct use, safety and precautions 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)



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