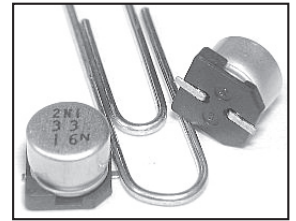


# Surface Mount Aluminum Electrolytic Capacitors NACEN Series

## FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- NON-POLARIZED, 2000 HOURS AT 85°C
- 5.5mm HEIGHT
- DESIGNED FOR REFLOW SOLDERING

**RoHS Compliant**  
includes all homogeneous materials



\*See Part Number System for Details

## CHARACTERISTICS

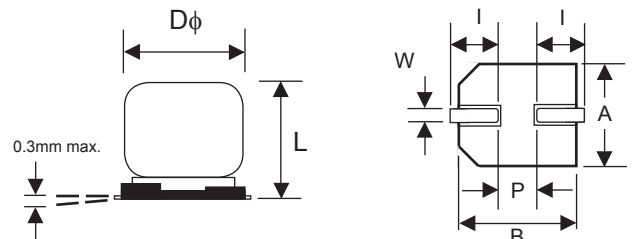
Rated Voltage Rating	6.3 ~ 50Vdc						
Rated Capacitance Range	1.0 ~ 47 $\mu$ F						
Operating Temperature Range	-40° ~ +85°C						
Capacitance Tolerance	$\pm$ 20%(M)						
Max. Leakage Current After 1 Minutes at 20°C	0.03CV +6 $\mu$ A maximum						
Max. Tan $\delta$ @ 120Hz/20°C	W.V. (Vdc)	6.3	10	16	25	35	50
	Tan $\delta$ @ 120Hz/20°C	0.24	0.20	0.17	0.17	0.15	0.15
Low Temperature Stability (Impedance Ratio @ 120Hz)	W.V. (Vdc)	6.3	10	16	25	35	50
	Z-40°C/Z +20°C	4	3	2	2	2	2
	Z-40°C/Z +20°C	8	8	4	4	3	3
Load Life Test at Rated W.V. 85°C 2,000 Hours (Reverse polarity every 500 hours)	Capacitance Change	Within $\pm$ 25% of initial measured value					
	Tan $\delta$	Less than 200% of specified value					
	Leakage Current	Less than specified value					

## STANDARD PRODUCT AND CASE SIZE TABLE DXL (mm)

Cap. ( $\mu$ F)	Code	Working Voltage (Vdc)					
		6.3	10	16	25	35	50
1.0	1R0	-	-	-	-	-	4x5.5
2.2	2R2	-	-	-	-	4x5.5	5x5.5
3.3	3R3	-	-	-	4x5.5	5x5.5	5x5.5
4.7	4R7	-	-	4x5.5	5x5.5*	5x5.5	6.3x5.5
10	100	-	4x5.5	5x5.5	6.3x5.5	6.3x5.5	6.3x5.5
22	220	5x5.5	6.3x5.5	6.3x5.5	-	-	-
33	330	6.3x5.5	6.3x5.5	6.3x5.5	-	-	-
47	470	6.3x5.5	-	-	-	-	-

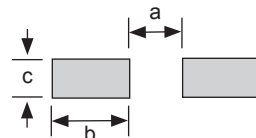
## DIMENSIONS (mm)

Case Size	D $\phi$ $\pm$ 0.5	L max.	A/B $\pm$ 0.2	I $\pm$ 0.2	W	P $\pm$ 0.2
4x5.5	4.0	5.5	4.3	1.8	0.5 ~ 0.8	1.0
5x5.5	5.0	5.5	5.3	2.1	0.5 ~ 0.8	1.4
6.3x5.5	6.3	5.5	6.6	2.5	0.5 ~ 0.8	2.2



## RECOMMENDED LAND PATTERN DIMENSIONS (mm)

Case Size	a	b	c
4 $\phi$	1.0	2.6	1.8
5 $\phi$	1.4	3.0	1.8
6.3 $\phi$	2.1	3.5	1.8



## PRECAUTIONS

Please review the notes on correct use, safety and precautions found at <https://www.niccomp.com/resource/files/aluminum/AlumApplInfoCautions.pdf>  
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)

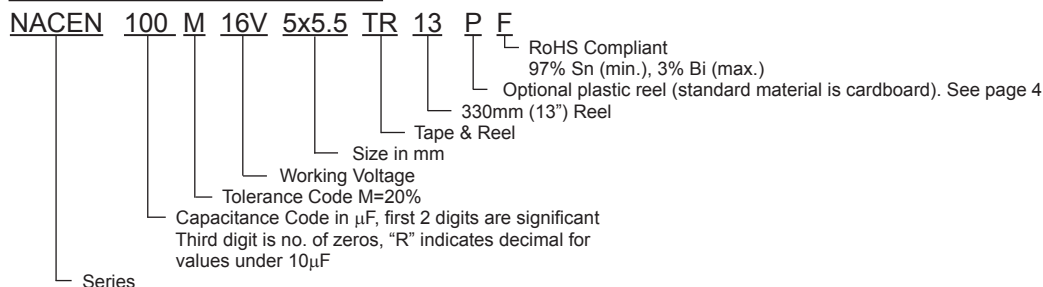


# Surface Mount Aluminum Electrolytic Capacitors NACEN Series

## STANDARD VALUES, CASE SIZES AND SPECIFICATIONS

NIC Part Number	Cap. (μF)	W.V. (Vdc)	Dissipation Factor (Tan δ)	Max. Ripple Current (mA) +85°C/120Hz	Load Life Hours @ +85°C
NACEN220M6.3V5X5.5TR13F	22	6.3	0.24	31	2,000
NACEN330M6.3V5X5.5TR13F	33		0.24	39	2,000
NACEN470M6.3V6.3X5.5TR13F	47		0.24	47	2,000
NACEN100M10V4X5.5TR13F	10	10	0.20	17	2,000
NACEN220M10V6.3X5.5TR13F	22		0.20	35	2,000
NACEN330M10V6.3X5.5TR13F	33		0.20	43	2,000
NACEN4R7M16V4X5.5TR13F	4.7	16	0.17	12	2,000
NACEN100M16V5X5.5TR13F	10		0.17	25	2,000
NACEN220M16V6.3X5.5TR13F	22		0.17	39	2,000
NACEN330M16V6.3X5.5TR13F	33		0.17	57	2,000
NACEN3R3M25V4X5.5TR13F	3.3	25	0.17	10	2,000
NACEN4R7M25V5X5.5TR13F	4.7		0.17	19	2,000
NACEN100M25V6.3X5.5TR13F	10		0.17	28	2,000
NACEN2R2M35V4X5.5TR13F	2.2	35	0.15	8.4	2,000
NACEN3R3M35V5X5.5TR13F	3.3		0.15	17	2,000
NACEN4R7M35V5X5.5TR13F	4.7		0.15	20	2,000
NACEN100M35V6.3X5.5TR13F	10		0.15	30	2,000
NACEN1R0M50V4X5.5TR13F	1.0	50	0.15	10	2,000
NACEN2R2M50V5X5.5TR13F	2.2		0.15	15	2,000
NACEN3R3M50V5X5.5TR13F	3.3		0.15	18	2,000
NACEN4R7M50V6.3X5.5TR13F	4.7		0.15	23	2,000
NACEN100M50V6.3X5.5TR13F	10		0.15	23	2,000

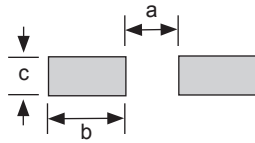
### PART NUMBER SYSTEM



# Surface Mount Aluminum Electrolytic Capacitors NACEN Series

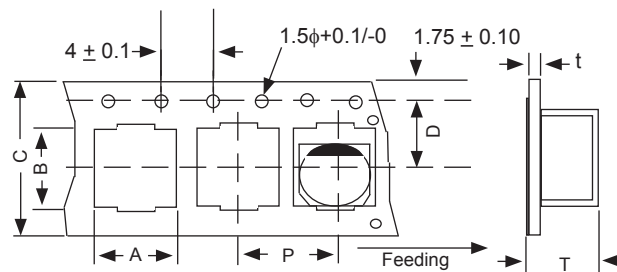
## RECOMMENDED LAND PATTERN DIMENSIONS (mm)

Case Size	a	b	c
4x5.5	1.0	2.6	1.8
5x5.5	1.4	3.0	1.8
6x3x5.5	1.8	3.6	1.8



## CARRIER TAPE DIMENSIONS & REEL QTY

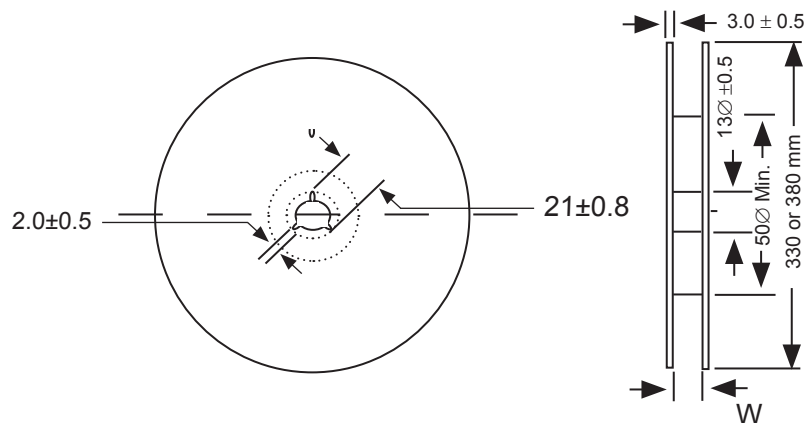
Case Size	A ±0.5	B ±0.5	C ±0.3	D ±0.1	P ±0.1	T ±0.2	t ±0.1
4x5.5	4.7	4.7	12.0	5.5	8.0	5.8	0.6
5x5.5	5.7	5.7	12.0	5.5	12.0	5.8	0.6
6.3x5.5	7.0	7.0	16.0	7.5	12.0	5.8	0.6



## CARDBOARD REEL DIMENSIONS & REEL QTY

(see page 4 for optional plastic reel dimensions)

Case Size	W ±1.0	Quantity	
		TR13 (330mm)	TR15 (380mm)
4x5.5	14	1500	2000
5x5.5	14	1000	-
6.3x5.5	18	1000	-

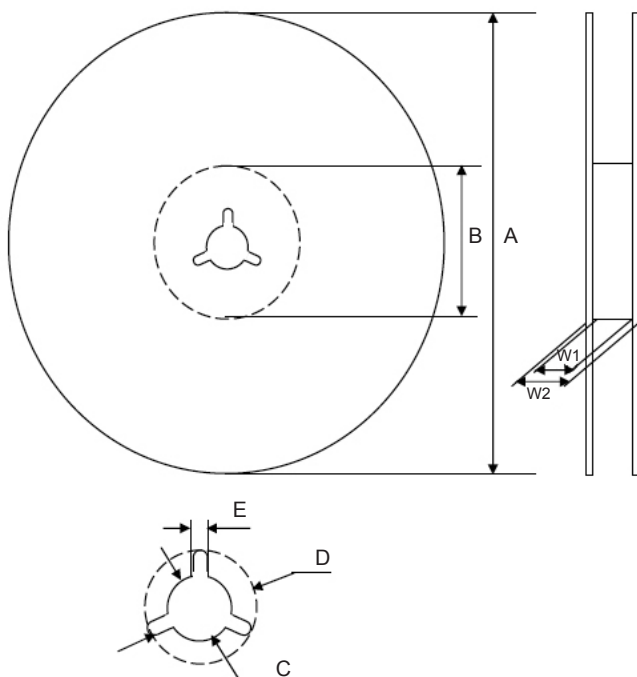


Review & Compare Reflow Soldering Heat Limits  
V-chip SMT Aluminum Electrolytic Capacitors  
[www.niccomp.com/RSL](http://www.niccomp.com/RSL)



# Surface Mount Aluminum Electrolytic Capacitors NACEN Series

## Optional V-Chip 13" (330mm) Plastic Reels (TR13PF suffix)



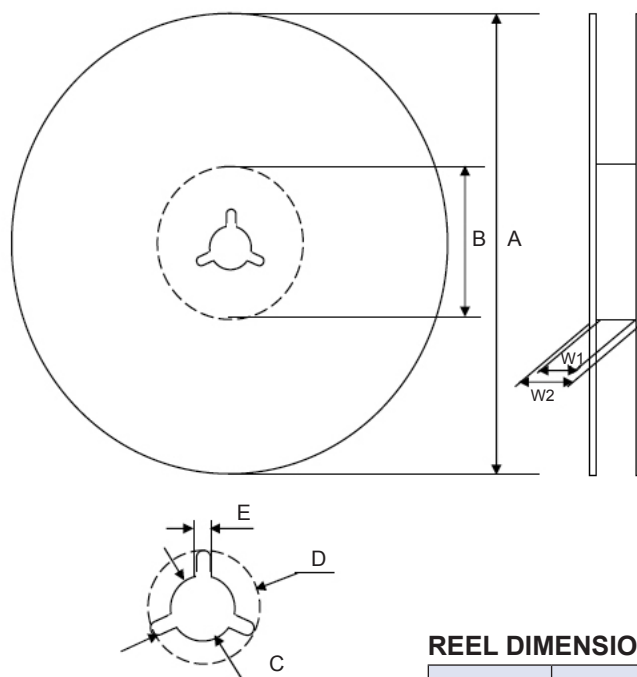
### Dimensions (mm)

Case Size	Tape Width	W1	W2
4x5.5, 5x5.5	12.0	12.4 ~ 14.4	15.5 ~ 20.0
6.3x5.5	16.0	16.4 ~ 18.4	19.5 ~ 24.0

Case Size	Tape Width	A	B	C	D	E
4x5.5, 5x5.5	12.0	$\phi 330$	$\phi 50 \sim 105$	$\phi 13$	$\phi 21$	2.0
6.3x5.5	16.0	$\pm 2.0$		$\pm 0.5$	$\pm 1.0$	$\pm 0.5$

Color
Black or Blue

## Optional V-Chip 15" (380mm) Plastic Reels (TR15PF suffix)



### Dimensions (mm)

Case Size	Tape Width	W1	W2
4x5.5	12.0	12.5 ~ 14.0	15.5 ~ 20.0

Case Size	Tape Width	A	B	C	D	E
4x5.5	12.0	$\phi 380$	$\phi 80 \sim 105$	$\phi 13$	$\phi 21$	2.0
		$\pm 2$		$\pm 0.5$	$\pm 1.0$	$\pm 0.5$

Color
Black or Blue

### REEL DIMENSIONS & REEL QTY

Case Size	W $\pm 1.0$	Quantity Per Reel	
		13" (330mm)	15" (380mm)
4x5.5	14	1500	2000
5x5.5	14	1000	-
6.3x5.5	18	1000	-

