NACE Series
Surface Mount Aluminum Electrolytic Capacitors

ISO 9001:2015 CERTIFIED

ROHS/REACH COMPLIANT HALOGEN FREE

NIC Components Corp.

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

CHARACTERISTICS

Rated Voltage Range	6.3 ~ 100Vdc
Rated Capacitance Range	0.47 ~ 6,800µF
Operating Temp. Range	-40°C ~ +85°C
Capacitance Tolerance	±20% (M)
Max. Leakage Current After 2 Minutes @ 20°C	0.01CV or 3µA whichever is greater

Tan δ @120Hz/20°C	W.V. (Vdc)		6.3	10	16	25	35	50	63	100
	6.3mm Dia.		0.26	0.20	0.16	0.14	0.12	0.10	0.10	0.10
	8x6.5mm Dia.		0.35	0.26	0.20	0.16	0.14	0.12	-	0.10
	8mm Dia. ~ up	C≤1000µF	0.30	0.24	0.20	0.16	0.14	0.12	0.12	0.10
		C=1500µF	0.30	-	0.20	-	0.14	-	-	-
		C=2200µF	-	0.26	-	0.18	-	-	-	-
		C=3300µF	0.34	-	0.24	-	-	-	-	-
		C=4700µF	-	0.30	-	-	-	-	-	-
		C=6800µF	0.40	-	-	-	-	-	-	-
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)		6.3	10	16	25	35	50	63	100
	Z-25°C/Z+20°C		4	3	2	2	2	2	2	2
	Z-40°C/Z+20°C		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							

PART NUMBER SYSTEM

NACE 101 M 16V 6.3x5.5 TR 13 F

- F — RoHS Compliant
- 13 — 13" (330mm) Reel, 15 = 15" (380mm) Reel*
- TR — Tape & Reel
- 6.3x5.5 — Size in mm
- 16V — Working Voltage
- M — Tolerance Code M=20%
- 101 — Capacitance Code in µF, first 2 digits are significant. Third digit is no. of zeros, "R" indicates decimal for values under 10µF
- NACE — Series

***See part number tables for reel size.**

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**

STANDARD PRODUCTS, SPECIFICATIONS AND CASE SIZE TABLE DϕxL (mm)

NIC Part Number	Cap. (µF)	W.V. (Vdc)	Dissipation Factor (Tan δ)	Max. Ripple current (mA) @ +85°C/120Hz	Max. ESR (Ω) @ +20°C/120Hz	Load Life Hours @ +85°C
NACE220M6.3V4X5.5TR15F	22	6.3	0.26	31	19.6	2,000
NACE330M6.3V5X5.5TR13F	33		0.26	39	13.1	2,000
NACE470M6.3V5X5.5TR13F	47		0.26	47	9.17	2,000
NACE101M6.3V6.3X5.5TR13F	100		0.26	71	4.31	2,000
NACE151M6.3V6.3X5.5TR13F	150		0.26	78	2.88	2,000
NACE221M6.3V6.3X6.3TR15F	220		0.26	95	1.96	2,000
NACE331M6.3V6.3X8TR15F	330		0.26	150	1.31	2,000
NACE471M6.3V8X10.5TR15F	470		0.30	300	1.06	2,000
NACE681M6.3V10X8TR15F	680		0.30	300	0.73	2,000
NACE102M6.3V8X10.5TR15F	1000		0.30	330	0.50	2,000
NACE152M6.3V10X10.5TR15F	1500		0.30	450	0.35	2,000
NACE220M10V5X5.5TR13F	22	10	0.20	35	15.1	2,000
NACE330M10V5X5.5TR13F	33		0.20	43	10.1	2,000
NACE470M10V6.3X5.5TR13F	47		0.20	59	7.06	2,000
NACE680M10V6.3X5.5TR13F	68		0.20	66	4.88	2,000
NACE101M10V6.3X5.5TR13F	100		0.20	76	3.32	2,000
NACE151M10V6.3X6.3TR15F	150		0.20	88	2.21	2,000
NACE221M10V6.3X8TR15F	220		0.20	150	1.51	2,000
NACE331M10V8X10.5TR15F	330		0.24	280	1.21	2,000
NACE471M10V8X10.5TR15F	470		0.24	300	0.85	2,000
NACE471M10V10X8TR15F	470		0.24	300	0.85	2,000
NACE102M10V10X10.5TR15F	1000		0.24	450	0.40	2,000
NACE222M10V12.5X14TR15F	2200		0.26	730	0.24	2,000
NACE100M16V4X5.5TR15F	10	16	0.16	25	26.5	2,000
NACE220M16V5X5.5TR13F	22		0.16	39	12.1	2,000
NACE330M16V6.3X5.5TR13F	33		0.16	57	8.04	2,000
NACE470M16V6.3X5.5TR13F	47		0.16	68	5.65	2,000
NACE680M16V6.3X5.5TR13F	68		0.16	75	3.91	2,000
NACE101M16V6.3X5.5TR13F	100		0.16	86	2.66	2,000
NACE151M16V6.3X8TR15F	150		0.16	135	1.77	2,000
NACE221M16V6.3X8TR15F	220		0.16	150	1.21	2,000
NACE331M16V8X10.5TR15F	330		0.20	280	1.01	2,000
NACE331M16V10X8TR15F	330		0.20	280	1.01	2,000
NACE471M16V8X10.5TR15F	470		0.20	330	0.71	2,000
NACE681M16V10X10.5TR15F	680		0.20	450	0.49	2,000
NACE152M16V12.5X14TR15F	1500		0.20	710	0.24	2,000
NACE332M16V16X17TR15F	3300		0.24	1200	0.12	2,000
NACE4R7M25V4X5.5TR15F	4.7	25	0.14	19	49.4	2,000
NACE100M25V5X5.5TR13F	10		0.14	28	23.2	2,000
NACE220M25V6.3X5.5TR13F	22		0.14	52	10.6	2,000
NACE330M25V6.3X5.5TR13F	33		0.14	63	7.04	2,000
NACE470M25V6.3X6.3TR15F	47		0.14	68	4.94	2,000
NACE101M25V6.3X8TR15F	100		0.14	130	2.32	2,000
NACE101M25V8X6.5TR15F	100		0.16	91	2.65	2,000
NACE221M25V8X10.5TR15F	220		0.16	250	1.21	2,000
NACE221M25V10X8TR15F	220		0.16	250	1.21	2,000
NACE331M25V8X10.5TR15F	330		0.16	310	0.80	2,000
NACE471M25V10X10.5TR15F	470		0.16	430	0.56	2,000
NACE102M25V12.5X14TR15F	1000		0.16	660	0.27	2,000

Table continues on the next page

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

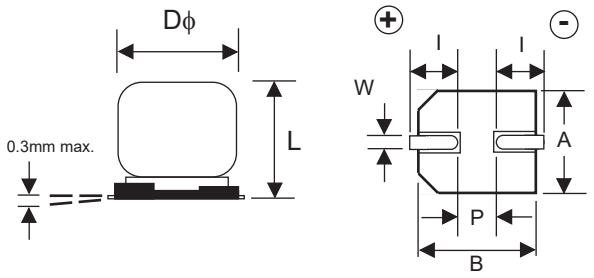
Frequency Hz	100<f≤1K	1K<f≤10K	10K< f≤100K	f ≥100K
C≤4.7µF	1.0	1.3	1.5	1.8
4.7µF<C≤33µF	1.0	1.2	1.3	1.45
C>33µF	1.0	1.1	1.2	1.3

STANDARD PRODUCTS, SPECIFICATIONS AND CASE SIZE TABLE DϕxL (mm)

NIC Part Number	Cap. (μF)	W.V. (Vdc)	Dissipation Factor (Tan δ)	Max. Ripple current (mA) @ +85°C/120Hz	Max. ESR (Ω) @ +20°C/120Hz	Load Life Hours @ +85°C
NACE4R7M35V4X5.5TR15F	4.7	35	0.12	20	42.3	2,000
NACE100M35V5X5.5TR13F	10		0.12	30	19.9	2,000
NACE220M35V6.3X5.5TR13F	22		0.12	54	9.05	2,000
NACE330M35V6.3X6.3TR15F	33		0.12	60	6.04	2,000
NACE470M35V6.3X6.3TR15F	47		0.12	70	4.24	2,000
NACE470M35V8X6.5TR15F	47		0.14	165	4.95	2,000
NACE101M35V6.3X8TR15F	100		0.12	130	1.99	2,000
NACE151M35V8X10.5TR15F	150		0.14	220	1.55	2,000
NACE151M35V10X8TR15F	150		0.14	220	1.55	2,000
NACE221M35V8X10.5TR15F	220		0.14	270	1.06	2,000
NACE331M35V10X10.5TR15F	330		0.14	340	0.71	2,000
NACE471M35V12.5X14TR15F	470		0.14	590	0.49	2,000
NACE681M35V12.5X14TR15F	680		0.14	610	0.34	2,000
NACE152M35V16X17TR15F	1500		0.14	1060	0.17	2,000
NACER47M50V4X5.5TR15F	0.47	50	0.10	5	353	2,000
NACE1R0M50V4X5.5TR15F	1.0		0.10	10	166	2,000
NACE2R2M50V4X5.5TR15F	2.2		0.10	15	75.4	2,000
NACE3R3M50V4X5.5TR15F	3.3		0.10	18	50.3	2,000
NACE4R7M50V5X5.5TR13F	4.7		0.10	23	35.3	2,000
NACE100M50V6.3X5.5TR13F	10		0.10	34	16.6	2,000
NACE220M50V6.3X6.3TR15F	22		0.10	60	7.54	2,000
NACE330M50V6.3X8TR15F	33		0.10	85	5.03	2,000
NACE330M50V8X6.5TR15F	33		0.12	65	6.04	2,000
NACE470M50V6.3X8TR15F	47		0.10	90	3.53	2,000
NACE680M50V8X10.5TR15F	68		0.12	120	2.93	2,000
NACE820M50V10X8TR15F	82		0.12	200	2.44	2,000
NACE101M50V8X10.5TR15F	100		0.12	200	1.99	2,000
NACE221M50V10X10.5TR15F	220		0.12	320	0.91	2,000
NACE331M50V12.5X14TR15F	330		0.12	520	0.60	2,000
NACE391M50V12.5X14TR15F	390		0.12	550	0.51	2,000
NACE102M50V16X17TR15F	1000		0.12	940	0.20	2,000
NACE1R0M63V4X5.5TR15F	1.0	63	0.10	10	166	2,000
NACE2R2M63V4X5.5TR15F	2.2		0.10	15	75.4	2,000
NACE3R3M63V5X5.5TR13F	3.3		0.10	20	50.3	2,000
NACE4R7M63V5X5.5TR13F	4.7		0.10	23	35.3	2,000
NACE100M63V6.3X5.5TR13F	10		0.10	34	16.6	2,000
NACE220M63V6.3X8TR15F	22		0.10	70	7.54	2,000
NACE330M63V8X10.5TR15F	33		0.12	160	6.04	2,000
NACE470M63V8X10.5TR15F	47		0.12	170	4.24	2,000
NACE101M63V10X10.5TR15F	100		0.12	280	1.99	2,000
NACE221M63V12.5X14TR15F	220		0.12	410	0.91	2,000
NACE471M63V16X17TR15F	470		0.12	700	0.43	2,000
NACE2R2M100V6.3X6.3TR15F	2.2	100	0.10	20	75.4	2,000
NACE3R3M100V6.3X6.3TR15F	3.3		0.10	28	50.3	2,000
NACE4R7M100V6.3X6.3TR15F	4.7		0.10	35	35.3	2,000
NACE100M100V6.3X8TR15F	10		0.10	50	16.6	2,000
NACE220M100V8X10.5TR15F	22		0.10	120	7.54	2,000
NACE330M100V10X10.5TR15F	33		0.10	190	5.03	2,000
NACE470M100V12.5X14TR15F	47		0.10	330	3.53	2,000
NACE680M100V12.5X14TR15F	68		0.10	350	2.44	2,000

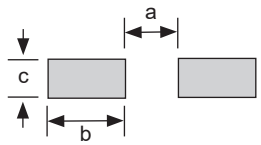
DIMENSIONS (mm)

Case Size	Dϕ ±0.5	L max.	A ±0.2	B ±0.2	I ±0.3	W	(P)
4 x 5.5	4.0	5.5	4.3	4.3	2.0	0.5 ~ 0.8	1.0
4 x 6.3	4.0	6.3	4.3	4.3	2.0	0.5 ~ 0.8	1.0
5 x 5.5	5.0	5.5	5.3	5.3	2.3	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 ~ 1.1	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	1.0 ~ 1.4	4.6
16 x 17	16.0	17.0	16.3	16.3	5.0	1.7 ~ 2.1	7.0



RECOMMENDED LAND PATTERN DIMENSIONS (mm)

Case Size	a	b	c
4 ϕ	1.0	2.6	1.8
5 ϕ	1.4	3.0	1.8
6.3 ϕ	1.8	3.6	1.8
8 ϕ	2.8	4.1	2.1
10 ϕ	4.3	4.4	2.5
12.5 ϕ	4.3	5.8	2.5
16 ϕ	6.6	6.5	5.0



CARRIER TAPE

Case Size	A ±0.2	B ±0.2	C ±0.3	D ±0.1	P ±0.1	T ±0.2
4 x 5.5	4.7	4.7	12.0	5.5	8.0	5.8
4 x 6.3	4.7	4.7	12.0	5.5	8.0	6.4
5 x 5.5	5.7	5.7	12.0	5.5	12.0	5.8
6.3 x 5.5	7.0	7.0	16.0	7.5	12.0	5.8
6.3 x 6.3	7.0	7.0	16.0	7.5	12.0	6.5
6.3 x 8	7.0	7.0	16.0	7.5	12.0	8.2
8 x 6.5	8.7	8.7	16.0	7.5	12.0	6.8
8 X 10.5	8.7	8.7	24.0	11.5	16.0	11.1
10 x 8	10.7	10.7	24.0	11.5	16.0	8.3
10 x 10.5	10.7	10.7	24.0	11.5	16.0	11.2
12.5 x 14	13.2	13.2	32.0	14.2	24.0	14.3
16 x 17	17.5	17.5	44.0	20.2	28.0	17.3

TAPING SPECIFICATIONS (mm)

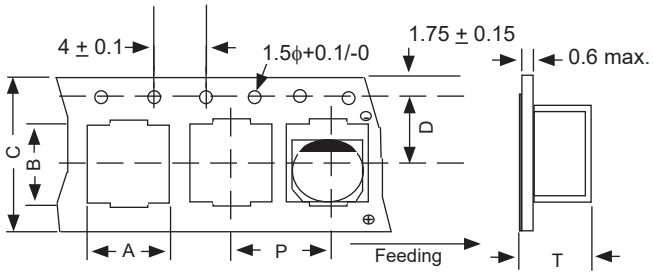
1. Both Leader and Trailer tape: Minimum 40mm (1.57") empty carrier tape pockets.
2. Leader tape: Approximately 20cm of cover tape at leader.
3. Connection: Maximum 3 connections (slices) per reel.

TR13 330mm (13") REEL
TR15 380mm (15") REEL

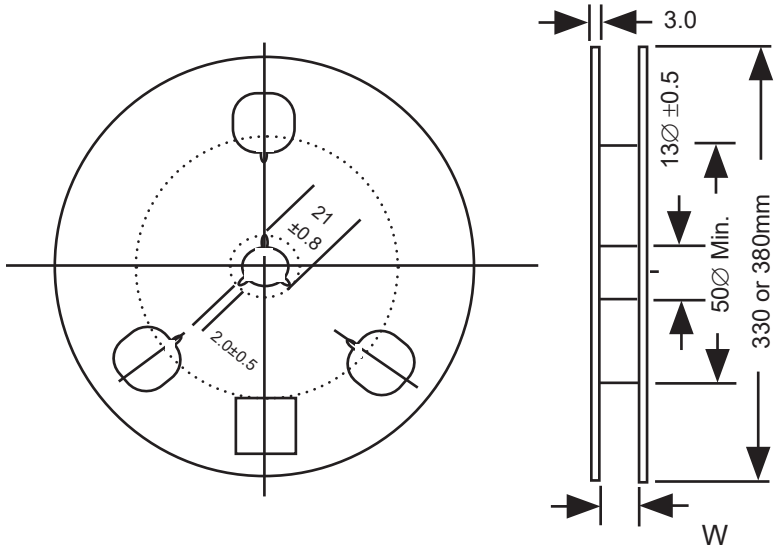
Case Size	W ±1	Quantity Per Reel	
		13" Reel	15" Reel
4 x 5.5	14.0	N/A	2,000 pcs
4 x 6.3	14.0	N/A	2,000 pcs
5 x 5.5	14.0	1,000 pcs	N/A
6.3 x 5.5	18.0	1,000 pcs	N/A
6.3 x 6.3	18.0	N/A	1,000 pcs
6.3 x 8	18.0	N/A	900 pcs
8 x 6.5	18.0	N/A	1,000 pcs
8 X 10.5	26.0*	N/A	500 pcs
10 x 8	26.0*	N/A	500 pcs
10 x 10.5	26.0*	N/A	500 pcs
12.5 x 14	34.0	N/A	250 pcs
16 x 17	46.0	N/A	200 pcs

*W+3/-1

CARRIER



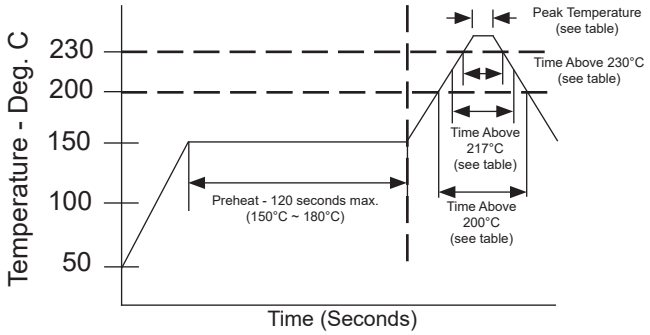
REEL DIMENSIONS



REFLOW TEMPERATURES & DURATIONS

Voltage Rating	Diameter	Peak Temperature (Within 5 Sec.)	Time above 200°C	Time above 217°C	Time above 230°C
4V ~ 63V	ϕ4 ~ 6.3	+250°C	70 sec. max.	60 sec. max.	40 sec. max.
	ϕ8	+245°C	60 sec. max.	50 sec. max.	30 sec. max.
	ϕ10, 12.5	+240°C	50 sec. max.	40 sec. max.	20 sec. max.
	ϕ16	+235°C	50 sec. max.	30 sec. max.	15 sec. max.
100V	ϕ4 ~ 6.3	+250°C	60 sec. max.	50 sec. max.	40 sec. max.
	ϕ8	+240°C	60 sec. max.	40 sec. max.	30 sec. max.
	ϕ10	+240°C	50 sec. max.	30 sec. max.	20 sec. max.
	ϕ12.5	+235°C	50 sec. max.	30 sec. max.	20 sec. max.
	ϕ16	+235°C	45 sec. max.	20 sec. max.	10 sec. max.

1. Capacitors can withstand two (2) reflows under the above conditions.
2. The second reflow shall be at least one hour after natural cool to room temperature has occurred.



Review & Compare Reflow Soldering Heat Limits
V-chip SMT Aluminum Electrolytic Capacitors
www.niccomp.com/RSL