

Surface Mount Aluminum Electrolytic Capacitors NAWP Series

FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- REDUCED CASE SIZE (SMALLER THAN NACEW)
- SUIT FOR HIGH TEMPERATURE REFLOW SOLDERING (UP TO 250°C)
- 1,000 HOUR LOAD LIFE @ +105°C
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING

SAC Alloy Compatible
250°C

RoHS Compliant
includes all homogeneous materials



CHARACTERISTICS

Rated Voltage Rating	6.3 ~ 50Vdc						
Rated Capacitance Range	4.7 ~ 220μF						
Operating Temp. Range	-40 ~ +105°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
	S.V. (Vdc)	8.0	13	20	32	44	63
	Tan δ	0.35	0.30	0.26	0.20	0.16	0.12
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)	6.3	10	16	25	35	50
	Z-25°C/Z+20°C	4	3	2	2	2	2
Load Life Test @ 105°C All Case Sizes = 1,000 hours	Capacitance Change	Within ±25% of initial measured value (6.3V ±30%)					
	Tan δ	Less than ±300% of the specified maximum value					
	Leakage Current	Less than the specified maximum value					

*See Part Number System for Details

LOW ESR COMPONENT
LIQUID ELECTROLYTE
For Performance Data see www.LowESR.com

STANDARD VALUES AND CASE SIZES (mm)

Cap. (μF)	Code	Working Voltage (Vdc)					
		6.3	10	16	25	35	50
4.7	4R7	-	-	-	-	-	4X5.5
10	100	-	-	-	4X5.5	4X5.5	5X5.5
22	220	-	4X5.5	4X5.5	5X5.5	5X5.5	6.3X5.5
33	330	4X5.5	4X5.5	5X5.5	5X5.5	6.3X5.5	-
47	470	4X5.5	5X5.5	5X5.5	6.3X5.5	-	-
100	101	5X5.5	5X5.5	-	-	-	-
220	221	6.3X5.5	-	-	-	-	-

PEAK REFLOW TEMPERATURE CODES

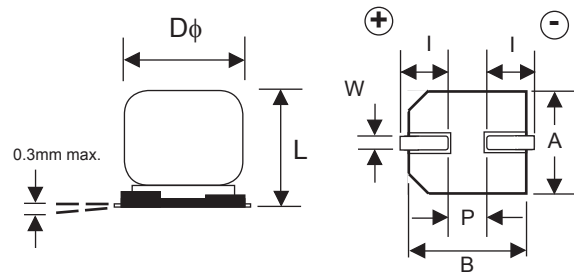
Code	Peak Reflow Temperature
L	250°C

TERMINATION FINISH & PACKAGING OPTIONS CODES

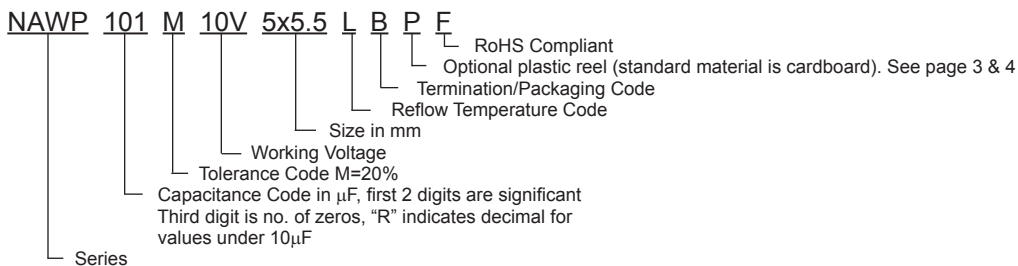
Code	Finish & Reel Size
B	Sn-Bi Finish & 13" Reel
LB	Sn-Bi Finish & 15" Reel (15" available for 4x5.5 case size only)

CASE DIMENSIONS (mm)

Case Size	φD±0.5	L max.	A±0.2	B±0.2	I±0.3	W	P±0.3
4x5.5	4.0	5.5	4.3	4.3	1.8	0.5~0.8	1.0
5x5.5	5.0	5.5	5.3	5.3	2.1	0.5~0.8	1.4
6.3x5.5	6.3	5.5	6.6	6.6	2.5	0.5~0.8	2.2



PART NUMBER SYSTEM



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



Surface Mount Aluminum Electrolytic Capacitors NAWP Series

STANDARD VALUES, CASE SIZES AND SPECIFICATIONS

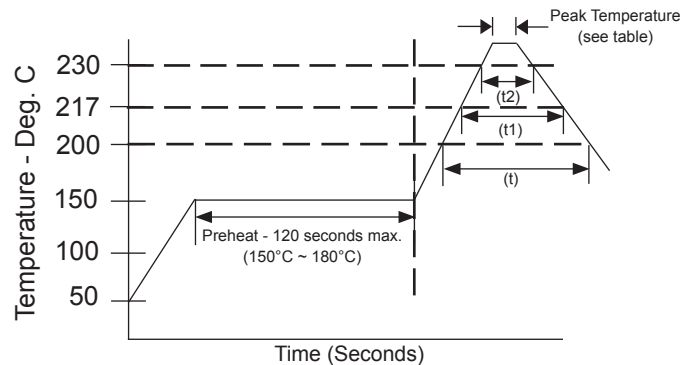
NIC Part Number	Cap. (μF)	W.V. (Vdc)	Dissipation Factor (Tan δ)	Max. Ripple Current (mA) +105°C/120Hz	Maximum ESR (Ω) +20°C/120Hz	Load Life Hours @ +105°C
NAWP330M6.3V4X5.5LBF	33	6.3	0.35	29	17.59	1,000
NAWP470M6.3V4X5.5LBF	47		0.35	36	12.35	1,000
NAWP101M6.3V5X5.5LBF	100		0.35	47	5.81	1,000
NAWP151M6.3V6.3X5.5LBF	150		0.35	71	3.87	1,000
NAWP221M6.3V6.3X5.5LBF	220		0.35	74	2.64	1,000
NAWP220M10V4X5.5LBF	22	10	0.30	28	22.62	1,000
NAWP330M10V4X5.5LBF	33		0.30	29	15.08	1,000
NAWP470M10V5X5.5LBF	47		0.30	43	10.59	1,000
NAWP101M10V5X5.5LBF	100		0.30	47	4.98	1,000
NAWP151M10V6.3X5.5LBF	150		0.30	71	3.32	1,000
NAWP220M16V4X5.5LBF	22	16	0.26	28	19.60	1,000
NAWP330M16V5X5.5LBF	33		0.26	35	13.07	1,000
NAWP470M16V5X5.5LBF	47		0.26	39	9.18	1,000
NAWP100M25V4.X5.5LBF	10	25	0.20	22	33.17	1,000
NAWP220M25V5X5.5LBF	22		0.20	35	15.08	1,000
NAWP330M25V5X5.5LBF	33		0.20	45	10.05	1,000
NAWP470M25V6.3X5.5LBF	47		0.20	70	7.06	1,000
NAWP100M35V4X5.5LBF	10	35	0.16	22	26.54	1,000
NAWP220M35V5X5.5LBF	22		0.16	35	12.06	1,000
NAWP330M35V6.3X5.5LBF	33		0.16	43	8.04	1,000
NAWP4R7M50V4X5.5LBF	4.7	50	0.12	16	42.35	1,000
NAWP100M50V5X5.5LBF	10		0.12	23	19.90	1,000
NAWP220M50V6.3X5.5LBF	22		0.12	35	9.05	1,000

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency Hz	100 ≤ f < 1K	1K ≤ f < 10K	10K ≤ f < 100K	100K ≤ f
C ≤ 4.7μF	1.00	1.30	1.50	1.80
4.7μF < C ≤ 33μF	1.00	1.20	1.30	1.45
33μF < C	1.00	1.10	1.20	1.30

REFLOW SOLDERING CONDITIONS

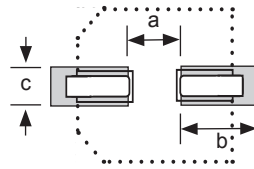
Diameter	Time above 200°C (t)	Time above 217°C (t1)	Time above 230°C (t2)	Peak Temperature 5 seconds
4 ~ 6.3mm φ	70 sec. max.	60 sec. max.	40 sec. max.	250°C



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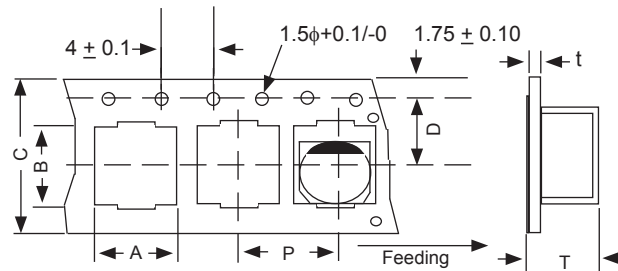
RECOMMENDED LAND PATTERN DIMENSIONS (mm)

Case Size	a	b	c
4x5.5	1.0	2.6	1.8
5x5.5	1.4	3.0	1.8
6.3x5.5	2.1	3.5	1.8



CARRIER TAPE DIMENSIONS & REEL QTY

Case Size	A ±0.3	B ±0.3	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	0.4
5x5.5	5.7	5.7	12.0	5.5	12.0	5.8	0.4
6.3x5.5	7.0	7.0	16.0	7.5	12.0	5.8	0.4

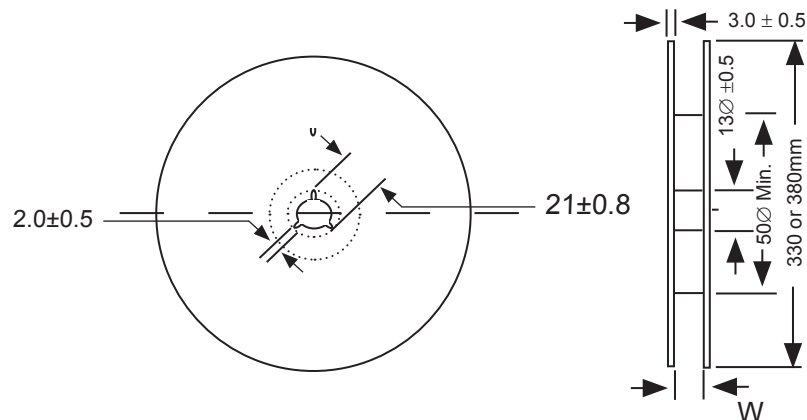


B 13" (330mm) CARDBOARD REEL DIMENSIONS & REEL QTY

LB 15" (380mm) CARDBOARD REEL DIMENSIONS & REEL QTY

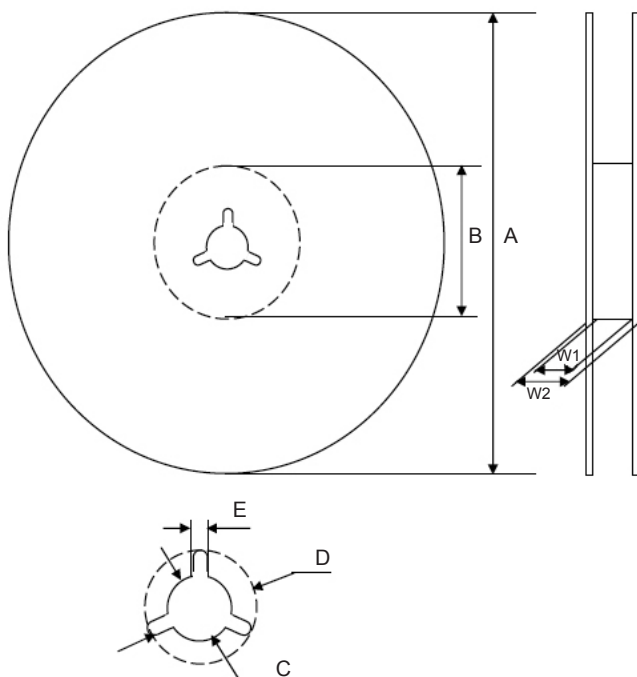
(See page 4 for plastic reel dimensions)

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



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



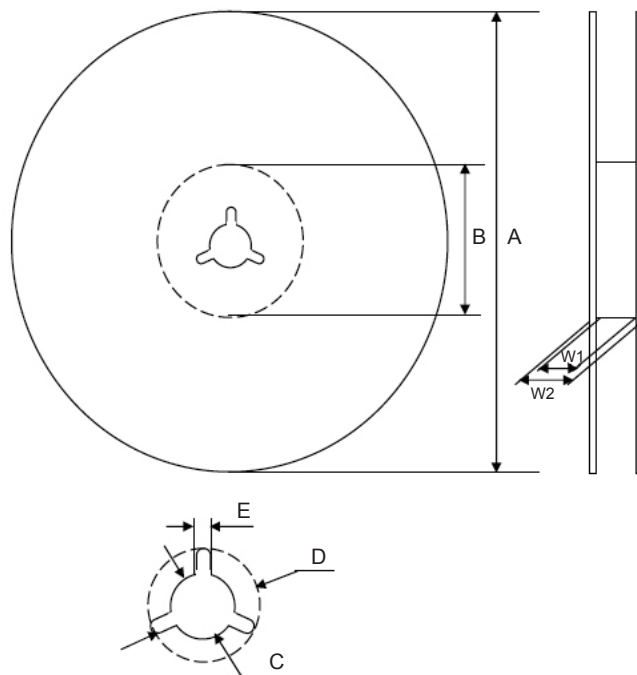
Dimensions (mm)

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	$\phi 330$ ± 2.0	$\phi 50 \sim 105$	$\phi 13$ ± 0.5	$\phi 21$ ± 1.0	2.0 ± 0.5
6.3x5.5	16.0					

Color
Black or Blue

Optional V-Chip 15" (380mm) Plastic Reels (LBP 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, 5x5.5	12.0	$\phi 380$ ± 2	$\phi 80 \sim 105$	$\phi 13$ ± 0.5	$\phi 21$ ± 1.0	2.0 ± 0.5
6.3x5.5	16.0					

Color
Black or Blue

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

