

# Surface Mount Aluminum Electrolytic Capacitors NAWT Series

## FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- SUIT FOR HIGH TEMPERATURE REFLOW SOLDERING (UP TO 260°C)
- 2,000 HOUR LOAD LIFE @ +105°C
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING

**RoHS  
Compliant**

includes all homogeneous materials

\*See Part Number System for Details



## CHARACTERISTICS

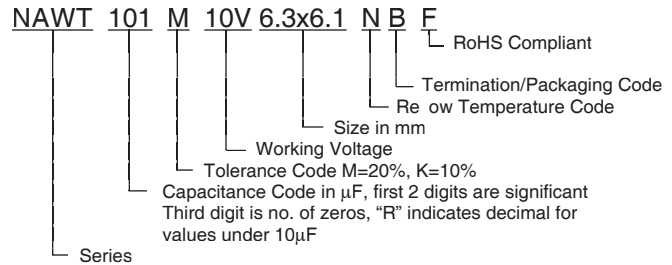
Rated Voltage Rating	6.3 ~ 50Vdc						
Rated Capacitance Range	0.1 ~ 1,000μF						
Operating Temp. Range	-55 ~ +105°C						
Capacitance Tolerance	±20% (M)						
Max. Leakage Current After 2 Minutes @ 20°C	0.01CV or 3μA whichever is greater						
Tan δ @ 120Hz/20°C	W.V. (Vdc)	6.3	10	16	25	35	50
	S.V. (Vdc)	8.0	13	20	32	44	63
	4mm, 5mm diameter & 6.3x6.1mm	0.30	0.24	0.20	0.16	0.14	0.12
	6.3x8mm & 8~10mm diameter	0.35	0.26	0.24	0.18	0.14	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
	Z-40°C/Z+20°C	8	8	4	4	3	3
Load Life Test @ 105°C All Case Sizes = 2,000 hours	Capacitance Change	Within ±25% of initial measured value					
	Tan δ	Less than ±200% of the specified maximum value					
	Leakage Current	Less than the specified maximum value					

**LOW ESR COMPONENT**  
LIQUID ELECTROLYTE  
For Performance Data  
see [www.LowESR.com](http://www.LowESR.com)

## STANDARD VALUES AND CASE SIZES (mm)

Cap. (μF)	Code	Working Voltage (Vdc)					
		6.3	10	16	25	35	50
0.1	R10	-	-	-	-	-	4x6.1
0.22	R22	-	-	-	-	-	4x6.1
0.33	R33	-	-	-	-	-	4x6.1
0.47	R47	-	-	-	-	-	4x6.1
1.0	1R0	-	-	-	-	-	4x6.1
2.2	2R2	-	-	-	-	-	4x6.1
3.3	3R3	-	-	-	-	-	4x6.1
4.7	4R7	-	-	-	-	4x6.1	5x6.1
10	100	-	-	4x6.1	-	5x6.1	6.3x6.1
22	220	4x6.1	-	5x6.1	-	6.3x6.1	6.3x8
33	330	4x6.1	5x6.1	-	6.3x6.1	6.3x8	8x10.5
47	470	5x6.1	-	6.3x6.1	6.3x8	-	8x10.5
							10x10.5
100	101	6.3x6.1	6.3x6.1	6.3x8	8x10.5	8x10.5	8x10.5
						10x10.5	10x10.5
220	221	6.3x8	-	8x10.5	8x10.5	10x10.5	-
					10x10.5	-	
330	331	-	8x10.5	8x10.5	10x10.5	-	-
				10x10.5	-	-	
470	471	8x10.5	8x10.5	8x10.5	10x10.5	-	-
			10x10.5	10x10.5	-	-	
1000	102	10x10.5	-	-	-	-	-

## PART NUMBER SYSTEM



## PEAK REFLOW TEMPERATURE CODES

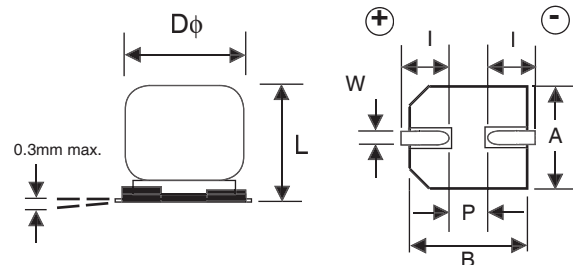
Code	Peak Re flow Temperature
N	260°C
L	250°C

## TERMINATION FINISH & PACKAGING OPTIONS CODES

Code	Finish & Reel Size
B	Sn-Bi Finish & 13" Reel
LB	Sn-Bi Finish & 15" Reel
S	100% Sn Finish & 13" Reel
LS	100% Sn Finish & 15" Reel

## DIMENSIONS (mm) AND REEL QUANTITIES

Case Size	φD±0.5	L max.	A±0.2	B±0.2	I±0.3	W	P±0.3	Qty/Reel
4x6.1	4.0	6.1	4.3	4.3	1.8	0.5~0.8	1.0	1,200
5x6.1	5.0	6.1	5.3	5.3	2.2	0.5~0.8	1.3	800
6.3x6.1	6.3	6.1	6.6	6.6	2.7	0.5~0.8	1.8	800
6.3x8	6.3	8.0	6.6	6.6	2.7	0.5~0.8	1.8	500
8x10.5	8.0	10.5	8.3	8.3	2.9	0.8~1.1	3.1	300
10x10.5	10.0	10.5	10.3	10.3	3.2	0.8~1.1	4.5	300



## 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)



## 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	Load Life Hours @ +105°C	
NAWT220M6.3V4X6.1NBF	22	6.3	0.30	26	2,000	
NAWT330M6.3V4X6.1NBF	33		0.30	29	2,000	
NAWT470M6.3V5X6.1NBF	47		0.30	46	2,000	
NAWT101M6.3V6.3X6.1NBF	100		0.30	71	2,000	
NAWT221M6.3V6.3X8NBF	220		0.35	121	2,000	
NAWT471M6.3V8X10.5LBF	470		0.35	210	2,000	
NAWT102M6.3V10X10.5LBF	1000		0.35	485	2,000	
NAWT330M10V5X6.1NBF	33	10	0.24	43	2,000	
NAWT101M10V6.3X6.1NBF	100		0.24	71	2,000	
NAWT331M10V8X10.5LBF	330		0.26	196	2,000	
NAWT471M10V8X10.5LBF	470		0.26	210	2,000	
NAWT471M10V10X10.5LBF	470		0.26	440	2,000	
NAWT101M16V4X6.1NBF	100		0.20	28	2,000	
NAWT220M16V5X6.1NBF	220		0.20	39	2,000	
NAWT470M16V6.3X6.1NBF	47	16	0.20	70	2,000	
NAWT101M16V6.3X8NBF	100		0.24	111	2,000	
NAWT221M16V8X10.5LBF	220		0.24	185	2,000	
NAWT331M16V8X10.5LBF	330		0.24	290	2,000	
NAWT331M16V10X10.5LBF	330		0.24	440	2,000	
NAWT471M16V8X10.5LBF	470		0.24	320	2,000	
NAWT471M16V10X10.5LBF	470		0.24	460	2,000	
NAWT330M25V6.3X6.1NBF	33		25	0.16	65	2,000
NAWT470M25V6.3X8NBF	47			0.18	79	2,000
NAWT101M25V8X10.5LBF	100			0.18	180	2,000
NAWT221M25V8X10.5LBF	220	0.18		320	2,000	
NAWT221M25V10X10.5LBF	220	0.18		355	2,000	
NAWT331M25V10X10.5LBF	330	0.18		450	2,000	
NAWT471M25V10X10.5LBF	470	0.18		490	2,000	
NAWT4R7M35V4X6.1NBF	4.7	35	0.14	15	2,000	
NAWT100M35V5X6.1NBF	10		0.14	28	2,000	
NAWT220M35V6.3X6.1NBF	22		0.14	55	2,000	
NAWT330M35V6.3X8NBF	33		0.14	76	2,000	
NAWT101M35V8X10.5LBF	100		0.14	180	2,000	
NAWT101M35V10X10.5LBF	100		0.14	305	2,000	
NAWT221M35V10X10.5LBF	220		0.14	450	2,000	
NAWTR10M50V4X6.1NBF	0.1	50	0.12	1.0	2,000	
NAWTR22M50V4X6.1NBF	0.22		0.12	2.6	2,000	
NAWTR33M50V4X6.1NBF	0.33		0.12	3.2	2,000	
NAWTR47M50V4X6.1NBF	0.47		0.12	4.0	2,000	
NAWT1R0M50V4X6.1NBF	1.0		0.12	8.0	2,000	
NAWT2R2M50V4X6.1NBF	2.2		0.12	11	2,000	
NAWT3R3M50V4X6.1NBF	3.3		0.12	14	2,000	
NAWT4R7M50V5X6.1NBF	4.7		0.12	19	2,000	
NAWT100M50V6.3X6.1NBF	10		0.12	35	2,000	
NAWT220M50V6.3X8NBF	22		0.12	67	2,000	
NAWT330M50V8X10.5LBF	33		0.12	140	2,000	
NAWT470M50V8X10.5LBF	47		0.12	167	2,000	
NAWT470M50V10X10.5LBF	47		0.12	180	2,000	
NAWT101M50V8X10.5LBF	100		0.12	230	2,000	

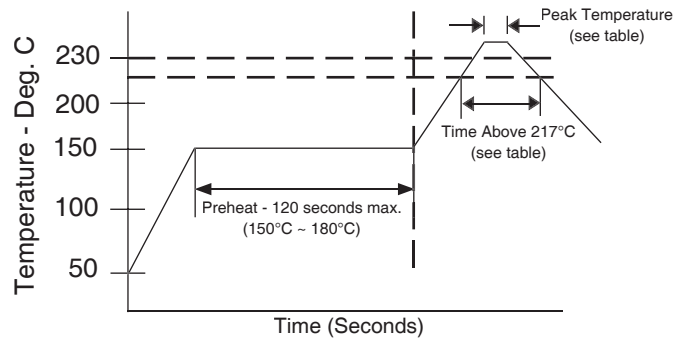
## RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

Frequency	50/60Hz	120Hz	500Hz	1KHz	10KHz
0.1 ~ 1μF	0.5	1.00	1.20	1.30	1.50
2.2~4.7	0.65	1.00	1.20	1.30	1.50
10~47	0.80	1.00	1.20	1.30	1.50
100~1000	0.80	1.00	1.10	1.15	1.20



## PEAK REFLOW TEMPERATURE AND DURATION

Diameter	Time above 217°C	Peak Temperature 5 seconds
4 ~ 6.3mm $\phi$	60 sec. max.	260°C
8 ~ 10mm $\phi$	60 sec. max.	250°C



## RECOMMENDED LAND PATTERN DIMENSIONS (mm)

Case Size	a	b	c
4x6.1	1.0	2.6	1.6
5x6.1	1.4	3.0	1.6
6x3x6.1 6.3x8	2.1	3.5	1.6
8x10.5	3.0	4.1	2.2
10x10.5	4.5	4.3	2.2

