Surface Mount Aluminum Electrolytic Capacitors NAWE Series

FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- SUIT FOR HIGH TEMPERATURE REFLOW SOLDERING (UP TO 260°C)
- 1,000 HOUR LOAD LIFE @ +105°C
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING

SAC Alloy Compatible
230°C ~ 260°C

RoHS Compliant
includes all homogeneous materials



*See Part Number System for Details

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

CHARACTERISTICS

Rated Voltage Rating	6.3 ~ 50Vdc						
Rated Capacitance Range	1.0 ~ 1,000µF						
Operating Temp. Range	-55 ~ +105°C						
Capacitance Tolerance	±20% (M)						
Max. Leakage Current After 2 Miuntes @ 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 = 1,000 hours	Capacitance Change	Within ±30% of initial measured value					
	Tan δ	Less than ±300% of the specified maximum value					
	Leakage Current	Less than the specified maximum value					

STANDARD VALUES AND CASE SIZES (mm)

Cap. (µF)	Code	Working Voltage (Vdc)					
		6.3	10	16	25	35	50
1.0	1R0	-	-	-	-	-	4x5.5
2.2	2R2	-	-	-	-	-	4x5.5
3.3	3R3	-	-	-	-	-	4x5.5
4.7	4R7	-	-	-	-	4x5.5	5x5.5
10	100	-	-	4x5.5	-	5x5.5	6.3x5.5
22	220	4x5.5	-	5x5.5	-	6.3x5.5	-
33	330	-	5x5.5	-	6.3x5.5	-	8x10.5
47	470	5x5.5	-	6.3x5.5	-	-	8x10.5
							10x10.5
100	101	6.3x5.5	-	6.3x5.5	8x10.5	8x10.5	8x10.5
						10x10.5	10x10.5
220	221	-	-	8x10.5	8x10.5	10x10.5	-
					10x10.5		
330	331	-	8x10.5	8x10.5	10x10.5	-	-
				10x10.5			
470	471	8x10.5	8x10.5	10x10.5	-	-	-
			10x10.5				
1000	102	10x10.5	-	-	-	-	-

PART NUMBER SYSTEM

NAWE 101 M 16V 6.3x5.5 N B F

- F — RoHS Compliant
- B — Termination/Packaging Code
- N — Reflow Temperature Code
- 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
- NAWE — Series

PEAK REFLOW TEMPERATURE CODES

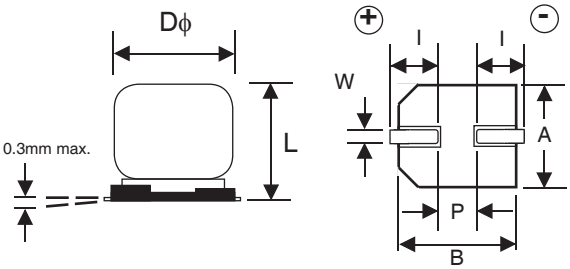
Code	Peak Reflow Temperature
N	260°C
L	250°C

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
4x5.5	4.0	5.5	4.3	4.3	1.8	0.5~0.8	1.0	1,500
5x5.5	5.0	5.5	5.3	5.3	2.2	0.5~0.8	1.4	1000
6.3x5.5	6.3	5.5	6.6	6.6	2.5	0.5~0.8	2.2	1000
8x10.5	8.0	10.5	8.3	8.3	2.9	0.7~1.1	3.2	300
10x10.5	10.0	10.5	10.3	10.3	3.2	0.8~1.4	4.6	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**
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: **tpmg@niccomp.com**

STANDARD VALUES, CASE SIZES AND SPECIFICATIONS

NIC Part Number	Cap. (μF)	W.V. (Vdc)	Dissipaton Factor (Tan δ)	Max. Ripple Current (mA) +105°C/120Hz	Load Life Hours @ +105°C
NAWE220M6.3V4X5.5NBF	22	6.3	0.30	23	1,000
NAWE470M6.3V5X5.5NBF	47		0.30	37	1,000
NAWE101M6.3V6.3X5.5NBF	100		0.30	57	1,000
NAWE471M6.3V8X10.5LBF	470		0.35	210	1,000
NAWE102M6.3V10X10.5LBF	1000		0.35	480	1,000
NAWE330M10V5X5.5NBF	33	10	0.24	34	1,000
NAWE331M10V8X10.5LBF	330		0.26	195	1,000
NAWE471M10V8X10.5LBF	470		0.26	210	1,000
NAWE471M10V10X10.5LBF	470		0.26	440	1,000
NAWE100M16V4X5.5NBF	10	16	0.20	20	1,000
NAWE220M16V5X5.5NBF	22		0.20	31	1,000
NAWE470M16V6.3X5.5NBF	47		0.20	56	1,000
NAWE101M16V6.3X5.5NBF	100		0.20	65	1,000
NAWE221M16V8X10.5LBF	220		0.20	185	1,000
NAWE331M16V8X10.5LBF	330		0.20	195	1,000
NAWE331M16V10X10.5LBF	330		0.20	440	1,000
NAWE471M16V10X10.5LBF	470		0.20	460	1,000
NAWE330M25V6.3X5.5NBF	33	25	0.16	48	1,000
NAWE101M25V8X10.5LBF	100		0.16	180	1,000
NAWE221M25V8X10.5LBF	220		0.16	190	1,000
NAWE221M25V10X10.5LBF	220		0.16	353	1,000
NAWE331M25V10X10.5LBF	330		0.16	450	1,000
NAWE4R7M35V4X5.5NBF	4.7	35	0.14	14	1,000
NAWE100M35V5X5.5NBF	10		0.14	24	1,000
NAWE220M35V6.3X5.5NBF	22		0.14	46	1,000
NAWE101M35V8X10.5LBF	100		0.14	180	1,000
NAWE101M35V10X10.5LBF	100		0.14	305	1,000
NAWE221M35V10X10.5LBF	220		0.14	360	1,000
NAWE1R0M50V4X5.5NBF	1.0	50	0.12	8.0	1,000
NAWE2R2M50V4X5.5NBF	2.2		0.12	11	1,000
NAWE3R3M50V4X5.5NBF	3.3		0.12	13	1,000
NAWE4R7M50V5X5.5NBF	4.7		0.12	18	1,000
NAWE100M50V6.3X5.5NBF	10		0.12	28	1,000
NAWE330M50V8X10.5LBF	33		0.12	135	1,000
NAWE470M50V8X10.5LBF	47		0.12	155	1,000
NAWE470M50V10X10.5LBF	47		0.12	180	1,000
NAWE101M50V8X10.5LBF	100		0.12	200	1,000
NAWE101M50V10X10.5LBF	100		0.12	315	1,000

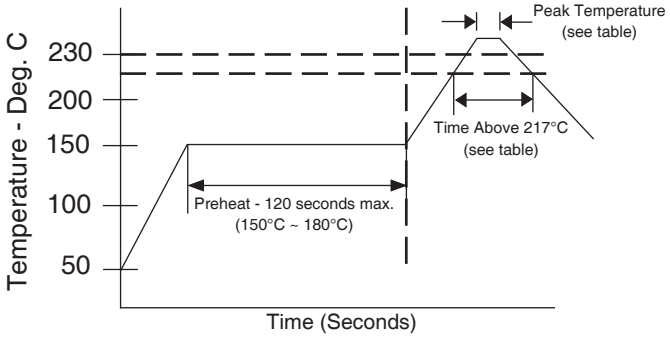
RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

Frequency	50/60Hz	120Hz	500Hz	1KHz	10KHz
0.1 ~ 1μF	0.5	1.00	1.20	1.30	1.50
2.2 ~ 4.7μF	0.65	1.00	1.20	1.30	1.50
10 ~ 47μF	0.80	1.00	1.20	1.30	1.50
100 ~ 1000μF	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 ϕ	60 sec. max.	260°C
8 ~ 10mm ϕ	60 sec. max.	250°C

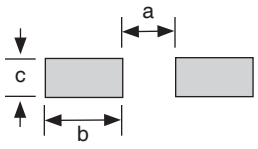
Capacitors can withstand two times reflow at the above conditions. Second reflow shall be at least one hour after natural cool to room temperature.



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

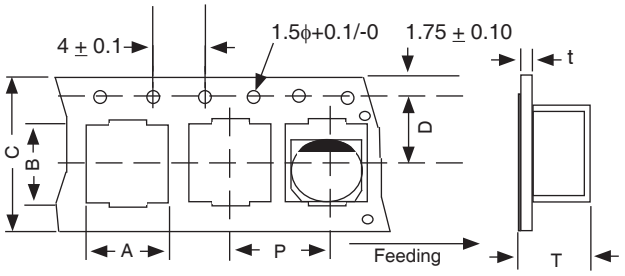
RECOMMENDED LAND PATTERN DIMENSIONS (mm)

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
8x10.5	2.8	4.1	2.2
10x10.5	4.3	4.4	2.5



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
8x10.5	8.7	8.7	24.0	11.5	16.0	11.1	0.6
10x10.5	10.7	10.7	24.0	11.5	16.0	11.2	0.6



REEL DIMENSIONS & REEL QTY

Case Size	W ±1.0	Quantity	
		TR13 (330mm)	TR15 (380mm)
4x5.5	14	1500	2000
5x5.5	14	1000	-
6.3x5.5	18	1000	-
8x10.5	26	300	500
10x10.5	26	300	500

