

NAUJ Series

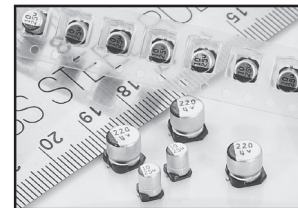
Surface Mount Aluminum Electrolytic Capacitors



FEATURES

- -40°C TO +150°C OPERATING RANGE
- **AUTOMOTIVE GRADE AEC-Q200**
- EXTENDED LIFETIME; 1000 HRS @ +150°C
- 24,000 HRS @ +105°C, 96,000 HRS @ +85°C
- 10X10.8mm & 12.5X14mm SIZES
- 'W' WIDE TERMINAL OPTION FOR HIGH VIBRATION APPLICATIONS

*Contact NIC for supporting test data

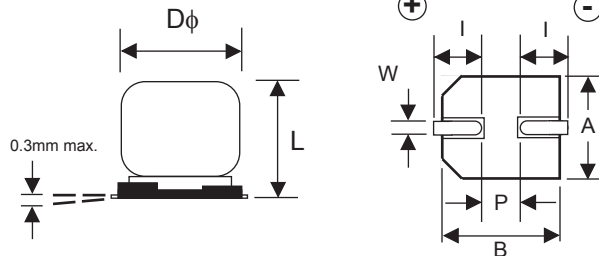


CHARACTERISTICS

Rated Voltage Range	25 ~ 50VDC			
Rated Capacitance Range	33 ~ 470μF			
Operating Temp. Range	-40 ~ +150°C			
Capacitance Tolerance	±20% (M)			
Max. Leakage Current After 2 Minutes @ 20°C	0.01CV			
Working Voltage & Surge Voltage Ratings	W.V. (Vdc)	25	35	50
	S.V. (Vdc)	32	44	63
Tan δ @ 120Hz/20°C	Tan δ @ 120Hz/20°C	0.16	0.14	0.14
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)	25	35	50
	Z -25°C/Z +20°C	2	2	2
	Z -40°C/Z +20°C	3	3	3
Load Life Test at W.V. @ 150°C All Case Sizes: 1,000 Hours	Capacitance Change	Within ±30% of initial measured value		
	Tan δ	Less than 300% of specified max. value		
	Leakage Current	Less than specified max. value		

STANDARD PRODUCT AND CASE SIZE Dφ xL (mm)

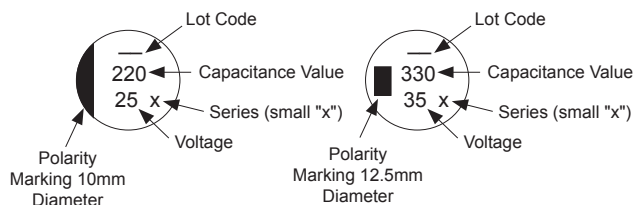
Cap.(μF)	Code	Working Voltage (Vdc)		
		25	35	50
33	330	-	-	8x10.8
47	470	-	8x10.8	-
100	101	-	10x10.8	-
150	151	-	10x10.8	-
220	221	10x10.8	12.5x14	-
330	331	12.5x14	12.5x14	-
470	471	12.5x14	-	-



DIMENSIONS (mm)

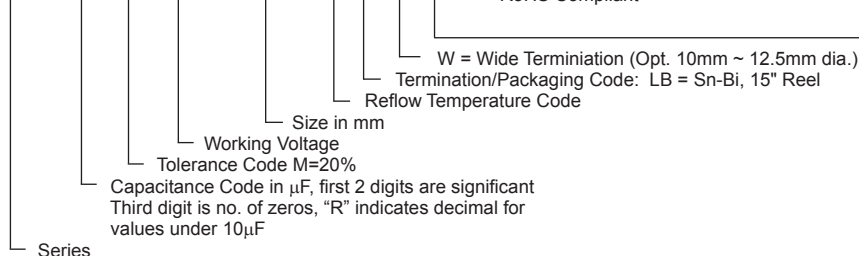
Case Size	Dφ ±0.5	L max.	A, B ±0.2	(I)	(P)	W
8x10.8	8.0	10.8	8.3	2.9	3.2	0.7 ~ 1.0
10x10.8	10.0	10.8	10.3	3.2	4.6	1.0 ~ 1.4
12.5x14	12.5	14.0	12.8	4.5	4.6	1.0 ~ 1.4

Part Marking



PART NUMBER SYSTEM

NAUJ 221 M 25V 10x10.8 L LB W Y F RoHS Compliant



Reflow Code
K = +245°C
L = +250°C
N = +260°C

Termination / Packaging Code
LB = Sn-Bi / 15" reel

Suitable for automotive equipment, sourced to special production and inspection at IATF-16949 certified production site

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 VALUES, CASE SIZES & SPECIFICATIONS

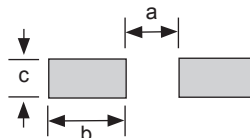
Part Number	Cap. (μF)	Working Voltage	Dissipation Factpr @120Hz/20°C	Max. ESR (Ω) AT 100KHz/20°C	Max. Ripple Current (mA rms) AT 100KHz/150°C	Load Life Hours @ +150°C
NAUJ221M25V10X10.8LLBYF	220	25V	0.16	0.20	150	1000
NAUJ331M25V12.5X14KLBYF	330		0.16	0.15	650	1000
NAUJ471M25V12.5X14KLBYF	470		0.16	0.15	700	1000
NAUJ470M35V8X10.8NLBYF	47	35V	0.14	0.30	80	1000
NAUJ101M35V10X10.8LLBYF	100		0.14	0.20	120	1000
NAUJ151M35V10X10.8LLBYF	150		0.14	0.20	120	1000
NAUJ221M35V12.5X14KLBYF	220		0.14	0.15	550	1000
NAUJ331M35V12.5X14KLBYF	330		0.14	0.15	650	1000
NAUJ330M50V8X10.8NLBYF	33		50	0.14	0.60	70

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency (Hz)	100 ≤ f < 1K	1K ≤ f < 10K	10K ≤ f < 100K	100K ≤ f
33μF ~ 470μF	0.6	0.85	0.93	1.00

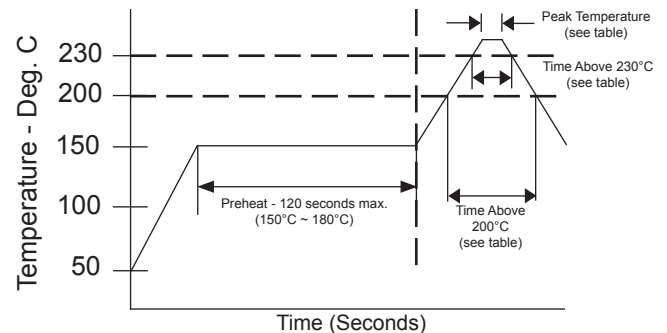
LAND PATTERN DIMENSIONS (mm)

Case Size	a	b	c
8x10.8	2.8	4.1	2.1
10x10.8	4.3	4.4	2.5
12.5x14	4.3	5.8	2.5



PEAK REFLOW TEMPERATURES AND DURATION

Diameter	Time above 200°C	Time above 217°C	Time above 230°C	Peak Temperature 5 seconds
φ8mm	Within 80 sec.	Within 70 sec.	Within 40 sec.	+260°C
φ10mm	Within 70 sec.	Within 60 sec.	Within 40 sec.	+250°C
φ12.5mm	Within 60 sec.	Within 50 sec.	Within 30 sec.	+245°C



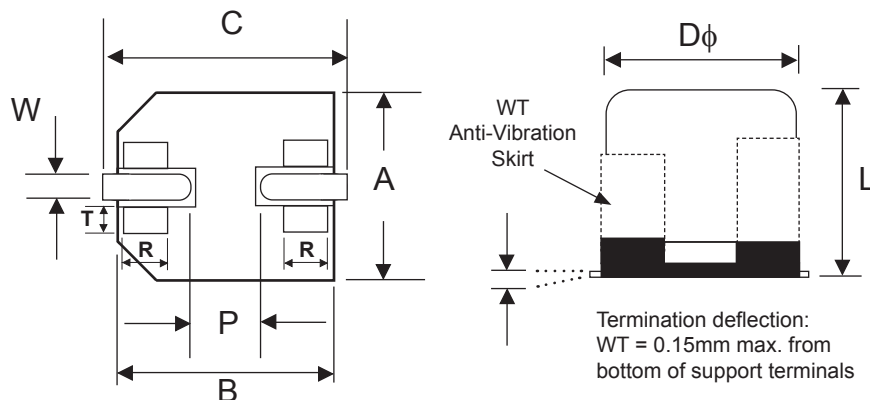
Capacitors can withstand two reflow passes under the specified conditions. Capacitors must be allowed to cool to room temperature before the second reflow pass.

W (WIDE TERMINATIONS) COMPONENT DIM. (mm)

Case Size	Dφ ±0.5	L max.	A, B ±0.2	C ±0.2	P	W	R	T
8x10.8	8.0	11.2	8.3	9.0	(3.2)	0.7~ 1.0	(0.7)	(1.3)
10x10.8	10.0	11.2	10.3	11.0	(4.6)	1.0 ~ 1.4	(0.7)	(1.3)
12.5x14	12.5	14.5	13.5	14.2	(4.6)	1.0 ~ 1.4	(2.2)	(2.4)

W (WIDE TERMINATIONS) LAND PATTERN DIM. (mm)

Case Size	a	b	c
8x10.8	2.5	4.5	4.7
10x10.8	3.8	4.8	4.7
12.5x14	3.8	6.1	6.9



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W (Wide Terminations) Anti-Vibration Test

Test Method	Direction: X, Y, Z axis Frequency & Duration: 5 to 2000Hz reciprocation, 2 hours each direction Peak to Peak Amplitude: 5mm Peak Acceleration: 30G Sweep Type: Log
Δ Capacitance	Within ± 10% of initial value
Tangent of Loss	≤ Specified value
Leakage Current	≤ Specified value

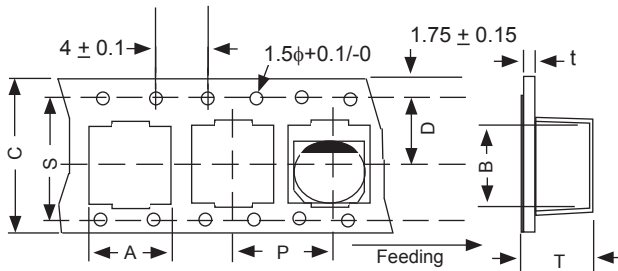
CARRIER TAPE

Case Size	A	B	C	D	P	T	t	S
	±0.2	±0.2	±0.3	±0.1	±0.1	±0.2	max.	±0.1
8x10.8	8.7	8.7	24.0	11.5	16.0	11.1	0.6	-
10x10.8	10.7	10.7	24.0	11.5	16.0	11.2	0.6	-
12.5x14	13.2	13.2	32.0	14.2	24.0	14.3	0.6	28.4

TAPING SPECIFICATIONS (mm)

- Both Leader and Trailer tape: Minimum 10 empty carrier tape pockets.
- Leader tape: Approximately 20cm of cover tape at leader.
- Connection: Maximum 3 connections (slices) per reel.

CARRIER

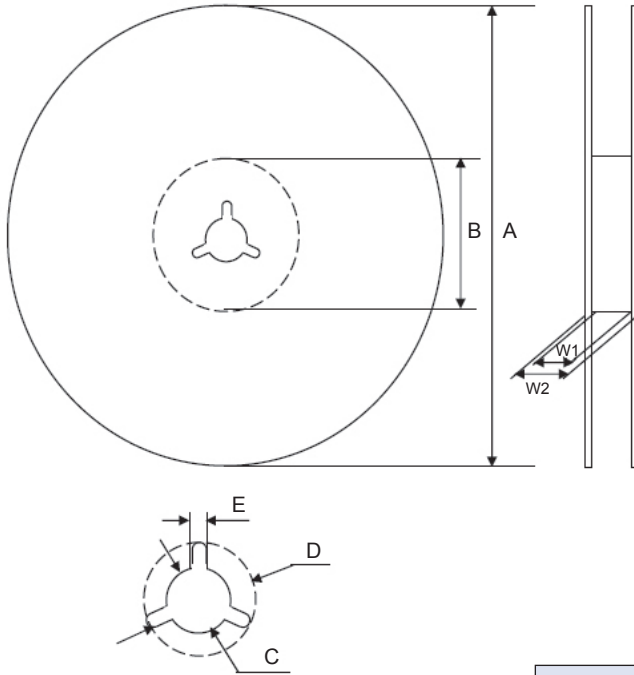


V-Chip 15" (380mm) Reels (LB suffix)

Dimensions (mm)

Case Size	Tape Width	W1	W2
8x10.8	24.0	24.5 ~ 26.0	27.5 ~ 32.0
10x10.8	24.0	24.5 ~ 26.0	27.5 ~ 32.0
12.5x14	32.0	33.0 ~ 34.0	36.5 ~ 38.5

Case Size	Tape Width	A	B	C	D	E
8x10.8	24.0	φ380 ±2	φ50 min.	φ13 ±0.5	φ21 min.	2.0 ±0.5
10x10.8	24.0					
12.5x14	32.0					



Case Size	Qty per Reel
	15" (380mm)
8x10.8	500
10x10.8	500
12.5x14	250