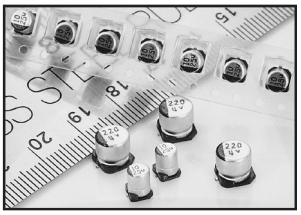
Hybrid Aluminum Electrolytic Capacitors

NSPE-J Series

FEATURES

- -40°C TO +150°C OPERATING RANGE
- MEETS THE REQUIREMENTS OF AEC-Q200*
- HIGH RIPPLE CURRENT RATING AT HIGH TEMPERATURE
- EXTENDED LIFETIME: 1000 HOURS @ +150°C (OVER 20K HOURS @ +105°C)
- 8x10.5mm, 10x10.5mm & 10x12.5mm SIZES
- 'W' WIDE TERMINAL OPTION FOR HIGH VIBRATION APPLICATIONS

*Contact NIC for supporting test data

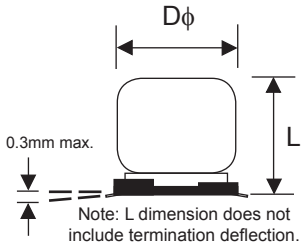


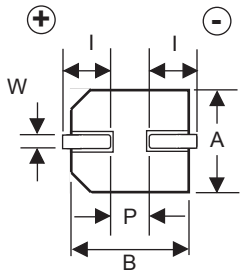
CHARACTERISTICS

Rated Voltage Range	25 ~ 35VDC		
Rated Capacitance Range	100 ~ 330µF		
Operating Temp. Range	-40 ~ +150°C		
Capacitance Tolerance	±20% (M)		
Max. Leakage Current After 2 Minutes @ 20°C	0.05CV		
Working Voltage & Surge Voltage Ratings	W.V. (Vdc)	25	35
	S.V. (Vdc)	32	44
Tan δ @ 120Hz/20°C		0.16	
Temperature Stability Impedance Ratio @ 120Hz	Z -40°C/Z +20°C	1.0 ~ 2.5	
	Z +150°C/Z +20°C	0.6 ~ 1.0	
Load Life Test at W.V. @ 150°C All Case Sizes: 1,000 Hours	Capacitance Change	Within ±30% of initial measured value	
	ESR, Tan δ	Less than 200% 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
100	101	-	8x10.5
150	151	8x10.5	10x10.5
220	221	10x10.5	10x12.5
270	271	10x10.5	-
330	331	10x12.5	-

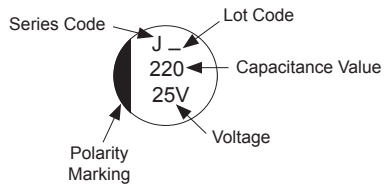




DIMENSIONS (mm)

Case Size	Dϕ ±0.5	L max.	A, B ±0.2	I ±0.3	P ±0.2	W
8x10.5	8.0	10.5	8.3	2.9	3.2	0.7 ~ 1.0
10x10.5	10.0	10.5	10.3	3.2	4.6	1.0 ~ 1.4
10x12.5	10.0	12.5	10.3	3.2	4.6	1.0 ~ 1.4

Part Marking



PART NUMBER SYSTEM

NSPE-J 221 M 25V 10x10.5 N LB P W Y F

- F — RoHS Compliant
- Y — Wide Termination Option (10mm~12mm diameter)
- W — Optional plastic reel (standard material is cardboard). See page 3 & 4
- P — LB = Sn-Bi Finish and 15" Reel
- LB — Reflow Temp. Code (K=+245°C, N=+260°C)
- N — Size in mm
- 10x10.5 — Working Voltage
- 25V — Tolerance Code M=20%
- M — Capacitance Code in µF, first 2 digits are significant. Third digit is no. of zeros, "R" indicates decimal for values under 10µF
- 221 — Series
- NSPE-J — Suitable for automotive equipment, sourced to special production and inspection at TS-16949 certified production site

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

Reflow Code
N = +260°C

PRECAUTIONS

Please review the notes on correct use, safety and precautions found on our website 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 & SPECIFICATIONS

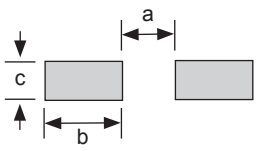
Part Number	Cap. (μF)	Working Voltage	Dissipaton Factpr @120Hz/20°C	Max. ESR (Ω) AT 100KHz/20°C	Max. Ripple Current (mA rms) AT 100KHz/150°C	Load Life Hours @ +150°C
NSPE-J151M25V8x10.5NLBYF	150	25V	0.16	0.027	740	1000
NSPE-J221M25V10X10.5NLBYF	220		0.16	0.022	850	1000
NSPE-J271M25V10X10.5NLBYF	270		0.16	0.022	850	1000
NSPE-J331M25V10X12.5NLBYF	330		0.16	0.016	970	1000
NSPE-J101M35V8x10.5NLBYF	100	35V	0.16	0.030	710	1000
NSPE-J151M35V10x10.5NLBYF	150		0.16	0.023	830	1000
NSPE-J221M35V10X12.5NLBYF	220		0.16	0.017	950	1000

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency (Hz)	100 ≤ f <1K	1K ≤ f <10K	10K ≤ f <100K	100K ≤ f
100μF ~ 330μF	0.10	0.35	0.70	1.00

LAND PATTERN DIMENSIONS (mm)

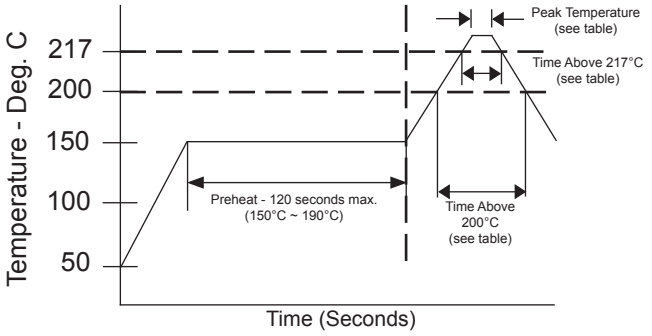
Case Size	a	b	c
8x10.5	2.8	4.1	2.1
10x10.5	4.3	4.4	2.5
10x12.5	4.3	4.4	2.5



PEAK REFLOW TEMPERATURES AND DURATION

Diameter	Time above 200°C	Time above 217°C	Time above 230°C	Peak Temperature 5 seconds
ϕ8.0 & ϕ10mm	Within 100 sec.	Within 80 sec.	Within 40 sec.	+260°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.

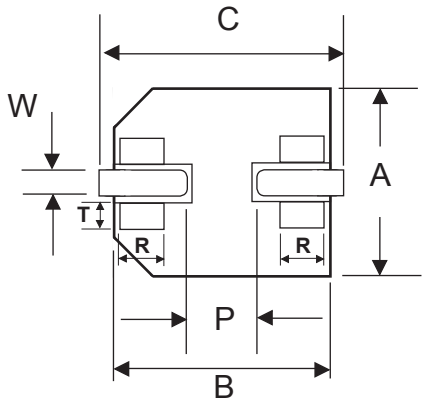


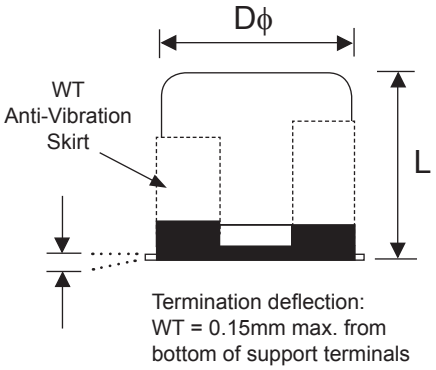
W (WIDE TERMINATIONS) COMPONENT DIM. (mm)

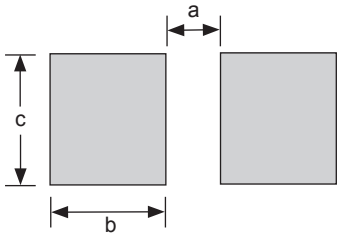
Case Size	Dϕ ±0.5	L	A, B ±0.2	C ±0.2	P	W	R	T
8x10.5	8.0	10.7 ± 0.5	8.3	9.0	(3.2)	0.7 ~ 1.0	(0.7)	(1.3)
10x10.5	10.0	10.7 ± 0.5	10.3	11.0	(4.6)	1.0 ~ 1.4	(0.7)	(1.3)
10x12.5	10.0	12.5 ± 1.0	10.3	11.0	(4.6)	1.0 ~ 1.4	(0.7)	(1.3)

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

Case Size	a	b	c
8x10.5	2.5	4.5	4.7
10x10.5	3.8	4.8	4.7
10x12.5	3.8	4.8	4.7







W (Wide Terminations) Anti-Vibration Test	
Test Method	Direction: X, Y, Z axis Frequency & Duration: 5 to 2000Hz reciprocation for 20 minutes, 2 hours total in each direction Peak to Peak Amplitude: 5mm Peak Acceleration: 30G Sweep Type: Log Thickness of Solder Paste: 0.20mm ± 0.03mm
Capacitance	During test measured value to be stabilized
Appearance	No remarkable abnormality

CARRIER TAPE

Case Size	A ±0.2	B ±0.2	C ±0.3	D ±0.1	P ±0.1	T ±0.2	t max.
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
10x12.5	10.7	10.7	24.0	11.5	16.0	13.3	0.6

LB 380mm (15") CARDBOARD REEL

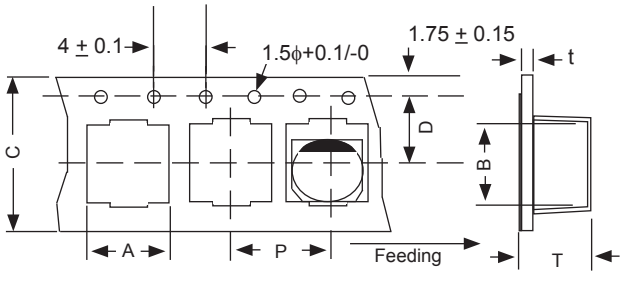
(See page 6 for plastic reel dimensions)

Case Size	W +3/-1	Qty per Reel 15" (380mm)
8x10.5	26	500
10x10.5	26	500
10x12.5	26	400

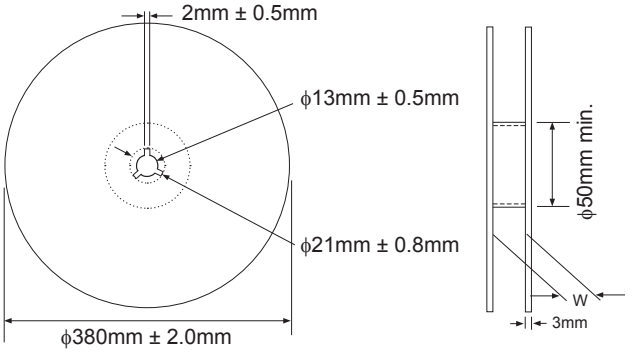
TAPING SPECIFICATIONS (mm)

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

CARRIER

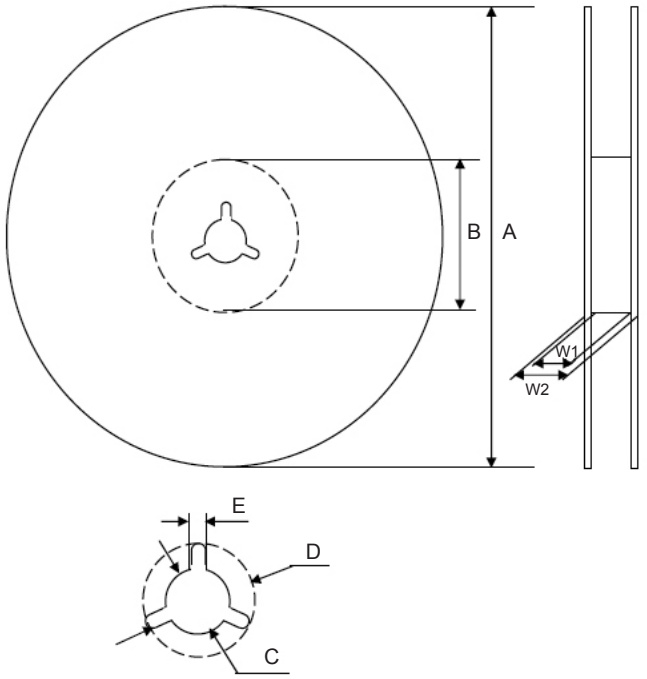


CARDBOARD REEL



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

Optional V-Chip 15" (380mm) Plastic Reels (LBP suffix)



Dimensions (mm)

Case Size	Tape Width	W1	W2
8x10.5, 10x10.5, 10x12.5	24.0	24.5 ~ 26.0	27.5 ~ 32.0

Case Size	Tape Width	A	B	C	D	E
8x10.5, 10x10.5, 10x12.5	24.0	ϕ380 ±2	ϕ80~105	ϕ13 ±0.5	ϕ21 ±1.0	2.0 ±0.5

Color
Black or Blue

Case Size	Qty per Reel
	15" (380mm)
8x10.5	500
10x10.5	500
10x12.5	400