

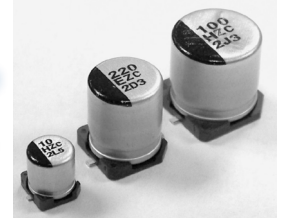
# NSPE-Z Series Hybrid Aluminum Electrolytic Capacitors



- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- HIGH TEMPERATURE RANGE (+125°C)
- LONG LIFE (4,000 HOURS)
- LOW ESR, HIGH RIPPLE CURRENT & LOW LEAKAGE
- 5x6.1 ~ 10x10.5mm CASE SIZES
- REFLOW SOLDERING RATED TO +260°C (ALL SIZES)
- **MEETS THE REQUIREMENTS OF AEC-Q200\***

\*Contact NIC for supporting test data

**High Temperature, Long Life  
& Available with Wide  
Anti-Vibration Terminations**



## CHARACTERISTICS

Rated Voltage Range	25 ~ 63Vdc				
Rated Capacitance Range	10 ~ 330μF				
Operating Temp. Range	-55 ~ +125°C				
Capacitance Tolerance	±20% (M)				
Max. Leakage Current After 2 Minutes @ 20°C	Less than 0.01CV or 3μA whichever is greater				
Working and Surge Voltage Ratings	W.V. (Vdc)	25	35	50	63
	S.V. (Vdc)	32	44	63	79
Tan δ @ 120Hz/20°C		0.14	0.12	0.10	0.08
Load Life Test @ +125°C and Rated Voltage	Test Duration	All Case Sizes: 4,000 Hours			
	Capacitance Change	Within ±30% of initial measured value			
	Tan δ	Less than 200% of specified max. value			
	ESR	Less than 200% of specified max. value			
	Leakage Current	Less than specified max. value			
	Low Temperature ESR after endurance test ESR @ 100KHz/-40°C	φ5x6.1	φ6.3x6.1	φ6.3x8	φ8x10.5
	2.0Ω	1.4Ω	0.8Ω	0.4Ω	0.3Ω

## STANDARD PRODUCTS AND CASE SIZES Dφ x L (mm)

PART NUMBER	Case Size (D X L) mm	Cap. (μF)	Working Voltage	Max. Tan δ 120Hz/20°C	Max. ESR (mΩ) @ 100KHz/20°C	Max. Ripple Current (mA rms) @ 100KHz/125°C	Load Life Hours (+125°C)
NSPE-Z330M25V5X6.1NLBYF	5X6.1	33	25	0.14	80	550	4,000
NSPE-Z560M25V6.3X6.1NLBYF	6.3X6.1	56		0.14	50	900	4,000
NSPE-Z101M25V6.3X8NLBYF	6.3x8	100		0.14	30	1400	4,000
NSPE-Z221M25V8X10.5NLBYF	8x10.5	220		0.14	27	1600	4,000
NSPE-Z331M25V10X10.5NLBYF	10x10.5	330		0.14	20	2000	4,000
NSPE-Z220M35V5X6.1NLBYF	5X6.1	22	35	0.12	100	550	4,000
NSPE-Z470M35V6.3X6.1NLBYF	6.3X6.1	47		0.12	60	900	4,000
NSPE-Z680M35V6.3X8NLBYF	6.3x8	68		0.12	35	1400	4,000
NSPE-Z151M35V8X10.5NLBYF	8x10.5	150		0.12	27	1600	4,000
NSPE-Z271M35V10X10.5NLBYF	10x10.5	270		0.12	20	2000	4,000
NSPE-Z100M50V5X6.1NLBYF	5X6.1	10	50	0.10	120	500	4,000
NSPE-Z220M50V6.3X6.1NLBYF	6.3X6.1	22		0.10	80	750	4,000
NSPE-Z330M50V6.3X8NLBYF	6.3X8	33		0.10	40	1100	4,000
NSPE-Z680M50V8X10.5NLBYF	8X10.5	68		0.10	30	1250	4,000
NSPE-Z101M50V10X10.5NLBYF	10X10.5	100		0.10	28	1600	4,000
NSPE-Z100M63V6.3X6.1NLBYF	6.3X6.1	10	63	0.08	120	700	4,000
NSPE-Z220M63V6.3X8NLBYF	6.3X8	22		0.08	80	900	4,000
NSPE-Z330M63V8X10.5NLBYF	8X10.5	33		0.08	40	1100	4,000
NSPE-Z560M63V10X10.5NLBYF	10X10.5	56		0.08	30	1400	4,000

For Automotive Applications See Part Numbering System

## RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency	120Hz	1KHz	10KHz	≥100KHz
Correction Factor	0.10	0.30	0.60	1.00

See Part Numbering System on Page 2

**Performance Passives By Design**

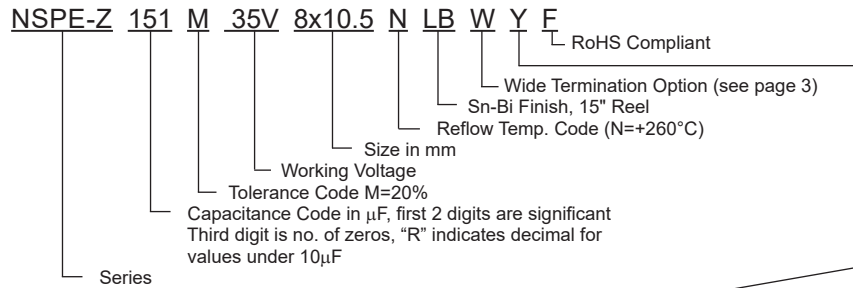
NIC Components Corp.  
100 Baylis Road. Melville, NY 11747

Page 1

www.niccomp.com

Last Updated 01-26-2023 Specification subject to change without notice. Please check web site for latest information.

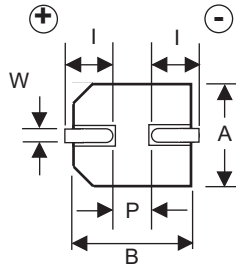
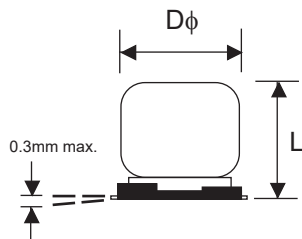
**PART NUMBER SYSTEM**



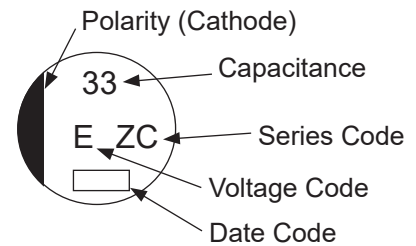
Suitable for automotive equipment, sourced to special production and inspection at IATF-16949 certified production site

**DIMENSIONS (mm)**

Case Size	D $\phi$ $\pm 0.5$	L max.	A, B $\pm 0.2$	W	I $\pm 0.3$	P $\pm 0.2$
5x6.1	5	6.1	5.3	0.55 ~ 0.75	2.2	1.5
6.3x6.1	6.3	6.1	6.6	0.55 ~ 0.75	2.6	1.8
6.3x8	6.3	8.0	6.6	0.55 ~ 0.75	2.6	1.8
8x10.5	8.0	10.5	8.3	0.7 ~ 1.1	3.4	3.1
10x10.5	10	10.5	10.3	0.7 ~ 1.1	3.5	4.6



**Part Marking**

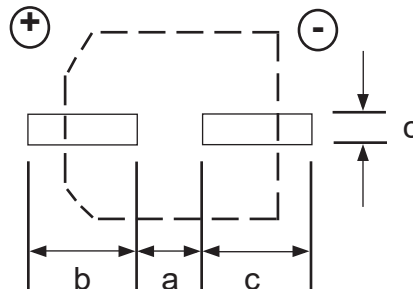


**VOLTAGE RATING CODES**

Code	Voltage Rating
E	25V
V	35V
H	50V
J	63V

**LAND PATTERN DIM. (mm)**

Case Dia.	a	b	c
5	1.5	2.8	1.6
6.3	1.8	3.2	1.6
8	3.1	4.0	2.0
10	4.6	4.1	2.0



**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](mailto:tpmg@niccomp.com)

**WIDE TERMINATION DIM. (mm)**

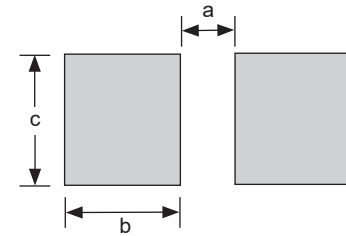
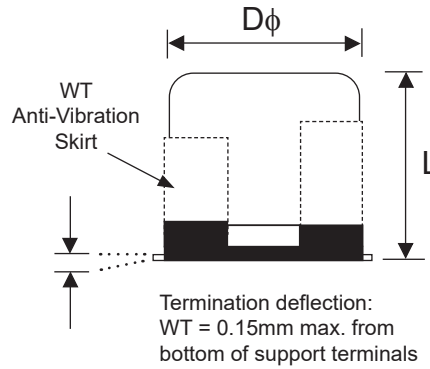
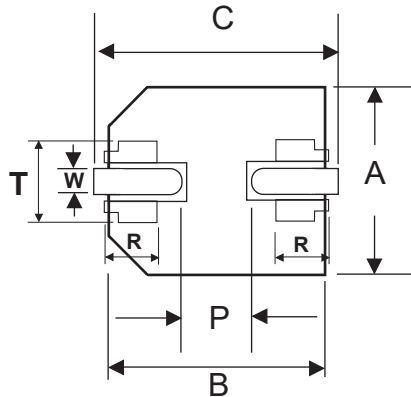
Case Size	D $\phi$ $\pm$ 0.5	L max.	A, B	C max.	P	W	R	T
6.3x6.1	6.3	6.4	6.6 $\pm$ 0.2	7.8	(2.2)	0.65 $\pm$ 0.1	(1.3 $\pm$ 0.2)	3.0 $\pm$ 0.2
6.3x8	6.3	8.3	6.6 $\pm$ 0.2	7.8	(2.2)	0.65 $\pm$ 0.1	(1.3 $\pm$ 0.2)	3.0 $\pm$ 0.2
8 x 10.5WT	8.0	10.8	8.3 $\pm$ 0.2	10.0	(3.1)	1.2 $\pm$ 0.2	0.7 $\pm$ 0.2	1.3 $\pm$ 0.2
10 x 10.5WT	10.0	10.8	10.3 $\pm$ 0.2	12.0	(4.6)	1.2 $\pm$ 0.2	0.7 $\pm$ 0.2	1.3 $\pm$ 0.2

(Reference dimensions)

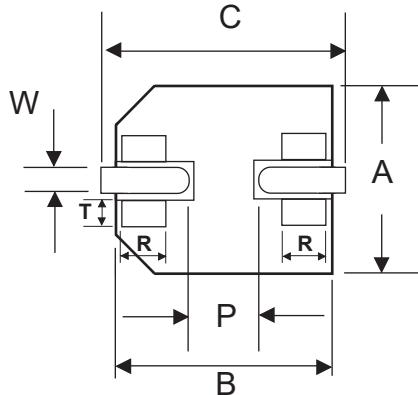
**WIDE TERMINATION  
LAND PATTERN DIM. (mm)**

Case Size	a	b	c
6.3x6.1	1.2	3.6	3.2
6.3x8	1.2	3.6	3.2
8x10.5	2.7	4.0	4.7
10x10.5	3.9	4.4	4.7

**6.3mm DIAMETER  
WT STYLE TERMINATION**

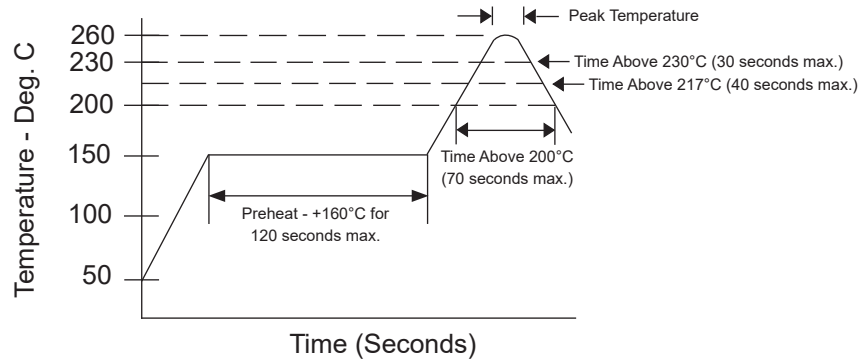


**8 & 10mm DIAMETER  
WT STYLE TERMINATION**



W (Wide Terminations) Anti-Vibration Test	
Test Method	Direction: X, Y, Z axis Frequency & Duration: 5 to 2000Hz reciprocation for 20 minutes, 2 hours each direction Peak to Peak Amplitude: 5mm Peak Acceleration: 30G Sweep Type: Log
$\Delta$ Capacitance	Within $\pm$ 10% of initial value
Tangent of Loss	$\leq$ Specified value
Leakage Current	$\leq$ Specified value

**RECOMMENDED REFLOW SOLDERING PROFILE\***



**PEAK TEMPERATURE AND DURATION**

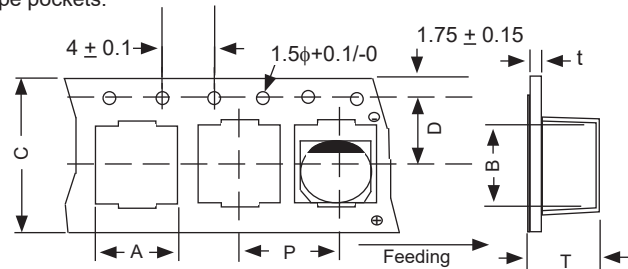
Diameter	Peak Temperature	Time	Time above 230°C	Time above 217°C	# of Reflow Passes
φ5 ~ 6.3mm	+260°C	≥+250°C 5 sec.	30 sec. max.	40 sec. max.	2
	+255°C	≥+250°C 10 sec.			2
φ8 ~ 10mm	+260°C	≥+250°C 5 sec.	30 sec. max.	40 sec. max.	1
	+245°C	≥+240°C 10 sec.			2

\*Two reflow passes are permissible with a cool down to room temperature required between the first and second pass. Acceptable soldering methods are IR or IR & heated air.

**TAPING SPECIFICATIONS (mm)**

- Both Leader and Trailer tape: Minimum 40mm (1.57") empty carrier tape pockets.
- Leader tape: Approximately 20cm of cover tape at leader.
- Connection: Maximum 3 connections (slices) per reel.

Case Size	A	B	C	D	P	T	t
5x6.1	±0.5	±0.5	±0.3	±0.1	±0.1	±0.2	max.
6.3x6.1	7.0	7.0	12.0	5.5	12.0	6.4	0.4
6.3x8	7.0	7.0	16.0	7.5	12.0	8.5	0.4
8x10.5	8.7	8.7	24.0	11.5	16.0	11.0	0.4
10x10.5	10.7	10.7	24.0	11.5	16.0	11.0	0.4



**REEL DIMENSIONS (mm)**

Case Size	W	Qty per Reel
	±1.0	15" (380mm)
5x6.1	14	1,000
6.3x6.1	18	1,000
6.3x8	18	900
8x10.5	26	500
10x10.5	26	500

