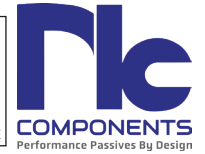


# NSPE-TZ Series

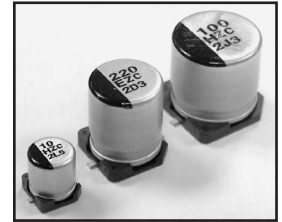
## Hybrid Aluminum Electrolytic Capacitors



- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- HIGH TEMPERATURE RANGE (+125°C)
- LONG LIFE (UP to 3,000 HOURS)
- LOW ESR, HIGH RIPPLE CURRENT & LOW LEAKAGE
- 6.3x6.3 ~ 10x12.8mm 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 &  
WIDE ANTI-VIBRATION  
TERMINATIONS**



### CHARACTERISTICS

Rated Voltage Range	16 ~ 35Vdc			
Rated Capacitance Range	27 ~ 560μF			
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)	16	25	35
	S.V. (Vdc)	20	32	44
Tan δ @ 120Hz/20°C		0.16		
Low Temperature Stability Impedance Ratio @ 100KHz	Z-55°C/Z+25°C	0.75 ~ 1.25		
	Z+125°C/Z+20°C	0.75 ~ 1.25		
Load Life Test @ +125°C and Rated Voltage	W.V. (Ved)	16	25	35
	φ6.3 Dia.	1500	φ6.3X6.3: 1500, φ6.3X8: 2000	
	φ8 & φ10 Dia.	2500	3000	
	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		

### 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-TZ820M16V6.3X6.3NLBYF	6.3X6.3	82	16	0.16	38	1320	1500
NSPE-TZ121M16V6.3X8NLBYF	6.3X8	120		0.16	32	1440	1500
NSPE-TZ271M16V8X10.8NLBYF	8X10.8	270		0.16	23	1970	2500
NSPE-TZ471M16V10X10.8NLBYF	10X10.8	470		0.16	18	2620	2500
NSPE-TZ561M16V10X12.8NLBYF	10X12.8	560		0.16	14	3030	2500
NSPE-TZ470M25V6.3X6.3NLBYF	6.3X6.3	47	25	0.16	40	1260	1500
NSPE-TZ680M25V6.3X8NLBYF	6.3X8	68		0.16	35	1380	2000
NSPE-TZ151M25V8X10.8NLBYF	8X10.8	150		0.16	25	1880	3000
NSPE-TZ271M25V10X10.8NLBYF	10X10.8	270		0.16	19	2500	3000
NSPE-TZ331M25V10X12.8NLBYF	10X12.8	330		0.16	14	2890	3000
NSPE-TZ270M35V6.3X6.3NLBYF	6.3X6.3	27	35	0.16	50	1070	1500
NSPE-TZ470M35V6.3X8NLBYF	6.3X8	47		0.16	45	1280	2000
NSPE-TZ101M35V8X10.8NLBYF	8X10.8	100		0.16	28	1780	3000
NSPE-TZ151M35V10X10.8NLBYF	10X10.8	150		0.16	20	2440	3000
NSPE-TZ221M35V10X12.8NLBYF	10X12.8	220		0.16	15	2800	3000

### RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

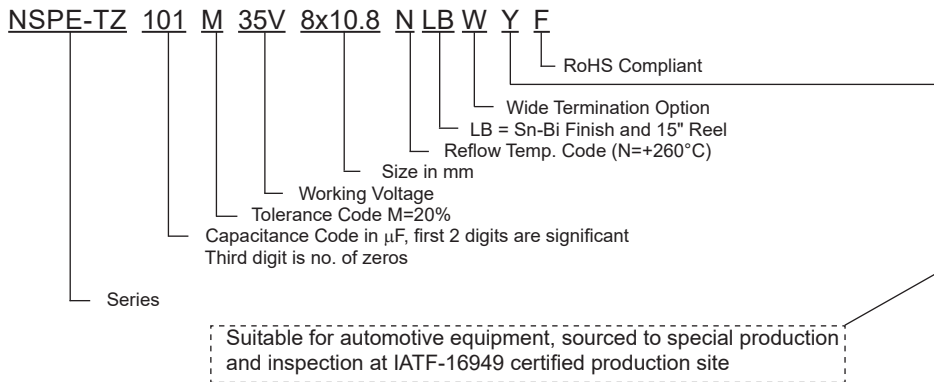
Frequency	120Hz	1KHz	10KHz	≥100KHz
27 < C ≤ 33	0.05	0.32	0.67	1.00
33 < C	0.10	0.35	0.70	1.00

# NSPE-TZ Series

## Hybrid Aluminum Electrolytic Capacitors

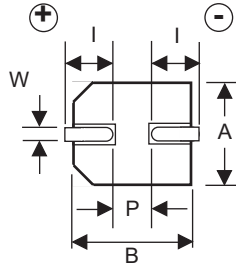
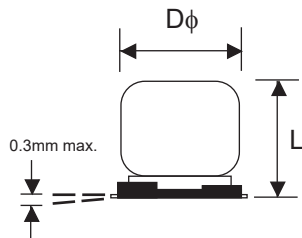
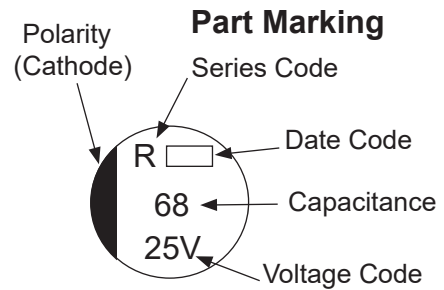


### PART NUMBER SYSTEM



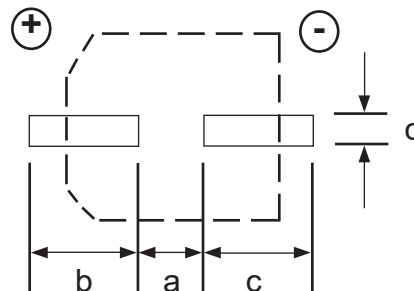
### DIMENSIONS (mm)

Case Size	$D\phi \pm 0.5$	L max.	A, B $\pm 0.2$	W	$l \pm 0.3$	$P \pm 0.2$
6.3x6.3	6.3	6.3	6.6	0.5 ~ 0.8	2.5	2.2
6.3x8	6.3	8	6.6	0.5 ~ 0.8	2.5	2.2
8x10.8	8	10.8	8.3	0.7 ~ 1.0	2.9	3.2
10x10.8	10	10.8	10.3	1.0 ~ 1.4	3.2	4.6
10x12.8	10	12.8	10.3	1.0 ~ 1.4	3.2	4.6



### LAND PATTERN DIM. (mm)

Case Dia.	a	b	c
6.3	1.8	3.6	1.8
8	2.8	4.1	2.1
10	4.3	4.4	2.5



### 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)

# NSPE-TZ Series

## Hybrid Aluminum Electrolytic Capacitors



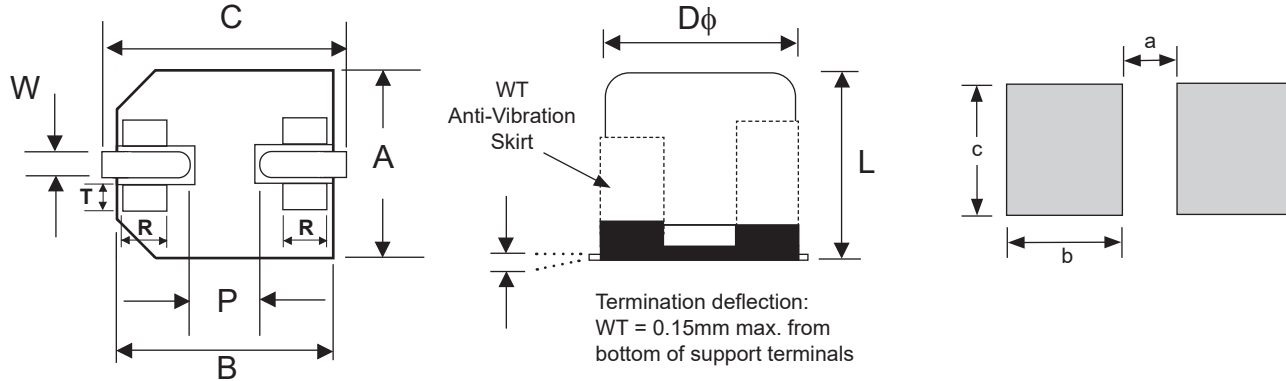
### W (WIDE TERMINATIONS) COMPONENT DIM. (mm)

Case Size	D $\phi$ $\pm$ 0.5	L max.	A, B $\pm$ 0.2	C $\pm$ 0.2	P	W	R	T
6.3x6.3	6.3	6.5	6.6 $\pm$ 0.2	7.3	(2.2)	0.5 ~ 0.8	(1.7)	(0.7)
6.3x8	6.3	8.2	6.6 $\pm$ 0.2	7.3	(2.2)	0.5 ~ 0.8	(1.7)	(0.7)
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)
10x12.8	10.0	13.5	10.3	11.0	(4.6)	1.0 ~ 1.4	(0.7)	(1.3)

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

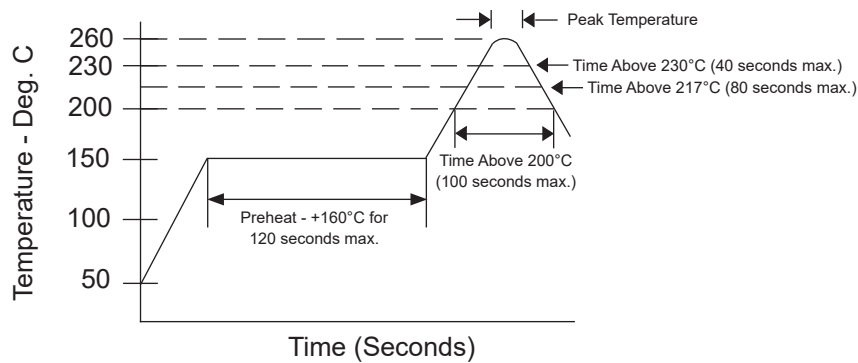
Case Size	a	b	c
6.3x6.3	1.6	4.0	3.0
6.3x8	1.6	4.0	3.0
8x10.8	2.5	4.5	4.7
10x10.8	3.8	4.8	4.7
10x12.8	3.8	4.8	4.7

(Reference dimensions)



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 (5 seconds max.)	Time above 230°C	Time above 217°C	Time above 200°C
$\phi$ 6.3 ~ 10mm	+260°C	40 sec. max.	80 sec. max.	100 sec. max.

\*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.

# NSPE-TZ Series

## Hybrid Aluminum Electrolytic Capacitors

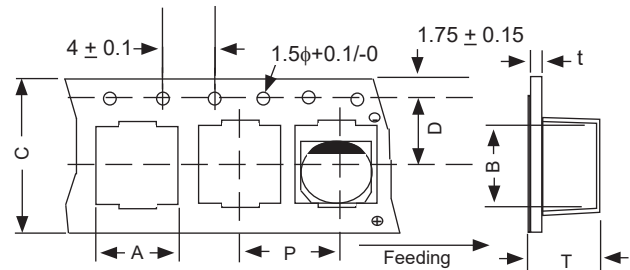


Resistance to Soldering Heat	Capacitors placed on a +250°C hot plate for 30 seconds with their electrode terminals facing downward will fulfill the following conditions after being cooled to room temperature	
	Capacitance Change	Within $\pm 10\%$ of the initial measured value
	Dissipation Factor	Less than maximum specified value
	Leakage Current	Less than maximum specified value
	ESR	Less than 130% of maximum specified value

### 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 $\pm 0.5$	B $\pm 0.5$	C $\pm 0.3$	D $\pm 0.1$	P $\pm 0.1$	T $\pm 0.2$	t max.
6.3x6.3	7.0	7.0	16.0	7.5	12.0	6.5	0.6
6.3x8	7.0	7.0	16.0	7.5	12.0	8.2	0.6
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
10x12.8	10.7	10.7	24.0	11.5	16.0	13.3	0.6

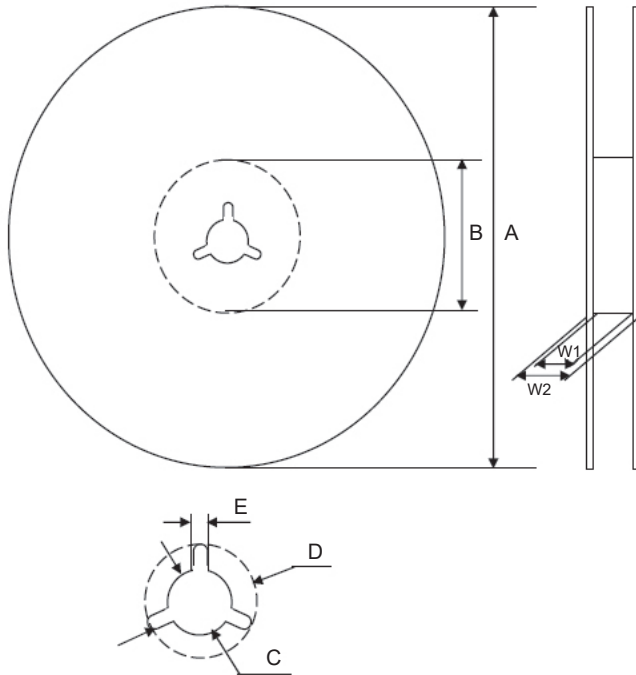


# NSPE-TZ Series

## Hybrid Aluminum Electrolytic Capacitors



### V-Chip 15" (380mm) Reels (LBF suffix)



#### Dimensions (mm)

Case Size	Tape Width	W1	W2
6.3x6.3, 6.3x8	16.0	16.5 ~ 18.5	19.5 ~ 24.0
8x10.8, 10x10.8, 10x12.8	24.0	24.5 ~ 26.5	27.5 ~ 32.0

Case Size	Tape Width	A	B	C	D	E
6.3x6.3, 6.3x8	16.0	$\phi 380 \pm 2$	$\phi 80 \sim 105$	$\phi 13 \pm 0.5$	$\phi 21 \pm 1.0$	2.0 $\pm 0.5$
8x10.8, 10x10.8, 10x12.8	24.0					

Color
Black

Case Size	Qty per Reel
	15" (380mm)
6.3x6.3	1,000
6.3x8	900
8x10.8	500
10x10.8	500
10x12.8	400