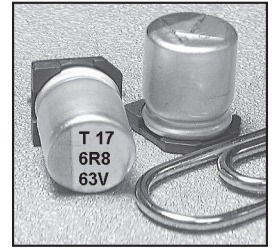


# Hybrid Aluminum Electrolytic Capacitors

NSPE-T Series

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- EXTENDED LOAD LIFE AT HIGH TEMPERATURE (1,500 ~ 3,000 HOURS @ +125°C)
- HIGH VOLTAGE RATINGS (16 ~ 125VDC)
- LOW ESR AND HIGH RIPPLE CURRENT RATINGS
- 6.3x6.3mm ~ 10x12.8mm CASE SIZES
- REFLOW SOLDERING RATED TO +260°C (+250°C 80V & 125V)
- MEETS THE REQUIREMENTS OF AEC-Q200\*

Available with Wide  
Anti-Vibration  
Terminations



## CHARACTERISTICS

Rated Voltage Range	16 ~ 125Vdc		
Rated Capacitance Range	6.8 ~ 560μF		
Operating Temp. Range	-55 ~ +125°C		
Capacitance Tolerance	±20% (M)		
Max. Leakage Current After 2 Minutes @ 20°C	16 ~ 63Vdc	0.01CV	
	80 ~ 125Vdc	Less than 0.05CV or 100μA whichever is greater	
Working and Surge Voltage Ratings	W.V. (Vdc)	16   25   35   40   50   63   80   100   125	
	S.V. (Vdc)	20   32   44   50   63   79   100   125   157	
Tan δ @ 120Hz/20°C		0.16	
Impedance Ratio	Z -55°C/Z +20°C	1 ~ 2.5	
	Z +125°C/Z +20°C	0.6 ~ 1.0	
Load Life Test @ 125°C and Rated Voltage	W.V. (Vdc)	16   25   35   40   50   63   80   100   125	
	Case Dia.	16V	φ6.3 = 1,500 hrs, φ8 & 10 = 2500 hrs.
		25V & up	6.3X6.3 = 1500 hrs, 6.3X8 = 2000 hrs, φ8 & 10 = 3000 hrs.
	Capacitance Change	Within ±30% of initial measured value	
	Tan δ and ESR	Less than 200% of specified max. value	
	Leakage Current	Less than specified max. value	
	ESR	Less than 200% of specified max. value	
Resistance to Soldering Heat	Hot Plate at +250°C for 30 seconds with electrodes facing downward		
	Capacitance Change	Within ±10% of the initial measured value	
	Dissipation Factor	Less than the initial limit	
	Leakage Current	Less than the initial limit	
	ESR	Less than 130% of specified value	

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

PART NUMBER	Cap. (μF)	Working Voltage	Case Size (D X L) mm	Max. Tan δ 120Hz/20°C	Max. ESR (mΩ) AT 100kHz/20°C	Max. Ripple Current (mA rms) AT 100KHz/125°C	Load Life Hours (+125°C)
NSPE-T121M16V6.3X8NLBF	120	16	6.3X8	0.16	40	1160	1500
NSPE-T271M16V8X10.8NLBF	270		8X10.8	0.16	26	1540	2500
NSPE-T471M16V10X10.8NLBF	470		10X10.8	0.16	21	2010	2500
NSPE-T561M16V10X12.8NLBF	560		10X12.8	0.16	15	2320	2500
NSPE-T470M25V6.3X6.3NLBF	47	25	6.3X6.3	0.16	60	890	1500
NSPE-T680M25V6.3X8NLBF	68		6.3X8	0.16	45	980	2000
NSPE-T151M25V8X10.8NLBF	150		8X10.8	0.16	27	1330	3000
NSPE-T271M25V10X10.8NLBF	270		10X10.8	0.16	22	1520	3000
NSPE-T331M25V10X12.8NLBF	330		10X12.8	0.16	16	1740	3000
NSPE-T270M35V6.3X6.3NLBF	27	35	6.3X6.3	0.16	100	760	1500
NSPE-T470M35V6.3X8NLBF	47		6.3X8	0.16	60	910	2000
NSPE-T101M35V8X10.8NLBF	100		8X10.8	0.16	30	1260	3000
NSPE-T151M35V10X10.8NLBF	150		10X10.8	0.16	23	1480	3000
NSPE-T221M35V10X12.8NLBF	220		10X12.8	0.16	17	1700	3000
NSPE-T180M40V6.3X6.3NLBF	18	40	6.3X6.3	0.16	110	720	1500
NSPE-T270M40V6.3X8NLBF	27		6.3X8	0.16	70	870	2000
NSPE-T560M40V8X10.8NLBF	56		8X10.8	0.16	32	1220	3000
NSPE-T101M40V10X10.8NLBF	100		10X10.8	0.16	24	1440	3000
NSPE-T121M40V10X12.8NLBF	120		10X12.8	0.16	18	1650	3000

For Automotive Applications See Part Numbering System



NIC COMPONENTS CORP. www.niccomp.com | www.lowESR.com | www.RFpassives.com | www.SMTmagnetics.com

SPECIFICATIONS ARE SUBJECT TO CHANGE

### STANDARD PRODUCTS AND CASE SIZES $D\phi \times L$ (mm)

PART NUMBER	Cap. ( $\mu$ F)	Working Voltage	Case Size (D X L) mm	Max. Tan $\delta$ 120Hz/20°C	Max. ESR (m $\Omega$ ) AT 100kHz/20°C	Max. Ripple Current (mA rms) AT 100kHz/125°C	Load Life Hours (+125°C)
NSPE-T100M50V6.3X6.3NLBF	10	50	6.3X6.3	0.16	120	690	1500
NSPE-T150M50V6.3X8NLBF	15		6.3X8	0.16	80	840	2000
NSPE-T330M50V8X10.8NLBF	33		8X10.8	0.16	35	1170	3000
NSPE-T560M50V10X10.8NLBF	56		10X10.8	0.16	25	1390	3000
NSPE-T820M50V10X12.8NLBF	82		10X12.8	0.16	19	1590	3000
NSPE-T6R8M63V6.3X6.3NLBF	6.8	63	6.3X6.3	0.16	150	670	1500
NSPE-T100M63V6.3X8NLBF	10		6.3X8	0.16	100	740	2000
NSPE-T220M63V8X10.8NLBF	22		8X10.8	0.16	40	1090	3000
NSPE-T330M63V8X10.8NLBF	33		8X10.8	0.16	40	1090	3000
NSPE-T330M63V10X10.8NLBF	33		10X10.8	0.16	30	1260	3000
NSPE-T470M63V10X10.8NLBF	47		10X10.8	0.16	30	1260	3000
NSPE-T560M63V10X12.8NLBF	56	10X12.8	0.16	22	1440	3000	
NSPE-T120M80V10X10.8LBF	12	80	10X10.8	0.16	70	900	3000
NSPE-T150M80V10X10.8LBF	15		10X10.8	0.16	70	900	3000
NSPE-T180M80V10X12.8LBF	18		10X12.8	0.16	50	1100	3000
NSPE-T100M100V10X10.8LBF	10	100	10X10.8	0.16	80	870	3000
NSPE-T120M100V10X10.8LBF	12		10X10.8	0.16	80	870	3000
NPSE-T150M100V10X12.8LBF	15		10X12.8	0.16	60	1000	3000
NSPE-T100M125V10X10.8LBF	10		125	10X10.8	0.16	90	750

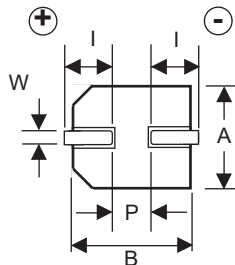
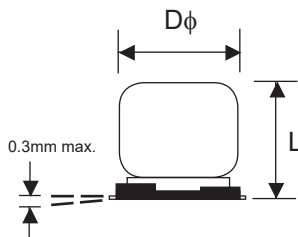
For Automotive Applications See Part Numbering System

### RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

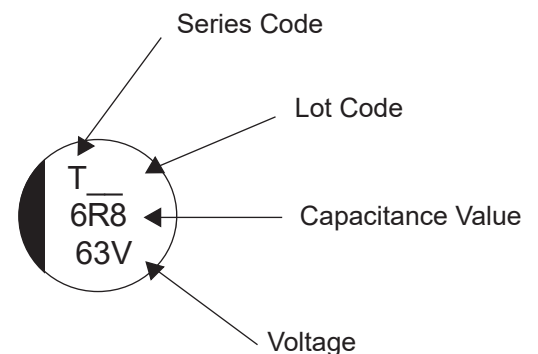
Frequency	100Hz	1KHz	10KHz	100KHz
6.8 ~ 33 $\mu$ F	0.05	0.32	0.67	1.0
47 ~ 560 $\mu$ F	0.10	0.35	0.70	1.0

### DIMENSIONS (mm)

Case Size	$D\phi \pm 0.5$	L max.	A, B $\pm 0.2$	W	I $\pm 0.2$	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	8.0	6.6	0.5 ~ 0.8	2.5	2.2
8x10.8	8.0	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



### Part Marking

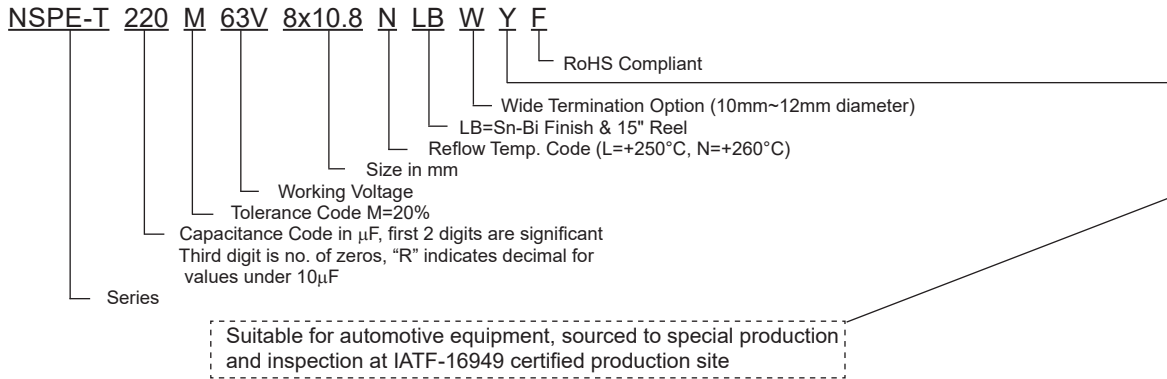


### PRECAUTIONS

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)



## PART NUMBER SYSTEM



Code	Plating	Termination Type	Automotive	Reel Size
LB	Sn-Bi	Standard	No	15" Reel
LBY	Sn-Bi	Standard	Yes	15" Reel
LBW	Sn-Bi	Wide Terminations	No	15" Reel
LBWY	Sn-Bi	Wide Terminations	Yes	15" Reel

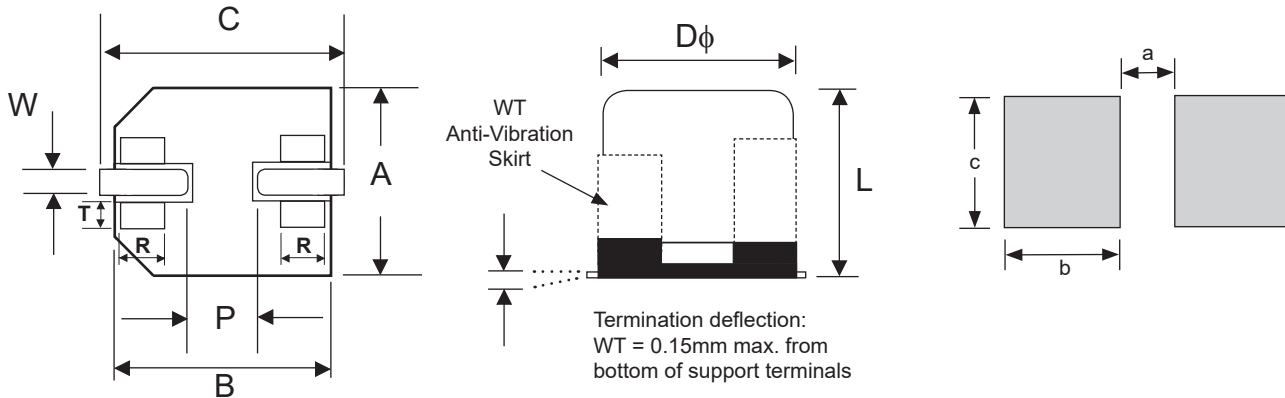
## W (WIDE TERMINATIONS) COMPONENT DIM. (mm)

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)

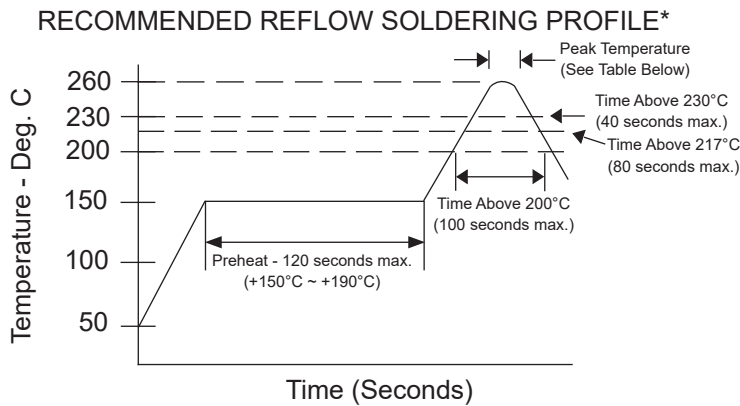
(Reference dimensions)

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

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

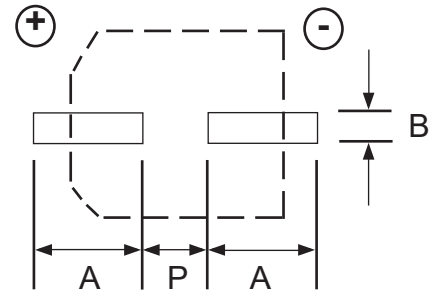


W (Wide Terminations) Anti-Vibration Test	
Test Method	Direction: X, Y, Z axis Frequency & Duration: 5 to 2000Hz reciprocation for 20 minutes, 2 hours each direction Peak to Peak Amplitude: 5mm Peak Acceleration: 30G Sweep Type: Log
$\Delta$ Capacitance	Within $\pm 10\%$ of initial value
Tangent of Loss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



**LAND PATTERN DIM. (mm)**

Case Dia.	A	B	P
6.3	3.6	1.8	1.8
8	4.1	2.1	2.8
10	4.4	2.5	4.3



**PEAK TEMPERATURE AND DURATION**

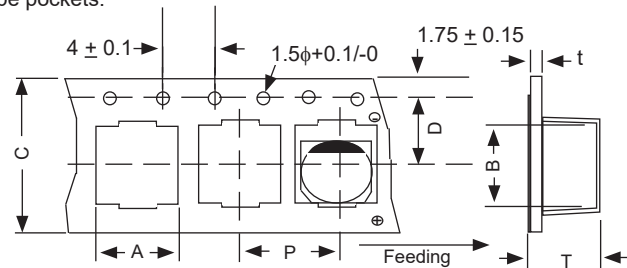
Rated Voltage/Diameter	Time Above +200°C	Time Above +217°C	Time Above +230°C	Peak Temperature
16V ~ 63V / 6.3mm ~ 10mm	100 sec. max.	80 sec. max.	40 sec. max.	+260°C (5 sec. max.)
80 ~ 125V / 10mm				+250°C (5 sec. max.)

\*Two reflow passes are permissible with a cool down to room temperature required between the first and second pass.

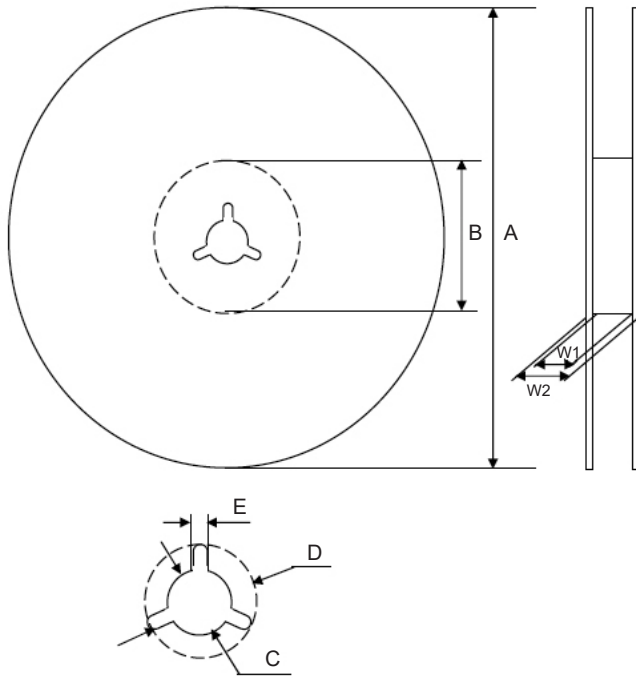
**TAPING SPECIFICATIONS (mm)**

- 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
6.3x6.3	±0.5	±0.5	±0.3	±0.1	±0.1	±0.2	max.
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	11.0	0.6
10x10.8	10.7	10.7	24.0	11.5	16.0	11.0	0.6
10x12.8	10.7	10.7	24.0	11.5	16.0	13.3	0.6



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



### Dimensions (mm)

Case Size	Tape Width	W1	W2
6.3x6.3, 6.3x8	16.0	16.5 ~ 18.5	19.5 ~ 24.0
8x10.5, 10x10.5, 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 $\pm 0.5$
8x10.5, 10x10.5, 10x12.8	24.0					

Color
Black

Case Size	Qty per Reel 15" (380mm)
6.3x6.3	1000
6.3x8	900
8x10.5	500
10x10.5	500
10x12.8	400