

NSPE-TS Series

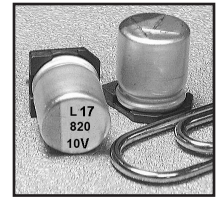
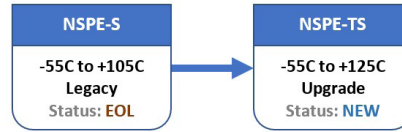
Hybrid Aluminum Electrolytic Capacitors



FEATURES

- -55°C TO +125°C OPERATING RANGE
- ULTRA HIGH RIPPLE CURRENT RATING
- EXTENDED LIFETIME: 2000 HOURS @ +125°C
- 6.3x6.3mm ~ 10x10.8mm CASE SIZES
- 'W' WIDE TERMINAL OPTION FOR HIGH VIBRATION APPLICATIONS
- MEETS THE REQUIREMENTS OF AEC-Q200*

*Contact NIC for supporting test data



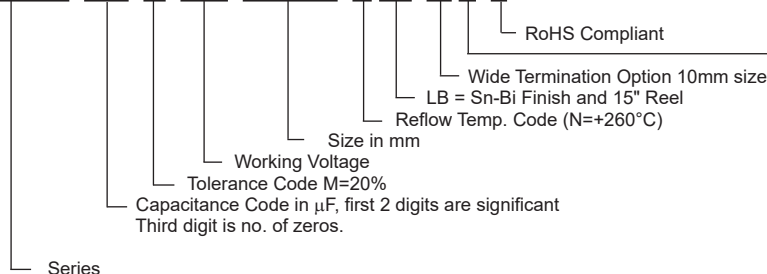
CHARACTERISTICS

Rated Voltage Range	6.3 ~ 10VDC	with Wide Anti-Vibration Terminations	
Rated Capacitance Range	100 ~ 1,000μF		
Operating Temp. Range	-55 ~ +125°C		
Capacitance Tolerance	±20% (M)		
Max. Leakage Current After 2 Minutes @ 20°C	0.05CV or 100μA whichever is greater		
Working Voltage & Surge Voltage Ratings	W.V. (Vdc)	6.3	10
	S.V. (Vdc)	8.2	13
Tan δ @ 120Hz/20°C		0.18	0.16
Temperature Stability Impedance Ratio @ 120Hz	Z -55°C/Z +20°C	1.0 ~ 2.5	
	Z +105°C/Z +20°C	0.6 ~ 1.0	
	Z +125°C/Z +20°C		
Load Life Test at W.V. @ 125°C All Case Sizes: 2,000 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	
Load Life Test at W.V. @ 105°C All Case Sizes: 5,000 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	
Biased Humidity Test at W.V. +85°C/85% RH	Test Duration	6.3mm: 1000 hrs., 8~10mm 2000 hrs.	
	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	
Resistance to Soldering Heat	After reflow stabilize at +20°C capacitors shall meet the following limits		
	Capacitance Change	Within ±10% of initial measured value	
	ESR	Less than 130% of specified max. value	
	Tan δ and Leakage Current	Less than specified max. value	

10mm size is available
with Wide
Anti-Vibration
Terminations

PART NUMBER SYSTEM

NSPE-TS 821 M 10V 10x10.8 N LB W Y F



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

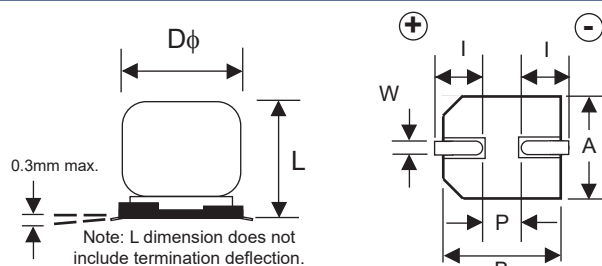
NSPE-TS Series

Hybrid Aluminum Electrolytic Capacitors

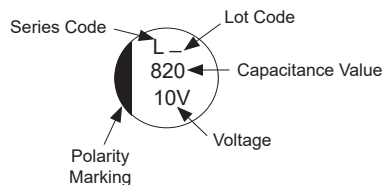


STANDARD PRODUCT AND CASE SIZE D ϕ x L (mm)

Cap. (μ F)	Code	Working Voltage (Vdc)	
		6.3	10
100	101	-	6.3x6.3
150	151	6.3x6.3	6.3x8
220	221	6.3x8	-
470	471	-	8x10.8
560	561	8x10.8	-
820	821	-	10x10.8
1000	102	10x10.8	-



Part Marking



DIMENSIONS (mm)

Case Size	D ϕ $\pm$ 0.5	L max.	A, B $\pm$ 0.2	(I)	(P)	W
6.3x6.3	6.3	6.3	6.6	2.5	2.2	0.5 ~ 0.8
6.3x8	6.3	8.0	6.6	2.5	2.2	0.5 ~ 0.8
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

STANDARD VALUES, CASE SIZES & SPECIFICATIONS

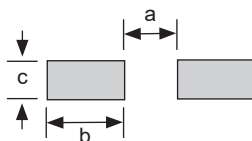
Part Number	Cap. (μ F)	Working Voltage	Dissipation Factor @120Hz/+20°C	Max. ESR (Ω) AT 100KHz/+20°C	Max. Ripple Current (mA rms) AT 100KHz		Load Life Hours @ +125°C	
					+105°C	+125°C	+105°C	+125°C
NSPE-TS151M6.3V6.3X6.3NLBYF	150	6.3	0.18	0.036	1700	950	5000	2000
NSPE-TS221M6.3V6.3X8NLBYF	220		0.18	0.032	2100	1150	5000	2000
NSPE-TS561M6.3V8X10.8NLBYF	560		0.18	0.016	3200	1800	5000	2000
NSPE-TS102M6.3V10X10.8NLBYF	1000		0.18	0.015	3900	2200	5000	2000
NSPE-TS101M10V6.3X6.3NLBYF	100	10	0.16	0.036	1700	950	5000	2000
NSPE-TS151M10V6.3X8NLBYF	150		0.16	0.032	2100	1150	5000	2000
NSPE-TS471M10V8X10.8NLBYF	470		0.16	0.016	3200	1800	5000	2000
NSPE-TS821M10V10X10.8NLBYF	820		0.16	0.015	3900	2200	5000	2000

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency (Hz)	100 $\leq$ f < 1K	1K $\leq$ f < 10K	10K $\leq$ f < 100K	100K $\leq$ f 500K
$\leq$ 150 μ F	0.10	0.40	0.70	1.00
>150 μ F	0.15	0.45	0.75	1.00

LAND PATTERN DIMENSIONS (mm)

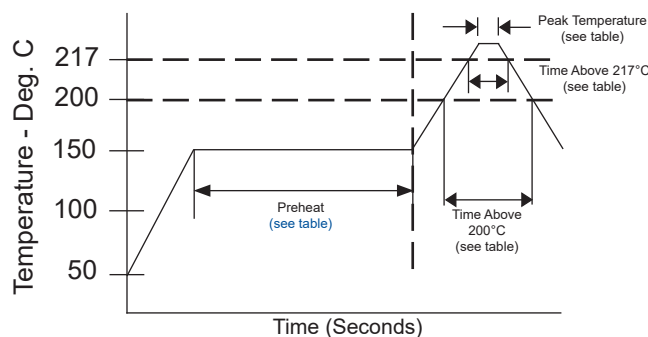
Case Size	a	b	c
6.3x6.3	1.8	3.6	1.8
6.3x8	1.8	3.6	1.8
8x10.8	2.8	4.1	2.1
10x10.8	4.3	4.4	2.5



PEAK REFLOW TEMPERATURES AND DURATION

Diameter	Pre-Heat	Peak Temperature less than 5 sec.	Time above +200°C	Time above +217°C	Time above +230°C	Number of Reflow Cycles
φ6.3mm	160°C	+260°C	Within 70 sec.	Within 40 sec.	Within 30 sec.	2
φ8 & φ10mm	120 sec. max.	+260°C		Within 40 sec.	Within 30 sec.	1
		+245°C		Within 50 sec.	Within 40 sec.	2

Capacitors can withstand two reflow passes under the specified conditions. Second reflow after one hour natural cooling and return to room temperature.

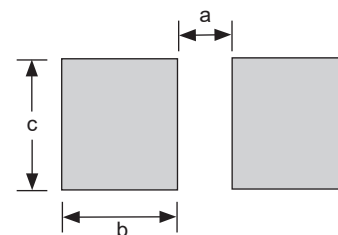
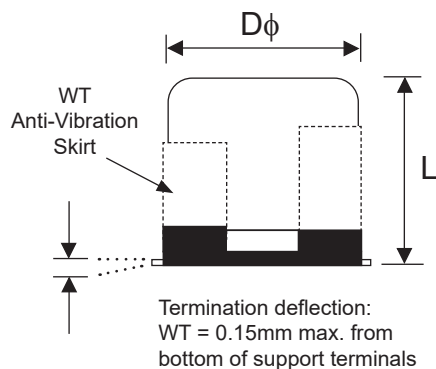
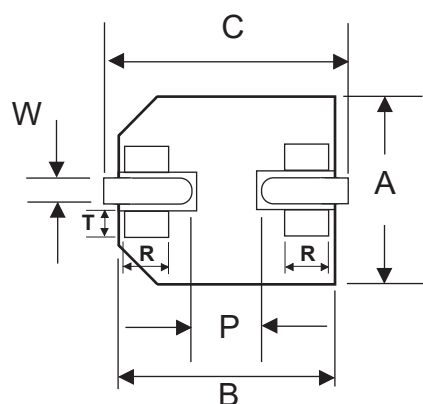


W (WIDE TERMINATIONS) COMPONENT DIM. (mm)

Case Size	Dφ ±0.5	L max.	A, B ±0.2	C ±0.2	(P)	W	(R)	(T)
10x10.8	10.0	11.2	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
10x10.8	3.8	4.8	4.7

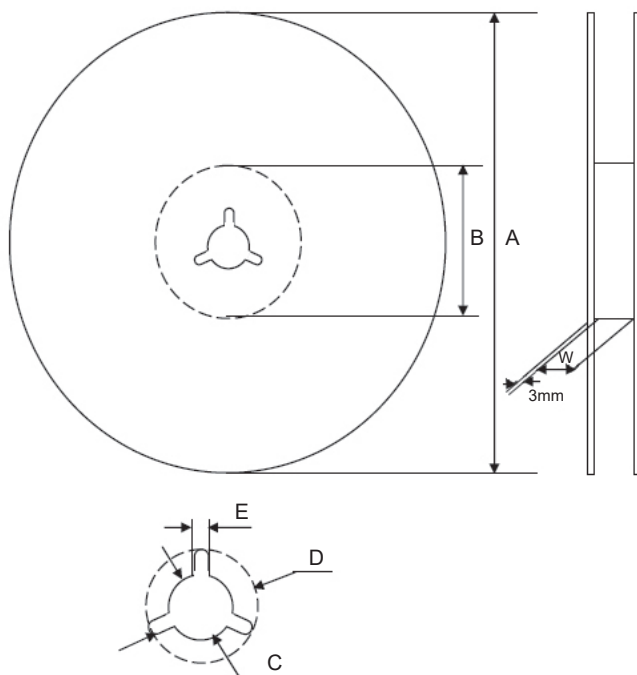


Review & Compare Reflow Soldering Heat Limits
V-chip SMT Aluminum Electrolytic Capacitors
www.niccomp.com/RSL

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 $\pm$ 0.03mm
Capacitance	During test measured value to be stabilized
Appearance	No remarkable abnormality

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

Dimensions (mm)



Case Size	Tape Width	W
6.3x6.3, 6.3x8	16.0	18.0
8x10.8, 10x10.8	24.0	26.0

Case Size	Tape Width	A	B	C	D	E
6.3x6.3, 6.3x8	16.0	$\phi 380 \pm 2$	$\phi 50$ min.	$\phi 13 \pm 0.5$	$\phi 21 \pm 0.8$	2.0 ± 0.5
8x10.8, 10x10.8	24.0					

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

CARRIER TAPE

Case Size	A	B	C	D	P	T	t
	± 0.2	± 0.2	± 0.3	± 0.1	± 0.1	± 0.2	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

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

