

# Hybrid Aluminum Electrolytic Capacitors

NSPE-A Series

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- EXTENDED LOAD LIFE AT HIGH TEMPERATURE (10,000 HOURS @ +105°C)
- HIGH VOLTAGE RATINGS (25 ~ 80VDC)
- LOW ESR AND HIGH RIPPLE CURRENT RATINGS
- 5x6.1mm ~ 10x10.5mm CASE SIZES
- REFLOW SOLDERING RATED UP TO +260°C

**RoHS**  
**Compliant**  
includes all homogeneous materials



\*See Part Number System for Details

## CHARACTERISTICS

Rated Voltage Range	25 ~ 80Vdc					
Rated Capacitance Range	10 ~ 330μF					
Operating Temp. Range	-55 ~ +105°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	80
	S.V. (Vdc)	32	44	63	79	100
Tan δ @ 120Hz/20°C		0.12	0.10	0.08	0.08	0.08
Impedance Ratio	Z -25°C/Z +20°C	2				
	Z -55°C/Z +20°C	2.5				
Load Life Test @ 105°C and Rated Voltage (10,000 hours)	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				

## 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/105°C	Load Life Hours
NSPE-A330M25V5X6.1NLBYF	33	25	5X6.1	0.14	80	900	10,000
NSPE-A560M25V6.3X6.1NLBYF	56		6.3X6.1	0.14	50	1300	10,000
NSPE-A101M25V6.3X8NLBYF	100		6.3x8	0.14	30	2000	10,000
NSPE-A221M25V8X10.5NLBYF	220		8x10.5	0.14	27	2300	10,000
NSPE-A331M25V10X10.5NLBYF	330		10x10.5	0.14	20	2500	10,000
NSPE-A220M35V5X6.1NLBYF	22		35	5X6.1	0.12	100	900
NSPE-A270M35V6.3X6.1NLBYF	27	6.3X6.1		0.12	60	1300	10,000
NSPE-A470M35V6.3X6.1NLBYF	47	6.3X6.1		0.12	60	1300	10,000
NSPE-A680M35V6.3X8NLBYF	68	6.3x8		0.12	35	2000	10,000
NSPE-A151M35V8X10.5NLBYF	150	8x10.5		0.12	27	2300	10,000
NSPE-A271M35V10X10.5NLBYF	270	10x10.5		0.12	20	2500	10,000
NSPE-A100M50V5X6.1NLBYF	10	50	5X6.1	0.1	120	750	10,000
NSPE-A220M50V6.3X6.1NLBYF	22		6.3X6.1	0.1	80	1100	10,000
NSPE-A330M50V6.3X8NLBYF	33		6.3X8	0.1	40	1600	10,000
NSPE-A680M50V8X10.5NLBYF	68		8X10.5	0.1	30	1800	10,000
NSPE-A101M50V10X10.5NLBYF	100		10X10.5	0.1	28	2000	10,000
NSPE-A100M63V6.3X6.1NLBYF	10	63	6.3X6.1	0.08	120	1000	10,000
NSPE-A220M63V6.3X8NLBYF	22		6.3X8	0.08	80	1500	10,000
NSPE-A330M63V8X10.5NLBYF	33		8X10.5	0.08	40	1700	10,000
NSPE-A560M63V10X10.5NLBYF	56		10X10.5	0.08	30	1800	10,000
NSPE-A220M80V8X10.5NLBYF	22	80	8x10.5	0.08	45	1550	10,000
NSPE-A330M80V10X10.5NLBYF	33		10X10.5	0.08	36	1700	10,000

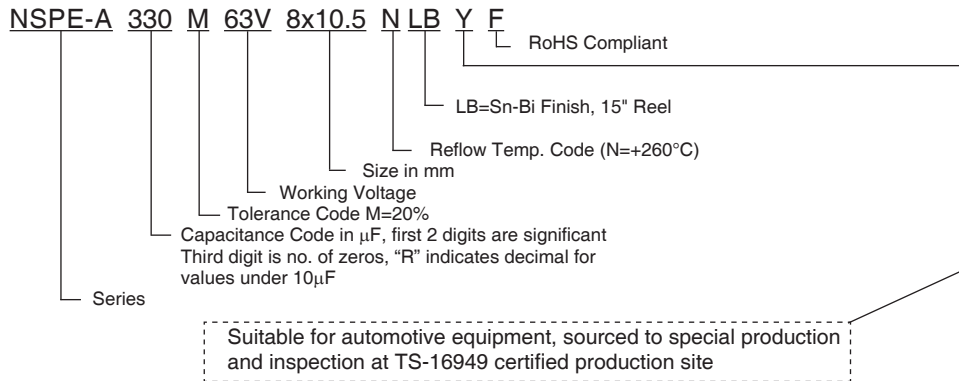
## RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

Frequency	120Hz	1KHz	10KHz	100KHz
Correction Factor	0.1	0.3	0.60	1.00

**PRECAUTIONS**  
Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capacitor catalog.  
Also found at [www.niccomp.com/precautions](http://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](mailto:tpmg@niccomp.com)

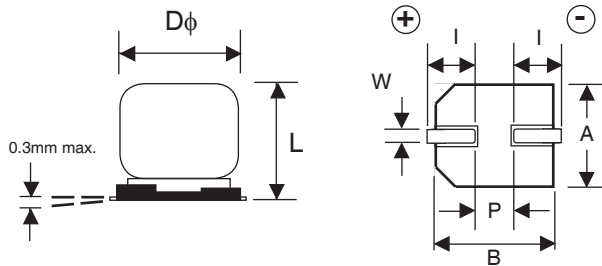


### PART NUMBER SYSTEM

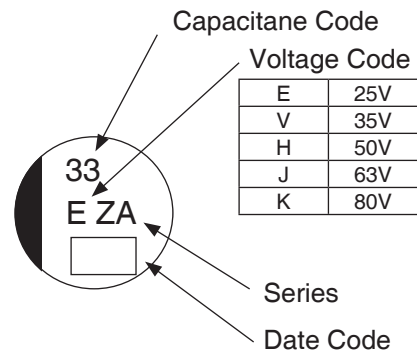


### DIMENSIONS (mm)

Case Size	D $\phi$ $\pm 0.5$	L max.	A, B $\pm 0.2$	W	I $\pm 0.2$	P $\pm 0.2$
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



### PEAK TEMPERATURE AND DURATION

Diameter	Time above 200°C	Time above 217°C	Time above 230°C	Duration at Temperature	Peak Temperature	Allowable Reflow Passes
$\phi 5 \sim 6.3\text{mm}$	70 sec. max.	40 sec. max.	30 sec. max.	$\geq 250^\circ\text{C} = 5 \text{ sec.}$	260°C	2
				$\geq 250^\circ\text{C} = 10 \text{ sec.}$	255°C	2
$\phi 8 \sim 10\text{mm}$				$\geq 250^\circ\text{C} = 5 \text{ sec.}$	260°C	1
				$\geq 240^\circ\text{C} = 10 \text{ sec.}$	245°C	2

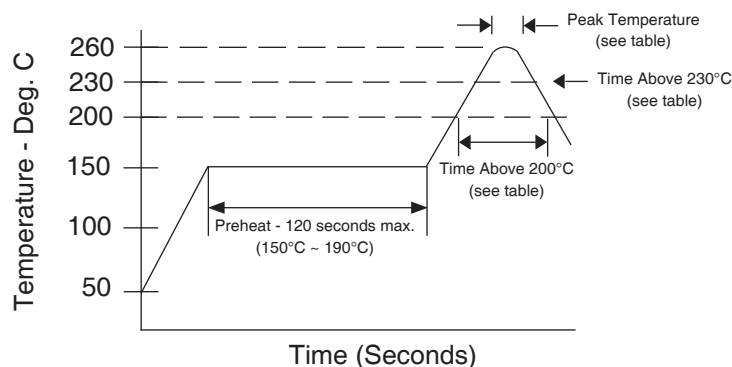
For  $\phi 5 \sim 6.3\text{mm}$  diameter parts:

- If peak temperature is  $+260^\circ\text{C}$  the maximum time above  $+250^\circ\text{C}$  is 5 seconds (maximum of two reflow passes).
- If peak temperature is  $+255^\circ\text{C}$  the maximum time above  $+250^\circ\text{C}$  is 10 seconds (maximum of two reflow passes).

For  $\phi 8 \sim 10\text{mm}$  diameter parts:

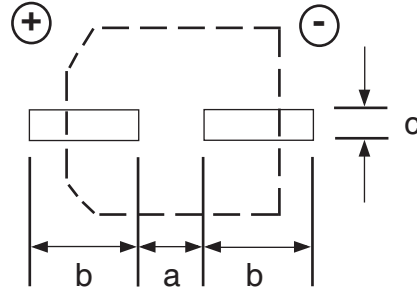
- If peak temperature is  $+260^\circ\text{C}$  the maximum time above  $+250^\circ\text{C}$  is 5 seconds (maximum of one reflow pass).
- If peak temperature is  $+245^\circ\text{C}$  the maximum time above  $+240^\circ\text{C}$  is 10 seconds (maximum of two reflow passes).

### RECOMMENDED REFLOW SOLDERING PROFILE\*



### STANDARD TERMINATION LAND PATTERN DIM. (mm)

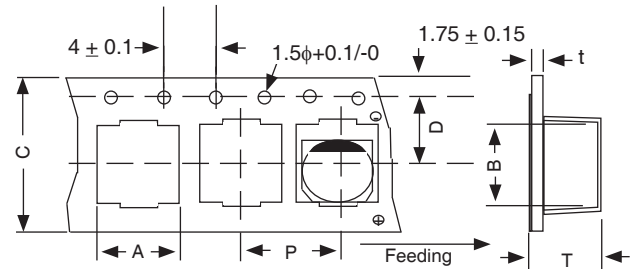
Case Diameter	A	B	C
5	1.5	2.8	1.6
6.3	1.8	3.2	1.6
8	3.1	4.0	2.0
10	4.6	4.1	2.0



### TAPING SPECIFICATIONS (mm)

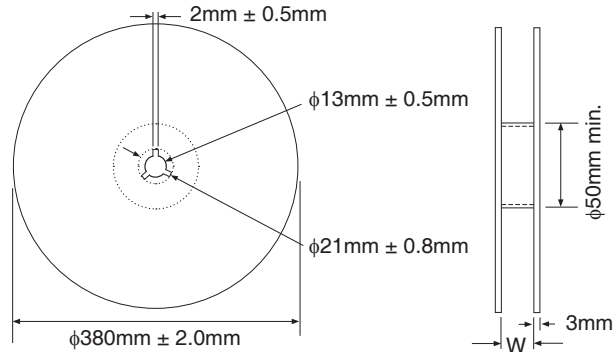
- Both Leader and Trailer tape: Minimum 40mm (1.57") empty carrier tape pockets.
- Leader tape: Approximately 20cm of cover tape at leader.
- Connection: Maximum 3 connections (slices) per reel.

Case Size	A ±0.5	B ±0.5	C ±0.3	D ±0.1	P ±0.1	T ±0.2	t max.
5X6.1	5.7	5.7	12.0	5.5	12.0	6.4	0.4
6.3X6.1	7.0	7.0	16.0	7.5	12.0	6.4	0.4
6.3X8	7.0	7.0	16.0	7.5	12.0	8.4	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 ±1.0	Qty per Reel 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



Review & Compare Reflow Soldering Heat Limits  
V-chip SMT Aluminum Electrolytic Capacitors  
[www.niccomp.com/RSL](http://www.niccomp.com/RSL)

