

NSPE-YP Series

Hybrid Aluminum Electrolytic Capacitors

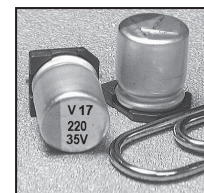


- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- EXTENDED LOAD LIFE AT HIGH TEMPERATURE (UP TO 4,000 HOURS @ +135°C)
- INCREASED CAPACITANCE VALUE PER CASE SIZE
- LOW ESR AND HIGH RIPPLE CURRENT RATINGS
- HIGH REFLOW SOLDERING RATED TO +260°C
- MEETS THE REQUIREMENTS OF AEC-Q200*

*Contact NIC for supporting test data



Available with Wide
Anti-Vibration
Terminations



CHARACTERISTICS

Rated Voltage Range	6.3 ~ 35Vdc					
Rated Capacitance Range	68 ~ 3,900μF					
Operating Temp. Range	D=φ5, 6.3 (6.3V, 10V)	-55 ~ +125°C				
	D=φ5, 6.3 (16V, 25V)	-55 ~ +135°C				
	D=φ8, 10	-55 ~ +135°C				
Capacitance Tolerance	±20% (M)					
Max. Leakage Current After 2 Minutes @ 20°C	6.3V, 10V	0.05CV or 100, whichever is greater				
	16V ~ 35V	0.01CV				
Working and Surge Voltage Ratings	W.V. (Vdc)	6.3	10	16	25	35
	S.V. (Vdc)	8.0	13	20	32	44
Tan δ @ 120Hz/20°C		0.18	0.16	0.16	0.14	0.12
Impedance Ratio	Z -55°C/Z +20°C	1 ~ 2.5				
	Z +125°C/Z +20°C	0.6 ~ 1.0				
	Z +135°C/Z +20°C					
Load Life Test +135°C:16 ~ 25V, φ5 ~ 6.3 With Rated Voltage	Test	2000hrs				
	Capacitance Change	Within ±30% of initial measured value				
	Tan δ	Less than 200% of specified value				
	ESR	Less than 200% of specified value				
	Leakage Current	Less than specified value				
Load Life Test +135°C:6.3 ~ 35V, φ8, 10 +125°C:6.3 ~ 35V, φ5~10 +105°C:6.3 ~ 10V, φ5~10 With Rated Voltage	Test	4000 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	After reflow soldering and stablizing at +20°C capacitors shall meet the following limits.					
	Capacitance Change	Within ±10% of the initial measured value				
	Dissipation Factor	Less than specified value				
	Leakage Current	Less than specified value				
	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. ESR (mΩ) AT 100kHz/20°C	Max. Ripple Current (mA rms) AT 100KHz			Load Life Hours
					+105°C	+125°C	+135°C	
NSPE-YP221M6.3V5X6.1NLBYF	220	6.3	5X6.1	60	2800	1000	-	4000
NSPE-YP391M6.3V6.3X6.1NLBYF	390		6.3X6.1	40	3600	1300	-	4000
NSPE-YP561M6.3V6.3X8NLBYF	560		6.3X8	28	4200	1500	-	4000
NSPE-YP122M6.3V8X10.5NLBYF	1200		8X10.5	18	6000	3700	1800	4000
NSPE-YP222M6.3V10X10.5NLBYF	2200		10X10.5	16	6500	4000	1900	4000
NSPE-YP272M6.3V10X12.5NLBYF	2700		10X12.5	14	7000	4400	2100	4,000
NSPE-YP332M6.3V10X13.8NLBYF	3300		10X13.8	12	7800	4900	2300	4,000
NSPE-YP392M6.3V10X16.5NLBYF	3900		10X16.5	10	8400	5200	2500	4,000
NSPE-YP151M10V5X6.1NLBYF	150	10	5X6.1	60	2800	1000	-	4000
NSPE-YP221M10V6.3X6.1NLBYF	220		6.3X6.1	40	3600	1300	-	4000
NSPE-YP271M10V6.3X6.1NLBYF	270		6.3X6.1	40	3600	1300	-	4000
NSPE-YP391M10V6.3X8NLBYF	390		6.3X8	28	4200	1500	-	4000
NSPE-YP821M10V8X10.5NLBYF	820		8X10.5	18	6000	3700	1800	4000

STANDARD PRODUCTS AND CASE SIZES CONTINUE ON NEXT PAGE

Performance Passives By Design

NIC Components Corp.
1 Huntingdon Quadrangle, Suite 1C10, Melville, NY 11747

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www.niccomp.com

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

PART NUMBER	Cap. (μ F)	Working Voltage	Case Size (D X L) mm	Max. ESR ($m\Omega$) AT 100kHz/20°C	Max. Ripple Current (mA rms) AT 100KHz			Load Life Hours
					+105°C	+125°C	+135°C	
NSPE-YP152M10V10X10.5NLBYF	1500	10	10X10.5	16	6500	4000	1900	4000
NSPE-YP182M10V10X12.5NLBYF	1800		10X12.5	14	7000	4400	2100	4000
NSPE-YP222M10V10X13.8NLBYF	2200		10X13.8	12	7800	4900	2300	4000
NSPE-YP272M10V10X16.5NLBYF	2700		10X16.5	10	8400	5200	2500	4000
NSPE-YP101M16V5X6.1NLBYF	100	16	5X6.1	80	2800	1000	1000	2000
NSPE-YP181M16V6.3X6.1NLBYF	180		6.3X6.1	45	1600	1300	700	2000
NSPE-YP271M16V6.3X8NLBYF	270		6.3X8	30	2000	1800	1000	2000
NSPE-YP561M16V8X10.5NLBYF	560		8X10.5	27	-	3100	1500	4000
NSPE-YP102M16V10X10.5NLBYF	1000		10X10.5	20	-	3600	1750	4000
NSPE-YP122M16V10X12.5NLBYF	1200		10X12.5	16	-	4100	1950	4000
NSPE-YP152M16V10X13.8NLBYF	1500		10X13.8	15	-	4300	2050	4000
NSPE-YP182M16V10X16.5NLBYF	1800		10X16.5	11	-	5200	2500	4000
NSPE-YP680M25V5X6.1NLBYF	68	25	5X6.1	80	2800	1000	1000	2000
NSPE-YP121M25V6.3X6.1NLBYF	120		6.3X6.1	50	1600	1300	700	2000
NSPE-YP181M25V6.3X8NLBYF	180		6.3X8	30	2000	1800	1000	2000
NSPE-YP331M25V8X10.5NLBYF	330		8X10.5	27	-	3100	1500	4,000
NSPE-YP331M25V8X10.5NLBYF	390		8X10.5	27	-	3100	1500	4,000
NSPE-YP561M25V10X10.5NLBYF	560		10X10.5	20	-	3600	1750	4,000
NSPE-YP681M25V10X10.5NLBYF	680		10X10.5	20	-	3600	1750	4,000
NSPE-YP681M25V10X12.5NLBYF	680		10X12.5	16	-	4100	1950	4,000
NSPE-YP821M25V10X12.5NLBYF	820		10X12.5	16	-	4100	1950	4,000
NSPE-YP821M25V10X13.8NLBYF	820		10X13.8	15	-	4300	2050	4,000
NSPE-YP102M25V10X13.8NLBYF	1000		10X13.8	15	-	4300	2050	4,000
NSPE-YP102M25V10X16.5NLBYF	1000		10X16.5	11	-	5200	2500	4,000
NSPE-YP122M25V10X16.5NLBYF	1200		10X16.5	11	-	5200	2500	4,000
NSPE-YP221M35V8X10.5NLBYF	220	35	8X10.5	27	-	3100	1500	4,000
NSPE-YP391M35V10X10.5NLBYF	390		10X10.5	20	-	3600	1750	4,000
NSPE-YP471M35V10X12.5NLBYF	470		10X12.5	15	-	4100	2050	4,000
NSPE-YP561M35V10X13.8NLBYF	560		10X13.8	15	-	4300	2050	4,000
NSPE-YP681M35V10X16.5NLBYF	680		10X16.5	11	-	5200	2500	4,000

6.3V ~ 10V RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Diameter	100Hz $\leq$ F < 1KHz	1KHz $\leq$ F < 10KHz	10KHz $\leq$ F < 100KHz	100K $\leq$ F < 200KHz	200K $\leq$ F < 300KHz	300K $\leq$ F < 400KHz	400K $\leq$ F < 500KHz
$\phi 5 \sim \phi 6.3$	0.15	0.35	0.60	1.00	1.00	1.00	1.00
$\phi 8$	0.15	0.40	0.70	1.00	1.00	1.00	1.00
$\phi 10$	0.20	0.50	0.75	1.00	0.9	0.80	0.75

16V ~ 35V RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Diameter	100Hz $\leq$ F < 1KHz	1KHz $\leq$ F < 10KHz	10KHz $\leq$ F < 20KHz	20K $\leq$ F < 100KHz	100K $\leq$ F < 500KHz
$\phi 5 \sim \phi 6.3$	0.15	0.35	0.60	0.75	1.00
$\phi 8$	0.15	0.40	0.70	0.80	1.00
$\phi 10$	0.20	0.50	0.75	0.85	1.00

TERMINAL FINISH & REEL CODE

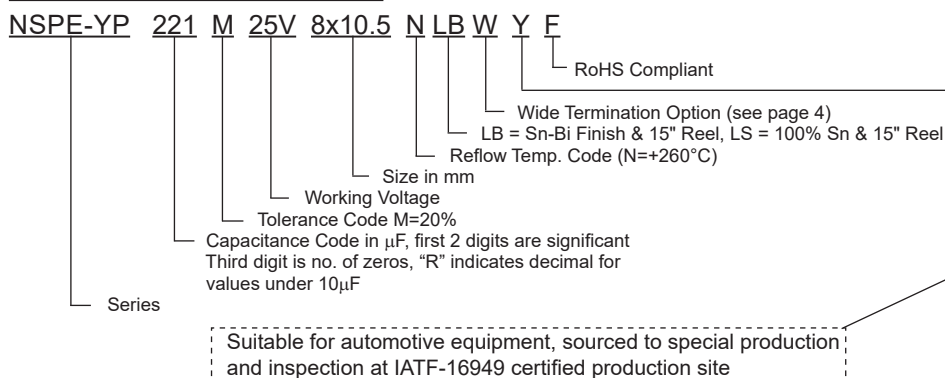
Code	Terminal Finish & Reel Size
LBF	Sn-Bi Finish & 15" Reel
LSF	100% Sn Finish & 15" Reel

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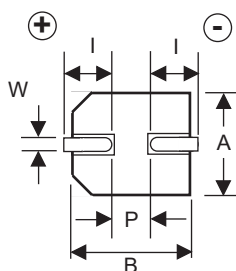
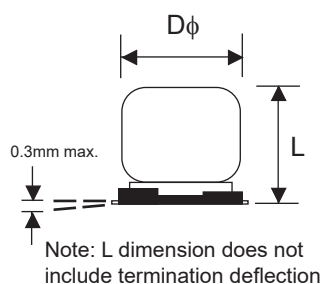


PART NUMBER SYSTEM

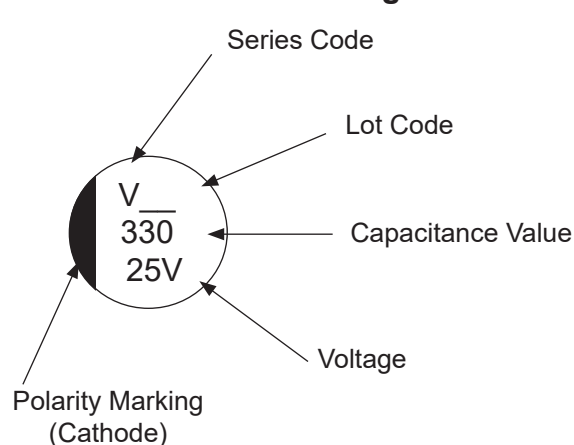


DIMENSIONS (mm)

Case Size	$D\phi \pm 0.5$	L max.	A, B ± 0.2	W	(I)	(P)
5X6.1	5.0	6.1	5.3	0.5 ~ 0.8	2.3	1.4
6.3X6.1	6.3	6.1	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
8x10.5	8.0	10.5	8.3	0.7 ~ 1.0	2.9	3.2
10x10.5	10	10.5	10.3	1.0 ~ 1.4	3.2	4.6
10x12.5	10	12.5	10.3	1.0 ~ 1.4	3.2	4.6
10x13.8	10	13.8	10.3	1.0 ~ 1.4	3.2	4.6
10x16.5	10	16.5	10.3	1.0 ~ 1.4	3.2	4.6



Part Marking

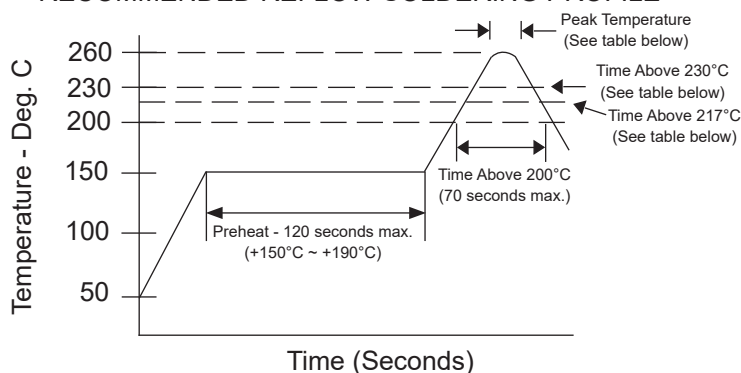


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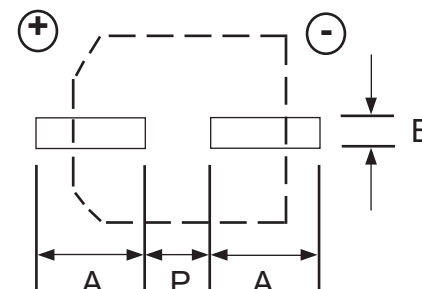


RECOMMENDED REFLOW SOLDERING PROFILE*



LAND PATTERN DIM. (mm)

Case Dia.	A	B	P
5	3.0	1.8	1.4
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

Diameter	Time Above +200°C	Time Above +217°C	Time Above +230°C	Peak Temperature	Reflow Cycles
5.0mm ~ 10mm	70 sec. max.	50 sec. max.	40 sec. max.	+260°C	2
	70 sec. max.	60 sec. max.	40 sec. max.	+250°C	2

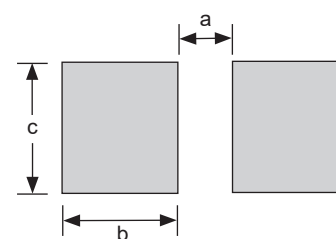
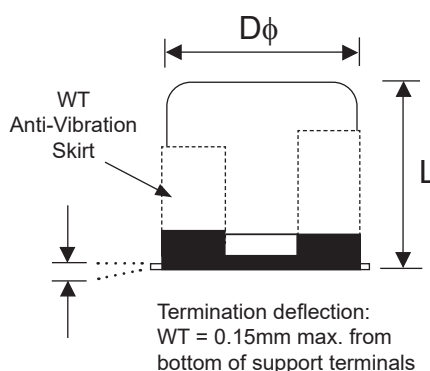
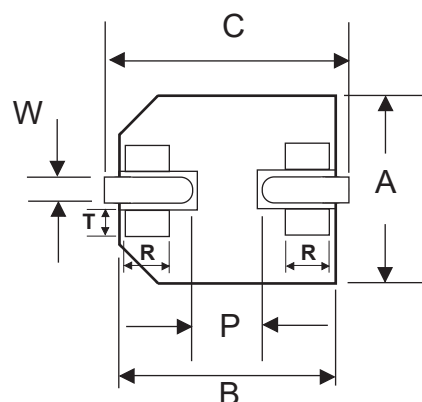
*Two reflow passes are permissible with a natural cool down to room temperature (minimum of one hour) required between the first and second pass.

WIDE TERMINATION DIM. (mm)

Case Size	Dφ ±0.5	L max.	A, B ± 0.2	C ±0.2	P	W	R	T
6.3x8WT	6.3	8.2	6.6	7.3	(2.2)	0.5 ~ 0.8	(1.8)	(0.8)
8x10.5WT	8.0	11.2	8.3	9.0	(3.2)	0.7 ~ 1.0	(0.7)	(1.3)
10x10.5WT	10.0	11.2	10.3	11.0	(4.6)	1.0 ~ 1.4	(2.1)	(1.1)
10x12.5WT	10.0	13.0	10.3	11.0	(4.6)	1.0 ~ 1.4	(2.1)	(1.1)
10x13.8WT	10.0	14.3	10.3	11.0	(4.6)	1.0 ~ 1.4	(2.1)	(1.1)
10x16.5WT	10.0	17.0	10.3	11.0	(4.6)	1.0 ~ 1.4	(2.1)	(1.1)

WIDE TERMINATION LAND PATTERN DIM. (mm)

Case Size	a	b	c
6.3x8	1.6	4.0	3.0
8x10.5	2.5	4.5	4.7
10x10.5	3.8	4.8	4.7
10x12.5	3.8	4.8	4.7
10x13.8	3.8	4.8	4.7
10x16.5	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 Thickness of solder paste: 0.20: ± 0.03mm
Δ Capacitance	During Test Measured Value to be Stable
Tangent of Loss	NO REMARKABLE ABNORMALITY

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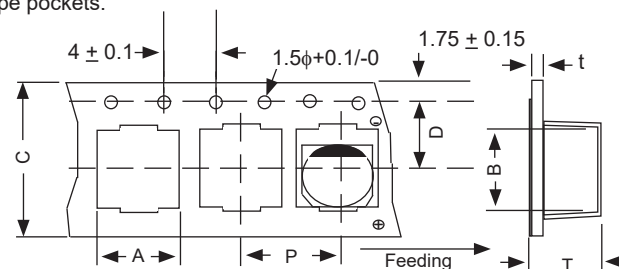
TAPING SPECIFICATIONS (mm)

1. Both Leader and Trailer tape: Minimum 40mm (1.57") empty carrier tape pockets.

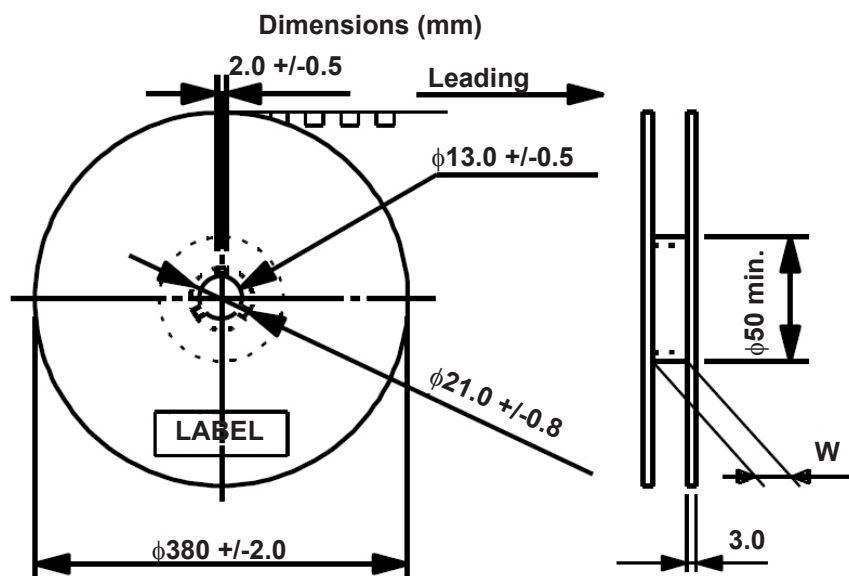
2. Leader tape: Approximately 20cm of cover tape at leader.

3. 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	0.6
6.3x6.1	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
8x10.5	8.7	8.7	24.0	11.5	16.0	11.1	0.6
10x10.5	10.7	10.7	24.0	11.5	16.0	11.2	0.6
10x12.5	10.7	10.7	24.0	11.5	16.0	13.3	0.6
10x13.8	10.7	10.7	24.0	11.5	16.0	14.6	0.6
10x16.5	10.7	10.7	24.0	11.5	16.0	17.7	0.6



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



Reel Quantity

Case Size	W ⁺³ / ₋₁	Qty per Reel 15" (380mm)
5x6.1	14	1,200
6.3x6.1	18	1,000
6.3x8	18	900
8x10.5	26	500
10x10.5	26	500
10x12.5	26	400
10x13.8	26	400
10x16.5	26	325