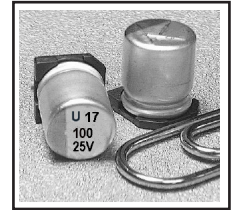


NSPE-UT Series

Surface Mount Hybrid Aluminum Electrolytic Capacitors



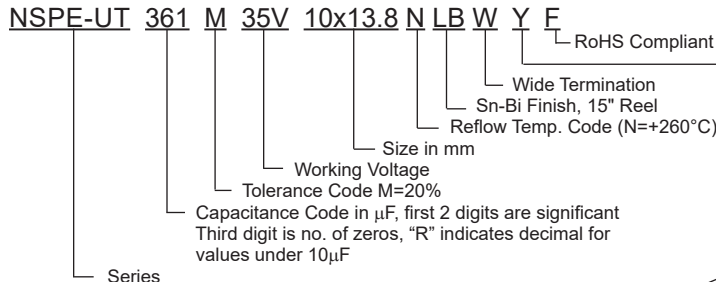
- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
 - HIGH TEMPERATURE RANGE (+125°C ~ +150°C)
 - ULTRA LOW ESR AND HIGH RIPPLE CURRENT
 - **6.3x8 ~ 10x16.5mm CASE SIZES**
 - REFLOW SOLDERING RATED TO +260°C (see reflow specifications)
 - MEETS THE REQUIREMENTS OF AEC-Q200*
- *Contact NIC for supporting test data



CHARACTERISTICS

Rated Voltage Range	16~ 80Vdc						
Rated Capacitance Range	22 ~ 1000 μ F						
Operating Temp. Range	16V			-55 ~ +135°C			
	25V ~ 80V			Dia. 6.3mm: -40 ~ +135°C Dia. \geq 8.0mm: -40 ~ +150°C			
Capacitance Tolerance	\pm 20% (M)						
Max. Leakage Current After 2 Minutes @ 20°C	0.01CV						
Working and Surge Voltage Ratings	W.V. (Vdc)	16	25	35	50	63	80
	S.V. (Vdc)	20	32	44	63	79	100
Tan δ @ 120Hz/20°C		0.16	0.14	0.12	0.10	0.08	0.08
Impedance Ratio @ 120Hz	Z -55°C/Z +20°C	1 ~ 2.5					
	Z +135°C/Z +20°C	0.6 ~ 1.0					
	Z -40°C/Z +20°C	1 ~ 2.5					
	Z +125°C/Z +20°C	0.6 ~ 1.0					
	Z +135°C/Z +20°C						
	Z +150°C/Z +20°C						
Load Life Test With Rated Voltage	6.3mm Dia. & 16V	4000 Hours @ +125°C and +135°C					
	Capacitance Change	Within \pm 30% of initial measured value					
	Tan δ	Less than 200% of specified max. value					
	Leakage Current	Less than specified max. value					
	ESR	Less than 200% of specified max. value					
	8mm & 10mm Dia.	4000 Hours @ +150°C (except 16V parts)					
	Capacitance Change	Within \pm 35% of initial measured value					
	Tan δ	Less than 200% of specified max. value					
	Leakage Current	Less than specified max. value					
	ESR	Less than 250% of specified max. value					

PART NUMBER SYSTEM



Optional: 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-UT Series

Surface Mount Hybrid Aluminum Electrolytic Capacitors



STANDARD PRODUCTS AND CASE SIZES D ϕ x L (mm)

PART NUMBER	Cap. (μ F)	Working Voltage	Case Size D \times L (mm)	Max. Tan δ 120Hz/20°C	Max. ESR (m Ω) AT 100KHz/20°C	Max. Ripple Current (mA rms) AT 100KHz			Load Life Hours
						125°C	135°C	150°C	
NSPE-UT331M16V8X10.5NLBYF	330	16	8x10.5	0.16	20	3700	2500	-	4000
NSPE-UT561M16V10X10.5NLBYF	560		10x10.5	0.16	18	4200	2800	-	4000
NSPE-UT681M16V10X12.5NLBYF	680		10x12.5	0.16	14	4700	3100	-	4000
NSPE-UT821M16V10X13.8NLBYF	820		10x13.5	0.16	13	5000	3300	-	4000
NSPE-UT102M16V10X16.5NLBYF	1000		10x16.5	0.16	11	5900	4000	-	4000
NSPE-UT101M25V6.3X8NLBYF	100	25	6.3x8	0.14	30	2700	1800	-	4000
NSPE-UT221M25V8X10.5NLBYF	220		8x10.5	0.14	20	3500	2500	1200	4000
NSPE-UT331M25V10X10.5NLBYF	330		10x10.5	0.14	18	4000	3100	1600	4000
NSPE-UT471M25V10X12.5NLBYF	470		10x12.5	0.14	14	4700	3400	1800	4000
NSPE-UT561M25V10X13.8NLBYF	560		10x13.8	0.14	13	5200	3700	2000	4000
NSPE-UT681M25V10X16.5NLBYF	680		10x16.5	0.14	11	5700	4100	2250	4000
NSPE-UT680M35V6.3X8NLBYF	68	35	6.3x8	0.12	35	2700	1800	-	4000
NSPE-UT151M35V8X10.5NLBYF	150		8x10.5	0.12	20	3500	2500	1200	4000
NSPE-UT271M35V10X10.5NLBYF	270		10x10.5	0.12	18	4000	3100	1600	4000
NSPE-UT331M35V10X12.5NLBYF	330		10x12.5	0.12	14	4700	3400	1800	4000
NSPE-UT361M35V10X13.8NLBYF	360		10x13.8	0.12	13	5200	3700	2000	4000
NSPE-UT471M35V10X16.5NLBYF	470		10x16.5	0.12	11	5700	4100	2250	4000
NSPE-UT330M50V6.3X8NLBYF	33	50	6.3x8	0.10	40	2200	1500	-	4000
NSPE-UT680M50V8X10.5NLBYF	68		8x10.5	0.10	30	2900	2100	1100	4000
NSPE-UT121M50V10X10.5NLBYF	120		10x10.5	0.10	28	3600	2600	1400	4000
NSPE-UT151M50V10X12.5NLBYF	150		10x12.5	0.10	19	3900	2800	1600	4000
NSPE-UT181M50V10X13.8NLBYF	180		10x13.8	0.10	18	4400	3100	1800	4000
NSPE-UT221M50V10X16.5NLBYF	220		10x16.5	0.10	13	5100	3700	2100	4000
NSPE-UT220M63V6.3X8NLBYF	22	63	6.3x8	0.08	60	2000	1400	-	4000
NSPE-UT470M63V8X10.5NLBYF	47		8x10.5	0.08	40	2700	1900	1000	4000
NSPE-UT560M63V8X10.5NLBYF	56		8x10.5	0.08	40	2700	1900	1000	4000
NSPE-UT820M63V10X10.5NLBYF	82		10x10.5	0.08	30	3400	2400	1250	4000
NSPE-UT101M63V10X10.5NLBYF	100		10x10.5	0.08	30	3400	2400	1250	4000
NSPE-UT101M63V10X12.5NLBYF	100		10x12.5	0.08	22	3700	2600	1450	4000
NSPE-UT121M63V10X12.5NLBYF	120		10x12.5	0.08	22	3700	2600	1450	4000
NSPE-UT121M63V10X13.8NLBYF	120		10x13.8	0.08	20	4100	2800	1700	4000
NSPE-UT151M63V10X13.8NLBYF	150		10x13.8	0.08	20	4100	2800	1700	4000
NSPE-UT151M63V10X16.5NLBYF	150		10x16.5	0.08	15	4900	3500	2000	4000
NSPE-UT181M63V10X16.5NLBYF	180		6.3x8	0.08	15	4900	3500	2000	4000
NSPE-UT330M80V8X10.5NLBYF	33		80	8x10.5	0.08	45	2500	1700	900
NSPE-UT560M80V10X10.5NLBYF	56	10x10.5		0.08	36	3200	2200	1100	4000
NSPE-UT680M80V10X12.5NLBYF	68	10x12.5		0.08	32	3500	2400	1300	4000
NSPE-UT820M80V10X13.8NLBYF	82	10x13.8		0.08	28	3900	2600	1500	4000
NSPE-UT101M80V10X16.5NLBYF	100	10x16.5		0.08	16	4400	3200	1800	4000

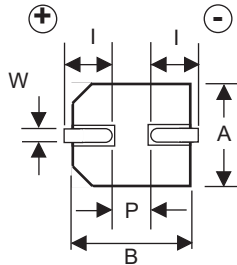
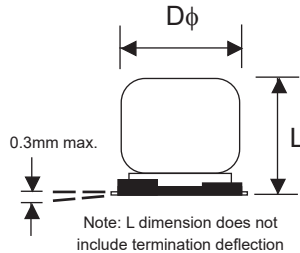
RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Frequency	100 \leq F < 1KHz	1K \leq F < 10KHz	10K \leq F < 100KHz	100K \leq F < 500KHz
Correction Factor	0.15	0.35	0.65	1.00

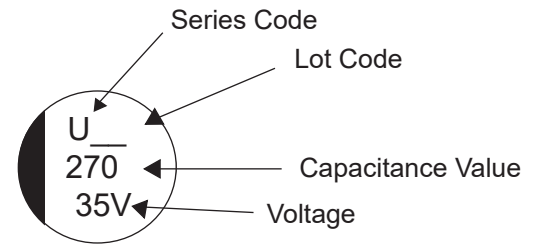


DIMENSIONS (mm)

Case Size	Dφ ±0.5	L max.	A, B ±0.2	W	(l) ref.	(P) ref.
6.3X8	6.3	8.0	6.6	0.5~0.8	2.5	2.2
8X10.5	8	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

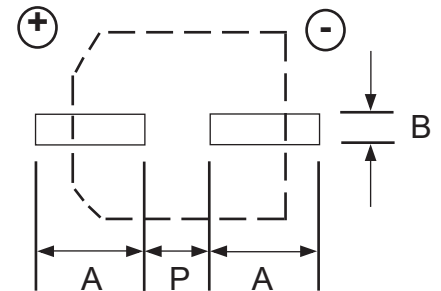


Part Marking



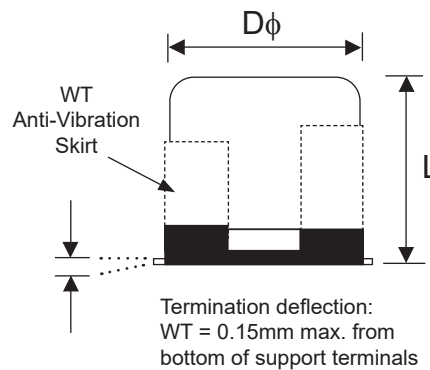
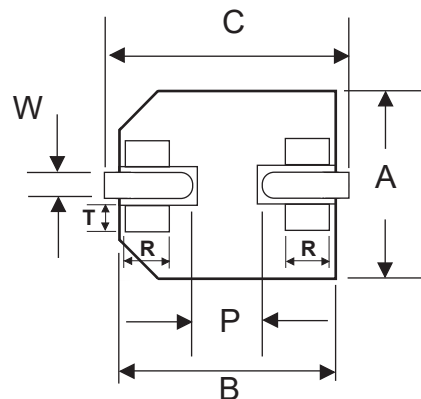
LAND PATTERN DIM. (mm)

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



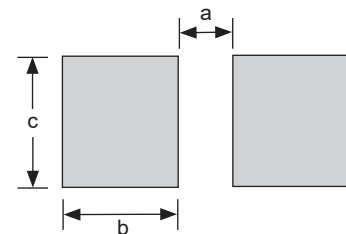
W (WIDE TERMINATIONS) COMPONENT DIM. (mm)

Case Size	Dφ ±0.5	L	A, B ±0.2	C ±0.2	P	W	R	T
6.3X8	6.3	8.2	6.6	7.3	(2.2)	0.5 ~ 0.8	(1.8)	(0.8)
8X10.5	8.0	11.2	8.3	9.0	(3.2)	0.7 ~ 1.0	(0.7)	(1.3)
10X10.5	10.0	11.2	10.3	11.0	(4.6)	1.0 ~ 1.4	(2.1)	(1.1)
10X12.5	10.0	13.0	10.3	11.0	(4.6)	1.0 ~ 1.4	(2.1)	(1.1)
10X13.8	10.0	14.3	10.3	11.0	(4.6)	1.0 ~ 1.4	(2.1)	(1.1)
10X16.5	10.0	17.0	10.3	11.0	(4.6)	1.0 ~ 1.4	(2.1)	(1.1)



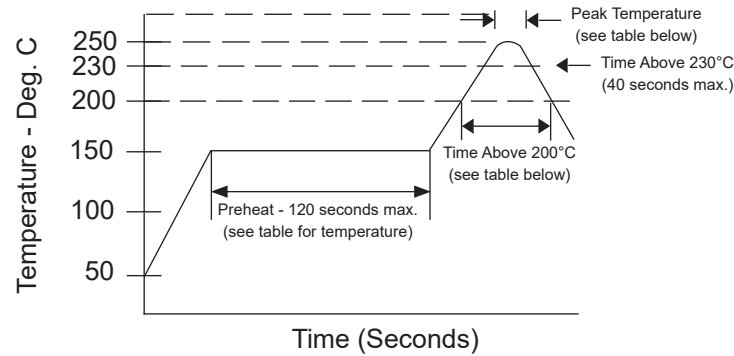
W (WIDE TERMINATIONS) LAND PATTERN DIM. (mm)

Case Size	a	b	c
6.3	1.6	4.0	3.0
8.0	2.5	4.5	4.7
10.0	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 total in each direction Peak to Peak Amplitude: 5mm Peak Acceleration: 30G Sweep Type: Log Thickness of Solder Paste: 0.20mm ± 0.03mm
Capacitance	During test measured value to be stabilized
Appearance	No remarkable abnormality

RECOMMENDED REFLOW SOLDERING PROFILE



16~63 VOLT PARTS PEAK TEMPERATURE AND DURATION

Diameter	Preheat (120 sec. max.)	Time above 200°C	Time above 217°C	Time above 230°C	Peak Temperature	Number of Reflow Passes
6.3 ~ 10mm	160°C max.	70 sec. max.	40 sec. max.	30 sec. max.	260°C	2x*

80 VOLT PARTS PEAK TEMPERATURE AND DURATION

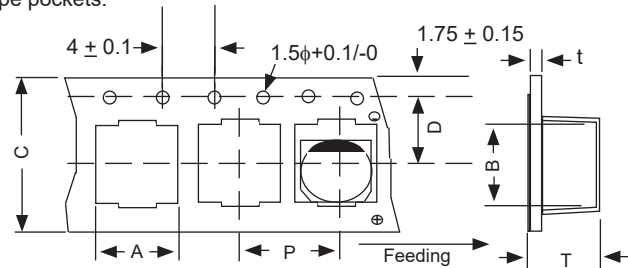
Diameter	Preheat (120 sec. max.)	Time above 200°C	Time above 217°C	Time above 230°C	Peak Temperature	Number of Reflow Passes
8 ~ 10mm	160°C max.	70 sec. max.	40 sec. max.	30 sec. max.	260°C	1x
	160°C max.	70 sec. max.	40 sec. max.	30 sec. max.	245°C	2x*

*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 ±0.5	B ±0.5	C ±0.3	D ±0.1	P ±0.1	T ±0.2	t max.
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	17.5	0.6



REEL DIMENSIONS (mm)

Case Size	W ±1.0	Qty per Reel 15" (380mm)
6.3X8	18	900
8X10.5	26	500
10X10.5	26	500
10X12.5	26	400
10X13.8	26	400
10X16.5	26	325

