150℃ LEAD FREE REFLOW SOLDERING.

ALUMINUM ELECTROLYTIC CAPACITOR, POLARIZED

G RoHS COMPLIANT

FEATURES

* NSPE-UT capacitors are the electrolytic capacitors with hybrid cathode construction, which is realized by adding electro conductive polymer together with liquid electrolyte as cathode.
* Structure of hybrid cathode electrolyte keeps their self-healing function as aluminum electrolytic capacitors.
* NSPE-UT series has stable characteristics at temperature of wide range (-40 to +150℃)
* Lead free terminals

CHARACTERISTICS

Rated Voltage Range		16 ～ 80Vdc					
Capacitance Range		22 ～ 1000μF					
Operating Temperature Range		16V		-55 ～ +135℃			
		25～80V		D=Φ6.3 : -40 ～ +135℃			
				D≧Φ8 : -40 ～ +150℃			
Capacitance Tolerance (120Hz/20℃)		±20%(M)					
Max. Leakage Current After 2 minutes @20℃		0.01CV					
Rated Voltage (V)		16	25	35	50	63	80
Surge Voltage (V)		20	32	44	63	79	100
Max. Tan δ at 120Hz & 20℃		0.16	0.14	0.12	0.10	0.08	0.08
Temperature Stability Impedance Ratio @120Hz	16V	Z-55℃/Z+20℃		1.0～2.5			
		Z+135℃/Z+20℃		0.6～1.0			
	25～80V	Z-40℃/Z+20℃		1.0～2.5			
		Z+125℃/Z+20℃		0.6～1.0			
		Z+135℃/Z+20℃		0.6～1.0			
		Z+150℃/Z+20℃		0.6～1.0			
Load Life Test 150℃ With Rated Voltage	Test	Φ8～Φ10 (Except 16V) : 4000hrs					
	Capacitance Change	Within ±35% of initial measured value					
	Tan δ	Less than 200% of specified value					
	ESR	Less than 250% of specified value					
	Leakage Current	Less than specified value					
Load Life Test 125℃ & 135℃ With Rated Voltage	Test	4000hrs					
	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					
Resistance to Soldering Heat	After reflow soldering and then being stabilized at +20℃, capacitors shall meet the following limits.						
	Capacitance Change	Within ±10% of initial measured value					
	Tan δ	Less than specified value					
	ESR	Less than 130% of specified value					
	Leakage Current	Less than specified value					

STANDARD PRODUCTS TABLE φDXL :

R.V.(Vdc) / Cap.(μF)	16	25	35	50	63	80
22					6.3X8	
33				6.3X8		8X10.5
47					8X10.5	
56					8X10.5	10X10.5
68			6.3X8	8X10.5		10X12.5
82					10X10.5	10X13.8
100		6.3X8			10X10.5 10X12.5	10X16.5
120				10X10.5	10X12.5 10X13.8	
150			8X10.5	10X12.5	10X13.8 10X16.5	
180				10X13.8	10X16.5	
220		8X10.5		10X16.5		
270			10X10.5			
330	8X10.5	10X10.5	10X12.5			
360			10X13.8			
470		10X12.5	10X16.5			
560	10X10.5	10X13.8				
680	10X12.5	10X16.5				
820	10X13.8					
1000	10X16.5					

MAXIMUM ESR (mΩ at 100kHz & 20℃)

R.V.(Vdc) / Cap.(μF)	16	25	35	50	63	80
22					60	
33				40		45
47					40	
56					40	36
68			35	30		32
82					30	28
100		30			30 22	16
120				28	22 20	
150			20	19	20 15	
180				18	15	
220		20		13		
270			18			
330	20	18	14			
360			13			
470		14	11			
560	18	13				
680	14	11				
820	13					
1000	11					

MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA r.m.s. at 100kHz & 125℃/135℃/150℃)

R.V.(Vdc) / Cap.(μF)	16			25			35		
	125℃	135℃	150℃	125℃	135℃	150℃	125℃	135℃	150℃
33									
68							2700	1800	–
100				2700	1800	–			
120									
150							3500	2500	1200
180									
220				3500	2500	1200			
270							4000	3100	1600
330	3700	2500	–	4000	3100	1600	4700	3400	1800
360							5200	3700	2000
470				4700	3400	1800	5700	4100	2250
560	4200	2800	–	5200	3700	2000			
680	4700	3100	–	5700	4100	2250			
820	5000	3300	–						
1000	5900	4000	–						

R.V.(Vdc) / Cap.(μF)	50			63			80		
	125℃	135℃	150℃	125℃	135℃	150℃	125℃	135℃	150℃
22				2000	1400	–			
33	2200	1500	–				2500	1700	900
47				2700	1900	1000			
56				2700	1900	1000	3200	2200	1100
68	2900	2100	1100				3500	2400	1300
82				3400	2400	1250	3900	2600	1500
100				3400 3700	2400 2600	1250 1450	4400	3200	1800
120	3600	2600	1400	3700 4100	2600 2800	1450 1700			
150	3900	2800	1600	4100 4900	2800 3500	1700 2000			
180	4400	3100	1800	4900	3500	2000			
220	5100	3700	2100						

MULTIPLIER FOR RIPPLE CURRENT (Frequency coefficient)

Frequency (Hz)			
100≦F＜1k	1k≦F＜10k	10k≦F＜100k	100k≦F＜500k
0.15	0.35	0.65	1.00

PRODUCTS AND SPECIFICATIONS

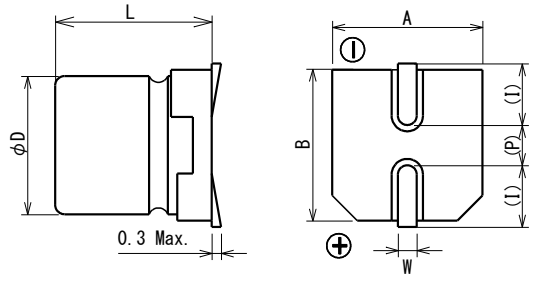
Part number	R.V. (V.DC)	Cap. (μF)	tan δ	ESR (mΩ) (100kHz, 20℃)	Max.Ripple Current mA r.m.s. (100kHz) 125℃	135℃	150℃	Life (Hours)
NSPE-UT331M16V8X10.5NLBYF	16V	330	0.16	20	3700	2500	–	4000
NSPE-UT561M16V10X10.5NLBYF		560	0.16	18	4200	2800	–	4000
NSPE-UT681M16V10X12.5NLBYF		680	0.16	14	4700	3100	–	4000
NSPE-UT821M16V10X13.8NLBYF		820	0.16	13	5000	3300	–	4000
NSPE-UT102M16V10X16.5NLBYF		1000	0.16	11	5900	4000	–	4000
NSPE-UT101M25V6.3X8NLBYF	25V	100	0.14	30	2700	1800	–	4000
NSPE-UT221M25V8X10.5NLBYF		220	0.14	20	3500	2500	1200	4000
NSPE-UT331M25V10X10.5NLBYF		330	0.14	18	4000	3100	1600	4000
NSPE-UT471M25V10X12.5NLBYF		470	0.14	14	4700	3400	1800	4000
NSPE-UT561M25V10X13.8NLBYF		560	0.14	13	5200	3700	2000	4000
NSPE-UT681M25V10X16.5NLBYF		680	0.14	11	5700	4100	2250	4000
NSPE-UT680M35V6.3X8NLBYF	35V	68	0.12	35	2700	1800	–	4000
NSPE-UT151M35V8X10.5NLBYF		150	0.12	20	3500	2500	1200	4000
NSPE-UT271M35V10X10.5NLBYF		270	0.12	18	4000	3100	1600	4000
NSPE-UT331M35V10X12.5NLBYF		330	0.12	14	4700	3400	1800	4000
NSPE-UT361M35V10X13.8NLBYF		360	0.12	13	5200	3700	2000	4000
NSPE-UT471M35V10X16.5NLBYF		470	0.12	11	5700	4100	2250	4000
NSPE-UT330M50V6.3X8NLBYF	50V	33	0.10	40	2200	1500	–	4000
NSPE-UT680M50V8X10.5NLBYF		68	0.10	30	2900	2100	1100	4000
NSPE-UT121M50V10X10.5NLBYF		120	0.10	28	3600	2600	1400	4000
NSPE-UT151M50V10X12.5NLBYF		150	0.10	19	3900	2800	1600	4000
NSPE-UT181M50V10X13.8NLBYF		180	0.10	18	4400	3100	1800	4000
NSPE-UT221M50V10X16.5NLBYF		220	0.10	13	5100	3700	2100	4000
NSPE-UT220M63V6.3X8NLBYF	63V	22	0.08	60	2000	1400	–	4000
NSPE-UT470M63V8X10.5NLBYF		47	0.08	40	2700	1900	1000	4000
NSPE-UT560M63V8X10.5NLBYF		56	0.08	40	2700	1900	1000	4000
NSPE-UT820M63V10X10.5NLBYF		82	0.08	30	3400	2400	1250	4000
NSPE-UT101M63V10X10.5NLBYF		100	0.08	30	3400	2400	1250	4000
NSPE-UT101M63V10X12.5NLBYF		100	0.08	22	3700	2600	1450	4000
NSPE-UT121M63V10X12.5NLBYF		120	0.08	22	3700	2600	1450	4000
NSPE-UT121M63V10X13.8NLBYF		120	0.08	20	4100	2800	1700	4000
NSPE-UT151M63V10X13.8NLBYF		150	0.08	20	4100	2800	1700	4000
NSPE-UT151M63V10X16.5NLBYF		150	0.08	15	4900	3500	2000	4000
NSPE-UT181M63V10X16.5NLBYF		180	0.08	15	4900	3500	2000	4000
NSPE-UT330M80V8X10.5NLBYF	80V	33	0.08	45	2500	1700	900	4000
NSPE-UT560M80V10X10.5NLBYF		56	0.08	36	3200	2200	1100	4000
NSPE-UT680M80V10X12.5NLBYF		68	0.08	32	3500	2400	1300	4000
NSPE-UT820M80V10X13.8NLBYF		82	0.08	28	3900	2600	1500	4000
NSPE-UT101M80V10X16.5NLBYF		100	0.08	16	4400	3200	1800	4000

PART NUMBER SYSTEM

NSPE-UT 271 M 35V 10X10.5 N LB Y F – RoHS Compliant

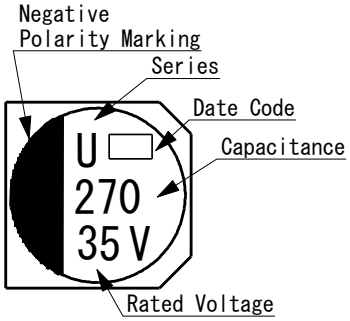
- Y control
- Sn-Bi Finish & 15" reel
- Reflow peak temp. N: 260℃
- Case Size (mm)
- Rated Voltage (Vdc)
- Capacitance Tolerance, M : ±20%
- Capacitance (μF), 3 digits system (R shows decimal point)
- Series

DIMENSIONS (mm)



Note : L dimension does not include terminal deflection.

MARKING

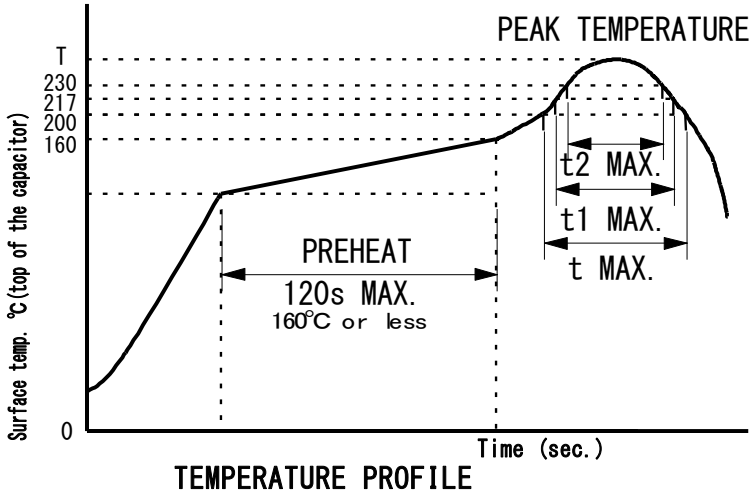


Color : Blue

Case Size	φD±0.5	L max.	A±0.2	B±0.2	(I)	W	(P)
6.3X8	6.3	8.0	6.6	6.6	2.5	0.5～0.8	2.2
8X10.5	8	10.5	8.3	8.3	2.9	0.7～1.0	3.2
10X10.5	10	10.5	10.3	10.3	3.2	1.0～1.4	4.6
10X12.5	10	12.5	10.3	10.3	3.2	1.0～1.4	4.6
10X13.8	10	13.8	10.3	10.3	3.2	1.0～1.4	4.6
10X16.5	10	16.5	10.3	10.3	3.2	1.0～1.4	4.6

( ) : Reference value

PERMISSIBLE REFLOW TEMPERATURE PROFILE



TEMPERATURE PROFILE

Rated Voltage : **16～63Vdc**

Size	Peak temperature (T)	Time for more than 200℃ (t)	Time for more than 217℃ (t1)	Time for more than 230℃ (t2)	Reflow Cycle(max.)
Φ6.3～Φ10	Less than 260℃	Within 70sec.	Within 40sec.	Within 30sec.	2
~~Φ8, Φ10~~	~~Less than 260℃~~	~~Within 70sec.~~	~~Within 40sec.~~	~~Within 30sec.~~	~~1~~
	~~Less than 245℃~~	~~Within 70sec.~~	~~Within 50sec.~~	~~Within 40sec.~~	~~2~~

Rated Voltage : **80Vdc**

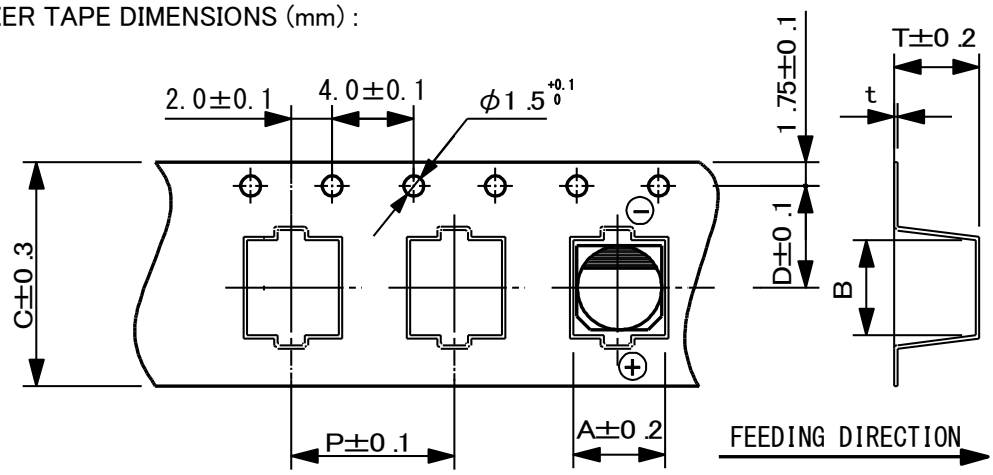
Size	Peak temperature (T)	Time for more than 200℃ (t)	Time for more than 217℃ (t1)	Time for more than 230℃ (t2)	Reflow Cycle(max.)
Φ6.3～Φ10	Less than 260℃	Within 70sec.	Within 40sec.	Within 30sec.	1
	Less than 245℃	Within 70sec.	Within 40sec.	Within 30sec.	2

Capacitor can withstand two reflow processes on the above condition.
Second reflow shall be taken after more than one hour natural cooling time
and taken after the return to normal temperatures of PCB and components.

TAPING SPECIFICATIONS :

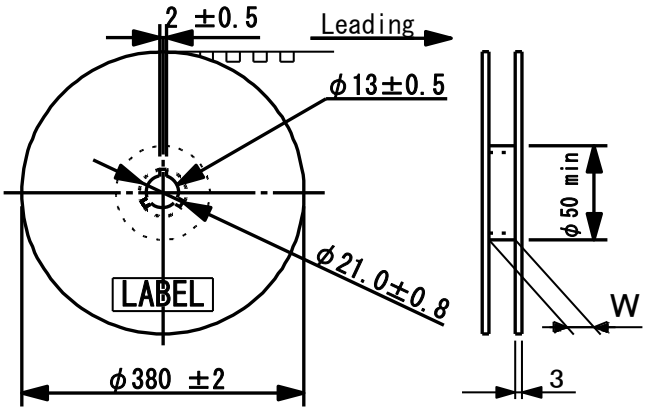
1. Leader and ending tape : Min. 10 cm empty pockets and min. 20 cm of cover tape.
2. Connection : Within 3 connections per reel.

CARRIER TAPE DIMENSIONS (mm) :



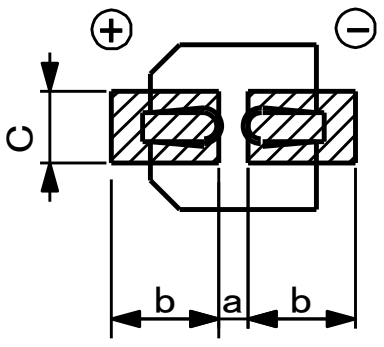
Case Size	A ±0.2	B ±0.2	C ±0.3	D ±0.1	P ±0.1	T ±0.2	t Max.
6.3X8	7.0	7.0	16.0	7.5	12.0	8.2	0.6
8X10.5	8.7	8.7	24.0	11.5	16.0	11.1	0.6
10X10.5	10.7	10.7	24.0	11.5	16.0	11.2	0.6
10X12.5	10.7	10.7	24.0	11.5	16.0	13.3	0.6
10X13.8	10.7	10.7	24.0	11.5	16.0	14.6	0.6
10X16.5	10.7	10.7	24.0	11.5	16.0	17.5	0.6

REEL DIMENSIONS (mm) :



Case Size	W	Q'ty per reel (pcs)
		TR15 (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

RECOMMEND LAND PATTERN (mm)



Case Size	a	b	c
Φ6.3	1.8	3.6	1.8
Φ8	2.8	4.1	2.1
Φ10	4.3	4.4	2.5