

125°C LEAD FREE REFLOW SOLDERING.
ALUMINUM ELECTROLYTIC CAPACITOR, POLARIZED

G RoHS COMPLIANT

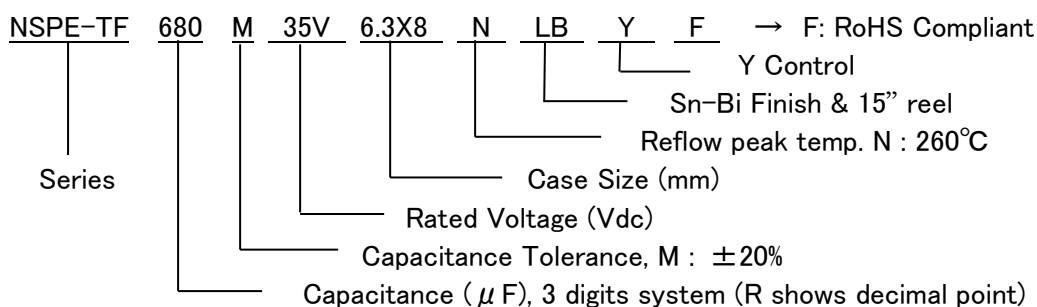
FEATURES

- * NSPE-TF 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.
- * 125°C Long Life
- * High ripple current
- * High capacitance
- * Lead free terminals

CHARACTERISTICS

Rated Voltage Range	25 ~ 100 Vdc					
Capacitance Range	10 ~ 470 μ F					
Operating Temperature Range	-55 ~ +125 °C					
Capacitance Tolerance	\pm 20%(M)					
Max. Leakage Current After 2 minutes @20°C	0.01CV Max.					
Rated Voltage (V)	25	35	50	63	80	100
Surge Voltage (V)	32	44	63	79	100	125
Max. Tan δ at 120Hz & 20°C	0.14	0.12	0.10	0.08	0.08	0.08
Temperature Characteristics	Z -55°C/Z +20°C	1 ~ 2.5				
Impedance ratio at 120 Hz	Z +125°C/Z +20°C	0.6 ~ 1.0				
Load Life Test 125°C With Rated Voltage	Test	4000hours				
	Capacitance Change	Within \pm 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°C, capacitors shall meet the following limits.					
	Capacitance Change	\pm 10% of initial measured value				
	Tan δ	\leq initial specified value				
	E.S.R	\leq initial specified value				
	Leakage Current	\leq initial specified value				

PART NUMBER SYSTEM :





STANDARD PRODUCTS TABLE D φ XL :

R.V.(Vdc) Cap.(μF)	25	35	50	63	80	100
10				5X6.1 6.3X6.1		8X10.5
15				6.3X6.1 6.3X8		10X10.5
18						10X12.5
22		5X6.1	6.3X6.1	6.3X8	8X10.5	
27					8X10.5	
33	5X6.1		6.3X8	8X10.5	10X10.5	
39					10X12.5	
47		6.3X6.1		8X10.5	10X10.5	
56	6.3X6.1			10X10.5	10X12.5	
68		6.3X8	8X10.5	10X10.5 10X12.5		
82				10X10.5		
100	6.3X8			10X12.5		
120			10X10.5			
150		8X10.5	10X12.5			
220	8X10.5					
270		10X10.5				
330	10X10.5	10X12.5				
470	10X12.5					

MAXIMUM ESR (mΩ at 100kHz & 20°C)

R.V.(Vdc) Cap.(μF)	25	35	50	63	80	100
10				120 120		60
15				120 80		45
18						40
22		100	80	80	45	
27					45	
33	80		40	40	36	
39					32	
47		60		40	36	
56	50			30	32	
68		35	30	30 22		
82				30		
100	30			22		
120			28			
150		27	19			
220	27					
270		20				
330	20	17				
470	16					

MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA rms at 100kHz & 125°C)

R.V.(Vdc) Cap.(μF)	25	35	50	63	80	100
10				500 700		900
15				700 900		1120
18						1220
22		550	750	900	1030	
27					1030	
33	550		1100	1100	1270	
39					1360	
47		900		1100	1270	
56	900			1400	1360	
68		1400	1250	1400 1650		
82				1400		
100	1400			1650		
120			1600			
150		1600	1820			
220	1600					
270		2000				
330	2000	2260				
470	2260					

MULTIPLIER FOR RIPPLE CURRENT (Frequency coefficient)

Capacitance : C (μF)	Frequency : F (Hz)			
	100 ≤ F < 1k	1k ≤ F < 10k	10k ≤ F < 100k	100k ≤ F < 500k
C ≤ 33	0.05	0.32	0.67	1.00
33 < C	0.10	0.35	0.70	1.00



PRODUCTS AND SPECIFICATIONS

Part number	Size	R.V. (V.DC)	Capcitance (μ F)	$\tan \delta$	Max.ESR($m\Omega$) (100kHz,20°C)	Max.Ripple Current mA(100kHz,125°C)	Life
NSPE-TF330M25V5X6.1NLBYF	5X6.1	25V	33	0.14	80	550	4000
NSPE-TF560M25V6.3X6.1NLBYF	6.3X6.1		56	0.14	50	900	4000
NSPE-TF101M25V6.3X8NLBYF	6.3X8		100	0.14	30	1400	4000
NSPE-TF221M25V8X10.5NLBYF	8X10.5		220	0.14	27	1600	4000
NSPE-TF331M25V10X10.5NLBYF	10X10.5		330	0.14	20	2000	4000
NSPE-TF471M25V10X12.5NLBYF	10X12.5		470	0.14	16	2260	4000
NSPE-TF220M35V5X6.1NLBYF	5X6.1	35V	22	0.12	100	550	4000
NSPE-TF470M35V6.3X6.1NLBYF	6.3X6.1		47	0.12	60	900	4000
NSPE-TF680M35V6.3X8NLBYF	6.3X8		68	0.12	35	1400	4000
NSPE-TF151M35V8X10.5NLBYF	8X10.5		150	0.12	27	1600	4000
NSPE-TF271M35V10X10.5NLBYF	10X10.5		270	0.12	20	2000	4000
NSPE-TF331M35V10X12.5NLBYF	10X12.5		330	0.12	17	2260	4000
NSPE-TF220M50V6.3X6.1NLBYF	6.3X6.1	50V	22	0.10	80	750	4000
NSPE-TF330M50V6.3X8NLBYF	6.3X8		33	0.10	40	1100	4000
NSPE-TF680M50V8X10.5NLBYF	8X10.5		68	0.10	30	1250	4000
NSPE-TF121M50V10X10.5NLBYF	10X10.5		120	0.10	28	1600	4000
NSPE-TF151M50V10X12.5NLBYF	10X12.5		150	0.10	19	1820	4000
NSPE-TF100M63V5X6.1NLBYF	5X6.1	63V	10	0.08	120	500	4000
NSPE-TF100M63V6.3X6.1NLBYF	6.3X6.1		10	0.08	120	700	4000
NSPE-TF150M63V6.3X6.1NLBYF	6.3X6.1		15	0.08	120	700	4000
NSPE-TF150M63V6.3X8NLBYF	6.3X8		15	0.08	80	900	4000
NSPE-TF220M63V6.3X8NLBYF	6.3X8		22	0.08	80	900	4000
NSPE-TF330M63V8X10.5NLBYF	8X10.5		33	0.08	40	1100	4000
NSPE-TF470M63V8X10.5NLBYF	8X10.5		47	0.08	40	1100	4000
NSPE-TF560M63V10X10.5NLBYF	10X10.5		56	0.08	30	1400	4000
NSPE-TF680M63V10X10.5NLBYF	10X10.5		68	0.08	30	1400	4000
NSPE-TF680M63V10X12.5NLBYF	10X12.5		68	0.08	22	1650	4000
NSPE-TF820M63V10X10.5NLBYF	10X10.5		82	0.08	30	1400	4000
NSPE-TF101M63V10X12.5NLBYF	10X12.5		100	0.08	22	1650	4000
NSPE-TF220M80V8X10.5NLBYF	8X10.5	80V	22	0.08	45	1030	4000
NSPE-TF270M80V8X10.5NLBYF	8X10.5		27	0.08	45	1030	4000
NSPE-TF330M80V10X10.5NLBYF	10X10.5		33	0.08	36	1270	4000
NSPE-TF390M80V10X12.5NLBYF	10X12.5		39	0.08	32	1360	4000
NSPE-TF470M80V10X10.5NLBYF	10X10.5		47	0.08	36	1270	4000
NSPE-TF560M80V10X12.5NLBYF	10X12.5		56	0.08	32	1360	4000
NSPE-TF100M100V8X10.5NLBYF	8X10.5	100V	10	0.08	60	900	4000
NSPE-TF150M100V10X10.5NLBYF	10X10.5		15	0.08	45	1120	4000
NSPE-TF180M100V10X12.5NLBYF	10X12.5		18	0.08	40	1220	4000

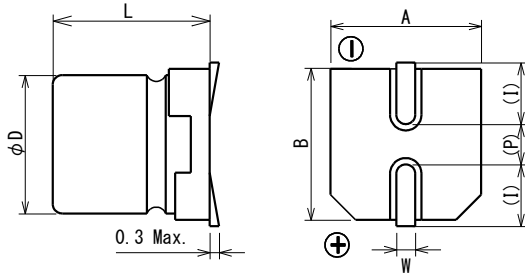
REFLOW PEAK TEMPERATURE

Temp. Code	Peak Temperature
N	260°C

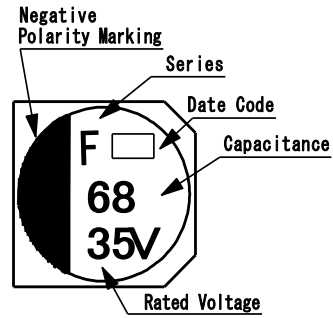
TERMINAL FINISH & REEL CODE

Code	Terminal Finish & Tape Reel
LBF	Sn-Bi Finish & 15" Reel

DIMENSIONS (mm)



MARKING

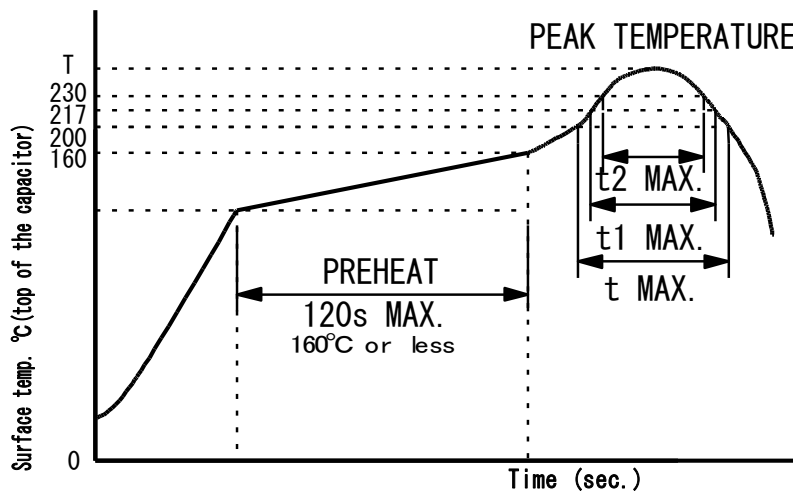


Note: L dimension does not include terminal deflection

Color: Blue

Case Size	$\phi D \pm 0.5$	L max	$A \pm 0.2$	$B \pm 0.2$	(I)	W	(P)
5X6.1	5	6.1	5.3	5.3	2.3	0.5~0.8	1.4
6.3X6.1	6.3	6.1	6.6	6.6	2.5	0.5~0.8	2.2
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

PERMISSIBLE REFLOW TEMPERATURE PROFILE



TEMPERATURE PROFILE

Rated Voltage : 25~50Vdc

Size	Peak temperature (T) (Less than)	Time for more than 200°C (t)	Time for more than 217°C (t1)	Time for more than 230°C (t2)	Reflow Cycle(max.)
$\Phi 5, \Phi 6.3$	260°C	Within 70sec.	Within 40sec.	Within 30sec.	2
$\Phi 8, \Phi 10$	260°C	Within 70sec.	Within 40sec.	Within 30sec.	1
	245°C	Within 70sec.	Within 50sec.	Within 40sec.	2

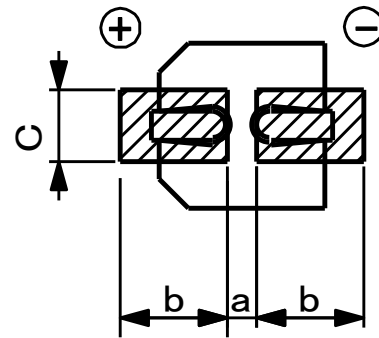
Rated Voltage : 63~100Vdc

Size	Peak temperature (T) (Less than)	Time for more than 200°C (t)	Time for more than 217°C (t1)	Time for more than 230°C (t2)	Reflow Cycle(max.)
$\Phi 5 \sim \Phi 10$	260°C	Within 70sec.	Within 40sec.	Within 30sec.	1
	245°C	Within 70sec.	Within 40sec.	Within 30sec.	2

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

RECOMMEND LAND PATTERN : (mm)

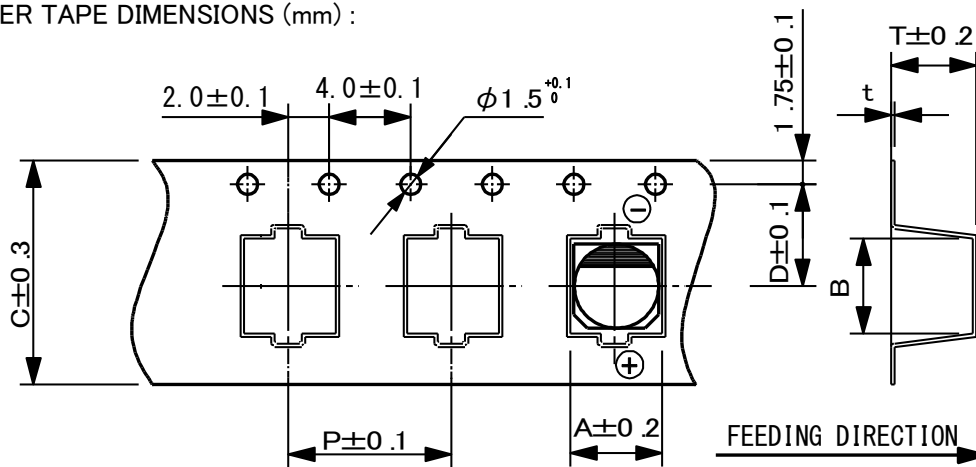
Case Size	a	b	c
Φ5	1.4	3.0	1.8
Φ6.3	1.8	3.6	1.8
Φ8	2.8	4.1	2.1
Φ10	4.3	4.4	2.5



TAPING SPECIFICATIONS :

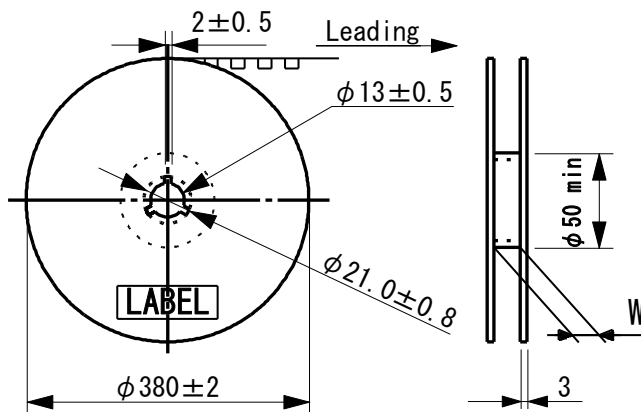
1. Leader and ending tape : Min. 10 empty pockets and 20 cm of cover tape.
2. Connection : Within 3 connections per reel.

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.
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

REEL DIMENSIONS (mm) :



Case Size	W	Q'ty per reel (pcs)
		Φ 380mm
5X6.1	14	1200
6.3X6.1	18	1000
6.3X8	18	900
8X10.5	26	500
10X10.5	26	500
10X12.5	26	400