

135°C LEAD FREE REFLOW SOLDERING.

ALUMINUM ELECTROLYTIC CAPACITOR, POLARIZED

FEATURES

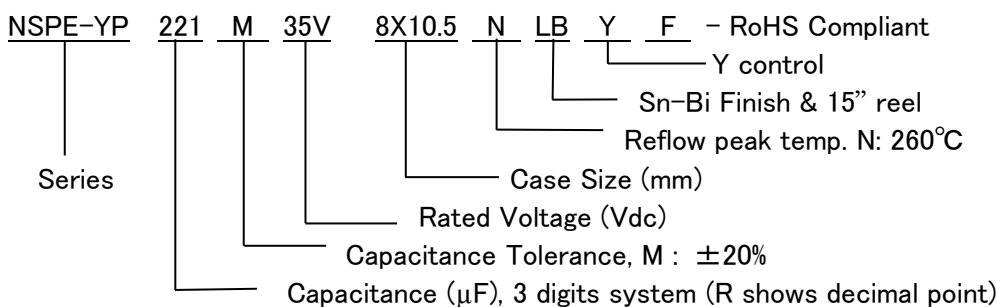
G RoHS COMPLIANT

- * NSPE-YP 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-YP series has stable characteristics at temperature of wide range (-55 to +135°C)
- * Lead free terminals

CHARACTERISTICS

Rated Voltage Range	16 ~ 35Vdc		
Capacitance Range	220 ~ 1800μF		
Operating Temperature Range	-55 ~ +135°C		
Capacitance Tolerance (120Hz/20°C)	±20%(M)		
Max. Leakage Current After 2 minutes @20°C	0.01CV		
Rated Voltage (V)	16	25	35
Surge Voltage (V)	20	32	44
Max. Tan δ at 120Hz & 20°C	0.16	0.14	0.12
Temperature Stability Impedance Ratio @ 120Hz	Z-55°C/Z+20°C	1.0~2.5	
	Z+125°C/Z+20°C	0.6~1.0	
	Z+135°C/Z+20°C		
Load Life Test 125°C & 135°C 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°C, 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	

PART NUMBER SYSTEM



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
LSF	Sn 100% Finish & 15'' Reel



STANDARD PRODUCTS TABLE ϕ DXL :

R.V.(Vdc) Cap.(μ F)	16	25	35
220			8X10.5
330		8X10.5	
390		8X10.5	10X10.5
470			10X12.5
560	8X10.5	10X10.5	10X13.8
680		10X10.5 10X12.5	10X16.5
820		10X12.5 10X13.8	
1000	10X10.5	10X13.8 10X16.5	
1200	10X12.5	10X16.5	
1500	10X13.8		
1800	10X16.5		

MAXIMUM ESR ($m\Omega$ at 100kHz & 20°C)

R.V.(Vdc) Cap.(μ F)	16	25	35
220			27
330		27	
390		27	20
470			16
560	27	20	15
680		20 16	11
820		16 15	
1000	20	15 11	
1200	16	11	
1500	15		
1800	11		

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

R.V.(Vdc) Cap.(μ F)	16		25		35	
	125°C	135°C	125°C	135°C	125°C	135°C
220					3100	1500
330			3100	1500		
390			3100	1500	3600	1750
470					4100	1950
560	3100	1500	3600	1750	4300	2050
680			3600 4100	1750 1950	5200	2500
820			4100 4300	1950 2050		
1000	3600	1750	4300 5200	2050 2500		
1200	4100	1950	5200	2500		
1500	4300	2050				
1800	5200	2500				

MULTIPLIER FOR RIPPLE CURRENT (Frequency coefficient)

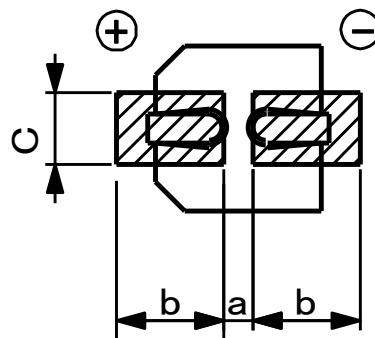
Frequency (Hz)			
$100 \leq F < 1k$	$1k \leq F < 10k$	$10k \leq F < 100k$	$100k \leq F < 500k$
0.15	0.45	0.75	1.00

PRODUCTS AND SPECIFICATIONS

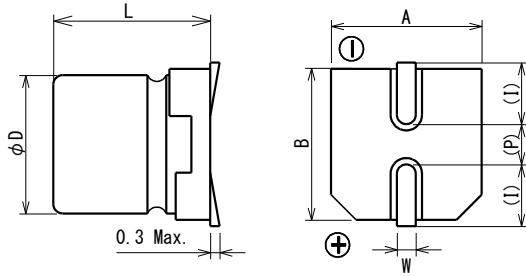
Part number	R.V. (V.DC)	Cap. (μ F)	$\tan \delta$	ESR ($m\Omega$) (100kHz, 20°C)	Max.Ripple Current mA r.m.s. (100kHz)		Life (Hours)
					125°C	135°C	
NSPE-YP561M16V8X10.5NLBYF	16V	560	0.16	27	3100	1500	4000
NSPE-YP102M16V10X10.5NLBYF		1000	0.16	20	3600	1750	4000
NSPE-YP122M16V10X12.5NLBYF		1200	0.16	16	4100	1950	4000
NSPE-YP152M16V10X13.8NLBYF		1500	0.16	15	4300	2050	4000
NSPE-YP182M16V10X16.5NLBYF		1800	0.16	11	5200	2500	4000
NSPE-YP331M25V8X10.5NLBYF	25V	330	0.14	27	3100	1500	4000
NSPE-YP391M25V8X10.5NLBYF		390	0.14	27	3100	1500	4000
NSPE-YP561M25V10X10.5NLBYF		560	0.14	20	3600	1750	4000
NSPE-YP681M25V10X10.5NLBYF		680	0.14	20	3600	1750	4000
NSPE-YP681M25V10X12.5NLBYF		680	0.14	16	4100	1950	4000
NSPE-YP821M25V10X12.5NLBYF		820	0.14	16	4100	1950	4000
NSPE-YP821M25V10X13.8NLBYF		820	0.14	15	4300	2050	4000
NSPE-YP102M25V10X13.8NLBYF		1000	0.14	15	4300	2050	4000
NSPE-YP102M25V10X16.5NLBYF		1000	0.14	11	5200	2500	4000
NSPE-YP122M25V10X16.5NLBYF		1200	0.14	11	5200	2500	4000
NSPE-YP221M35V8X10.5NLBYF	35V	220	0.12	27	3100	1500	4000
NSPE-YP391M35V10X10.5NLBYF		390	0.12	20	3600	1750	4000
NSPE-YP471M35V10X12.5NLBYF		470	0.12	16	4100	1950	4000
NSPE-YP561M35V10X13.8NLBYF		560	0.12	15	4300	2050	4000
NSPE-YP681M35V10X16.5NLBYF		680	0.12	11	5200	2500	4000

RECOMMEND LAND PATTERN (mm)

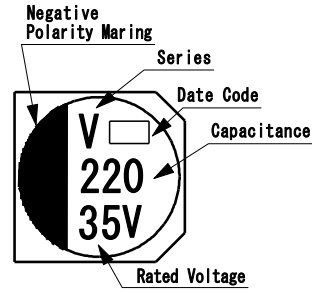
Case Size	a	b	c
$\Phi 8$	2.8	4.1	2.1
$\Phi 10$	4.3	4.4	2.5



DIMENSIONS (mm)



MARKING



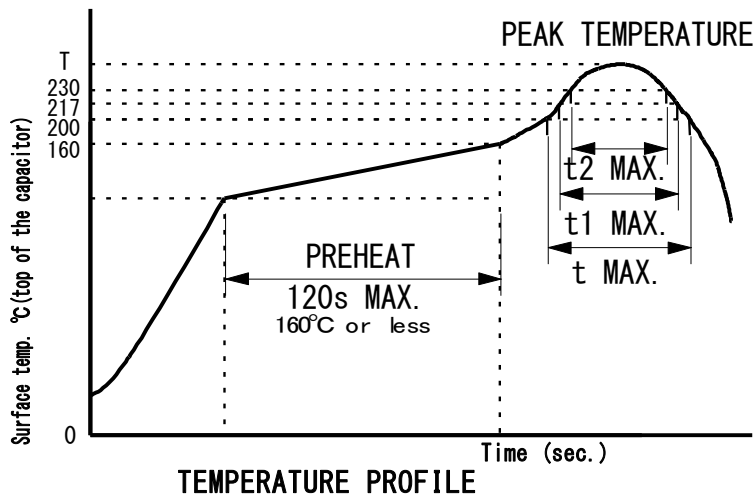
Color : Blue

Note : L dimension does not include terminal deflection.

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



Rated Voltage : 16~35Vdc

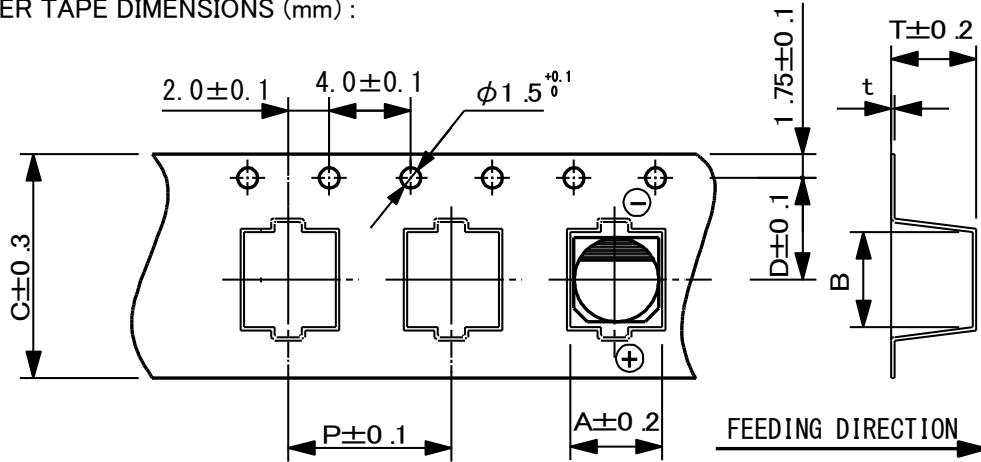
Size	Peak temperature (T)	Time for more than 200°C (t)	Time for more than 217°C (t1)	Time for more than 230°C (t2)	Reflow Cycle(max.)
$\phi 8, \phi 10$	Less than 260°C	Within 70sec.	Within 40sec.	Within 30sec.	2

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 :

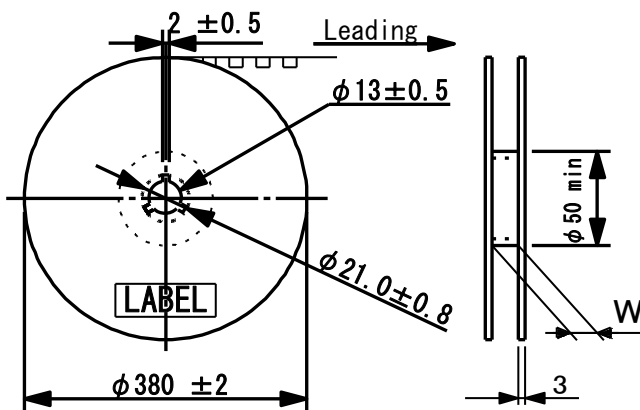
1. Leader and ending tape : Min. 10 cm empty pockets and min. 20 cm of cover tape.
2. Connection : Within 3 connection per reel.

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.
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

REEL DIMENSIONS (mm) :



Case Size	W	Q'ty per reel (pcs)
		TR15 (380mm)
8X10.5	26	500
10X10.5	26	500
10X12.5	26	400
10X13.8	26	400
10X16.5	26	325