

105°C LEAD FREE REFLOW SOLDERING.
ALUMINUM ELECTROLYTIC CAPACITOR, POLARIZED

FEATURES

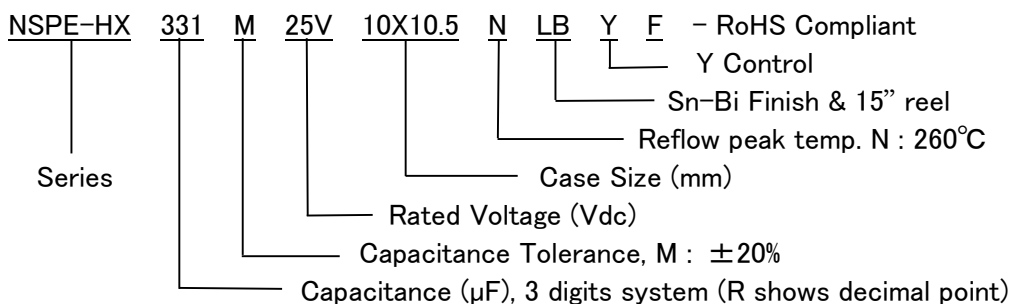
G RoHS COMPLIANT

- * NSPE-HX 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.
- * 105°C Long Life
- * High Ripple Current
- * Lead free terminals.

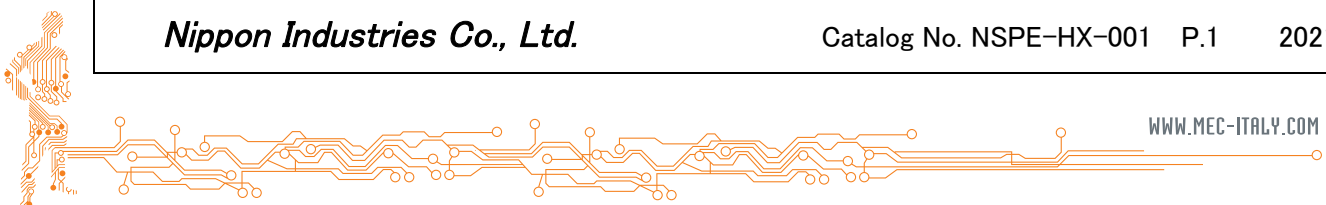
CHARACTERISTICS

Rated Voltage Range	25 ~ 35 Vdc	
Capacitance Range	150 ~ 470 μF	
Operating Temperature Range	-55 ~ +105 °C	
Capacitance Tolerance	±20%(M)	
Max. Leakage Current After 2 minutes at 20°C	0.01CV	
Rated Voltage (V)	25	35
Surge Voltage (V)	32	44
Max. Tan δ at 120Hz & 20°C	0.14	0.12
Low Temperature Stability Impedance Ratio @ 120Hz	Z-55°C/Z+20°C	1.0~2.5
	Z+105°C/Z+20°C	0.6~1.0
Load Life Test 105°C With Rated Voltage	Test	10000 hours
	Capacitance Change	Within ±30% of initial measured value
	Tan δ	Less than 200% of specified value
	Leakage Current	Less than specified value
	ESR	Less than 200% of 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
	Leakage Current	Less than specified value
	ESR	Less than 130% of specified value

PART NUMBER SYSTEM



※W: Wide Terminal (Option) : See the latest version of the specification “NAE1 WT SERIES”



STANDARD PRODUCTS TABLE D φ XL :

RV.(Vdc) Cap.(μF)	25	35
150		8X10.8
220	8X10.8	
270		10X10.8
330	10X10.8	10X12.8
470	10X12.8	

MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA r.m.s. at 100kHz & 105°C)

RV.(Vdc) Cap.(μF)	25	35
150		4500
220	4500	
270		5000
330	5000	5500
470	5500	

MULTIPLIER FOR RIPPLE CURRENT (Frequency coefficient)

Frequency(Hz)	100 ≤ F < 1k	1k ≤ F < 10k	10k ≤ F < 100k	100k ≤ F < 500k
C ≤ 150μF	0.10	0.40	0.70	1.00
150μF < C	0.15	0.45	0.75	1.00

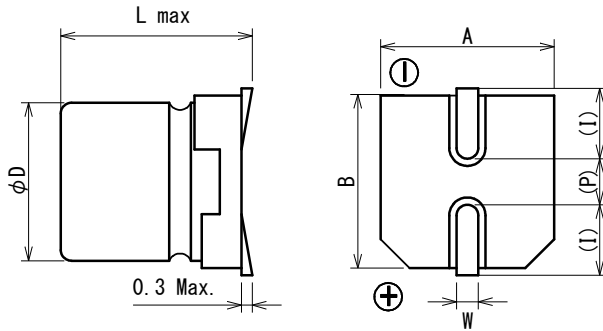
MAXIMUM ESR (mΩ at 100kHz & 20°C)

RV.(Vdc) Cap.(μF)	25	35
150		20
220	20	
270		18
330	18	14
470	14	

PRODUCTS AND SPECIFICATIONS

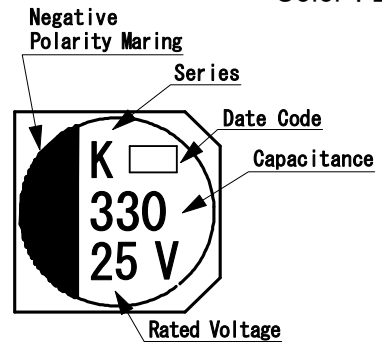
Part number	R.V. (V.DC)	Cap. (μF)	tan δ	Max.ESR(mΩ) (100kHz,20°C)	Max.Ripple Current mA(100kHz,105°C)	Life
NSPE-HX221M25V8X10.8NLBYF	25V	220	0.14	20	4500	10000
NSPE-HX331M25V10X10.8NLBYF		330	0.14	18	5000	10000
NSPE-HX471M25V10X12.8NLBYF		470	0.14	14	5500	10000
NSPE-HX151M35V8X10.8NLBYF	35V	150	0.12	20	4500	10000
NSPE-HX271M35V10X10.8NLBYF		270	0.12	18	5000	10000
NSPE-HX331M35V10X12.8NLBYF		330	0.12	14	5500	10000

DIMENSIONS (mm)



MARKING

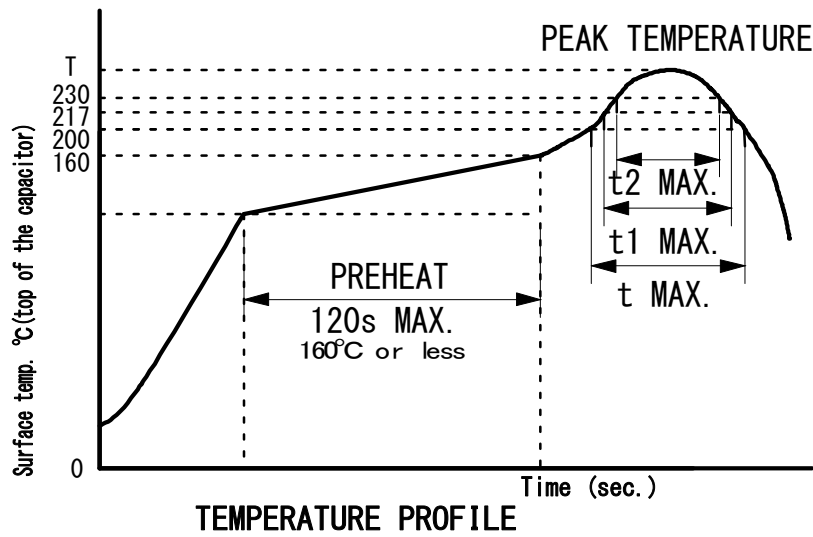
Color : Blue



Case Size	$\phi D \pm 0.5$	L max	$A \pm 0.2$	$B \pm 0.2$	(I)	W	(P)
8X10.8	8	10.8	8.3	8.3	2.9	0.7~1.0	3.2
10X10.8	10	10.8	10.3	10.3	3.2	1.0~1.4	4.6
10X12.8	10	12.8	10.3	10.3	3.2	1.0~1.4	4.6

() : Reference value

PERMISSIBLE REFLOW TEMPERATURE PROFILE



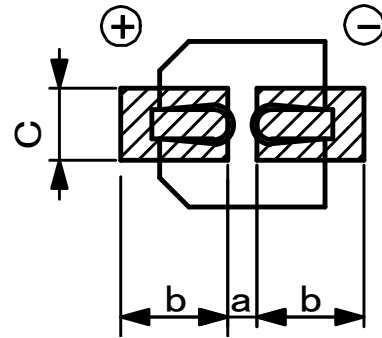
Rated Voltage : 25~35Vdc

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
Φ8, Φ10	Less than 260°C	Within 70sec.	Within 40sec.	Within 30sec.	1
	Less than 245°C	Within 70sec.	Within 50sec.	Within 40sec.	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)

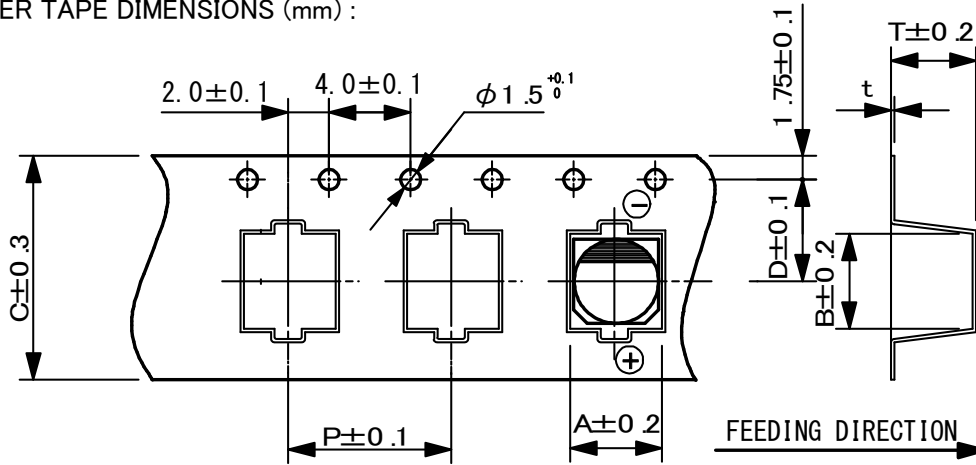
Case Size	a	b	c
Φ8	2.8	4.1	2.1
Φ10	4.3	4.4	2.5



TAPING SPECIFICATIONS :

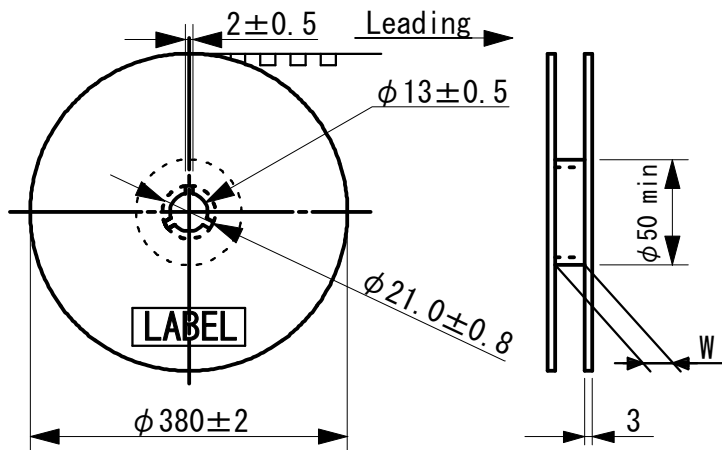
1. Leader and ending tape : Min. 10 empty pockets and 20 cm of cover tape.
2. Connection : Within 3 connections per reel.

CARRIER TAPE DIMENSIONS (mm) :



Case Size	A	B	C	D	P	T	t
	±0.2	±0.2	±0.3	±0.1	±0.1	±0.2	max.
8X10.8	8.7	8.7	24.0	11.5	16.0	11.1	0.6
10X10.8	10.7	10.7	24.0	11.5	16.0	11.2	0.6
10X12.8	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)
		TR15 (380mm)
8X10.8	26	500
10X10.8	26	500
10X12.8	26	400