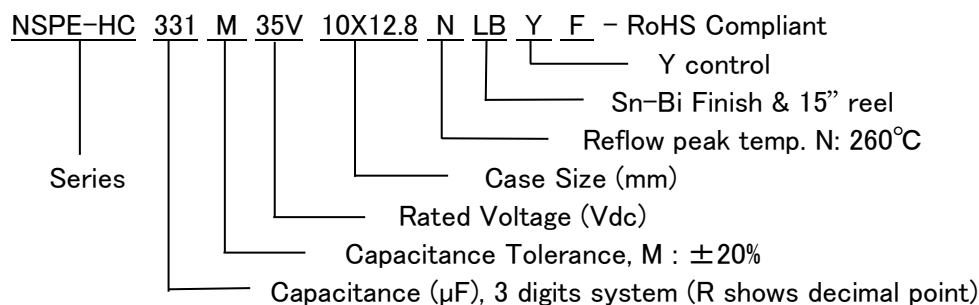


105°C LEAD FREE REFLOW SOLDERING.
ALUMINUM ELECTROLYTIC CAPACITOR, POLARIZED
FEATURES
G **RoHS COMPLIANT**

- * NSPE-HC 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.
- * High ripple current
- * High capacitance
- * Lead free terminals

CHARACTERISTICS

Rated Voltage Range	25 ~ 35Vdc	
Capacitance Range	56 ~ 560μF	
Operating Temperature Range	-55 ~ +105°C	
Capacitance Tolerance (120Hz/20°C)	±20%(M)	
Max. Leakage Current After 2 minutes @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
Temperature Stability	Z-55°C/Z+20°C	1.0~2.5
Impedance Ratio @ 120Hz	Z+105°C/Z+20°C	0.6~1.0
Load Life Test 105°C With Rated Voltage	Test	5000hrs
	Capacitance Change	Within ±30% of initial measured value
	Tan δ	Less than 200% of 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
	ESR	Less than 130% of specified value
	Leakage Current	Less than 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 :

R.V.(Vdc) Cap.(μF)	25	35
56		6.3X6.3
100	6.3X6.3	6.3X8
150	6.3X8	
180		8X10.8
270	8X10.8	
330		10X10.8
390		10X12.8
470	10X10.8	
560	10X12.8	

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

R.V.(Vdc) Cap.(μF)	25	35
56		1600
100	1600	2000
150	2000	
180		2550
270	2550	
330		3500
390		4000
470	3500	
560	4000	

MULTIPLIER FOR RIPPLE CURRENT (Frequency coefficient)

Frequency(Hz)				
$100 \leq F < 1k$	$1k \leq F < 10k$	$10k \leq F < 50k$	$50k \leq F < 100k$	$100k \leq F < 500k$
0.15	0.35	0.65	0.85	1.00

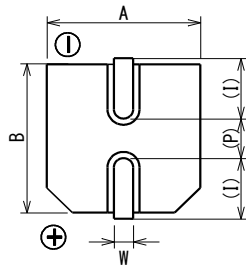
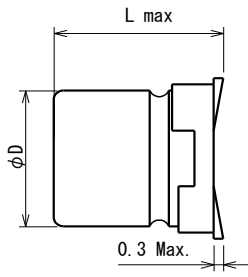
MAXIMUM ESR (mΩ at 100kHz & 20°C)

R.V.(Vdc) Cap.(μF)	25	35
56		60
100	50	35
150	30	
180		27
270	27	
330		20
390		17
470	20	
560	16	

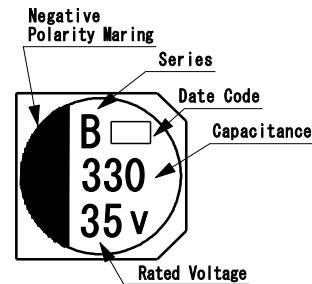
PRODUCTS AND SPECIFICATIONS

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, 105°C)	Life
NSPE-HC101M25V6.3X6.3NLBYF	25V	100	0.14	50	1600	5000
NSPE-HC151M25V6.3X8NLBYF		150	0.14	30	2000	5000
NSPE-HC271M25V8X10.8NLBYF		270	0.14	27	2550	5000
NSPE-HC471M25V10X10.8NLBYF		470	0.14	20	3500	5000
NSPE-HC561M25V10X12.8NLBYF		560	0.14	16	4000	5000
NSPE-HC560M35V6.3X6.3NLBYF	35V	56	0.12	60	1600	5000
NSPE-HC101M35V6.3X8NLBYF		100	0.12	35	2000	5000
NSPE-HC181M35V8X10.8NLBYF		180	0.12	27	2550	5000
NSPE-HC331M35V10X10.8NLBYF		330	0.12	20	3500	5000
NSPE-HC391M35V10X12.8NLBYF		390	0.12	17	4000	5000

DIMENSIONS (mm)



MARKING

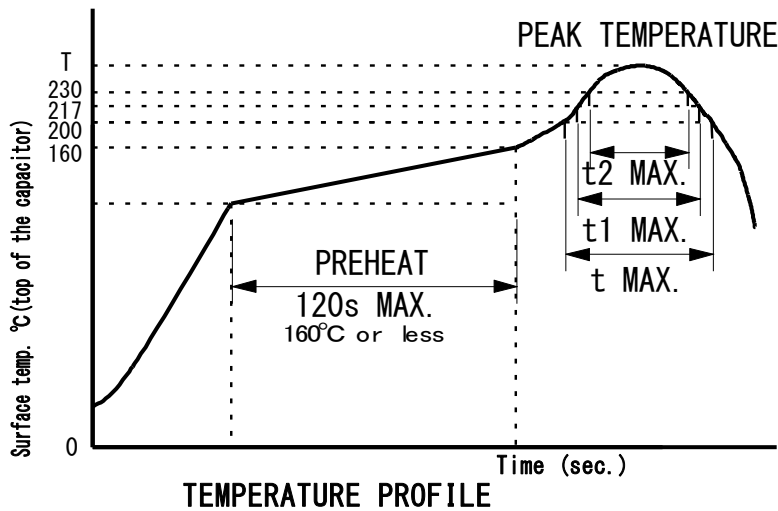


Color: Blue

Case Size	$\phi D \pm 0.5$	L max.	$A \pm 0.2$	$B \pm 0.2$	(I)	W	(P)
6.3X6.3	6.3	6.3	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
8X10.8	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



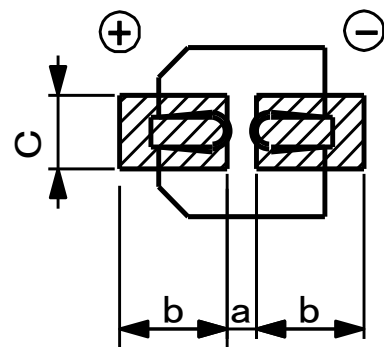
Rated Voltage : 25~35Vdc

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(max.)
Φ6.3	Less than 260°C	Within 70sec.	Within 40sec.	Within 30sec.	2
Φ8, Φ10	Less than 260°C	Within 70sec.	Within 40sec.	Within 30sec.	1
	Less than 245°C	Within 70sec.	Within 50sec.	Within 40sec.	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 board and components.

RECOMMEND LAND PATTERN : (mm)

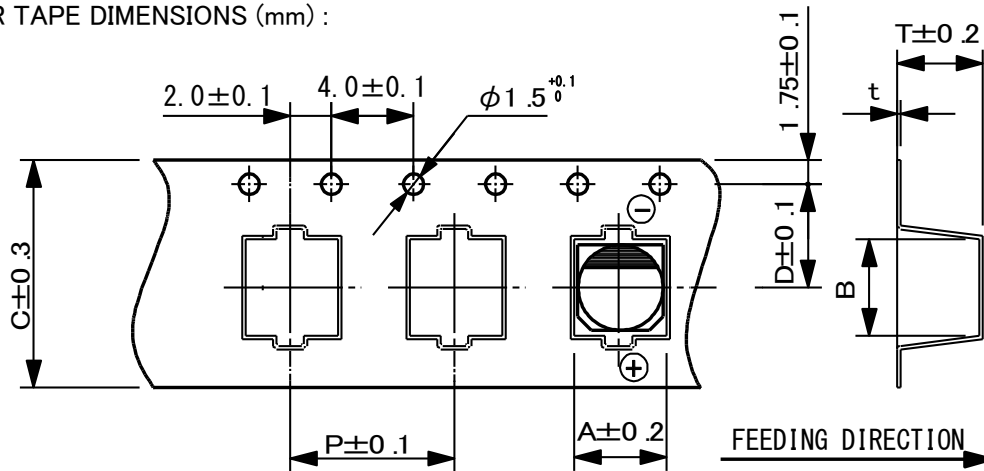
Case Size	a	b	c
Φ6.3	1.8	3.6	1.8
Φ8	2.8	4.1	2.1
Φ10	4.3	4.4	2.5



TAPING SPECIFICATIONS :

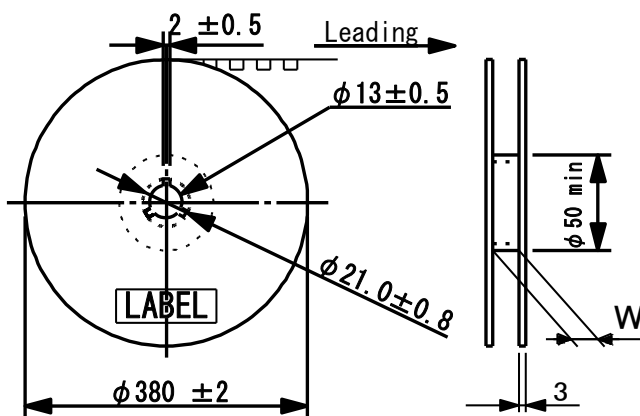
1. Leader and ending tape : Min. 10 empty pockets and 20 cm of cover tape.
2. Connection : Within 3 connections per reel.

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.
6.3X6.3	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
8X10.8	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)
6.3X6.3	18	1000
6.3X8	18	900
8X10.8	26	500
10X10.8	26	500
10X12.8	26	400