Hybrid Aluminum Electrolytic Capacitors

NSPE-HF Series

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- EXTENDED LOAD LIFE AT HIGH TEMPERATURE (5,000 HOURS @ +105°C)
- HIGH VOLTAGE RATINGS (25 ~ 80VDC)
- HIGH RIPPLE CURRENT RATINGS
- 6.3x6.1mm ~ 10x12.5mm CASE SIZES
- HIGH REFLOW SOLDERING TEMPERATURES (+245°C & +260°C)
- MEETS THE REQUIREMENTS OF AEC-Q200*

*Contact NIC for supporting test data

CHARACTERISTICS

Rated Voltage Range	25 ~ 80Vdc					
Rated Capacitance Range	10 ~ 470µF					
Operating Temp. Range	-55 ~ +105°C					
Capacitance Tolerance	±20% (M)					
Max. Leakage Current After 2 Minutes @ 20°C	25V ~ 63V	Less than 0.01CV or 3µA whichever is greater				
	80V	Less than 0.05CV or 100µA whichever is greater				
Working and Surge Voltage Ratings	W.V. (Vdc)	25	35	50	63	80
	S.V. (Vdc)	32	44	63	79	100
Tan δ @ 120Hz/+20°C		0.14	0.12	0.10	0.08	0.08
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 and Rated Voltage	Hour	5,000 hrs.				
	Capacitance Change	Within ±30% of initial measured value				
	Tan δ and ESR	Less than 200% of specified max. value				
	Leakage Current	Less than specified max. value				

STANDARD PRODUCTS AND CASE SIZES Dϕ x L (mm)

PART NUMBER	Cap. (µF)	Working Voltage	Case Size (D X L) mm	Max. ESR (mΩ) AT 100KHz/+20°C	Max. Ripple Current (mA rms) @ 100KHz/+105°C	Load Life Hours @ +105°C
NSPE-HF560M25V6.3X6.1NLBYF	56	25	6.3X6.1	50	1300	5000
NSPE-HF101M25V6.3X8NLBYF	100		6.3X8	30	2000	5000
NSPE-HF221M25V8X10.5NLBYF	220		8X10.5	27	2300	5000
NSPE-HF331M25V10X10.5NLBYF	330		10X10.5	20	2500	5000
NSPE-HF471M25V10X12.5NLBYF	470		10X12.5	16	2800	5000
NSPE-HF470M35V6.3X6.1NLBYF	47	35	6.3X6.1	60	1300	5000
NSPE-HF680M35V6.3X8NLBYF	68		6.3X8	35	2000	5000
NSPE-HF151M35V8X10.5NLBYF	150		8X10.5	27	2300	5000
NSPE-HF271M35V10X10.5NLBYF	270		10X10.5	20	2500	5000
NSPE-HF331M35V10X12.5NLBYF	330		10X12.5	17	2800	5000
NSPE-HF220M50V6.3X6.1NLBYF	22	50	6.3X6.1	80	1100	5000
NSPE-HF330M50V6.3X8NLBYF	33		6.3X8	40	1600	5000
NSPE-HF680M50V8X10.5NLBYF	68		8X10.5	30	1800	5000
NSPE-HF121M50V10X10.5NLBYF	120		10X10.5	28	2000	5000
NSPE-HF151M50V10X12.5NLBYF	150		10X12.5	19	2300	5000
NSPE-HF100M63V6.3X6.1KLBYF	10	63	6.3X6.1	120	1000	5000
NSPE-HF150M63V6.3X8KLBYF	15		6.3X8	80	1500	5000
NSPE-HF330M63V8X10.5KLBYF	33		8X10.5	40	1700	5000
NSPE-HF560M63V10X10.5KLBYF	56		10X10.5	30	1800	5000
NSPE-HF680M63V10X12.5KLBYF	68		10X12.5	22	2100	5000
NSPE-HF220M80V8X10.5KLBYF	22	80	8X10.5	45	1550	5000
NSPE-HF330M80V10X10.5KLBYF	33		10X10.5	36	1700	5000
NSPE-HF390M80V10X12.5KLBYF	39		10X12.5	32	1800	5000

RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

Cap. µF	100Hz ≤ F < 1KHz	1KHz ≤ F < 10KHz	10KHz ≤ F < 100KHz	100KHz ≤ F < 500KHz
C ≤ 33	0.05	0.32	0.67	1.00
33 < C	0.10	0.35	0.70	1.00

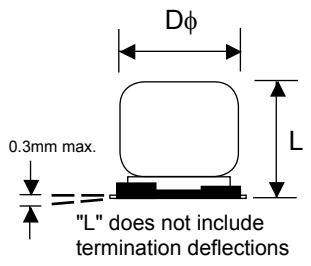
PART NUMBER SYSTEM

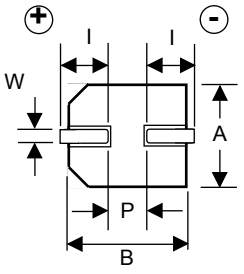
NSPE-HF 151 M 35V 8x10.5 N LB W Y F

- F — RoHS Compliant
- Y — Suitable for automotive equipment, sourced to special production and inspection at TS-16949 certified production site
- W — Wide Termination Option (≥8mm diameter)
- LB — LB = Sn-Bi Finish and 15" Reel
- N — Reflow Temp. Code (K=+245°C, N=+260°C)
- 8x10.5 — Size in mm
- 35V — Working Voltage
- M — Tolerance Code M=20%
- 151 — Capacitance Code in µF, first 2 digits are significant Third digit is no. of zeros, "R" indicates decimal for values under 10µF
- NSPE-HF — Series

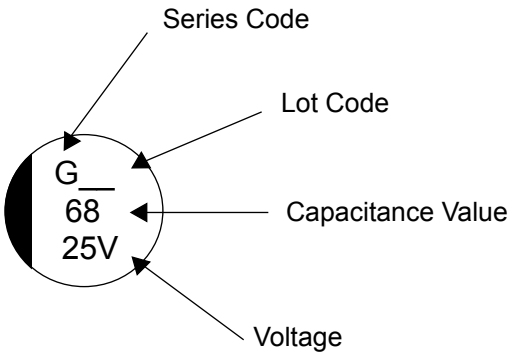
DIMENSIONS (mm)

Case Size	Dϕ ±0.5	L max.	A, B ±0.2	W	I ±0.3	P ±0.2
6.3X6.1	6.3	6.1	6.6	0.5 ~ 0.8	2.5	2.2
6.3X8	6.3	8.0	6.6	0.5 ~ 0.8	2.5	2.2
8X10.5	8.0	10.5	8.3	0.7 ~ 1.0	2.9	3.2
10X10.5	10	10.5	10.3	1.0 ~ 1.4	3.2	4.6
10X12.5	10	12.5	10.3	1.0 ~ 1.4	3.2	4.6





Part Marking

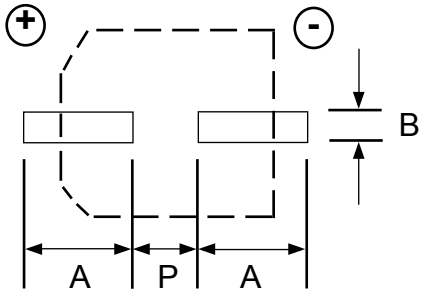


PRECAUTIONS

Please review the notes on correct use, safety and precautions found on **pages T10** & **T11** of NIC's **Electrolytic Capacitor catalog**.
Also found at **www.niccomp.com/precautions**
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: **tpmg@niccomp.com**

STANDARD TERMINATION LAND PATTERN DIM. (mm)

Case Dia.	A	B	P
6.3	3.6	1.8	1.8
8	4.1	2.1	2.8
10	4.4	2.5	4.3

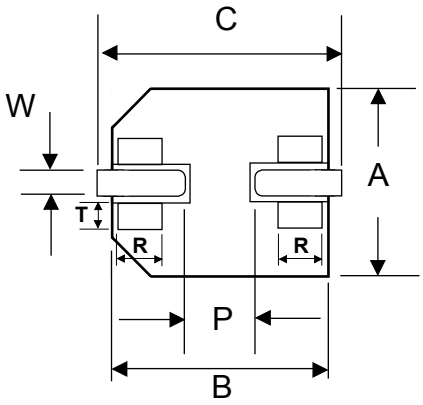


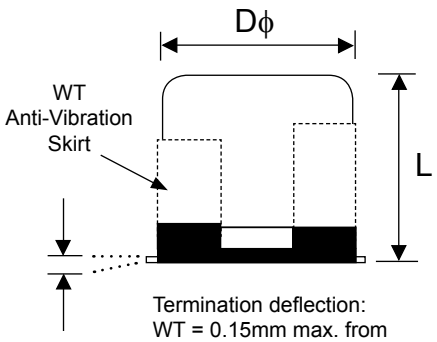
WIDE TERMINATION DIM. (mm)

Case Size	Dϕ ±0.5	L max.	A, B	C ±0.2	P	W	R	T
8 x 10.5WT	8.0	11.2	8.3 ± 0.2	9.0	(3.2)	0.7 ~ 1.0	(0.7)	(1.3)
10 x 10.5WT	10.0	11.2	10.3 ± 0.2	11.0	(4.6)	1.0 ~ 1.4	(0.7)	(1.3)
10 x 12.5WT	10.0	13.5	10.3 ± 0.2	11.0	(4.6)	1.0 ~ 1.4	(0.7)	(1.3)

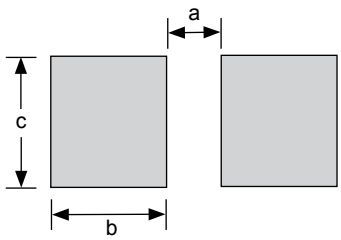
WIDE TERMINATION LAND PATTERN DIM. (mm)

Case Size	a	b	c
8x10.5	2.5	4.5	4.7
10x10.5	3.8	4.8	4.7
10x12.5	3.8	4.8	4.7



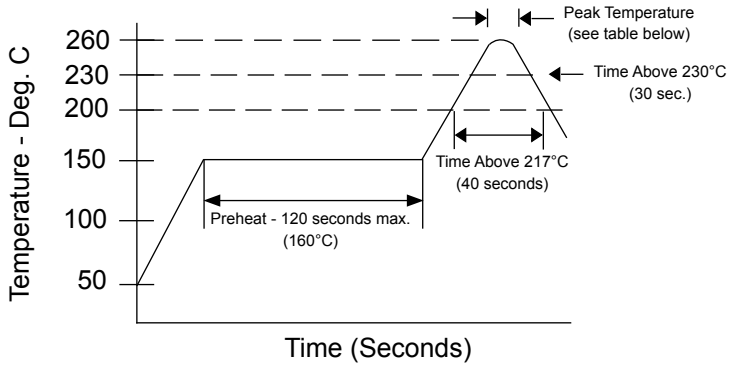


Termination deflection:
WT = 0.15mm max. from
bottom of support terminals



Review & Compare Reflow Soldering Heat Limits
V-chip SMT Aluminum Electrolytic Capacitors
www.niccomp.com/RSL

RECOMMENDED REFLOW SOLDERING PROFILE*



PEAK TEMPERATURE AND DURATION RATED VOLTAGE: 25 ~ 50Vdc

Diameter	Time above 200°C	Time above 217°C	Time above 230°C	Peak Temperature	Number of reflow passes allowed
6.3mm	70 sec. max.	40 sec. max.	30 sec. max.	260°C/5 sec.	2*
8mm & 10mm	70 sec. max.	40 sec. max.	30 sec. max.	260°C/5 sec.	1

PEAK TEMPERATURE AND DURATION RATED VOLTAGE: 63 ~ 80Vdc

Diameter	Time above 200°C	Time above 217°C	Time above 230°C	Peak Temperature	Number of reflow passes allowed
6.3 ~ 10mm	70 sec. max.	40 sec. max.	30 sec. max.	245°C/5 sec.	2*

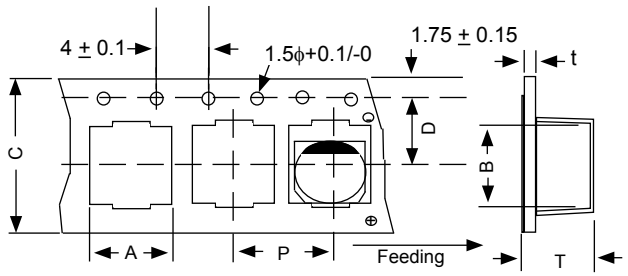
*Two reflow passes are permissible with a cool down to room temperature required between the first and second pass.

TAPING SPECIFICATIONS (mm)

1. Both Leader and Trailer tape: Minimum 40mm (1.57") empty carrier tape pockets.
2. Leader tape: Approximately 20cm of cover tape at leader.
3. Connection: Maximum 3 connections (slices) per reel.

CARRIER DIMENSIONS (mm)

Case Size	A ±0.2	B ±0.2	C ±0.3	D ±0.1	P ±0.1	T ±0.2	t max.
6.3X6.1	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 ±1.0	Qty per Reel 15" (380mm)
6.3X6.1	18	1000
6.3X8	18	900
8X10.5	26	500
10X10.5	26	500
10X12.5	26	400