

NSPD Series

Surface Mount Solid Polymer Electrolytic Capacitors



FEATURES

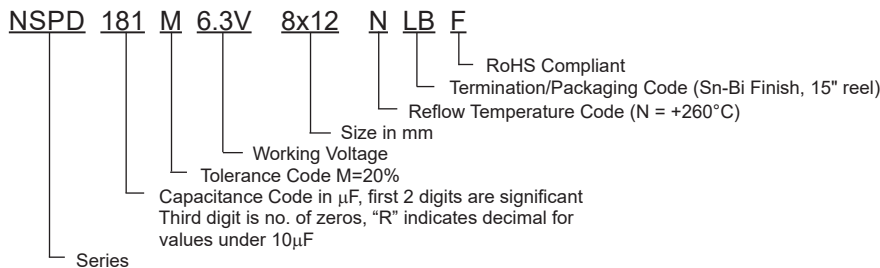
- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- LOW ESR AT HIGH FREQUENCY
- HIGH PERMISSIBLE RIPPLE CURRENT
- 2,000 HOUR LOAD LIFE @ +105°C
- NO DRY OUT INSURES EXTREMELY LONG LIFE



CHARACTERISTICS

Rated Voltage Rating	2.5 ~ 100Vdc						
Rated Capacitance Range	10 ~ 2,200 μ F						
Operating Temp. Range	-55 ~ +105°C						
Capacitance Tolerance	\pm 20% (M)						
Max. Leakage Current After 2 Minutes @ 20°C	See Specifications Tables						
Voltage Ratings	W.V. (Vdc)	2.5	4.0	6.3	10	16	20
	S.V. (Vdc)	2.8	4.6	7.2	11.5	18.4	23
	W.V. (Vdc)	25	35	50	63	80	100
	S.V. (Vdc)	27.5	38.5	55	69.3	88	110
Load Life Test @ 105°C All Case Sizes = 2,000 hours	Capacitance Change	Within \pm 20% of initial measured value					
	Tan δ	Less than \pm 150% of the specified maximum value					
	ESR	Less than \pm 150% of the specified maximum value					
	Leakage Current	Less than the specified maximum value					
Moisture Resistance stored at 60°C, 90°C95%RH after 1,000 hours	Capacitance Change	Within \pm 20% of initial measured value					
	ESR	Less than \pm 150% of the specified maximum value					
	Tan δ	Less than \pm 150% of the specified maximum value					
	Leakage Current	Less than the specified maximum value					

PART NUMBER SYSTEM



PEAK REFLOW TEMPERATURE CODES

Code	Peak Reflow Temperature
N	260°C
L	250°C
J	240°C

TERMINATION FINISH & PACKAGING OPTIONS CODES

Code	Finish & Reel Size
LB	Sn-Bi Finish & 15" Reel

PRECAUTIONS

Please review the notes on correct use, safety and precautions found at <https://www.niccomp.com/resource/files/aluminum/AlumApplInfoCautions.pdf>
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: tpmg@niccomp.com

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STANDARD VALUES, CASE SIZES AND SPECIFICATIONS

NIC Part Number	Cap. (μF)	W.V. (Vdc)	Dissipation Factor (Tan δ)	Max. Ripple Current (mA) +105°C/100KHz	Max. LC (μA after 2 min.)	Maximum ESR (Ω) +20°C/100KHz	Load Life Hours @ +105°C	
NSPD561M2.5V8X12NLBF	560	2.5	0.08	5200	280	9	2,000	
NSPD681M2.5V8X12NLBF	680		0.08	5200	340	9	2,000	
NSPD821M2.5V8X12NLBF	820		0.08	5400	410	9	2,000	
NSPD561M4V8X12NLBF	560	4.0	0.08	5200	448	9	2,000	
NSPD681M4V8X12NLBF	680		0.08	5200	544	9	2,000	
NSPD821M4V8X12NLBF	820		0.08	5200	656	9	2,000	
NSPD122M4V10X12.7NLBF	1200		0.10	5600	960	9	2,000	
NSPD152M4V8X12NLBF	1500		0.10	5200	1200	9	2,000	
NSPD152M4V10X12.7NLBF	1500		0.10	5600	1200	9	2,000	
NSPD182M4V10X12.7NLBF	1800		0.10	5600	1440	9	2,000	
NSPD222M4V10X12.7NLBF	2200		0.10	5600	1760	9	2,000	
NSPD181M6.3V8X12NLBF	180	6.3	0.08	5200	227	9	2,000	
NSPD271M6.3V8X12NLBF	270		0.08	5200	340	9	2,000	
NSPD331M6.3V8X12NLBF	330		0.08	5200	416	9	2,000	
NSPD391M6.3V8X12NLBF	390		0.08	5200	491	9	2,000	
NSPD471M6.3V8X12NLBF	470		0.08	5200	592	9	2,000	
NSPD561M6.3V8X12NLBF	560		0.08	5200	706	9	2,000	
NSPD681M6.3V8X12NLBF	680		0.08	5200	857	9	2,000	
NSPD681M6.3V10X12.7NLBF	680		0.08	5500	857	9	2,000	
NSPD821M6.3V8X12NLBF	820		0.10	5200	1033	9	2,000	
NSPD821M6.3V10X12.7NLBF	820		0.10	5500	1033	9	2,000	
NSPD102M6.3V8X12NLBF	1000		0.10	5200	1260	9	2,000	
NSPD102M6.3V10X12.7NLBF	1000		0.10	5500	1260	9	2,000	
NSPD122M6.3V10X12.7NLBF	1200		0.10	5500	1512	9	2,000	
NSPD152M6.3V10X12.7NLBF	1500		0.10	5500	1890	9	2,000	
NSPD202M6.3V10X12.7NLBF	2000		0.10	5500	2520	9	2,000	
NSPD222M6.3V10X12.7NLBF	2200		0.10	5500	2772	9	2,000	
NSPD561M10V8X12NLBF	560		10	0.08	5200	1120	9	2,000
NSPD181M16V8X12LLBF	180			0.08	4700	576	15	2,000
NSPD221M16V8X12LLBF	220	0.08		4700	704	15	2,000	
NSPD221M16V10X12.7LLBF	220	0.08		5100	704	15	2,000	
NSPD271M16V8X12LLBF	270	0.08		4700	864	15	2,000	
NSPD271M16V10X12.7LLBF	270	0.08		5100	864	15	2,000	
NSPD331M16V8X12LLBF	330	0.08		4700	1056	15	2,000	
NSPD331M16V10X12.7LLBF	330	0.08		5100	1056	15	2,000	
NSPD471M16V8X12LLBF	470	0.10		4700	1504	15	2,000	
NSPD471M16V10X12.7LLBF	470	0.10		5100	1504	15	2,000	
NSPD561M16V8X12LLBF	560	0.12		4950	1792	14	2,000	
NSPD681M16V10X12.7LLBF	680	0.10		5100	2176	15	2,000	
NSPD821M16V10X12.7LLBF	820	0.10		5100	2624	15	2,000	
NSPD102M16V10X12.7LLBF	1000	0.12		5400	3200	14	2,000	
NSPD101M20V8X12LLBF	100	20		0.08	4210	400	20	2,000
NSPD101M20V10X12.7LLBF	100			0.08	4800	400	20	2,000
NSPD151M20V10X12.7LLBF	150			0.10	4800	600	20	2,000
NSPD181M20V10X12.7LLBF	180			0.10	4800	720	20	2,000
NSPD221M20V10X12.7LLBF	220		0.10	4800	880	20	2,000	
NSPD390M25V8X12LLBF	39		25	0.08	4210	195	20	2,000
NSPD470M25V8X12LLBF	47	0.08		4210	235	20	2,000	
NSPD560M25V10X12.7LLBF	56	0.08		3800	280	28	2,000	
NSPD820M25V8X12LLBF	82	0.08		4210	410	20	2,000	
NSPD101M25V8X12LLBF	100	0.10		4210	500	20	2,000	
NSPD101M25V10X12.7LLBF	100	0.10		4800	500	20	2,000	
NSPD181M25V10X12.7LLBF	180	0.10		4800	900	20	2,000	
NSPD221M25V8X12LLBF	220	0.10		3800	1100	25	2,000	
NSPD221M25V10X12.7LLBF	220	0.10		4800	1100	20	2,000	
NSPD271M25V10X12.7LLBF	270	0.10		4800	1350	20	2,000	
NSPD331M25V8X12LLBF	330	0.12		4210	1650	20	2,000	
NSPD331M25V10X12.7LLBF	330	0.12		4200	1650	22	2,000	
NSPD391M25V10X12.7LLBF	390	0.12		4200	1950	22	2,000	
NSPD471M25V10X12.7LLBF	470	0.12		3800	2350	25	2,000	

Performance Passives By Design

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STANDARD VALUES, CASE SIZES AND SPECIFICATIONS

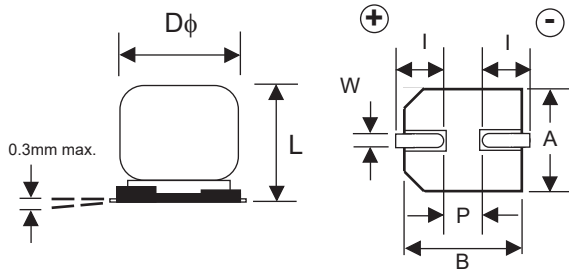
NIC Part Number	Cap. (μF)	W.V. (Vdc)	Dissipation Factor (Tan δ)	Max. Ripple Current (mA) +105°C/100KHz	Max. LC (μA after 2 min.)	Maximum ESR (Ω) +20°C/100KHz	Load Life Hours @ +105°C
NSPD680M35V8X12JLBF	68	35	0.12	3300	476	28	2,000
NSPD820M35V8X12JLBF	82		0.12	3300	574	28	2,000
NSPD101M35V10X12.7JLBF	100		0.12	3800	700	25	2,000
NSPD121M35V8X12JLBF	120		0.12	3800	840	25	2,000
NSPD151M35V8X12JLBF	150		0.12	3800	1050	25	2,000
NSPD181M35V10X12.7JLBF	180		0.12	4100	1260	22	2,000
NSPD221M35V10X12.7JLBF	220		0.12	4100	1540	22	2,000
NSPD271M35V10X12.7JLBF	270		0.12	4400	1890	20	2,000
NSPD331M35V10X12.7JLBF	330		0.12	4400	2310	20	2,000
NSPD100M50V8X12JLBF	10		50	0.12	1800	100	40
NSPD220M50V8X12JLBF	22	0.12		1800	220	40	2,000
NSPD560M50V10X12.7JLBF	56	0.12		3000	560	25	2,000
NSPD680M50V10X12.7JLBF	68	0.12		3000	680	25	2,000
NSPD221M50V10X12.7JLBF	220	0.12		3000	2200	25	2,000
NSPD100M63V8X12JLBF	10	63	0.12	1800	126	35	2,000
NSPD220M63V8X12JLBF	22		0.12	1800	277	35	2,000
NSPD330M63V8X12JLBF	33		0.12	2200	416	35	2,000
NSPD330M63V10X12.7JLBF	33		0.12	2500	416	30	2,000
NSPD390M63V8X12JLBF	39		0.12	2200	491	35	2,000
NSPD470M63V10X12.7JLBF	47		0.12	2500	592	30	2,000
NSPD101M63V10X12.7JLBF	100		0.12	3000	1260	25	2,000
NSPD120M80V8X12JLBF	12		80	0.12	1800	192	40
NSPD220M80V10X12.7JLBF	22	0.12		2300	352	38	2,000
NSPD470M80V10X12.7JLBF	47	0.12		1800	752	40	2,000
NSPD680M80V10X12.7JLBF	68	0.12		1800	1088	40	2,000
NSPD100M100V8X12JLBF	10	100	0.12	1700	200	45	2,000
NSPD220M100V10X12.7JLBF	22		0.12	2100	440	40	2,000
NSPD330M100V10X12.7JLBF	33		0.12	2100	660	40	2,000

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

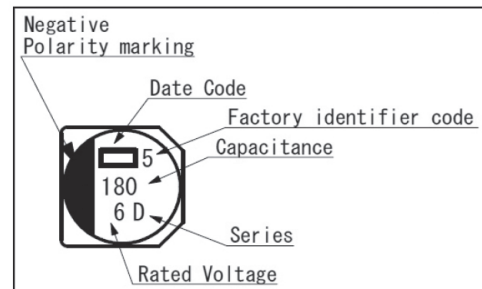
Frequency (Hz)			
120 ≤ f < 1K	1K ≤ f < 10K	10K ≤ f < 100K	100K ≤ f < 300K
0.05	0.3	0.7	1.0

CASE DIMENSIONS (mm)

Case Size	φD±0.5	L max.	A±0.2	B±0.2	I ref.	W	P ref.
8X12	8.0	12	8.3	8.3	2.9	0.7~1.1	3.1
10X12.7	10	12.7	10.3	10.3	3.2	0.7~1.1	4.5



Marking



Marking Color: Blue

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REFLOW CONDITIONS FOR 2.5V ~ 10V PARTS

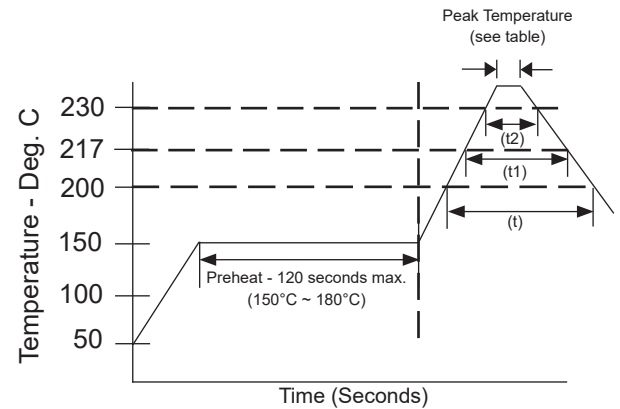
Peak	Time above 200°C (t)	Time above 217°C (t1)	Time above 230°C (t2)	Number of Reflow Passes
Less than +260°C	90 sec. max.	60 ~ 150 sec. max.	60 sec. max.	1
Less than +250°C	90 sec. max.	60 ~ 150 sec. max.	60 sec. max.	2

REFLOW CONDITIONS FOR 16V ~ 25V

Peak	Time above 200°C (t)	Time above 217°C (t1)	Time above 230°C (t2)	Number of Reflow Passes
Less than +250°C	90 sec. max.	60 ~ 150 sec. max.	60 sec. max.	1
Less than +240°C	80 sec. max.	60 ~ 150 sec. max.	50 sec. max.	2

REFLOW CONDITIONS FOR 35V ~ 100V

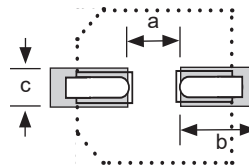
Peak	Time above 200°C (t)	Time above 217°C (t1)	Time above 230°C (t2)	Number of Reflow Passes
Less than +240°C	70 sec. max.	60 ~ 150 sec. max.	30 sec. max.	1



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.

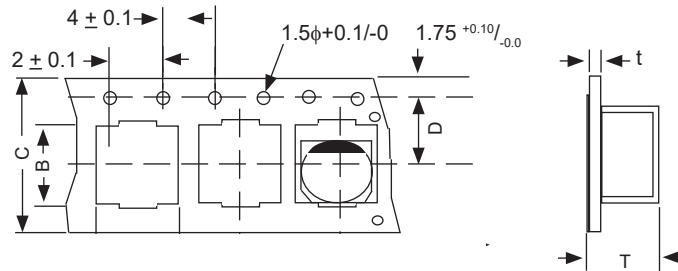
RECOMMENDED LAND PATTERN DIMENSIONS (mm)

Case Size	a	b	c
8φ	2.8	4.2	1.9
10φ	4.3	4.4	1.9



CARRIER TAPE DIMENSIONS & REEL QTY

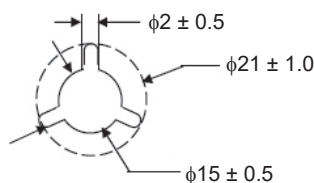
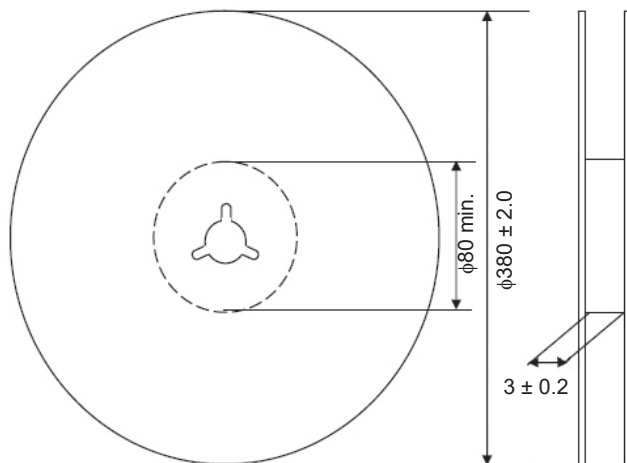
Case Size	A ±0.2	B ±0.2	C ref.	D ±0.1	P ±0.1	T ±0.2	t ±0.05
8X12	8.7	8.7	24.0	11.5	16.0	13.0	0.5
10X12.7	10.7	10.7	24.0	11.5	16.0	12.9	0.5



V-Chip 15" (380mm) Reels (LB suffix)

Dimensions (mm)

Case Size	Tape Width	Quantity per Reel TR15 380mm
8X12	26	400
10X12.7	26	400



Performance Passives By Design

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