

# NSPG Series

## Surface Mount Solid Polymer Electrolytic Capacitors



### FEATURES

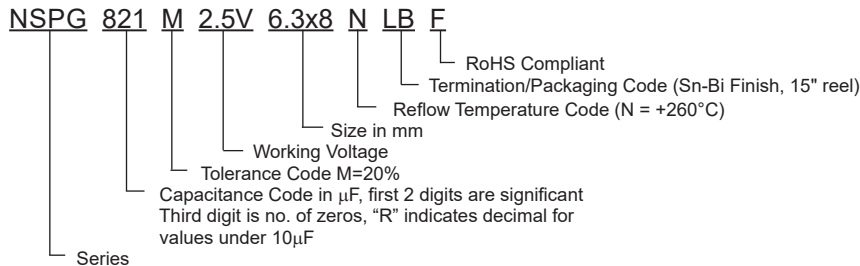
- CYLINDRICAL V-CHIP AND LOW PROFILE
- LOW ESR AT HIGH FREQUENCY
- HIGH PERMISSIBLE RIPPLE CURRENT
- 2,000 HOUR LOAD LIFE @ +125°C
- NO DRY OUT INSURES EXTREMELY LONG LIFE



### CHARACTERISTICS

Rated Voltage Rating	2.5 ~ 80Vdc												
Rated Capacitance Range	6.8 ~ 1,000 $\mu$ F												
Operating Temp. Range	-55 ~ +125°C												
Capacitance Tolerance	$\pm$ 20% (M)												
Max. Leakage Current After 2 Minutes @ 20°C	See Specifications Table												
Max. Tan $\delta$ at 120Hz & 20°C	See Specifications Table												
Voltage Ratings	W.V. (Vdc)	2.5	6.3	10	16	18	20	25	35	50	63	80	
	S.V. (Vdc)	2.8	7.2	11.5	18.4	20.7	23	27.5	38.5	55	69.3	88	
Load Life Test @ 125°C All Case Sizes = 2,000 hours	Capacitance Change	Within $\pm$ 20% of initial measured value											
	Tan $\delta$	Less than $\pm$ 150% of the specified maximum value											
	ESR	Less than $\pm$ 150% of 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 $\delta$	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](mailto: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) +125°C/100KHz	Max. LC (μA after 2 min.)	Maximum ESR (Ω) +20°C/100KHz	Load Life Hours @ +125°C
NSPG821M2.5V6.3X8NLBF	820	2.5	0.08	980	410	20	2,000
NSPG221M6.3V6.3X6.1NLBF	220	6.3	0.08	822	300	25	2,000
NSPG221M6.3V6.3X8NLBF	220	6.3	0.08	885	300	25	2,000
NSPG331M6.3V6.3X8NLBF	330	6.3	0.08	980	415.8	30	2,000
NSPG471M6.3V6.3X8NLBF	470	6.3	0.12	980	592.2	30	2,000
NSPG471M6.3V10X9NLBF	470	6.3	0.08	1012	592.2	25	2,000
NSPG470M10V5X5.8NLBF	47	10	0.08	538	300	40	2,000
NSPG101M10V5X5.8NLBF	100	10	0.08	569	300	35	2,000
NSPG821M10V10X12.7NLBF	820	10	0.08	1420	1640	15	2,000
NSPG101M16V6.3X6.1LLBF	100	16	0.12	633	400	35	2,000
NSPG101M16V6.3X8LLBF	100	16	0.10	695	400	30	2,000
NSPG271M16V6.3X10.2LLBF	270	16	0.12	1265	864	18	2,000
NSPG331M16V10X10.8LLBF	330	16	0.12	1105	1056	25	2,000
NSPG391M16V8X9LLBF	390	16	0.12	1012	1248	25	2,000
NSPG471M16V8X12LLBF	470	16	0.12	1075	1504	25	2,000
NSPG561M16V10X9LLBF	560	16	0.12	930	1792	35	2,000
NSPG561M16V10X12.7LLBF	560	16	0.12	1265	1792	20	2,000
NSPG102M16V10X12.7LLBF	1000	16	0.12	1708	3200	12	2,000
NSPG821M18V10X12.7LLBF	820	18	0.12	1676	2952	13	2,000
NSPG181M20V8X12LLBF	180	20	0.12	1200	720	25	2,000
NSPG100M25V5X6.1LLBF	10	25	0.12	380	600	80	2,000
NSPG220M25V6.3X6.1LLBF	22	25	0.10	474	600	60	2,000
NSPG470M25V6.3X8LLBF	47	25	0.10	695	600	35	2,000
NSPG101M25V6.3X8LLBF	100	25	0.12	695	600	35	2,000
NSPG121M25V8X12LLBF	120	25	0.12	1200	600	25	2,000
NSPG221M25V8X9LLBF	220	25	0.12	950	1100	30	2,000
NSPG331M25V10X12.7LLBF	330	25	0.12	1265	1650	25	2,000
NSPG471M25V10X12.7LLBF	470	25	0.12	1265	2350	25	2,000
NSPG100M35V6.3X6.1JLBF	10	35	0.12	310	600	75	2,000
NSPG680M35V6.3X8JLBF	68	35	0.12	475	600	55	2,000
NSPG101M35V6.3X10.2JLBF	100	35	0.12	727	600	35	2,000
NSPG101M35V10X10.8JLBF	100	35	0.12	800	700	32	2,000
NSPG101M35V10X12.7JLBF	100	35	0.12	980	700	30	2,000
NSPG151M35V10X12.7JLBF	150	35	0.12	980	1050	30	2,000
NSPG331M35V10X12.7JLBF	330	35	0.12	980	2310	30	2,000
NSPG220M50V10X9JLBF	22	50	0.12	570	220	55	2,000
NSPG101M50V10X12.7JLBF	100	50	0.12	885	1000	30	2,000
NSPG6R8M63V6.3X6.1JLBF	6.8	63	0.12	221	600	100	2,000
NSPG180M63V6.3X8JLBF	18	63	0.12	348	600	90	2,000
NSPG470M63V10X9JLBF	47	63	0.12	633	592.2	50	2,000
NSPG470M63V10X12.7JLBF	47	63	0.12	759	592.2	40	2,000
NSPG101M63V10X12.7JLBF	100	63	0.12	1265	1260	30	2,000
NSPG330M80V10X12.7JLBF	33	80	0.12	727	528	40	2,000
NSPG470M80V10X12.7JLBF	47	80	0.12	727	752	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

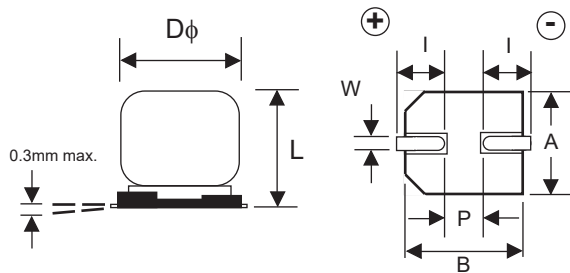
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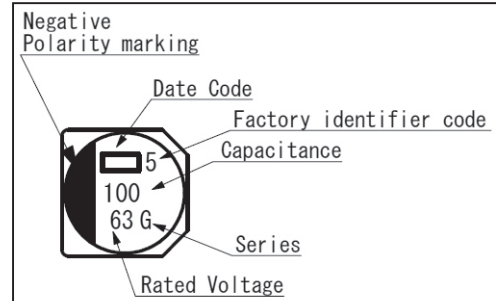


### CASE DIMENSIONS (mm)

Case Size	$\phi D \pm 0.5$	L max.	A $\pm 0.2$	B $\pm 0.2$	l ref.	W	P ref.
5X5.8	5.0	5.8	5.3	5.3	2.2	0.5~0.8	1.4
5X6.1	5.0	6.1	5.3	5.3	2.2	0.5~0.8	1.4
6.3X6.1	6.3	6.1	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
6.3X10.2	6.3	10.2	6.6	6.6	2.5	0.5~0.8	2.2
8X9	8.0	9.0	8.3	8.3	2.9	0.7~1.1	3.1
8X12	8.0	12.0	8.3	8.3	2.9	0.7~1.1	3.1
10X9	10	9.0	10.3	10.3	3.2	0.7~1.1	4.5
10X10.8	10	10.8	10.3	10.3	3.2	0.7~1.1	4.5
10X12.7	10	12.7	10.3	10.3	3.2	0.7~1.1	4.5



### Marking



Marking Color: Blue

### 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

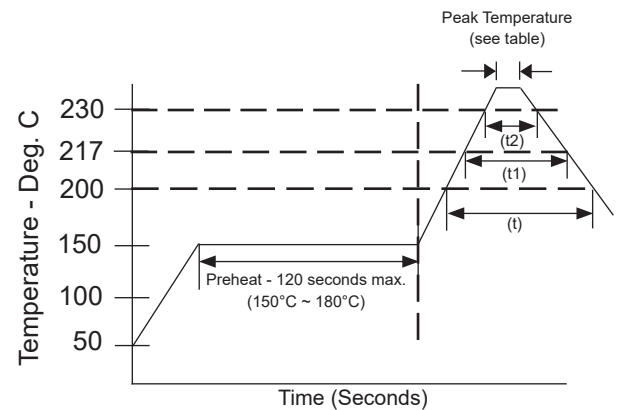
### REFLOW CONDITIONS FOR 16V ~ 25V

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 ~ 80V

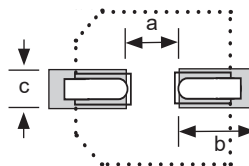
Peak	Time above 200°C (t)	Time above 217°C (t1)	Time above 230°C (t2)	Number of Reflow Passes
Less than +240°C	70 sec. max.	60 ~ 150 sec. max.	30 sec. max.	1

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.



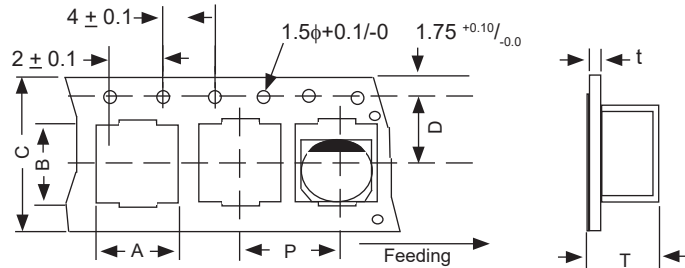
### RECOMMENDED LAND PATTERN DIMENSIONS (mm)

Case Size	a	b	c
5 $\phi$	1.4	3.0	1.6
6.3 $\phi$	2.1	3.5	1.6
8 $\phi$	2.8	4.2	1.9
10 $\phi$	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
5X5.8	5.7	5.7	12.0	5.5	12.0	5.7	0.4
5X6.1	5.7	5.7	12.0	5.5	12.0	6.1	0.4
6.3X6.1	7.0	7.0	16.0	7.5	12.0	6.2	0.4
6.3X8	7.0	7.0	16.0	7.5	12.0	8.1	0.4
6.3X10.2	7.0	7.0	16.0	7.5	12.0	11.2	0.4
8X9	8.7	8.7	24.0	11.5	16.0	11.0	0.4
8X12	8.7	8.7	24.0	11.5	16.0	13.0	0.5
10X9	10.7	10.7	24.0	11.5	16.0	11.0	0.4
10X10.8	10.7	10.7	24.0	11.5	16.0	11.0	0.4
10X12.7	10.7	10.7	24.0	11.5	16.0	12.9	0.5



### 15" (380mm) REEL DIMENSIONS & REEL QTY

Case Size	W ±1.0	Quantity
		TR15 (380mm)
5X5.8	14	1000
5X6.1	14	1000
6.3X6.1	18	1000
6.3X8	18	900
6.3X10.2	18	600
8X9	26	500
8X12	26	400
10X9	26	500
10X10.8	26	500
10X12.7	26	400

A	B	C	D
φ380 ±2.0	φ80 min.	φ15 ±0.5	φ21 ±1.0

