

Solid Polymer Aluminum Electrolytic Capacitors

NSPVM Series

SUPER LOW ESR, WIDE TEMPERATURE, SURFACE MOUNT, POLARIZED

FEATURES

- ULTRA LOW ESR (TO 13mΩ)
- HIGH RIPPLE CURRENT RATINGS
- REDUCED SIZES (LOW PROFILE)

****NEW****
***Low ESR &
High Ripple Current***



CHARACTERISTICS

Rated Voltage Range		2.5 ~ 35VDC							
Capacitance Range		10 ~ 1,200μF							
Operating Temperature Range		-55°C ~ +105°C							
Capacitance Tolerance		±20% (M)							
Maximum Leakage Current After 2 minutes		2.5V ~ 20V = 0.2CV							
		25V ~ 35V = 0.5CV							
Max. Tan δ at 120Hz/20°C	W.V. (Vdc)	2.5	4.0	6.3	10	16	20	25	35
	S.V. (Vdc)	2.9	4.6	7.2	11.5	18	23	28.7	40
	Tan δ	0.12 max.							
Low Temperature Stability Impedance Ratio @ 120Hz	Z-55°C/Z+20°C	≤1.15							
	Z+105°C/Z+20°C	≤1.25							
Load Life Test @ 105°C	Duration	All Case Sizes: 2,000 hours							
	Δ Capacitance	Within ±20% of initial measured value							
	Δ Tan δ	Less than 150% of specified value							
	Δ ESR	Less than 150% of specified value							
	Δ LC	Less than specified value							
Damp Heat	The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to the DC rated voltage at +60°C, 90% ~ 95% RH for 500 hours.								
	Appearance	No significant damage							
	Δ Capacitance	Within ±20% of initial measured value							
	Δ Tan δ	Less than 150% of specified value							
	Δ ESR	Less than 150% of specified value							
	Δ LC	Less than specified value							
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the specified surge voltage @ +105°C for 30 seconds through a protective resistor (1K ohm) and discharged for 5 minutes, 30 seconds.								
	Appearance	No significant damage							
	Δ Capacitance	Within ±20% of initial measured value							
	Δ Tan δ	Less than 150% of specified value							
	Δ ESR	Less than 150% of specified value							
	Δ LC	Less than specified value							
Failure Rate	0.5% per 1,000 hours maximum (Confidence level 60% @ +105°C)								

PART NUMBER SYSTEM

NSPVM 391 M 2.5V 6.3X6 L LB F

RoHS Compliant
Sn-Bi Finish, 15" Reel
Peak Reflow Temperature: L = +250°C, J = +240°C
Case Size (DφxL)
Working Voltage (Vdc)
Tolerance Code (M=20%)
Capacitance Code: First 2 characters significant, third character is multiplier
Series

PEAK REFLOW SOLDERING CODE

Code	Peak Reflow Temperature
L	+250°C
J	+240°C

TERMINATION/PACKAGING CODE

Code	Termination Finish and Reel Size
LB	Sn-Bi Finish, 15" reel

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



Solid Polymer Aluminum Electrolytic Capacitors NSPVM Series

STANDARD PRODUCT AND CASE SIZE TABLE D ϕ xL (mm)

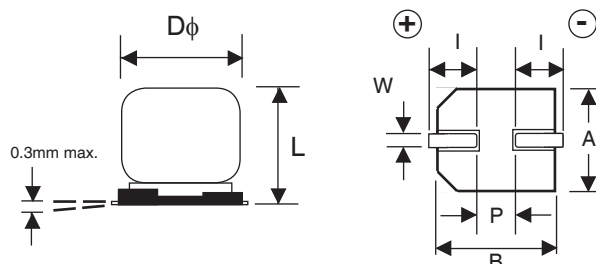
Part Number	Cap. (μF)	Voltage (VDC)	Case Size (DxL)	Leakage Current (μA) after 2 minutes	Max. ESR (mΩ) +20°C/100KHz	Ripple Current Rating (mA) +105°C/100KHz	Load Life Hours @+105°C
NSPVM181M2.5V5X6LLBF	180	2.5	5X6	90	21	2670	2,000
NSPVM391M2.5V6.3X6LLBF	390		6.3X6	195	15	3160	2,000
NSPVM561M2.5V8X7JLBF	560		8X7	280	13	3600	2,000
NSPVM681M2.5V8X7JLBF	680		8X7	340	13	3600	2,000
NSPVM122M2.5V10X8JLBF	1200		10X8	600	13	4450	2,000
NSPVM101M4V5X6LLBF	100	4.0	5X6	80	22	2160	2,000
NSPVM151M4V5X6LLBF	150		5X6	120	22	2610	2,000
NSPVM271M4V6.3X6LLBF	270		6.3X6	216	15	3160	2,000
NSPVM331M4V6.3X6LLBF	330		6.3X6	264	15	3160	2,000
NSPVM471M4V8X7JLBF	470		8X7	376	14	3950	2,000
NSPVM561M4V8X7JLBF	560	6.3	8X7	448	14	3950	2,000
NSPVM102M4V10X8JLBF	1000		10X8	800	14	4300	2,000
NSPVM101M6.3V5X6LLBF	100		5X6	126	24	2500	2,000
NSPVM121M6.3V5X6LLBF	120		5X6	151	24	2500	2,000
NSPVM221M6.3V6.3X6LLBF	220		6.3X6	277	15	3160	2,000
NSPVM331M6.3V8X7JLBF	330	10	8X7	415	14	3950	2,000
NSPVM391M6.3V8X7JLBF	390		8X7	491	14	3950	2,000
NSPVM821M6.3V10X8JLBF	820		10X8	1033	14	4300	2,000
NSPVM470M10V5X6LLBF	47		5X6	94	28	2310	2,000
NSPVM560M10V5X6LLBF	56		5X6	112	28	2310	2,000
NSPVM680M10V5X6LLBF	68	16	5X6	136	28	2310	2,000
NSPVM121M10V6.3X6LLBF	120		6.3X6	240	25	2530	2,000
NSPVM221M10V8X7JLBF	220		8X7	440	21	3220	2,000
NSPVM271M10V8X7JLBF	270		8X7	540	21	3220	2,000
NSPVM471M10V10X8JLBF	470		10X8	940	19	3800	2,000
NSPVM330M16V5X6LLBF	33	20	5X6	105	35	2070	2,000
NSPVM390M16V5X6LLBF	39		5X6	124	35	2070	2,000
NSPVM680M16V6.3X6LLBF	68		6.3X6	217	28	2340	2,000
NSPVM101M16V8X7JLBF	100		8X7	320	24	3010	2,000
NSPVM121M16V8X7JLBF	120		8X7	384	24	3010	2,000
NSPVM221M16V10X8JLBF	220	25	10X8	704	22	3450	2,000
NSPVM220M20V6.3X6LLBF	22		6.3X6	88	50	1650	2,000
NSPVM470M20V8X7JLBF	47		8X7	188	45	2000	2,000
NSPVM820M20V10X8JLBF	82		10X8	328	40	2500	2,000
NSPVM100M25V6.3X6LLBF	10		6.3X6	125	60	1500	2,000
NSPVM220M25V8X7JLBF	22	35	8X7	275	50	1800	2,000
NSPVM390M25V10X8JLBF	39		10X8	488	45	2100	2,000
NSPVM150M35V8X7JLBF	15		8X7	263	150	1000	2,000
NSPVM330M35V10X8JLBF	33		10X8	578	100	1800	2,000

RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

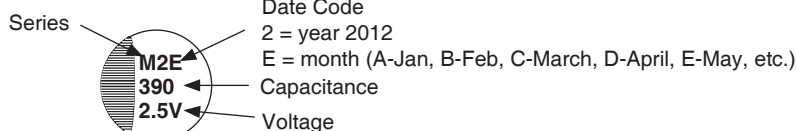
Frequency (Hz)	100	1K	10K	≥100K
10μF ~ 1,200μF	0.10	0.45	0.50	1.0

DIMENSIONS (mm)

Case Size	D ϕ ±0.5	L max.	A, B ±0.2	W	I ref	P ref
5X6	5.0	6.0	5.3	0.5 ~ 0.8	2.3	1.5
6.3X6	6.3	6.0	6.6	0.5 ~ 0.8	2.7	2.0
8X7	8.0	7.0	8.4	0.5 ~ 0.8	3.0	3.1
10X8	10	8.0	10.4	0.7 ~ 1.1	3.3	4.7

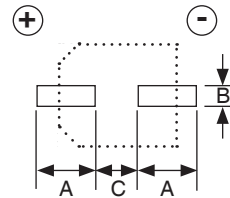


MARKING



RECOMMENDED LAND PATTERN DIMENSIONS (mm)

Case Size	A	B	C
5X6	3.0	1.6	1.4
6.3X6	3.6	1.6	1.9
8X7	4.0	1.6	2.1
10X8	4.0	2.5	4.0

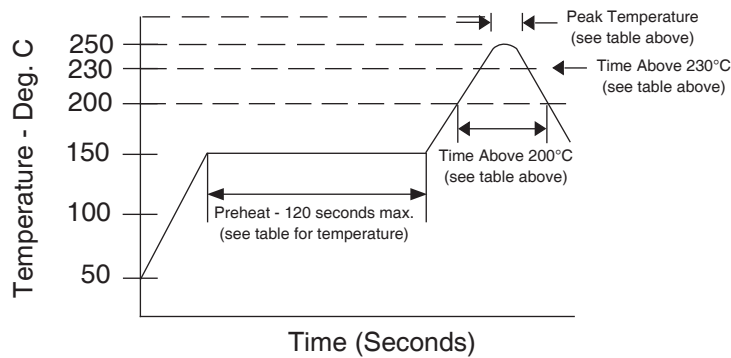


SOLDERING TEMPERATURES AND DURATIONS

Diameter	Preheat (120 sec. max.)	Time above 200°C	Time above 230°C	Peak Temperature	Number of Reflow Passes ¹
5 ~ 6.3mm	160°C ~ 190°C	70 sec. max.	50 sec. max.	240°C/5 sec.	2x
		60 sec. max.	40 sec. max.	250°C/5 sec.	2x
8 ~ 10mm	160°C ~ 190°C	70 sec. max.	50 sec. max.	230°C/5 sec.	2x
		60 sec. max.	40 sec. max.	240°C/5 sec.	2x

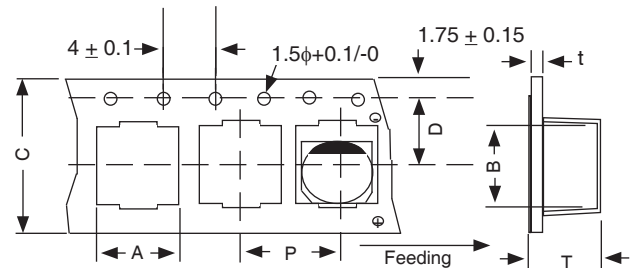
- Two reflow passes are permissible with a cool down to room temperature required between the first and second pass (more than 1 hour).
- Some case swelling may occur (~ 0.3mm) which is not an indication that the capacitor performance has been compromised.

RECOMMENDED REFLOW SOLDERING PROFILE



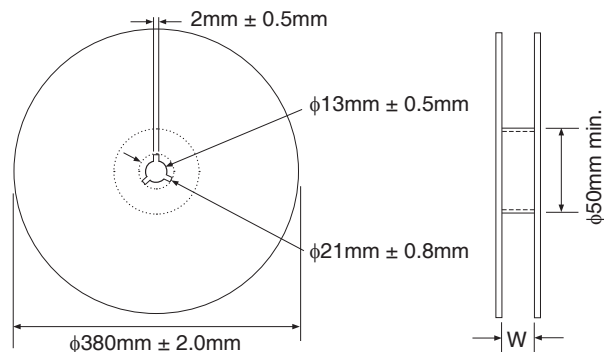
CARRIER DIMENSIONS (mm)

Case Size	A ±0.5	B ±0.5	C ±0.3	D ±0.1	P ±0.1	T ±0.2	t max.
5X6	5.7	5.7	12.0	5.5	12.0	6.2	0.4
6.3X6	7.0	7.0	16.0	7.5	12.0	6.2	0.4
8X7	8.7	8.7	24.0	11.5	12.0	7.2	0.4
10X8	10.7	10.7	24.0	11.5	16.0	8.2	0.4



REEL DIMENSIONS (mm)

Case Size	W ±1.0	Qty per Reel 15" (380mm)
5X6	14.0	1,000
6.3X6	18.0	1,000
8X7	26.0	1,000
10X8	26.0	500



TAPING SPECIFICATIONS (mm)

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

