

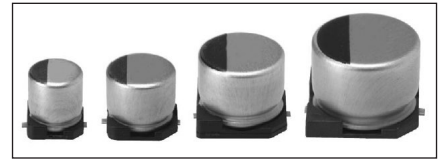
Solid Polymer Aluminum Electrolytic Capacitors NSPVM Series

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 ~ 16VDC				
Capacitance Range		33 ~ 1,200μF				
Operating Temperature Range		-55°C ~ +105°C				
Capacitance Tolerance		±20% (M)				
Maximum Leakage Current After 2 minutes		2.5V ~ 16V = 0.2CV				
Max. Tan δ at 120Hz/20°C	W.V. (Vdc)	2.5	4.0	6.3	10	16
	S.V. (Vdc)	2.9	4.6	7.2	11.5	18
	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				
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				
Failure Rate	Δ LC					Less than specified value
	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

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

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 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 PRODUCT AND CASE SIZE TABLE DφxL (mm)

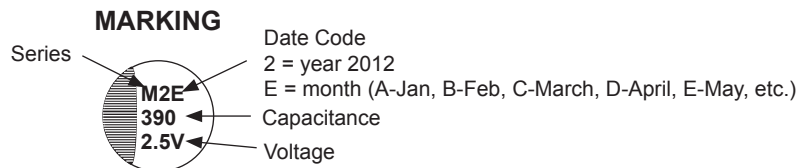
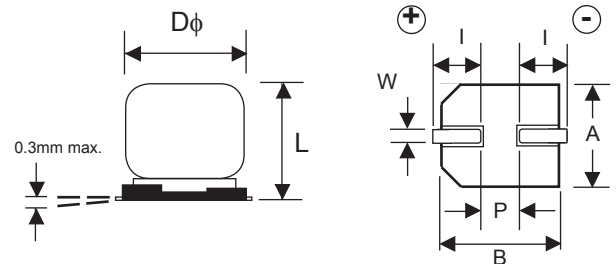
Part Number	Cap. (μF)	Voltage (VDC)	Case Size (DxL)	Leakage Current (μA) after 2 minutes	Max. ESR (mΩ) +20°C/100KHz	Ripple Current Rating (mA) +105°C/100KHz	Load Life Hours @+105°C
NSPVM181M2.5V5X6LLBF	180	2.5	5X6	90	21	2670	2,000
NSPVM391M2.5V6.3X6LLBF	390		6.3X6	195	15	3160	2,000
NSPVM561M2.5V8X7JLBF	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	8X7	448	14	3950	2,000	
NSPVM102M4V10X8JLBF	1000	10X8	800	14	4300	2,000	
NSPVM101M6.3V5X6LLBF	100	6.3	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		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	10	5X6	94	28	2310	2,000
NSPVM560M10V5X6LLBF	56		5X6	112	28	2310	2,000
NSPVM680M10V5X6LLBF	68		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	16	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	10X8	704	22	3450	2,000	

RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

Frequency (Hz)	100	1K	10K	≥100K
33μF ~ 1,200μF	0.10	0.45	0.50	1.0

DIMENSIONS (mm)

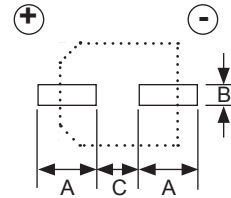
Case Size	Dφ ±0.5	L max.	A, B ±0.2	W	I ref	P ref
5X6	5.0	6.0	5.3	0.5 ~ 0.8	2.3	1.5
6.3X6	6.3	6.0	6.6	0.5 ~ 0.8	2.7	2.0
8X7	8.0	7.0	8.4	0.5 ~ 0.8	3.0	3.1
10X8	10	8.0	10.4	0.7 ~ 1.1	3.3	4.7



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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

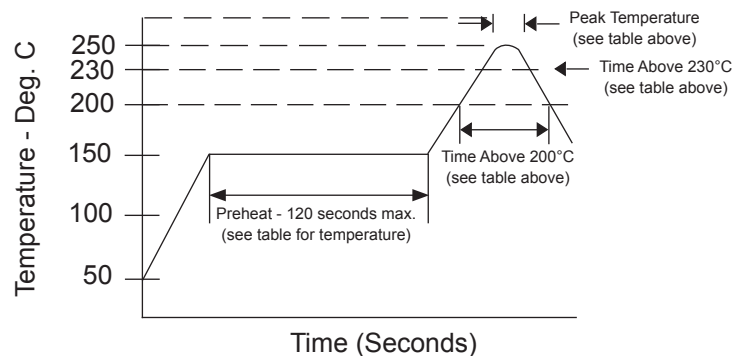


SOLDERING TEMPERATURES AND DURATIONS

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

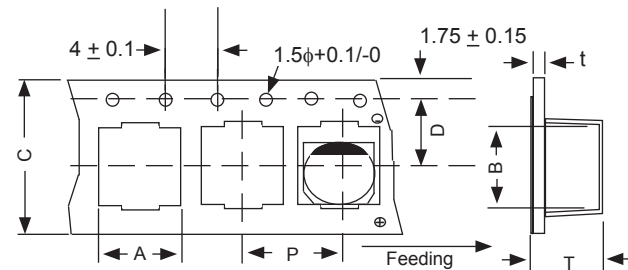
- Two reflow passes are permissible with a cool down to room temperature required between the first and second pass (more than 1 hour).
- Some case swelling may occur (~ 0.3mm) which is not an indication that the capacitor performance has been compromised.

RECOMMENDED REFLOW SOLDERING PROFILE



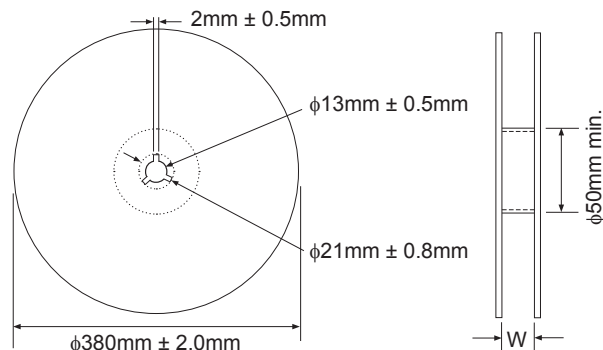
CARRIER DIMENSIONS (mm)

Case Size	A	B	C	D	P	T	t
5X6	±0.5	±0.5	±0.3	±0.1	±0.1	±0.2	max.
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	Qty per Reel
	±1.0	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.

