Surface Mount Solid Aluminum Electrolytic Capacitors

NPC Series

FEATURES

- LOW IMPEDANCE & ESR AT HIGH FREQUENCY
- HIGH RIPPLE CURRENT
- REPLACES MULTIPLE TANTALUM CHIPS IN POWER SUPPLIES
- FITS EIA (7343) "D" LAND PATTERNS
- Pb-FREE (GOLD TERMINATION PLATING)
- COMPATIBLE WITH +250°C & +260°C* REFLOW SOLDERING

*Refer to product tables for available +260°C values

RoHS Compliant
includes all homogeneous materials

*See Part Number System for Details

CHARACTERISTICS

Rated Working Range	2.0 ~ 8VDC		
Rated Capacitance Range	10 ~ 390µF		
Operating Temperature Range	-55 ~ +105°C		
Capacitance Tolerance	± 20% (M)		
Max. Leakage Current (µA) After 5 Minutes (+20°C)	≤0.04CV		
Max. Tan δ, 120Hz, +20°C	D1, D6	≤0.05	
	D7, D8	≤0.1	
High Temperature Load Life 2,000 Hours @ 105°C at Rated Working Voltage	Capacitance Change	Within ±20% of initial measured value	
	Tan δ	D7, D8 (D1 10µF/6.3V)	Less than 150% of specified max. value
		D1, D6	Less than 200% of specified max. value
	Leakage Current	Less than specified max. value	
Moisture Resistance* 500 Hours @ +60°C at 90 ~ 95% RH and No Voltage Applied	Capacitance Change	Within -20%/+40% of initial measured value	
	Tan δ	D7, D8	Less than 150% of specified max. value
		D1, D6	Less than 200% of specified max. value
	Leakage Current	Less than 300% of specified max. value Less than 500% of specified max. value for D1 10µF/6.3V	

*JEDEC MSL-3

STANDARD PRODUCTS AND SPECIFICATIONS

NIC Part Number (+250°C Reflow)	NIC Part Number (+260°C Reflow)	WV (Vdc)	Cap. (µF)	Max. LC (µA)	Tan δ	Max. Ripple Current 100KHz @ +105°C	Max. ESR +20°C & 100KHz (Ω)	Height H ± 0.1
NPC101M2D1ZTRF	NPC101M2D1ZATRF	2	100	8.0	0.05	3,000	0.009	1.4
NPC101M2D6XTRF	NPC101M2D6XATRF		100	8.0	0.05	3,000	0.013	1.9
NPC101M2D6ZTRF	NPC101M2D6ZATRF		100	8.0	0.05	3,000	0.009	1.9
NPC121M2D6ZTRF	-		120	9.6	0.05	3,000	0.009	1.9
NPC151M2D6ZTRF	-		150	12.0	0.05	3,000	0.009	1.9
NPC181M2D6ZTRF	-		180	14.4	0.05	3,000	0.009	1.9
NPC221M2D6ZTRF	-		220	17.6	0.05	3,000	0.009	1.9
NPC221M2D7XTRF	NPC221M2D7XATRF		220	17.6	0.10	3,500	0.010	2.7
NPC271M2D8ZTRF	-		270	21.6	0.10	3,500	0.007	2.9
NPC331M2D8ZTRF	-		330	26.4	0.10	3,500	0.007	2.9
NPC391M2D8ZTRF	-		390	31.2	0.10	3,500	0.007	2.9
NPC820M2.5D1ZTRF	NPC820M2.5D1ZATRF	2.5	82	8.2	0.05	3,000	0.009	1.4
NPC820M2.5D6XTRF	NPC820M2.5D6XATRF		82	8.2	0.05	3,000	0.013	1.9
NPC820M2.5D6ZTRF	NPC820M2.5D6ZATRF		82	8.2	0.05	3,000	0.009	1.9
NPC101M2.5D6ZTRF	-		100	10.0	0.05	3,000	0.009	1.9
NPC121M2.5D6ZTRF	-		120	12.0	0.05	3,000	0.009	1.9
NPC151M2.5D6ZTRF	-		150	15.0	0.05	3,000	0.009	1.9
NPC181M2.5D7XTRF	NPC181M2.5D7XATRF		180	18.0	0.10	3,500	0.010	2.7
NPC221M2.5D8ZTRF	-		220	22.0	0.10	3,500	0.007	2.9
NPC271M2.5D8ZTRF	-		270	27.0	0.10	3,500	0.007	2.9
NPC331M2.5D8ZTRF	-		330	33.0	0.10	3,500	0.007	2.9
NPC680M4D1ZTRF	NPC680M4D1ZATRF	4	68	10.9	0.05	3,000	0.009	1.4
NPC680M4D6XTRF	NPC680M4D6XATRF		68	10.9	0.05	3,000	0.013	1.9
NPC680M4D6ZTRF	NPC680M4D6ZATRF		68	10.9	0.05	3,000	0.009	1.9
NPC820M4D6XTRF	-		82	13.1	0.05	3,000	0.010	1.9
NPC101M4D6XTRF	-		100	16.0	0.05	3,000	0.010	1.9
NPC121M4D6XTRF	-		120	19.2	0.05	3,000	0.010	1.9
NPC151M4D6XTRF	-		150	24.0	0.05	3,000	0.010	1.9
NPC151M4D7XTRF	NPC151M4D7XATRF		150	24.0	0.10	3,500	0.010	2.7

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NIC Part Number (+250°C Reflow)	NIC Part Number (+260°C Reflow)	WV (Vdc)	Cap. (µF)	Max. LC (µA)	Tan δ	Max. Ripple Current 100KHz @ +105°C	Max. ESR +20°C & 100KHz (Ω)	Height H ± 0.1
NPC181M4D8ZTRF	-	4.0	180	28.8	0.10	3,500	0.009	2.9
NPC221M4D8ZTRF	-		220	35.2	0.10	3,500	0.009	2.9
NPC271M4D8ZTRF	-		270	43.2	0.10	3,500	0.009	2.9
NPC100M6.3D1TRF	-	6.3	10	2.5	0.05	1,900	0.050	1.4
NPC330M6.3D6TRF	NPC330M6.3D6ATRF		33	8.3	0.05	3,000	0.015	1.9
NPC470M6.3D1XTRF	NPC470M6.3D1XATRF		47	11.8	0.05	3,000	0.010	1.4
NPC470M6.3D6XTRF	NPC470M6.3D6XATRF		47	11.8	0.05	3,000	0.013	1.9
NPC470M6.3D6ZTRF	-		47	11.8	0.05	3,000	0.010	1.9
NPC560M6.3D6XTRF	-		56	14.1	0.05	3,000	0.010	1.9
NPC680M6.3D6XTRF	-		68	17.1	0.05	3,000	0.010	1.9
NPC820M6.3D6XTRF	-		82	20.7	0.05	3,000	0.010	1.9
NPC101M6.3D6XTRF	-		100	25.2	0.05	3,000	0.010	1.9
NPC101M6.3D7XTRF	NPC101M6.3D7XATRF		100	25.2	0.10	3,500	0.010	2.7
NPC121M6.3D8ZTRF	-		120	30.2	0.10	3,500	0.009	2.9
NPC151M6.3D8ZTRF	-		150	37.8	0.10	3,500	0.009	2.9
NPC150M8D6TRF	-	8	15	4.8	0.05	3,000	0.015	1.9
NPC330M8D7XTRF	-		33	10.6	0.10	3,000	0.013	2.7

RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

Frequency	1KHz <=f< 10KHz	10KHz <=f< 100KHz	100KHz <=f< 1MHz
Correction Factor	0.6	0.85	1.0

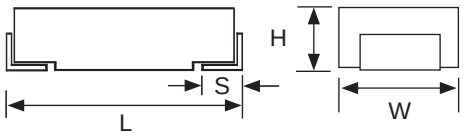
PART NUMBERING SYSTEM

NPC 101 M 6.3 D7 X A TR F

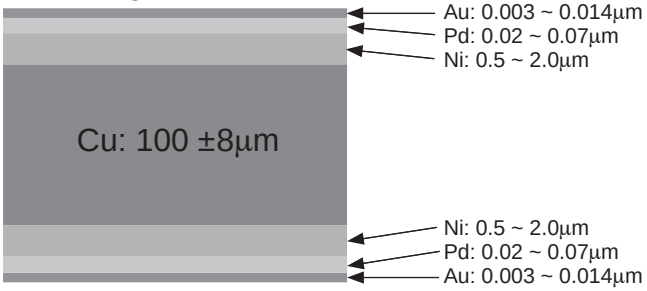
- F — RoHS Compliant
- TR — Tape and Reel
- A — A - Denotes +260°C Reflow Temp.
- X — Performance Characteristic (X = std, Z = reduced ESR)
- D7 — Case Size
- 6.3 — Working Voltage (Vdc)
- M — Tolerance Code M=20%, K=10%
- 101 — Capacitance Code in µF, first 2 digits are significant, third digits no. of zeros
- NPC — Series

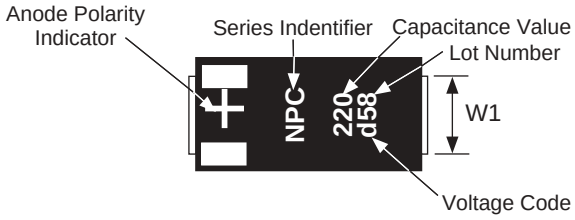
DIMENSIONS (mm)

Case Code	L ±0.2	W ±0.2	H ±0.1	W1 ±0.1	S ±0.2
D1	7.3	4.3	1.4	2.4	1.3
D6			1.9		
D7			2.7		
D8			2.9		



TEMINATION MATERIAL:





VOLTAGE CODES

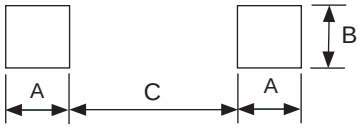
Voltage	Code
2.0VDC	d
2.5VDC	e
4.0VDC	g
6.3VDC	j
8.0VDC	k

PRECAUTIONS

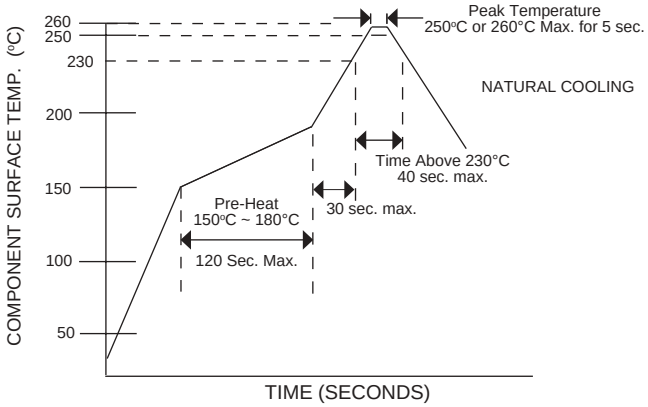
Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capactitor catalog.
Also found at www.niccomp.com/precautions
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: tpmg@niccomp.com

RECOMMENDED LAND PATTERNS (mm)

Case Code	a	b	c
D1, D6, D7, D8	2.4	2.9	3.7



RECOMMENDED REFLOW SOLDERING PROFILE



APPLICATION NOTES:

1. NPC Series cannot be used in coupling, time-constant or other circuits that are greatly affected by leakage current.
2. NPC parts are polarized so be sure to verify component orientation when mounting components.
3. Do not apply over voltage exceeding the rated voltage.
4. Do not apply ripple current over the specified maximum ripple current rating.

NOTES ON REFLOW SOLDERING:

1. SAC alloy (+217°C) reflow soldering compatible
2. Soldering heat limits apply to the top surface of component
3. If you have concerns about your reflow soldering profile review them with NIC to insure compatible [tpmg@niccomp.com]

REEL TAPE DIMENSIONS (mm)

Case Code	A ±1.0	B ±0.5	C ±0.2	W ±0.5	t ±0.5	Reel Quantity
D1, D6	330	80	13	13.5	2.0	3,000
D7, D8						2,000

TAPE DIMENSIONS (mm)

Case Code	A ±0.1	B ±0.1	C ±0.3	D ±0.05	E ±0.1	F ±0.1	G ±0.05	H ±0.1	J -0/+0.1	K ±0.1	t ±0.05
D1	4.55	7.65	12.0	5.5	1.75	8.0	2.0	4.0	1.5	1.6	0.3
D6										2.1	
D7										2.9	
D8										3.1