

Surface Mount Polymer-Tantalum Capacitor

NTP Series

FEATURES

- Ultra Low ESR and High Ripple Current Ratings
- Values from 2.2 μ F to 1,000 μ F
- Suitable for Reflow Soldering
- Available in EIA J, P, A2, A, B2, B, C2, C, V and D Case Sizes

RoHS Compliant
includes all homogeneous materials
*See Part Number System for Details



CHARACTERISTICS

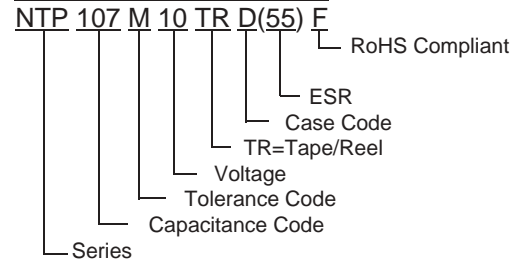
Capacitance Range	2.2 μ F to 1000 μ F	
Capacitance Tolerance	\pm 20% (M)	
Rated Voltage Range @ 85°C (Vdc)	2.5Vdc ~ 16Vdc*	
Operating Temperature Range	-55°C ~ +105°C (derating above +85°C)	
Dissipation Factor	See Specifications Table	
Leakage Current @ +25°C (After 5 Minutes at Rated Voltage)	Not More Than 0.1CV or 3 μ A, whichever is greater	
Capacitance Change With Temperature	-55°C	+105°C
	Δ C - 20%	Δ C +50%
Resistance to Soldering Heat (+240°C for 5 ~ 10 Seconds)	Δ C \pm 20% Max, LC = 130% of initial measured value DF = Less than initial specification	
Moisture Resistance (500 hours; 90-95% RH @ 40°C)	Δ C +30% ~ -20% Max, LC = Less than specified value DF = less than specified value	
Load Life at Rated Voltage (1,000 hours @ 85°C)	Δ C +30% Max, LC = Less than specified value DF = 150% of specified value	
Base Failure Rate	1%/1000 hours at +85°C	

* It is recommended that the applied voltage be less than 80% of the rated voltage

CASE SIZES AND MAXIMUM DISSIPATION FACTOR

Rated Voltage @ +85°C	2.5	4.0	6.3	10	16
Surge Voltage @ +85°C	3.3	5.2	8.0	13	20
Derated Voltage @ 105°C	2.0	3.3	5.0	8.0	12.8
Capacitance (μ F)	Code	Case Size	Case Size	Case Size	Case Size
2.2	225	-	-	J (4%)	J (4%)
3.3	335	-	-	J (4%) P (6%)	A (6%) A (6%)
4.7	475	-	-	J (4%) P (6%)	A2/A (6%) B (8%)
6.8	685	-	-	P/A (6%)	A2/A (6%) B (8%) B (8%)
10	106	-	J (4%) P/A (6%)	P/A2/A (6%)	A2/A (6%) B (8%) B (8%)
15	156	-	-	A2/A (6%) B (8%)	A (6%) B (8%) C (9%)
22	226	P (6%)	P/A2 (6%) B (8%)	A2/A (6%) B2/B (8%)	A (6%) B2/B (8%) C (9%)
33	336	A2 (6%)	A2/A (6%)	A (6%) B2/B (8%)	A (6%) B2/B (8%) C2/C (9%)
47	476	A2 (6%)	A (6%) B2 (8%)	A (6%) B2/B (8%) C2/C (9%)	B2/B (8%) C2/C (9%) V (10%)
68	686	-	A (6%) C2/C (9%)	B2/B (8%) C2/C (9%)	C2/C (9%) V/D (10%)
100	107	B2 (8%)	B2/B (8%) C2 (9%)	B (8%) C2/C (9%)	C2/C (9%) V/D (10%)
150	157	-	B (8%) C (9%)	B (8%) C2/C (9%) V/D (10%)	C (9%) V/D (10%)
220	227	B (8%)	B (8%) C (9%) V/D (10%)	V/D (10%)	D (10%)
330	337	B (8%) C (9%) V (10%)	C (9%) V/D (10%)	D (10%)	-
470	477	V (10%)	D (10%)	-	-
680	687	D (10%)	D (10%)	-	-
1000	108	D (10%)	-	-	-

PART NUMBER SYSTEM

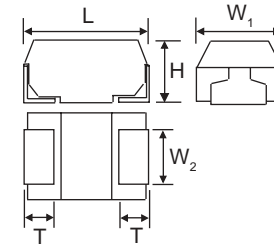


MAX. ESR (mΩ) @ 20°C/100KHz
RIPPLE CURRENT (mArms) @20°C/100KHz

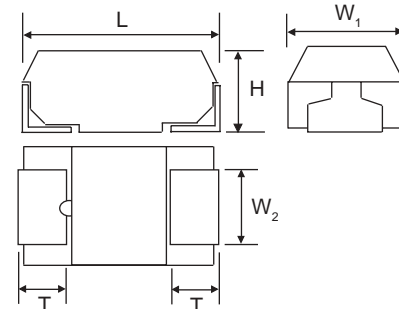
Capacitance (μF)	Working Voltage (Vdc)				
	2.5	4	6.3	10	16
2.2	-	-	J(500)=141	J(500)=141	
3.3	-	-	J(500)=141 P(300)=289	A(300)=500	A(800)=500
4.7	-	-	J(500)=141 P(300)=289	A2(300)=447 A(300)=500	B(200)=652
6.8	-	-	P(300)=289 A(300)=500	A2(300)=447 A(300)=500 B(500)=412	B(200)=652
10	-	J(300)=183 P(200)=354 A(200)=612	P(200)=354 A2(200)=548 A(200)=612	A2(200)=548 A(200)=612 B(300)=532	B(100)=922
15	-	-	A2(200)=548 A(200)=612 B(150)=753	A(180)=645 B(300)=532 C(200)=742	-
22	P(200)=354	P(200)=354 A2(200)=548 B(300)=532	A2(200)=548 A(180)=645 B2(70)=1035 B(150)=753	A(180)=645 B2(80)=968 B(300)=532 C(150)=856	-
33	A2(150)=632	A2(150)=632 A(180)=645	A(180)=645 B2(70)=1035 B(150)=753	B2(150)=753 B(200)=652 C(100)=1049	V(70)=1336
47	A2(150)=632	A(180)=645 B2(70)=1035	A(180)=645 B2(55)=1168 B(70)=1102 C2(70)=1134 C(100)=1049	B2(70)=1035 B(70)=1102 C(100)=1049 V(60)=1443 D(100)=1225	V(70)=1336 D(70)=1464
68	-	A(180)=645 C2(55)=1279 C(100)=1049	B2(70)=1035 B(55)=1243 C2(55)=1279 C(100)=1049	C2(55)=1279 C(55)=1414 V(60)=1443 D(100)=1225	-
100	B2(70)=1035	B2(70)=1035 B(35)=1558 C2(55)=1279	B(25)=1844 C2(55)=1279 C(55)=1414	C2(55)=1279 C(55)=1414 V(25)=1667 D(55)=1651	-
150	-	B(25)=1844 C(100)=1049	B(45)=1374 C2(55)=1279 C(25)=2098 V(18)=2635 D(25)=2449	C(55)=1414 V(40)=1768 D(40)=1936	-
220	B(25)=1844	B(45)=1374 C(18)=2472 V(12)=3227 D(12)=3536	V(12)=3227 D(40)=1936	D(25)=2449	-
330	B(45)=1374 C(18)=2472 V(12)=3227	C(55)=1414 V(12)=3227 D(15)=3162	D(18)=2887	-	-
470	V(12)=3227	D(12)=3536	-	-	-
680	D(12)=3536	D(12)=3536	-	-	-
1000	D(15)=3162	-	-	-	-

SHADING DENOTES NEW VALUE

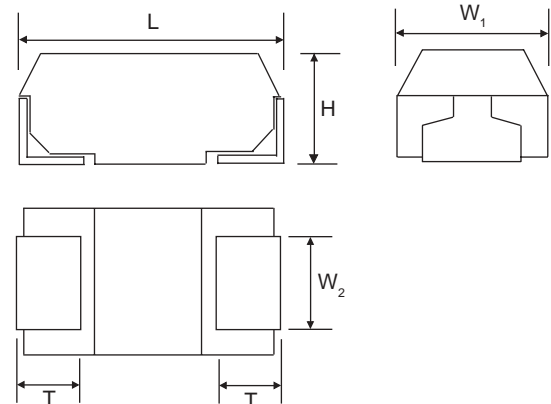
“J, P, A2, A” Case Size



“B2, B” Case Size



“C, C2, V & D” Case Size



Polarity Indicator



Silver Band Denotes Anode Termination

RIPPLE CURRENT TEMPERATURE DERATING

20°C	85°C	105°C
1.0	0.9	0.6

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

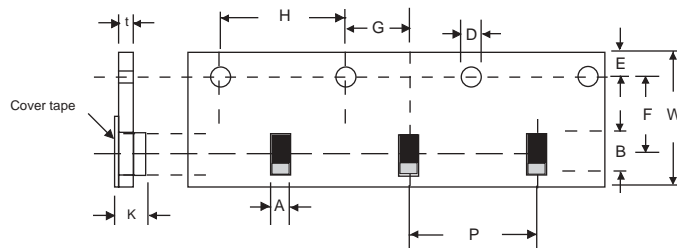
CASE DIMENSIONS (mm)

Case Size	EIA Code	L	H	W ₁	W ₂	T
J	0603	1.6 ± 0.1	0.8 ± 0.1	0.8 ± 0.1	0.6 ± 0.1	0.3 ± 0.15
P	2012	2.0 ± 0.2	1.1 ± 0.1	1.25 ± 0.2	0.9 ± 0.1	0.5 ± 0.1
A2	3216L	3.2 ± 0.2	1.1 ± 0.1	1.6 ± 0.2	1.2 ± 0.1	0.8 ± 0.2
A	3216	3.2 ± 0.2	1.6 ± 0.2	1.6 ± 0.2	1.2 ± 0.1	0.8 ± 0.2
B2	3528L	3.5 ± 0.2	1.1 ± 0.1	2.8 ± 0.2	2.2 ± 0.1	0.8 ± 0.2
B	3528	3.5 ± 0.2	1.9 ± 0.2	2.8 ± 0.2	2.2 ± 0.1	0.8 ± 0.2
C2	6032L	6.0 ± 0.2	1.4 ± 0.1	3.2 ± 0.2	2.2 ± 0.1	1.3 ± 0.2
C	6032	6.0 ± 0.2	2.5 ± 0.3	3.2 ± 0.2	2.2 ± 0.1	1.3 ± 0.2
V	7343	7.3 ± 0.2	1.9 ± 0.1	4.3 ± 0.2	2.4 ± 0.1	1.3 ± 0.2
D	7343	7.3 ± 0.2	2.8 ± 0.2	4.3 ± 0.2	2.4 ± 0.1	1.3 ± 0.2



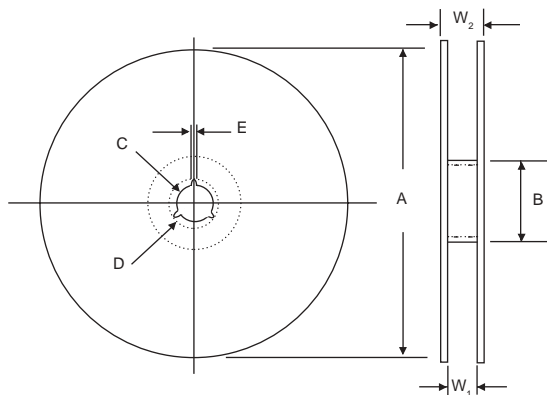
TAPE SPECIFICATIONS (mm)

Case Size	A ±0.2	B ±0.2	C ±0.3	D ±0.1	E ±0.1	F ±0.1	G ±0.05	H ±0.1	J +0.1	K ±0.2	t max.	Reel Qty
J	1.0	1.8	8.0	3.5	1.75	4.0	2.0	4.0	φ1.5	1.1	0.2	4000
P	1.4	2.2								1.4		3000
A2	1.9	3.5								1.4		3000
A	1.9	3.8								1.9		2000
B2	3.2	3.8	12.0	5.5	8.0	8.0	8.0	8.0	φ1.5	1.4	0.3	3000
B	3.3									2.1		2000
C2	3.7	6.4								1.7		1000
C	3.7	3.0								0.3		500
V	4.8	7.7	2.1	0.4	1000							
D	4.8	7.7	3.3	0.3	500							



REEL SPECIFICATIONS (mm)

Tape Width	A ± 2.0	B min.	C ± 0.5	D ± 0.5	E ± 0.5	W ₁ ± 1.0	W ₂ max.
8mm	φ178	φ50	φ13	φ21	2.0	10	14.5
12mm						14.5	18.5



RECOMMENDED PEAK TEMPERATURE/TIME

Maximum Time	Peak Soldering Temperature
5 Seconds	250°C
10 Seconds	240°C
20 Seconds	230°C

RECOMMENDED LAND PATTERN (mm)

Case Size	S max.	X min.	Y min.
J	0.7	2.5	1.0
P	0.5	2.6	1.2
A2	1.1	3.8	1.5
A	1.1	3.8	1.5
B	1.4	4.1	2.7
C2	2.9	6.9	2.7
C	2.9	6.9	2.7
D	4.1	8.2	2.9

