



# CHIP TYPE TANTALUM SOLID ELECTROLYTIC CAPACITORS

Upgrade!

## NP CAP™ -PT Series

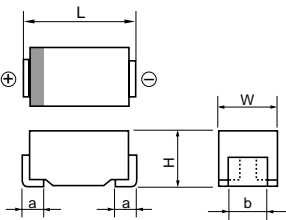
- Low ESR (1/2~1/3 compared with Mangan type Tantalum capacitors)
- Suitable for DC-DC converters, voltage regulators and decoupling applications
- Heat resistance to reflow soldering :  
Peak temperature 250°C, 230°C 40seconds
- Pb-free type



### ◆ SPECIFICATIONS

Items	Characteristics			
Category	-55°C to +105°C			
Temperature Range	-55°C to +105°C			
Rated Voltage Range	2.5 to 10V <sub>dc</sub>			
Capacitance Range	33 to 680μF (at 20°C, 120Hz)			
Leakage Current	I=0.1CV (max.) Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V <sub>dc</sub> ) (at 20°C after 5 minutes)			
Dissipation Factor (tanδ)	0.08 max. (10V : 0.10 max.) (at 20°C, 120Hz)			
Temperature Characteristics	Temperature	-55°C	+85°C	+105°C
	Capacitance Change	-15 to 0%	0 to +20%	0 to +30%
	DF (tanδ)	≤The initial specified value	≤150% of the initial specified value	≤150% of the initial specified value
	Leakage current	—	1.0CV or less	1.0CV or less
Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them at 60°C 90 to 95%RH for 500 hours.			
	Capacitance change	-20% to +30%		
	DF (tanδ)	≤150% of the initial specified value		
	Leakage current	≤300% of the initial specified value		
Surge Voltage	The capacitors shall be subjected to 1000 cycles each consisting of charge with the surge voltage specified at 85°C for 30 seconds through a protective resistance(R=33Ω) and discharge for 5 minutes 30 seconds.			
	Capacitance change	≤±20% of the initial value		
	DF (tanδ)	≤The initial specified value		
	Leakage current	≤The initial specified value		
Resistance of soldering heat	Reflow condition : Peak temperature 250°CMax. 230°C within 40 seconds.			
	Capacitance change	≤±10% of the initial value		
	DF (tanδ)	≤200% of the initial specified value		
	Leakage current	≤300% of the initial specified value		
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage (10V : 8V <sub>dc</sub> ) is applied for 1000 hours at 105°C.			
	Capacitance change	≤±20% of the initial value		
	DF (tanδ)	≤150% of the initial specified value		
	Leakage current	≤The initial specified value		

### ◆ DIMENSIONS [mm]



Size code	Previous size code	L	W	H	a	b
B12	B3	3.5±0.2	2.8±0.2	1.2Max.	0.8±0.3	2.2±0.2
B19	B2	3.5±0.2	2.8±0.2	1.9±0.1	0.8±0.3	2.2±0.2
D19	D4	7.3±0.2	4.3±0.2	1.9±0.1	1.3±0.2	2.4±0.2
D28	D6	7.3±0.2	4.3±0.2	2.8±0.2	1.3±0.2	2.4±0.2
D38	D8	7.3±0.2	4.3±0.2	3.8±0.2	1.3±0.2	2.4±0.2

Unit : mm

## ◆STANDARD RATINGS

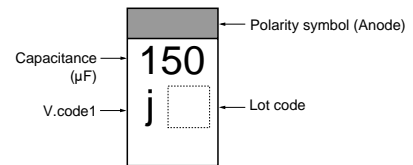
WV (Vdc)	Cap (μF)	Size code	ESR (mΩmax/20°C, 100kHz)	Permissible ripple current (mArms max/45°C, 100kHz)	Global code	Previous Part Number (Just for your reference)
2.5	100	B19	70	1100	SPT-2R5R107MB19R70	2R5PT107MB2TER
	220	D19	45	1700	SPT-2R5R227MD19R45	2R5PT227MD4TER
	330	D28	40	1900	SPT-2R5R337MD28R40	2R5PT337MD6TER
	680	D38	40	3000	SPT-2R5R687MD38R40	2R5PT687MD8TER
4	47	B12	80	968	SPT-4R0R476MB12R80	4PT476MB3TER
	68	B19	70	1100	SPT-4R0R686MB19R70	4PT686MB2TER
	150	D19	45	1700	SPT-4R0R157MD19R45	4PT157MD4TER
	220	D19	40	1900	SPT-4R0R227MD19R40	4PT227MD4TER
	220	D28	40	1900	SPT-4R0R227MD28R40	4PT227MD6TER
	330	D28	40	2000	SPT-4R0R337MD28R40	4PT337MD6TER
	470	D38	40	3000	SPT-4R0R477MD38R40	4PT477MD8TER
6.3	33	B12	80	968	SPT-6R3R336MB12R80	6PT336MB3TER
	47	B19	70	1100	SPT-6R3R476MB19R70	6PT476MB2TER
	100	D19	45	1700	SPT-6R3R107MD19R45	6PT107MD4TER
	150	D19	45	1700	SPT-6R3R157MD19R45	6PT157MD4TER
	150	D28	40	1900	SPT-6R3R157MD28R40	6PT157MD6TER
	220	D28	40	2000	SPT-6R3R227MD28R40	6PT227MD6TER
	330	D38	40	3000	SPT-6R3R337MD38R40	6PT337MD8TER
10	33	B19	100	1100	SPT-100R336MB19E10	10PT336MB2TER
	68	D19	55	1700	SPT-100R686MD19R55	10PT686MD4TER
	100	D19	45	1700	SPT-100R107MD19R45	10PT107MD4TER
	100	D28	55	1900	SPT-100R107MD28R55	10PT107MD6TER
	150	D28	40	1900	SPT-100R157MD28R40	10PT157MD6TER

## ◆STANDARD RATINGS

Rated Volt (Vdc)	2.5	4	6.3	10
Surge Volt (Vdc)	3.2	5.2	8	13
Category Volt (Vdc)	—	—	—	8
(V.code)	2R5	4R0	6R3	100
(V.code1)	e	g	j	A
Capacitance(μF) (C.code)				
33 (336)			B12(80)	B19(100)
47 (476)		B12(80)	B19(70)	
68 (686)		B19(70)		D19(55)
100 (107)	B19(70)		D19(45)	D19(45), D28(55)
150 (157)		D19(45)	D19(45), D28(40)	D28(40)
220 (227)	D19(45)	D19(40), D28(40)	D28(40)	
330 (337)	D28(40)	D28(40)	D38(40)	
470 (477)		D38(40)		
680 (687)	D38(40)			

Right side of Size code : ESR(mΩ) at 20°C 100kHzMax.

## ◆MARKING



## ◆COEFFICIENT FOR PERMISSIBLE RIPPLE CURRENT

●Coefficient of temperature correct

temperature (°C)	45	65	85	105
coefficient	1	0.75	0.6	0.4

●Coefficient of frequency correct

frequency (kHz)	10	40	100	400	500
coefficient	0.25	0.95	1	1.15	1.25