

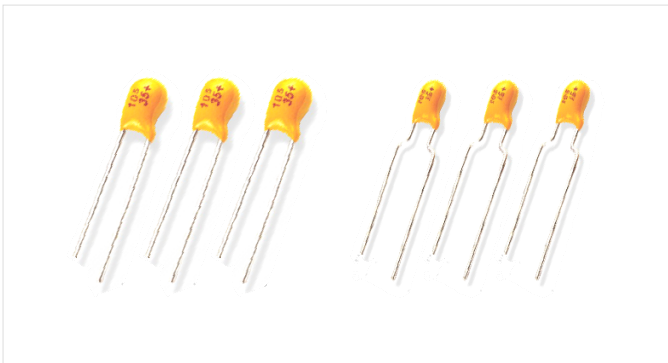
# TANCAP

CAPACITOR MANUFACTURER



TANCAP TECHNOLOGY CO., LTD.

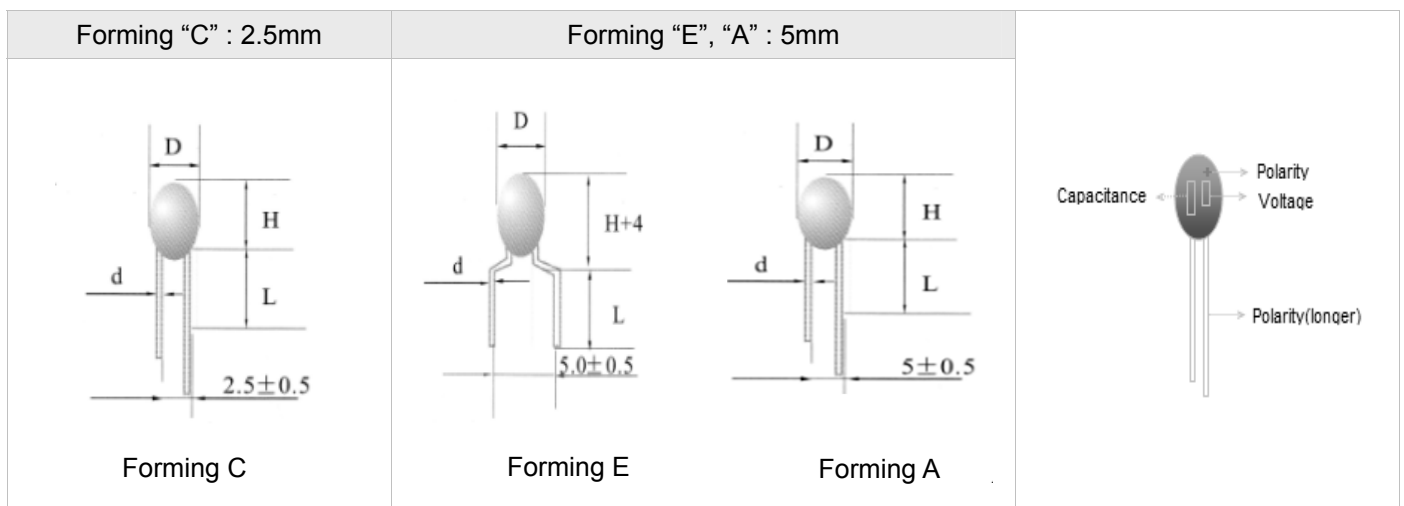
## TB SERIES



### FEATURES

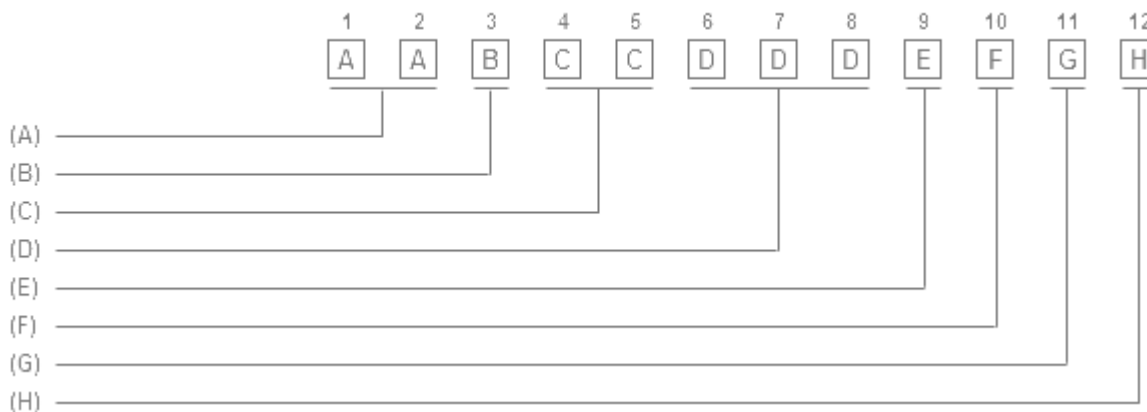
- Capacitance : 0.1uF to 330uF
- Current Test on Each Size
- Capacitance Tolerance:  $\pm 5\%$ (K),  $\pm 10\%$ (K),  $\pm 20\%$ (M)
- Voltage : 4V DC to 50V DC

### CASE DIMENSIONS AND MARKINGS



### ORDERING INFORMATION

#### 1. Production Code System



## 2.Explain For Each Code

1).A : Product Series : TB

2).B : Capacitance Tolerance

J	K	M
±5%	±10%	±20%

3) C : Rated Voltage

Voltage	Code	Voltage	Code
6.3V	0J	25V	1E
10V	1A	35V	1V
16V	1C	50V	1H
20V	1D		

4) D : Capacitance Code

Capacitance	Code	Capacitance	Code
0.1uF	104	100uF	107
1.5uF	155	220uF	227
1uF	105	330uF	337
10uF	106	..	

5) E : Case Size

\* Size Code

Size	D(max)	H(max)	L(±1mm)	d(±0.05mm)
A	4.0	6.0	14	0.5
B	4.8	7.2	14	0.5
C	5.5	8.0	14	0.5
D	6.0	9.4	14	0.5
E	7.2	11.5	14	0.5
F	8.2	12.5	14	0.5

DIP TANTALUM CAPACITORS

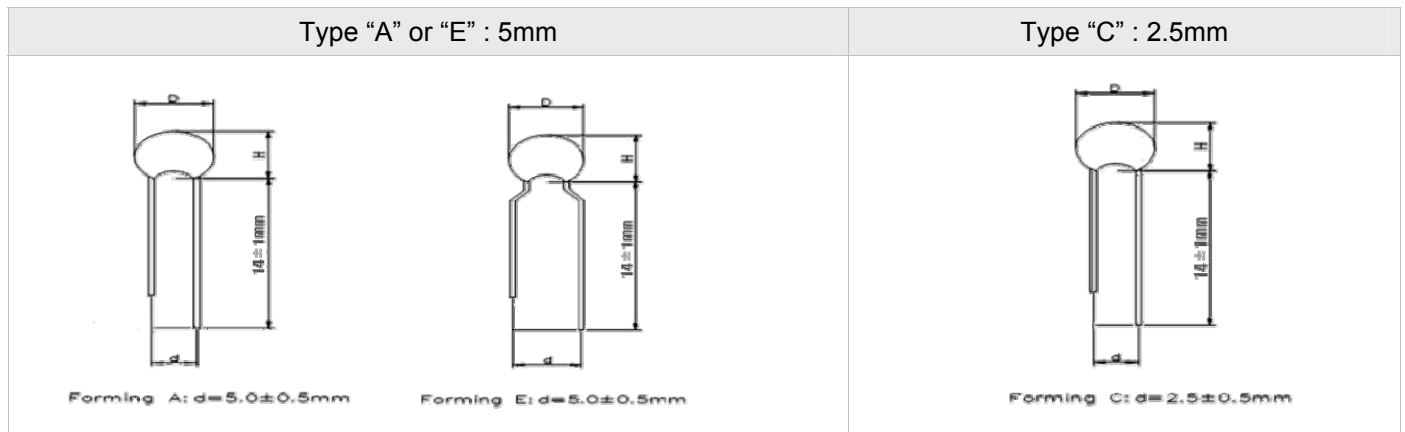
\*Capacitance and Voltage range of TB series

Rated Voltage	4V	6.3V	10V	16V	20V	25V	35V	50V
Voltage Derating	2	4	6.3	10	13	16	20	32
Surge Voltage	4	8	13	20	26	33	46	65

Capacitance	Case Size							
0.1uF							A	A
0.15uF							A	A
0.22uF							A	A
0.33uF							A	A
0.47uF							A	A
0.68uF							A	A
1uF				A	A	A	A	B
1.5uF				A	A	A	A	C
2.2uF			A	A	A	A	B	C
3.3uF		A	A	A	B	B	B	D
4.7uF	A	A	A	B	B	B	C	D
6.8uF	A	A	B	B	C	C	D	E
10uF	A	B	B	B	C	C	D	E
15uF	A	B	C	C	D	D	E	F
22uF	B	C	C	C	D	D	E	F
33uF	B	C	D	D	E	E	F	
47uF	C	D	D	D	E	E	F	
68uF	D	D	D	E	F	F		
100uF	D	E	E	E	F	F		
150uF	E	E	E	F				
220uF	E	E	F					
330uF	F	F						

6) F : Lead Free(E)

7) G : Lead / Forming Styles



\*Forming styles by Capacitance and Voltage range

Voltage Capacitance	4V	6.3V	10V	16V	20V	25V	35V	50V
0.1uF							C,E	C,E
0.15uF							C,E	C,E
0.22uF							C,E	C,E
0.33uF							C,E	C,E
0.47uF							C,E	C,E
0.68uF							C,E	C,E
1uF				C,E	C,E	C,E	C,E	C,E
1.5uF				C,E	C,E	C,E	C,E	C,E
2.2uF			C,E	C,E	C,E	C,E	C,E	C,E
3.3uF		C,E	C,E	C,E	C,E	C,E	C,E	C,E
4.7uF	C,E	C,E	C,E	C,E	C,E	C,E	C,E	C,A
6.8uF	C,E	C,E	C,E	C,E	C,E	C,E	C,E	C,A
10uF	C,E	C,E	C,E	C,E	C,E	C,E	C,A	C,A
15uF	C,E	C,E	C,E	C,E	C,E	C,E	C,A	C,A
22uF	C,E	C,E	C,E	C,E	C,E	C,E	C,A	C,A
33uF	C,E	C,E	C,E	C,E	C,E	C,E	C,A	
47uF	C,E	C,E	C,E	C,E	C,A	C,A	C,A	
68uF	C,E	C,E	C,E	C,A	C,A	C,A		
100uF	C,E	C,E	C,A	C,A	C,A	C,A		
150uF	C,E	C,A	C,A	C,A				
220uF	C,A	C,A	C,A					
330uF	C,A	C,A						

8) H : Taping (B : Bulk, A : Ammo)

3. PACKING

1. Bulk Type Packing Information

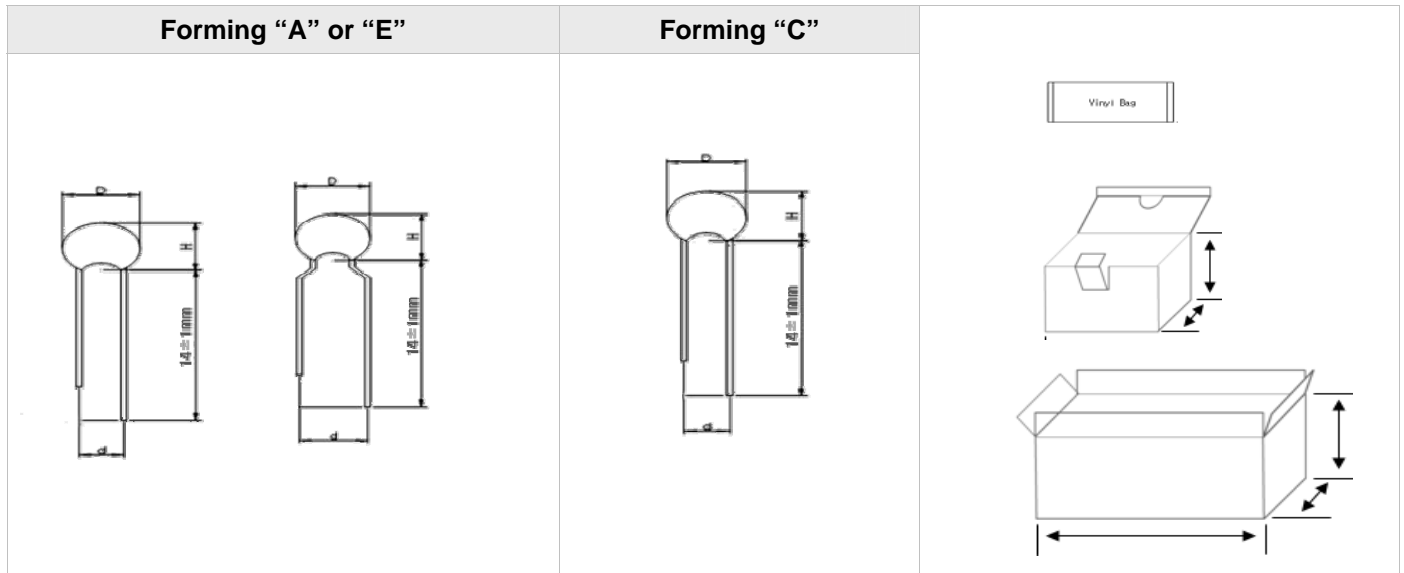
Voltage	Width	0.1uF~2.2uF	3.3uF	4.7uF	6.8uF	10uF	15uF	22uF	33uF	47uF	68uF	100uF	150uF	220uF	330uF
4V	2.5mm	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	500	500	500
	5mm	500	500	500	500	500	500	500	500	500	500	500	200	200	200
6.3	2.5mm	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	500	500	500	500	500	500
	5mm	500	500	500	500	500	500	500	500	500	500	500	200	200	200
10V	2.5mm	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	500	500	500	500	500	500
	5mm	500	500	500	500	500	500	500	500	500	500	500	200	200	200
16V	2.5mm	1,000	1,000	1,000	1,000	1,000	1,000	500	500	500	500	200	200	200	200
	5mm	500	500	500	500	500	500	500	500	500	500	200	200	200	
20V	2.5mm	1,000	1,000	1,000	1,000	1,000	1,000	500	500	500	200	200			
	5mm	500	500	500	500	500	500	500	200	200	200	200			
25V	2.5mm	1,000	1,000	1,000	1,000	1,000	500	500	500	500	200	200			
	5mm	500	500	500	500	500	500	500	200	200	200	200			
35V	2.5mm	1,000	1,000	1,000	1,000	500	500	500	500	200					
	5mm	500	500	500	500	500	500	200	200	200					
50V	2.5mm	1,000	1,000	500	500	500	500	500	500						
	5mm	500	500	500	500	500	200	200							

2. Ammo Type Packing Information

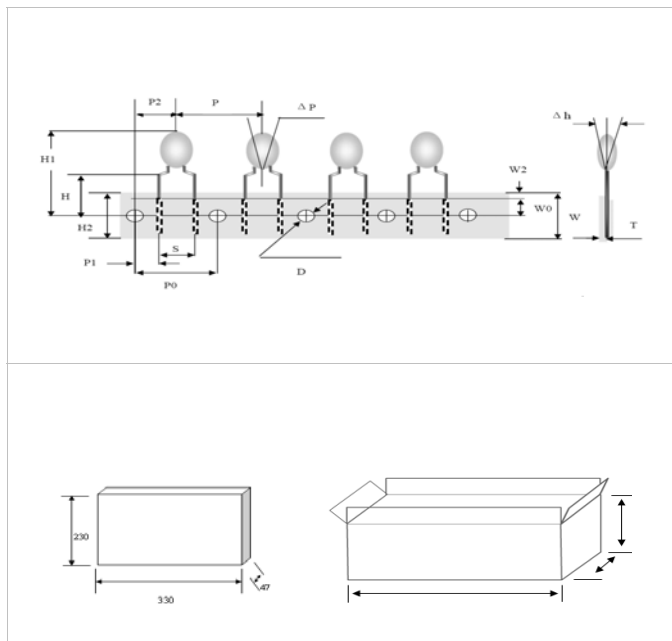
Voltage	Width	0.1uF~2.2uF	3.3uF	4.7uF	6.8uF	10uF	15uF	22uF	33uF	47uF	68uF	100uF	150uF	220uF	330uF
4V	2.5mm, 5mm	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,500	1,500	1,500	1,000	1,000	1,000
6.3	2.5mm, 5mm	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,500	1,500	1,500	1,000	1,000	1,000	1,000
10V	2.5mm, 5mm	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,500	1,500	1,500	1,000	1,000	1,000	1,000
16V	2.5mm, 5mm	2,000	2,000	2,000	2,000	1,500	1,500	1,000	1,000	1,000	1,000	1,000	500	500	500
20V	2.5mm, 5mm	2,000	2,000	1,500	1,500	1,000	1,000	1,000	1,000	1,000	1,000	500			
25V	2.5mm, 5mm	2,000	2,000	1,500	1,500	1,000	1,000	1,000	1,000	1,000	1,000	500			
35V	2.5mm, 5mm	1,500	1,500	1,500	1,500	1,000	1,000	1,000	1,000						
50V	2.5mm, 5mm	1,500	1,500	1,500	1,000	1,000	1,000	1,000							

## BULK & AMMO DIMENSIONS

### 1. BULK TYPE



### 2. AMMO TYPE



Symbol	Dimensions(mm)	Symbol	Dimensions(mm)
P	12.7±1.0	D	4.0±0.2
P <sub>0</sub>	12.7±0.3	T	0.5±0.2
W	18(+1,-0.5)	Δh	0±2.0
		H	16±0.5
W <sub>0</sub>	5min	S	2.5±0.5    5.0±0.7
H <sub>2</sub>	9(+0.75,-0.5)	P <sub>1</sub>	5.10±0.5    3.85±0.7
W <sub>2</sub>	0(+1.0)	P <sub>2</sub>	6.35±0.4
H <sub>1</sub>	32.5max	ΔP	±1.3max

## SPECIFICATIONS

### Temperature Characteristics

Capacitance ( $\mu\text{F}$ )	Change in capacitance(%)			DF Max(%)				DCL Max( $\mu\text{A}$ )		
	-55 $^{\circ}\text{C}$	+85 $^{\circ}\text{C}$	+125 $^{\circ}\text{C}$	-55 $^{\circ}\text{C}$	+20 $^{\circ}\text{C}$	+85 $^{\circ}\text{C}$	+125 $^{\circ}\text{C}$	+20 $^{\circ}\text{C}$	+85 $^{\circ}\text{C}$	+125 $^{\circ}\text{C}$
$\leq 1.0$	$\pm 10$	$\pm 15$	$\pm 25$	6	4	6	6	$I_o = 0.01 C_R V_R$ $0.5 \mu\text{A}$ (whichever is greater)	10I <sub>o</sub>	12.5I <sub>o</sub>
1.5~6.8				8	6	8	8			
10~68				10	8	10	10			
100~330				12	10	12	12			

\*DF Max (Dissipation Factor Max) / DCL Max(Direct Current Leakage Max)

## APPLICATION GUIDE

### 1.THE METHOD OF MOUNTING

#### 1.1.Recommend the method of mounting:

- The capacitor directly insets PCB when it is used.
- The body and the lead are steadied in the application of the vibration and shock tests, the distance between the body and the mounting point shall be  $6 \pm 1 \text{mm}$ .

### 2.NOTE IN USE

- 2.1.For circuits with low resistance circuit, make the use voltage be 1/3 or under of the rated voltage; in general circuit, make the use voltage be 2/3 or under of the rated voltage.
- 2.2.In case of circuits with large instantaneous rush current or rapid charging/discharging circuits, connect the protection resistor of  $3\Omega/V$  or more in series to the capacitor to limit the current to 300mA or less. When the protection resistor can not be inserted, lower the use voltage to 1/3 or under of the rated voltage.
- 2.3.Use the capacitors within the permissible ripple voltage specified independently. Use in the range that the sum of the DC voltage value and the peak value of ripple voltage does not exceed the rated voltage. Design not to apply over voltage made by fluctuation of superimposed DC voltage or reverse voltage to the capacitors.
- 2.4.Use the capacitors within the specified use temperature range. In case use temperature exceeds +85 $^{\circ}\text{C}$ , apply the reduced voltage shown in the below figure as the rated voltage.
- 2.5.Environmental conditions do not use the equipment fit with the capacitor in the below environment.
  - Environment where capacitors are directly splashed with water, salt water and oil.



- Environment where capacitors are directly exposed to sunlight.
- Environment in high temperature and humidity causing dewing on capacitor surface.
- Environment where capacitors touch various active gases.
- Acid and alkaline atmosphere.
- Environment with high frequency induction.
- Environment with excessive vibration and shock.

### **3.STORAGE**

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#### 3.1.Storage condition:

- Environmental temperature:  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
- Relative humidity: no more than 70%

### **4.OTHER INFORMATION**

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#### 4.1.Orders for capacitors covered by this specification shall contain, in clear or in coded form, the following minimum information:

- Rated capacitance.
- Tolerance on rated capacitance.
- Rated d.c. voltage.