SUPERTAN®

ENHANCED ALL-TANTALUM PERFORMANCE

PRODUCT FEATURES

- High capacitance range 10 to 4700 μF
- Low ESR: Less than 30% of conventional wet slug designs
- Very high ripple current, up to 3500 ma at 40 Khz at 85°C
- Voltage range 6 to 125 VDC
- Operating range: -55°C to 85°C
- Long operating and/or shelf life
- Tantalum case with a glass to tantalum hermetic seal

Tansitor's STA series represents a major breakthrough in tantalum wet slug capacitor technology. The STA product possesses the inherent reliability of previous wet slug all tantalum designs, approaches the capacitance stability of a solid tantalum and at the same time requires no circuit impedance restriction. The STA series offers the highest volumetric efficiency available to designers for operation to 85°C.

Tansitor's STA series capacitors are porous anode types, housed in a tantalum case and hermetically sealed. STA capacitors offer extremely high capacitance, low ESR and very high ripple current capability.

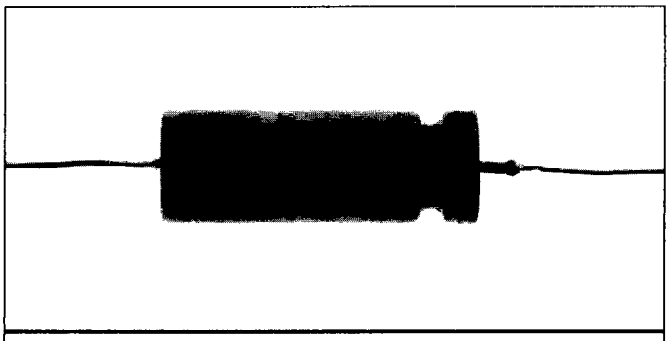
APPLICATIONS

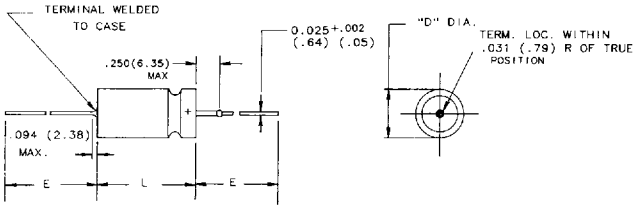
STA series capacitors are well suited for use in circuits that demand quality and reliability. They are designed for long life over the temperature range of -55°C to 85°C and due to their superior ripple current capabilities, Tansitor's STA series capcaitors are exceptionally well suited for filtering and energy storage applications.

PRODUCT NOTES

Reverse Voltage:

1. No continuous reverse voltage is permissible. Continuous reverse voltage will result in rapid loss of capacitance and increasing equivalent series resistance.
2. Transient reverse voltage surges are acceptable under the following conditions:
   - A. The peak reverse voltage is equal to or less than 1.5 volts and the product of peak current times the duration of the reverse transient is 0.05 amp-seconds or less.
   - B. The repetition rate of the reverse voltage surge is less than 10 Hz.





Dimensions—Millimeters

Case Size	D Max Insulated	D±.41 Uninsulated	L + .79 - .41	E±6.35
1	5.56	4.78	11.51	38.10
2	7.92	7.14	16.28	57.15
3	10.31	9.52	19.46	57.15
4	10.31	9.52	26.97	57.15

Dimensions—Inches

Case Size	D Max Insulated	D±.016 Uninsulated	L + .031 - .016	E±.250
1	.219	.188	.453	1.500
2	.312	.281	.641	2.250
3	.406	.375	.766	2.250
4	.406	.375	1.062	2.250

NOTES:

1. The material at egress is tantalum.
2. Insulation sleeving will lap over the ends of the capacitor body.
3. Both leads are tinned nickel. (solderable and weldable).
4. Ripple current ratings by part number at 85°C and 40 Khz are included in the rating table.
5. Ripple current correction factors for other temperatures and frequencies are listed.

WET TANTALUM: All Tantalum — DUAL SEAL CONSTRUCTION — Type STA SuperTan®

Cap @ 25°C & 120Hz µF	Case Size	Max ESR ohms		Max DCL µA		Max DF @ 120Hz %	Max Imp @ -55°C & 120Hz ohms	Maximum Capacitance Change %		AC Ripple 85°C 40Khz mA rms	Tansitor Part Number
		120 Hz	40 Khz	25°C	85°C			-55°C	85°C		
6 VDC @ 85°C											
470	1	0.9	0.4	1	3	46	12	-75	+10	1500	STA470 — 6T1MI
1500	2	0.7	0.2	3	8	101	9	-80	+10	2200	STA1500 — 6T2MI
3300	3	0.6	0.2	8	30	150	7	-90	+18	2800	STA3300 — 6T3MI
4700	4	0.4	0.2	10	35	155	5	-90	+18	3500	STA4700 — 6T4MI
10 VDC @ 85°C											
330	1	1.0	0.5	1	3	35	15	-70	+8	1400	STA330 — 10T1MI
1000	2	0.8	0.3	3	10	70	8	-80	+10	2200	STA1000 — 10T2MI
2200	3	0.5	0.3	5	30	109	6	-85	+15	2800	STA2200 — 10T3MI
3300	4	0.4	0.2	8	30	119	4	-85	+18	3500	STA3300 — 10T4MI
15 VDC @ 85°C											
150	1	1.1	0.5	1	3	16	25	-45	+8	1400	STA150 — 15T1MI
680	2	0.8	0.3	2	10	49	10	-65	+10	2200	STA680 — 15T2MI
1500	3	0.6	0.2	5	25	81	9	-80	+10	2700	STA1500 — 15T3MI
2700	4	0.4	0.2	4	25	109	4	-80	+15	3400	STA2700 — 15T4MI
25 VDC @ 85°C											
120	1	1.3	0.5	1	5	14	22.5	-42	+8	1250	STA120 — 25T1MI
560	2	0.83	0.2	2	10	42	10.5	-65	+10	2100	STA560 — 25T2MI
1200	3	0.65	0.2	5	20	70	6	-70	+12	2600	STA1200 — 25T3MI
1800	4	0.5	0.2	6	25	81	5	-72	+12	3100	STA1800 — 25T4MI
30 VDC @ 85°C											
100	1	1.3	0.5	1	5	11	25	-38	+8	1200	STA100 — 30T1MI
470	2	0.85	0.4	2	10	36	11.5	-65	+10	1800	STA470 — 30T2MI
1000	3	0.7	0.3	7	25	63	7	-70	+10	2500	STA1000 — 30T3MI
1500	4	0.6	0.2	12	35	81	5.5	-72	+10	3000	STA1500 — 30T4MI
50 VDC @ 85°C											
68	1	1.5	0.6	1	5	9	33	-25	+8	1050	STA68 — 50T1MI
220	2	0.9	0.4	2	10	18	17.5	-50	+8	1800	STA220 — 50T2MI
470	3	0.75	0.3	3	25	31	8	-45	+8	2100	STA470 — 50T3MI
680	4	0.7	0.2	5	40	43	6.7	-58	+10	2750	STA680 — 50T4MI
60 VDC @ 85°C											
47	1	2.0	1.1	1	5	9	44	-25	+8	1050	STA47 — 60T1MI
150	2	1.1	0.4	2	10	15	20	-40	+8	1650	STA150 — 60T2MI
390	3	0.9	0.4	3	25	31	9	-45	+8	2100	STA390 — 60T3MI
560	4	0.8	0.3	5	40	40	8	-58	+8	2750	STA560 — 60T4MI
75VDC @ 85°C											
33	1	2.5	1.3	1	5	8	66	-25	+5	1050	STA33 — 75T1MI
110	2	1.3	0.9	2	10	12	24	-35	+6	1650	STA110 — 75T2MI
330	3	1.0	0.5	3	30	29	10	-45	+6	2100	STA330 — 75T3MI
470	4	0.9	0.3	5	50	38	8	-50	+6	2750	STA470 — 75T4MI
100 VDC @ 85°C											
15	1	3.5	1.8	1	5	5	125	-18	+3	1050	STA15 — 100T1MI
68	2	2.1	0.9	2	10	12	37	-30	+4	1650	STA68 — 100T2MI
150	3	1.6	0.5	3	25	21	22	-35	+6	2100	STA150 — 100T3MI
220	4	1.2	0.3	5	50	23	15	-40	+6	2750	STA220 — 100T4MI
125 VDC @ 85°C											
10	1	5.5	2.2	1	5	5	175	-15	+3	1050	STA10 — 125T1MI
47	2	2.3	0.8	2	10	10	47	-25	+5	1650	STA47 — 125T2MI
100	3	1.8	0.6	3	25	16	28	-35	+5	2100	STA100 — 125T3MI
150	4	1.6	0.4	5	50	21	18.5	-35	+6	2750	STA150 — 125T4MI

RIPPLE CURRENT MULTIPLIERS VS FREQUENCY, TEMPERATURE AND APPLIED PEAK VOLTAGE.

Frequency of applied ripple current		120 Hz		800 Hz		1 Khz		10 Khz		40 Khz		100 Khz	
Ambient still air temperature in °C		≤55	85	≤55	85	≤55	85	≤55	85	≤55	85	≤55	85
% of 85°C rated peak voltage	100%	.60	.39	.71	.43	.72	.45	.88	.55	1.0	.63	1.1	.69
	90%	.60	.46	.71	.55	.72	.55	.88	.67	1.0	.77	1.1	.85
	80%	.60	.52	.71	.62	.72	.62	.88	.76	1.0	.87	1.1	.96
	70%	.60	.58	.71	.69	.72	.70	.88	.85	1.0	.97	1.1	1.07
	66 2/3%	.60	.60	.71	.71	.72	.72	.88	.88	1.0	1.0	1.1	1.1

Notes:
1. The peak of the applied AC ripple voltage plus the applied DC voltage must not exceed the forward or reverse DC voltage rating of the capacitors.