SuperTan® Wet Tantalum Capacitors with Hermetic Seal

Vishay Tansitor's ST represents a major breakthrough in wet tantalum capacitor technology. Its unique cathode system provides the highest capacitance per unit volume. The design facilitates a doubling of capacitance, lower ESR and higher ripple current rating compared with conventional wet tantalum products. Moreover, the ST has the capacitance stability of a solid tantalum capacitor and there are no circuit impedance restrictions.

The ST is housed in an all tantalum, hermetically sealed case and is manufactured to withstand hazardous environments. The ST is used widely in the defense and aerospace industries and whenever there is a space problem.

Application Notes

a) No continuous reverse voltage permissable.

b) Transient reverse voltage surges are acceptable under the following conditions:

The peak reverse voltage does not exceed 1.5V and the peak current times the duration of the reverse transient does not exceed 0.05 ampere seconds. In addition, the repitition frequency of the reverse voltage surge is less than 10Hz.

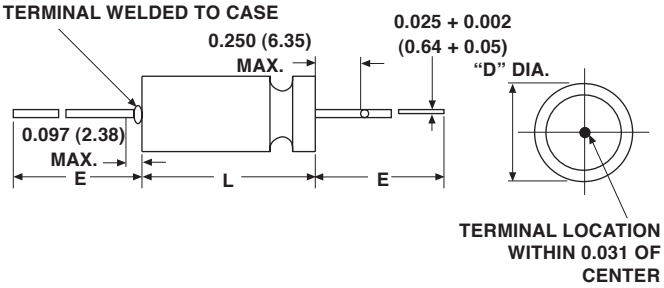
c) The peak of the applied AC ripple and the applied DC voltage must not exceed the DC voltage rating of the capacitor.

d) Ripple current ratings by part number at 85°C and 40kHz are included in the table. Ripple current correction factors for other temperatures and frequencies are given on the next page.

FEATURES

- Very High Capacitance
- 10 to 1800µF
- 25 to 125VDC
- - 55°C to + 125°C
- Very Low ESR
- High Ripple Current

DIMENSIONS in inches (millimeters)



CASE CODE	D MAX. INSULATED	D ± 0.016 (0.41) UNINSULATED	L + 0.031 (0.79)	E ± 0.250 (6.35)
1	0.219 (5.56)	0.188 (4.78)	0.453 (11.51)	1.500 (38.10)
2	0.312 (7.92)	0.281 (7.14)	0.641 (16.28)	2.250 (57.15)
L2	0.312 (7.92)	0.281 (7.14)	1.008 (25.60)	2.250 (57.15)
3	0.406 (10.31)	0.375 (9.52)	0.766 (19.46)	2.250 (57.15)
4	0.406 (10.31)	0.375 (9.52)	1.062 (26.97)	2.250 (57.15)

Approx. Weight T1: 2.3 grams, T2: 5.7 grams
T3: 9.4 grams T4: 14.8 grams

NOTES:

1. Material at egress is tantalum
2. Insulation sleeving will lap over the ends of the capacitor case.
3. Tinned nickel leads, solderable and weldable

ORDERING INFORMATION

ST	220	100	T4	M	I
SUPERTAN COMMERCIAL CAP. TYPE*	CAPACITANCE µF	85°C RATED DC VOLTAGE	CASE CODE	CAPACITANCE TOLERANCE	INSULATING SLEEVE
				M = ± 20% K = ± 10%	I = Insulated X = Uninsulated

*See DSCC drawing 93026 revision D for MIL version of SuperTan.

RATINGS AND CASE CODES

CAP. AT 25°C & 120Hz µF	CASE CODE	MAX. ESR Ω 120Hz	MAX. DCL µA		MAX. IMP. AT - 55°C & 120Hz Ω	MAXIMUM CAPACITANCE CHANGE %			AC RIPPLE 85°C 40kHz mA rms	VISHAY TANSITOR PART NUMBER
			25°C	85°C & 125°C		-55°C	85°C	125°C		
25VDC at 85°C									**15VDC at 125°C**	
120	1	1.3	1	5	25	- 42	+ 8	+ 12	1250	ST120-25T1MI
560	2	0.83	2	10	12	- 65	+ 10	+ 15	2100	ST560-25T2MI
1100	L2	0.5	3	25	7	- 60	+ 15	+ 30	2500	ST1100-25L2MI
1200	3	0.65	5	20	7	- 70	+ 12	+ 18	2600	ST1200-25T3MI
1800	4	0.5	6	25	7	- 72	+ 12	+ 20	3100	ST1800-25T4MI
30VDC at 85°C									**20VDC at 125°C**	
100	1	1.3	1	5	25	- 38	+ 8	+ 12	1200	ST100-30TMI
470	2	0.85	2	10	15	- 65	+ 10	+ 18	1800	ST470-30T2MI
950	L2	0.5	5	30	7	- 45	+ 15	+ 30	2200	ST950-30L2MI
1000	3	0.7	7	25	7	- 70	+ 10	+ 18	2500	ST1000-30T3MI
1500	4	0.6	12	35	6	- 72	+ 10	+ 20	3000	ST1500-30T4MI
50VDC at 85°C									**30VDC at 125°C**	
68	1	1.5	1	5	35	- 25	+ 8	+ 15	1050	ST68-50T1MI
220	2	0.9	2	10	17.5	- 50	+ 8	+ 15	1800	ST220-50T2MI
450	L2	0.6	3	25	7	- 45	+ 10	+ 15	2200	ST450-50L2MI
470	3	0.75	3	25	10	- 45	+ 8	+ 15	2100	ST470-50T3MI
680	4	0.7	5	40	8	- 58	+ 10	+ 20	2750	ST680-50T4MI
60VDC at 85°C									**40VDC at 125°C**	
47	1	2.0	1	5	44	- 25	+ 8	+ 12	1050	ST47-60T1MI
150	2	1.1	2	10	20	- 40	+ 8	+ 15	1800	ST150-60T2MI
370	L2	0.6	3	25	9	- 30	+ 10	+ 35	2200	ST370-60L2MI
390	3	0.9	3	25	15	- 45	+ 8	+ 15	2100	ST390-60T3MI
560	4	0.8	5	40	10	- 58	+ 8	+ 15	2750	ST560-60T4MI
75VDC at 85°C									**50VDC at 125°C**	
33	1	2.5	1	5	66	- 25	+ 5	+ 9	1050	ST33-75T1MI
110	2	1.3	2	10	24	- 35	+ 6	+ 10	1650	ST110-75T2MI
250	L2	0.8	5	30	10	- 20	+ 5	+ 15	2000	ST250-75L2MI
330	3	1.0	3	30	12	- 45	+ 6	+ 10	2100	ST330-75T3MI
470	4	0.9	5	50	12	- 50	+ 6	+ 10	2750	ST470-75T4MI
100VDC at 85°C									**65VDC at 125°C**	
15	1	3.5	1	5	125	- 18	+ 3	+ 10	1050	ST15-100T1MI
68	2	2.1	2	10	37	- 30	+ 4	+ 12	1650	ST68-100T2MI
120	L2	1.0	3	25	18	- 20	+ 5	+ 15	1800	ST120-100L2MI
150	3	1.6	3	25	22	- 35	+ 6	+ 12	2100	ST150-100T3MI
220	4	1.2	5	50	15	- 40	+ 6	+ 12	2750	ST220-100T4MI
125VDC at 85°C									**85VDC at 125°C**	
10	1	5.5	1	5	175	- 15	+ 3	+ 10	1050	ST10-125T1MI
47	2	2.3	2	10	47	- 25	+ 5	+ 12	1650	ST47-125T2MI
90	L2	1.3	5	15	24	- 15	+ 5	+ 10	1800	ST90-125L2MI
100	3	1.8	3	25	35	- 35	+ 5	+ 12	2100	ST100-125T3MI
150	4	1.6	5	50	20	- 35	+ 6	+ 12	2750	ST150-125T4MI

(K = ± 10%, M = ± 20%) and insulation letter (I = Insulation, X = Uninsulated)

RATINGS AND CASE CODES

FREQUENCY OF APPLIED RIPPLE CURRENT		120Hz				800Hz				1kHz				10kHz				40kHz				100kHz			
AMBIENT STILL AIR TEMP. IN °C		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125	≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.60	0.39	-	-	0.71	0.43	-	-	0.72	0.45	-	-	0.88	0.55	-	-	1.0	0.63	-	-	1.1	0.69	-	-
85°C	90%	0.60	0.46	-	-	0.71	0.55	-	-	0.72	0.55	-	-	0.88	0.67	-	-	1.0	0.77	-	-	1.1	0.85	-	-
rated	80%	0.60	0.52	0.35	-	0.71	0.62	0.42	-	0.72	0.62	0.42	-	0.88	0.76	0.52	-	1.0	0.87	0.59	-	1.1	0.96	0.65	-
peak	70%	0.60	0.58	0.44	-	0.71	0.69	0.52	-	0.72	0.70	0.52	-	0.88	0.85	0.64	-	1.0	0.97	0.73	-	1.1	1.07	0.80	-
voltage	66 2/3%	0.60	0.60	0.46	0.27	0.71	0.71	0.55	0.32	0.72	0.72	0.55	0.32	0.88	0.88	0.68	0.40	1.0	1.0	0.77	0.45	1.1	1.1	0.85	0.50