

## COTS-Plus Wet Electrolytic Tantalum Capacitor



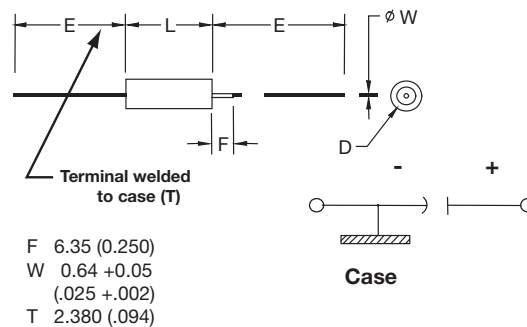
The TWA series is an axial leaded wet electrolytic tantalum capacitor. High capacitance cathode system allows high level of CV (Capacitance/Voltage) in DSCC compatible case sizes.

This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh shock and vibration requirements of MIL-PRF-39006.

Customized capacitance and voltage packages are possible and welcomed. Contact the factory about design possibilities beyond those contained in this datasheet.

These component may be supplied from either the U.S. or EU manufacturing locations.

### OUTLINE DIMENSIONS



### CASE DIMENSIONS: millimeters (inches)

DSCC Case Size	AVX Case Size	L +0.79 (0.031) -0.41 (0.016)	D		E ±6.35 (0.250)
			Without Insulating Sleeve ±0.41 (0.016)	With Insulating Sleeve Max	
T1	A	11.51 (0.453)	4.78 (0.188)	5.56 (0.219)	38.10 (1.500)
T2	B	16.28 (0.641)	7.14 (0.281)	7.92 (0.312)	57.15 (2.250)
T3	D	19.46 (0.766)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)
T4	E	26.97 (1.062)	9.52 (0.375)	10.31 (0.406)	57.15 (2.250)

### VOLTAGE RATINGS (Operating Temperature -55°C to 125°C)

Voltage (DC)								
Rated Voltage: (V <sub>R</sub> )	85°C	25	30	50	60	75	100	125
Derated Voltage: (V <sub>C</sub> )	125°C	15	20	30	40	50	65	85
Surge Voltage: (V <sub>S</sub> )	85°C	28.8	34.5	57.5	69	86.3	115	144

# TWA Series





## COTS-Plus Wet Electrolytic Tantalum Capacitor

### HOW TO ORDER

#### AVX PART NUMBER:

<b>TWA</b>	<b>E</b>	<b>407</b>	<b>*</b>	<b>100</b>	<b>□</b>	<b>B</b>	<b>S</b>	<b>Z</b>	<b>0</b>	<b>^</b>	<b>00</b>
Type	Case Size	Capacitance Code	Capacitance Tolerance	Voltage Code	Insulation Sleeve	Packaging	Qualification	Reliability	Qualification Level	Termination Finish	Custom Test Options
		pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	K = ±10% M = ±20%		C = Without Sleeve S = With Sleeve	B = Tray Pack	E = Extended range S = COTS+ L = Group A	Z = Non-ER	0 = N/A	0 = Sn/Pb 60/40 7 = Matte tin	00 = Standard 01 = Random vibration*

For RoHS compliant products, please select correct termination style.

\* Please contact the factory for additional details and availability.

### RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage<sup>1/2/</sup>

Frequency of Applied Ripple Current		120Hz				800Hz				1kHz			
		Ambient Still Air Temperature (°C)											
		≤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	–	–
85°C	90%	0.60	0.46	–	–	0.71	0.55	–	–	0.72	0.55	–	–
Rated Peak	80%	0.60	0.52	0.35	–	0.71	0.62	0.42	–	0.72	0.62	0.42	–
	70%	0.60	0.58	0.44	–	0.71	0.69	0.52	–	0.72	0.70	0.52	–
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

Frequency of Applied Ripple Current		10kHz				40kHz				100kHz			
		Ambient Still Air Temperature (°C)											
		≤55	85	105	125	≤55	85	105	125	≤55	85	105	125
% of	100%	0.88	0.55	–	–	1.00	0.63	–	–	1.10	0.69	–	–
85°C	90%	0.88	0.67	–	–	1.00	0.77	–	–	1.10	0.85	–	–
Rated Peak	80%	0.88	0.76	0.52	–	1.00	0.87	0.59	–	1.10	0.96	0.65	–
	70%	0.88	0.85	0.64	–	1.00	0.97	0.73	–	1.10	1.07	0.80	–
Voltage	66-2/3%	0.88	0.88	0.68	0.40	1.00	1.00	0.77	0.45	1.10	1.10	0.85	0.50

1/ At 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C rated voltage.

2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

## COTS-Plus Wet Electrolytic Tantalum Capacitor

### CAPACITANCE AND RATED VOLTAGE, $V_R$ (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC ( $V_R$ ) to 85°C						
$\mu\text{F}$	Code	25V	30V	50V	60V	75V	100V	125V
10	106			A*				A
15	156						A	
22	226	A*			A*	A*		
33	336					A		
47	476			A*	A			B
68	686	A		A			B	
100	107		A		B	B		D
110	117					B		
120	127	A		A*,B				D
150	157			B	B	D*	D	E
220	227		B	B	D*	D*,E	D,E	E
330	337	B	D*	D*,E	E*	D,E	E	
390	397				D			
400	407						E	
470	477		B,D*	D,E		E	E <sup>(M)</sup>	
560	567	B,D*	D*		E			
680	687	D*,E	D,E	E	E	E		
750	757	D,E	D,E	E	E	E	E	
1000	108	D,E	D,E	D,E	E	E		
1200	128	D						
1500	158	E	E					
1800	188	E						
2200	228	E			E			
3000	308			E				
4700	478	E						
5600	568	E*						

Released codes

Engineering samples - please contact manufacturer

\*Codes under development

## COTS-Plus Wet Electrolytic Tantalum Capacitor

### RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	ESR Max (ohms) at 120Hz	DC Leakage max (µA)		TANG δ Max +25°C (%)	Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size	
				+25°C	+85 & +125°C			-55°C	+85°C	+125°C		AVX	DSCC
<b>25 VDC at 85°C 15 VDC at 125°C</b>													
TWAA226*025□BEZO*00	22	25	4.0	1	2	6.6	140	-20	10.5	12	825	A	T1
TWAA686*025□BEZO*00	68	25	2.5	0.6	3	12	45	-40	12	15	850	A	T1
TWAA127*025□BSZ0000	120	25	1.3	1	5	-	25	-42	8	12	1250	A	T1
TWAB337*025□BEZO*00	330	25	1.3	2	20	30	25	-60	10	15	1550	B	T2
TWAB567*025□BSZ0000	560	25	0.83	2	10	-	12	-65	10	15	2100	B	T2
TWAD567*025□BEZO*00	560	25	0.9	7	28	38	24	-72	20	25	1750	D	T3
TWAD687*025□BEZO*00	680	25	0.62	8	32	31.5	19	-72	25	30	2100	D	T3
TWAE687*025□BEZO*00	680	25	0.75	3	12	45	12	-50	8	15	2100	E	T4
TWAD757*025□BEZO*00	750	25	1	3	25	45	15	-50	8	15	2000	D	T3
TWAE757*025□BEZO*00	750	25	0.75	3.5	16	50	9	-55	10	18	2200	E	T4
TWAD108*025□BEZO*00	1000	25	1	4	30	45	15	-50	8	15	2300	D	T3
TWAE108*025□BEZO*00	1000	25	0.7	4	20	60	9	-55	10	18	2400	E	T4
TWAD128*025□BSZ0000	1200	25	0.65	5	20	-	7	-70	12	18	2600	D	T3
TWAE158*025□BEZO*00	1500	25	0.5	6	24	65	7	-65	15	20	2850	E	T4
TWAE188*025□BSZ0000	1800	25	0.5	6	25	-	7	-75	12	20	3100	E	T4
TWAE228*025□BSZ0000	2200	25	0.5	10	80	-	10	-90	30	50	3200	E	T4
TWAE478*025□BEZO*00	4700	25	0.5	30	180	90	5	-90	60	80	4250	E	T4
TWAE568*025□BEZO*00	5600	25	0.3	35	200	120	3	-90	40	60	5700	E	T4
<b>30 VDC at 85°C 20 VDC at 125°C</b>													
TWAA107*030□BSZ0000	100	30	1.3	1	5	-	25	-38	8	12	1200	A	T1
TWAB227*030□BEZO*00	220	30	2	1.9	10	15	30	-40	8	15	1200	B	T2
TWAD337*030□BEZO*00	330	30	2.6	3	12	50	52	-65	25	25	1400	D	T3
TWAB477*030□BSZ0000	470	30	0.85	2	10	-	15	-65	10	18	1800	B	T2
TWAD477*030□BEZO*00	470	30	2	8	32	64	25	-65	20	25	1600	D	T3
TWAD567*030□BEZO*00	560	30	1.5	9	35	55	20	-65	25	30	1750	D	T3
TWAD687*030□BEZO*00	680	30	1	3.3	25	45	15	-50	8	15	1900	D	T3
TWAE687*030□BEZO*00	680	30	0.8	4.5	18	45	10	-60	8	15	2100	E	T4
TWAD757*030□BEZO*00	750	30	1	3.6	30	45	15	-50	8	15	2000	D	T3
TWAE757*030□BEZO*00	750	30	0.8	5	20	45	10	-65	10	18	2200	E	T4
TWAD108*030□BSZ0000	1000	30	0.7	7	25	-	7	-70	10	18	2500	D	T3
TWAE108*030□BEZO*00	1000	30	0.7	5	20	55	7	-70	10	18	2500	E	T4
TWAE158*030□BSZ0000	1500	30	0.6	12	35	-	6	-72	10	20	3000	E	T4
<b>50 VDC at 85°C 30 VDC at 125°C</b>													
TWAA106*050□BEZO*00	10	50	5.3	1	2	4	250	-24	8	9	715	A	T1
TWAA476*050□BEZO*00	47	50	2	1	5	9	35	-25	8	15	850	A	T1
TWAA686*050□BSZ0000	68	50	1.5	1	5	-	35	-25	8	15	1050	A	T1
TWAA127*050□BEZO*00	120	50	1.8	1.5	8	14	30	-40	30	40	1100	A	T1
TWAB127*050□BEZO*00	120	50	2	2	10	14	30	-45	8	15	1200	B	T2
TWAB157*050□BEZO*00	150	50	2	2	10	16	25	-50	8	15	1400	B	T2
TWAB227*050□BSZ0000	220	50	0.9	2	10	-	17.5	-50	8	15	1800	B	T2
TWAD337*050□BEZO*00	330	50	0.85	3	25	25	15	-50	8	15	1650	D	T3
TWAE337*050□BEZO*00	330	50	0.8	2.5	25	24	15	-50	8	15	1900	E	T4
TWAD477*050□BSZ0000	470	50	0.75	3	25	-	10	-50	8	15	2100	D	T3
TWAD477*050□BEZO*00*	470	50	1	3	25	35	11	-50	8	15	2100	D	T3
TWAE477*050□BEZO*00	470	50	0.75	3	30	32	10	-50	8	15	2200	E	T4
TWAE687*050□BSZ0000	680	50	0.7	5	40	-	8	-58	10	20	2750	E	T4
TWAE687*050□BEZO*00*	680	50	0.7	5	40	42	8	-58	10	20	2750	E	T4
TWAE757*050□BEZO*00	750	50	0.6	12	60	35	8	-50	15	20	2800	E	T4
TWAD108*050□BEZO*00	1000	50	1.5	20	125	80	12	-90	100	140	2500	D	T3
TWAE108*050□BEZO*00	1000	50	0.7	11	110	45	20	-70	30	40	3200	E	T4
TWAE308*050□BEZO*00	3000	50	0.3	30	150	80	3.5	-80	60	85	3100	E	T4
<b>60 VDC at 85°C 40 VDC at 125°C</b>													
TWAA226*060□BEZO*00	22	60	5	3	12	10.2	144	-24	10	12	500	A	T1
TWAA476*060□BSZ0000	47	60	2	1	5	-	44	-25	8	12	1050	A	T1
TWAB107*060□BEZO*00	100	60	2.5	1.7	10	12	30	-40	8	15	1100	B	T2
TWAB157*060□BSZ0000	150	60	1.1	2	10	-	20	-40	8	15	1650	B	T2
TWAD227*060□BEZO*00	220	60	0.9	8	32	15	29	-40	16	20	1400	D	T3
TWAE337*060□BEZO*00	330	60	1.5	5	25	40	31	-72	25	25	1850	E	T4
TWAD397*060□BSZ0000	390	60	0.9	3	25	-	15	-60	8	15	2100	D	T3
TWAE567*060□BSZ0000	560	60	0.8	5	40	-	10	-58	8	15	2750	E	T4
TWAE687*060□BEZO*00	680	60	0.6	13	65	35	8	-50	15	20	2800	E	T4
TWAE757*060□BEZO*00	750	60	0.6	15	75	35	8	-50	15	20	2800	E	T4
TWAE108*060□BSZ0000	1000	60	1	12	90	-	20	-90	30	50	3200	E	T4
TWAE228*060□BEZO*00	2200	60	0.5	30	150	80	3.5	-80	60	85	3000	E	T4

## COTS-Plus Wet Electrolytic Tantalum Capacitor

### RATINGS & PART NUMBER REFERENCE

AVX Part Number	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	ESR Max (ohms) at 120Hz	DC Leakage max (µA)		TANG δ Max +25°C (%)	Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size	
				+25°C	+85 & +125°C			-55°C	+85°C	+125°C		AVX	DSCC
<b>75 VDC at 85°C 50 VDC at 125°C</b>													
TWAA226*075□BEZO^00	22	75	5.1	30	12	8.5	157	-19	10	12	600	A	T1
TWAA336*075□BSZ0000	33	75	2.5	1	5	-	66	-25	5	9	1050	A	T1
TWAB107*075□BEZO^00	100	75	2.5	2	10	12	24	-35	6	10	1400	B	T2
TWAB117*075□BSZ0000	110	75	1.3	2	10	-	24	-35	6	10	1650	B	T2
TWAD157*075□BEZO^00	150	75	1.2	3	30	25	60	-40	20	20	1340	D	T3
TWAD227*075□BEZO^00	220	75	1.2	3	30	24	20	-45	6	10	1500	D	T3
TWAE227*075□BEZO^00	220	75	1.1	2.5	30	22	20	-50	6	10	1800	E	T4
TWAD337*075□BSZ0000	330	75	1	3	30	-	12	-45	6	10	2100	D	T3
TWAE337*075□BEZO^00	330	75	1	3	40	30	12	-50	6	10	2200	E	T4
TWAE477*075□BSZ0000	470	75	0.9	5	50	-	12	-55	6	10	2750	E	T4
TWAE477*075□BEZO^00*	470	75	0.9	5	50	38	12	-55	6	10	2750	E	T4
TWAE687*075□BEZO^00	680	75	0.9	11	110	45	10	-70	30	40	2750	E	T4
TWAE757*075□BEZO^00	750	75	0.7	12	120	60	10	-70	30	40	3800	E	T4
TWAE108*075□BEZO^00	1000	75	0.5	20	200	70	8	-90	12	20	3500	E	T4
<b>100 VDC at 85°C 65 VDC at 125°C</b>													
TWAA156*100□BSZ0000	15	100	3.5	1	5	-	125	-18	3	10	1050	A	T1
TWAB686*100□BSZ0000	68	100	2.1	2	10	-	37	-30	4	12	1650	B	T2
TWAB686*100□BEZO^00*	68	100	2.5	2	10	13	37	-30	4	12	1650	B	T2
TWAD157*100□BSZ0000	150	100	1.6	3	25	22	22	-35	6	12	2100	D	T3
TWAD157*100□BEZO^00*	150	100	1.6	3	25	22	22	-35	6	12	2100	D	T3
TWAD227*100□BEZO^00	220	100	1.4	5	25	30	18	-50	10	15	2500	D	T3
TWAE227*100□BSZ0000	220	100	1.2	5	50	-	15	-40	6	12	2750	E	T4
TWAE227*100□BEZO^00*	220	100	1.2	5	50	24	15	-40	6	12	2750	E	T4
TWAE337*100□BEZO^00	330	100	0.8	6	60	30	10	-45	7	20	3600	E	T4
TWAE407*100□BEZO^00	400	100	0.8	10	150	30	10	-50	10	35	4100	E	T4
TWAE477M100□BEZO^00	470	100	0.7	25	250	35	10	-50	10	35	4100	E	T4
TWAE757*100□BEZO^00	750	100	0.7	20	200	45	10	-40	20	50	6700	E	T4
<b>125 VDC at 85°C 85 VDC at 125°C</b>													
TWAA106*125□BSZ0000	10	125	5.5	1	5	-	175	-15	3	10	1050	A	T1
TWAB476*125□BSZ0000	47	125	2.3	2	10	-	47	-25	5	12	1650	B	T2
TWAD107*125□BSZ0000	100	125	1.8	3	25	-	35	-35	5	12	2100	D	T3
TWAD107*125□BEZO^00*	100	125	1.8	3	25	18	35	-35	5	12	2100	D	T3
TWAD127*125□BEZO^00	120	125	1.8	3	25	18	35	-35	5	12	2100	D	T3
TWAE157*125□BSZ0000	150	125	1.6	5	50	-	20	-35	6	12	2750	E	T4
TWAE157*125□BEZO^00*	150	125	1.6	5	50	35	20	-35	6	16	2750	E	T4
TWAE227*125□BEZO^00	220	125	1.4	10	50	25	12	-40	8	15	3600	E	T4

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

\*Not recommended for new designs, for new design use part number with Inspection level "S" – COTS-Plus