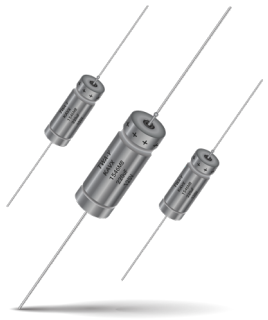
TWA-Y SERIES

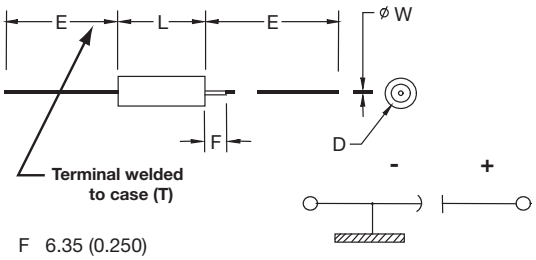
High Temperature – COTS-Plus 200°C
Wet Electrolytic Tantalum Capacitor



GENERAL DESCRIPTION

The TWA-Y series represents a high temperature version of conventional wet electrolytic tantalum capacitors that are designed for use at 200°C. High capacitance cathode system allows high level of CV (Capacitance/Voltage) in standard case sizes.
Selected values of the TWA-Y are capable of up to 2000 hours of operation at extreme temperatures with the applicable derated voltage.
Mechanical testing being conducted in accordance to MIL-STD- 202, High Frequency vibration - method 204, test condition "D" Mechanical Shock Test - method 213, test condition "I".
This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand also harsh shock and vibration requirements.
Contact the factory for additional options for customized component design.

OUTLINE DIMENSIONS



F 6.35 (0.250)
W 0.64 +0.05 (.025) (.002)
T 2.380 (.094)

Case

CASE DIMENSIONS: millimeters (inches)

DLA Case Size	Case Size	L +0.79 (0.031) -0.41 (0.016)	D Without Insulating Sleeve ±0.41 (0.016)	D With Insulating Sleeve Max	E ±6.35 (0.250)
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 200°C)

Voltage (DC)									
Rated Voltage: (V_R)	85°C	15	25	30	50	60	75	100	125
Derated Voltage: (V_C)	125°C	10	15	20	30	40	50	65	85
High Temperature Voltage: (VT)	200°C	9	12	18	30	36	45	60	75

HOW TO ORDER

PART NUMBER:

TWA	E	757	*	075	□	B	Y	Z	0	^	00
Type	Case Size	Capacitance Code: pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow)	Capacitance Tolerance: K = ±10%, M = ±20%	Voltage Code	Insulation Sleeve: C = Without Sleeve, S = With Sleeve	Packaging: B = Tray Pack	Qualification: Y = High Temp	Reliability: Z = Non-ER	Qualification Level: 0 = N/A	Termination Finish: 0 = Sn/Pb 60/40, 7 = Matte tin	Custom Test Options: 00 = Standard

LEAD-FREE COMPATIBLE COMPONENT

RoHS COMPLIANT

For RoHS compliant products, please select correct termination style.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage[1/ 2/]

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 85°C Rated Peak Voltage	100%	0.60	0.39	–	–	0.71	0.43	–	–	0.72	0.45	–	–
	90%	0.60	0.46	–	–	0.71	0.55	–	_	0.72	0.55	–	–
	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	–
	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 85°C Rated Peak Voltage	100%	0.88	0.55	–	–	1.00	0.63	–	–	1.10	0.69	–	–
	90%	0.88	0.67	–	–	1.00	0.77	–	_	1.10	0.85	–	–
	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	–
	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.

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

Capacitance		Rated Voltage DC (V^R) to 85°C							
µF	Code	15V	25V	30V	50V	60V	75V	100V	125V
10	106				A			A(M)	A(M)
15	156			A				A	
22	226		A			A	A	B	
27	276					A			B
33	336	A			A		A		
47	476				B	A			B
50	506					B			
56	566		A	A			B		
60	606				B				
68	686		A		A	B	A(M)	B	
82	826				B		B		D,E
100	107		B	A,B	A(M)	B			D
110	117						B		
120	127		A,B		B				
150	157			B		B		D	E
180	187						D		
220	227			B	B	D	E	E	E
270	277		B		D	E			
300	307			D					
330	337				E			E	E
390	397	D		D					
400	407							E	
470	477			B,D			E	E	
560	567		B,E	E				E	
680	687						E		
750	757						E	E	
1000	108			D	E	E	E		
1200	128		D						
1500	158				E				
1800	188		E						
2200	228		E						
3000	308		E(M)						
4700	478		E						

Available Ratings (M tolerance only)

TWA-Y SERIES

High Temperature – COTS-Plus 200°C
Wet Electrolytic Tantalum Capacitor

RATINGS & PART NUMBER REFERENCE

ENERGY

Part Number	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	ESR Max (Ohms) at 120Hz	DC Leakage max (µA)		Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size		Lifetime at 200°C (hrs.)	Energy (mJ)	Energy / volume (mJ/mm³)
				+25°C	+85 & +125°C		-55°C	+85°C	+125°C		KAVX	DLA			
15 VDC @ 85°C 10 VDC @ 125°C 9 VDC @ 200°C															
TWAA336*015□BYZ0^00	33	15	4	1	2	90	-28	14	16	820	A	T1	2000	2.86	0.014
TWAD397*015□BYZ0^00	390	15	1.7	7	28	48	-70	25	25	1396	D	T3	1000	33.78	0.024
25 VDC @ 85°C 15 VDC @ 125°C 12 VDC @ 200°C															
TWAA226*025□BYZ0^00	22	25	4	1	2	140	-20	10.5	12	825	A	T1	2000	23.46	0.114
TWAA566*025□BYZ0^00	56	25	4	1	2	140	-20	10.5	12	825	A	T1	500	4.30	0.021
TWAA686*025□BYZ0^00	68	25	4	1	2	140	-20	10.5	12	825	A	T1	500	10.95	0.053
TWAB107*025□BYZ0^00	100	25	2.5	1	10	60	-35	13	15	-	B	T2	2000	13.29	0.064
TWAA127*025□BYZ0^00	120	25	2.3	2	10	35	-42	20	25	1250	A	T1	500	19.55	0.030
TWAB127*025□BYZ0^00	120	25	2.3	2	10	60	-32	13	15	-	B	T2	500	23.46	0.036
TWAB277*025□BYZ0^00	270	25	0.9	4	20	17.5	-50	18	28	1800	B	T2	1000	52.79	0.081
TWAB567*025□BYZ0^00	560	25	1.0	2	10	12	-65	10	15	2100	B	T2	1000	109.48	0.168
TWAE567*025□BYZ0^00	560	25	1.3	9	36	25	-65	25	30	-	E	T4	2000	109.48	0.057
TWAD128*025□BYZ0^00	1200	25	0.65	5	20	7	-70	12	18	2600	D	T3	1000	234.60	0.169
TWAE188*025□BYZ0^00	1800	25	0.5	6	25	7	-75	12	20	3100	E	T4	2000	351.90	0.183
TWAE228*025□BYZ0^00	2200	25	0.5	10	80	10	-90	30	50	3200	E	T4	2000	430.10	0.224
TWAE308M025□BYZ0^00	3000	25	0.5	15	30	3.5	-80	60	85	3100	E	T4	500	586.50	0.306
TWAE478*025□BYZ0^00	4700	25	0.5	30	180	5	-90	60	80	4250	E	T4	500	918.85	0.479
30 VDC @ 85°C 20 VDC @ 125°C 18 VDC @ 200°C															
TWAA156*030□BYZ0^00	15	30	4.4	1	2	200	-20	10.5	16	-	A	T1	2000	4.25	0.021
TWAA566*030□BYZ0^00	56	30	5.2	2	9	200	-48	12	15	-	A	T1	2000	15.88	0.077
TWAA107*030□BYZ0^00	100	30	2.3	2	10	35	-38	20	25	1200	A	T1	500	28.35	0.137
TWAB107*030□BYZ0^00	100	30	2.3	2	12	60	-30	10.5	12	-	B	T2	500	28.35	0.044
TWAB157*030□BYZ0^00	150	30	2.5	2	18	40	-48	13	15	1100	B	T2	2000	42.53	0.065
TWAB227*030□BYZ0^00	220	30	0.9	4	20	17.5	-50	18	28	1800	B	T2	1000	62.37	0.096
TWAD307*030□BYZ0^00	300	30	1.8	8	32	25	-51	20	25	-	D	T3	2000	85.05	0.061
TWAD397*030□BYZ0^00	390	30	1.8	6	18	25	-65	18	25	-	D	T3	2000	110.57	0.080
TWAB477*030□BYZ0^00	470	30	1.0	2	10	15	-65	10	18	1800	B	T2	1000	133.25	0.205
TWAD477*030□BYZ0^00	470	30	1.0	3	25	15	-65	15	25	1600	D	T3	2000	133.25	0.096
TWAE567*030□BYZ0^00	560	30	1.3	9	36	25	-65	25	30	-	E	T4	2000	158.76	0.083
TWAD108*030□BYZ0^00	1000	30	0.7	7	25	7	-70	10	18	2500	D	T3	1000	283.50	0.205
50 VDC @ 85°C 30 VDC @ 125°C 30 VDC @ 200°C															
TWAA106*050□BYZ0^00	10	50	5.3	1	2	250	-24	8	9	715	A	T1	2000	7.96	0.039
TWAA336*050□BYZ0^00	33	50	5	2	9	200	-39	10	12	-	A	T1	2000	26.25	0.127
TWAB476*050□BYZ0^00	47	50	3	0.8	8	70	-28	13	15	1155	B	T2	500	37.39	0.057
TWAB606*050□BYZ0^00	60	50	2.6	2	12	60	-30	10.5	12	-	B	T2	500	47.73	0.073
TWAA686*050□BYZ0^00	68	50	2.5	2	10	45	-25	20	25	1050	A	T1	1000	54.09	0.262
TWAB826*050□BYZ0^00	82	50	2.4	2	16	60	-32	13	15	-	B	T2	500	65.23	0.100
TWAA107M050□BYZ0^00	100	50	5	2	15	70	-45	50	95	1500	A	T1	500	79.55	0.385
TWAB127*050□BYZ0^00	120	50	2.5	4	24	40	-42	12	15	-	B	T2	2000	95.46	0.147
TWAB227*050□BYZ0^00	220	50	0.9	4	20	17.5	-50	18	28	1800	B	T2	1000	175.01	0.269
TWAD277*050□BYZ0^00	270	50	1.8	8	32	25	-51	20	25	-	D	T3	2000	214.79	0.155
TWAE337*050□BYZ0^00	330	50	1.5	9	36	25	-46	25	30	1900	E	T4	2000	262.52	0.137
TWAE108*050□BYZ0^00	1000	50	0.7	11	110	20	-70	30	40	3200	E	T4	2000	795.50	0.415
TWAE158*050□BYZ0^00	1500	50	1	35	130	6	-75	45	55	3500	E	T4	1000	1193.25	0.622
60 VDC @ 85°C 40 VDC @ 125°C 36 VDC @ 200°C															
TWAA226*060□BYZ0^00	22	60	5	3	12	200	-34	10	12	500	A	T1	2000	25.25	0.122
TWAA276*060□BYZ0^00	27	60	5	3	12	200	-34	10	12	-	A	T1	2000	30.98	0.150
TWAA476*060□BYZ0^00	47	60	2	2	10	55	-25	15	25	1050	A	T1	500	53.93	0.261
TWAB506*060□BYZ0^00	50	60	2.6	2	12	60	-30	10.5	12	-	B	T2	500	57.38	0.088
TWAB686*060□BYZ0^00	68	60	2.5	2	16	60	-32	10.5	12	-	B	T2	500	78.03	0.120
TWAB107*060□BYZ0^00	100	60	2.5	1.7	10	40	-40	8	15	1100	B	T2	2000	114.75	0.176
TWAB157*060□BYZ0^00	150	60	1.5	2	10	30	-35	12	20	1650	B	T2	500	172.13	0.264
TWAD227*060□BYZ0^00	220	60	1.8	8	32	25	-45	16	20	-	D	T3	2000	252.45	0.182
TWAE277*060□BYZ0^00	270	60	1.3	9	36	25	-45	20	25	-	E	T4	2000	309.83	0.161
TWAE108*060□BYZ0^00	1000	60	0.5	20	60	4.5	-70	30	60	3200	E	T4	2000	1147.50	0.598
75 VDC @ 85°C 50 VDC @ 125°C 45 VDC @ 200°C															
TWAA226*075□BYZ0^00	22	75	5.1	3	12	157	-19	10	12	600	A	T1	2000	39.50	0.191
TWAA336*075□BYZ0^00	33	75	2.5	2	10	70	-25	15	25	1050	A	T1	1000	59.25	0.287
TWAB566*075□BYZ0^00	56	75	2.6	2	17	60	-30	10.5	15	-	B	T2	500	100.55	0.154
TWAA686M075□BYZ0^00	68	75	5	2	15	70	-45	50	95	1500	A	T1	500	122.09	0.591
TWAB826*075□BYZ0^00	82	75	2.5	4	24	37	-30	12	15	-	B	T2	500	147.23	0.226
TWAB117*075□BYZ0^00	110	75	1.5	2	10	30	-35	12	20	1650	B	T2	500	197.51	0.303
TWAD187*075□BYZ0^00	180	75	2.2	9	36	25	-40	16	20	-	D	T3	2000	323.19	0.233
TWAE227*075□BYZ0^00	220	75	1.2	5	50	20	-40	8	15	1800	E	T4	2000	395.01	0.206
TWAE477*075□BYZ0^00	470	75	0.9	10	125	10	-50	10	35	2750	E	T4	1000	843.89	0.440
TWAE687*075□BYZ0^00	680	75	0.9	11	110	10	-70	30	40	2750	E	T4	500	1220.94	0.636
TWAE757*075□BYZ0^00	750	75	0.7	12	120	10	-70	30	40	3800	E	T4	500	1346.63	0.702
TWAE108*075□BYZ0^00	1000	75	0.5	30	90	4.5	-70	30	60	3500	E	T4	1000	1795.50	0.936
100 VDC @ 85°C 65 VDC @ 125°C 60 VDC @ 200°C															
TWAA106M100□BYZ0^00	10	100	3.5	5	25	190	-18	10	30	1050	A	T1	2000	31.96	0.155

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High Temperature – COTS-Plus 200°C
Wet Electrolytic Tantalum Capacitor

RATINGS & PART NUMBER REFERENCE

ENERGY

Part Number	Cap (µF) 25°C at 120Hz	DC Rated Voltage (V) at 85°C	ESR Max (Ohms) at 120Hz	DC Leakage max (µA)		Impedance max (Ohms) -55°C at 120Hz	Maximum Capacitance Change (%)			AC Ripple (mA rms) 85°C at 40kHz	Case Size		Lifetime at 200°C (hrs.)	Energy (mJ)	Energy / volume (mJ/mm³)
				+25°C	+85 & +125°C		-55°C	+85°C	+125°C		KAVX	DLA			
TWAA156*100□BYZ0^00	15	100	5.5	7	35	140	-18	10	30	1050	A	T1	500	47.93	0.232
TWAB226*100□BYZ0^00	22	100	4	1	5	100	-10	8	15	1065	B	T2	500	70.30	0.108
TWAB686*100□BYZ0^00	68	100	2.5	2	10	37	-30	4	12	1650	B	T2	500	217.29	0.334
TWAD157*100□BYZ0^00	150	100	1.6	3	25	22	-35	6	12	2100	D	T3	2000	479.33	0.346
TWAE227*100□BYZ0^00	220	100	1.2	5	50	15	-40	6	12	2750	E	T4	1000	703.01	0.366
TWAE337*100□BYZ0^00	330	100	0.8	6	60	10	-45	7	20	3600	E	T4	2000	1054.52	0.550
TWAE407*100□BYZ0^00	400	100	0.8	10	150	10	-50	10	35	4100	E	T4	2000	1278.20	0.666
TWAE477*100□BYZ0^00	470	100	0.7	15	150	10	-50	10	35	4100	E	T4	2000	1501.89	0.783
TWAE567*100□BYZ0^00	560	100	1.0	25	200	10	-60	45	110	4100	E	T4	1500	1789.48	0.933
TWAE757*100□BYZ0^00	750	100	0.6	30	150	5	-60	50	120	4200	E	T4	500	2396.63	1.249
125 VDC @ 85°C 85 VDC @ 125°C 75 VDC @ 200°C															
TWAA106M125□BYZ0^00	10	125	5.5	1	5	190	-15	10	30	1050	A	T1	2000	49.96	0.242
TWAB276*125□BYZ0^00	27	125	4	2	10	100	-10	8	15	1200	B	T2	500	134.88	0.207
TWAB476*125□BYZ0^00	47	125	2.3	2	10	47	-25	5	12	1650	B	T2	1000	234.79	0.360
TWAD826*125□BYZ0^00	82	125	2.8	12	48	50	-30	15	17	-	D	T3	2000	409.63	0.296
TWAE826*125□BYZ0^00	82	125	1.6	2	10	39	-24	10	20	1900	E	T4	2000	409.63	0.213
TWAD107*125□BYZ0^00	100	125	1.8	3	25	35	-35	5	12	2100	D	T3	2000	499.55	0.361
TWAE157*125□BYZ0^00	150	125	1.6	5	50	20	-35	6	16	2750	E	T4	2000	749.33	0.391
TWAE227*125□BYZ0^00	220	125	1.4	10	50	12	-40	8	15	3600	E	T4	2000	1099.01	0.573
TWAE337*125□BYZ0^00	330	125	1	15	150	20	-60	20	60	2500	E	T4	2000	1648.52	0.859

Energy is calculated by this formula (consider derating factor):

Energy = ½ C x ((Vr x X)² – Vx²)
where C = Capacitance
Vr = Rated Voltage
X = Recommended derating factor
Vx= 3V (invariable)

All technical data relates to an ambient temperature of +25ºC. 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: KYOCERA AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

DF = 2πfC x (ESR)
2π = 6.28
f = 120Hz
C = Actual measured capacitance
ESR = Actual measured ESR

RECOMMENDED DERATED FACTOR

Voltage and temperature derating as percentage of Vr