

# TRJ Series



## Professional Tantalum Chip Capacitor



- Improved reliability – 2x standard
- DCL reduced by 25% to 0.0075 CV
- Robust against higher thermo-mechanical stresses during assembly process
- CV range: 0.10-470µF / 4-50V
- 5 case sizes available
- 123 low ESR parts released
- Automotive, medical, aerospace, military and other high-end applications



SnPb termination option is not RoHS compliant.



For part marking see page 127

### CASE DIMENSIONS: millimeters (inches)

Code	EIA Code	EIA Metric	L±0.20 (0.008)	W+0.20 (0.008) -0.10 (0.004)	H+0.20 (0.008) -0.10 (0.004)	W <sub>1</sub> ±0.20 (0.008) -0.20 (0.008)	A+0.30 (0.012) -0.20 (0.008)	S Min.
A	1206	3216-18	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	1210	3528-21	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
C	2312	6032-28	6.00 (0.236)	3.20 (0.126)	2.60 (0.102)	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
D	2917	7343-31	7.30 (0.287)	4.30 (0.169)	2.90 (0.114)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)
E	2917	7343-43	7.30 (0.287)	4.30 (0.169)	4.10 (0.162)	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)

W<sub>1</sub> dimension applies to the termination width for A dimensional area only.

### HOW TO ORDER

<b>TRJ</b>	<b>B</b>	<b>105</b>	<b>*</b>	<b>035</b>	<b>R</b>	<b>RJ</b>	<b>-</b>
Type	Case Size See table above	Capacitance Code pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)	Tolerance K=±10% M=±20%	Rated DC Voltage 004 = 4V 006 = 6.3V 010 = 10V 016 = 16V 020 = 20V 025 = 25V 035 = 35V 050 = 50V	Packaging R = Pure Tin 7" Reel S = Pure Tin 13" Reel A = Gold Plating 7" Reel B = Gold Plating 13" Reel H = Tin Lead 7" Reel (Contact Manufacturer) K = Tin Lead 13" Reel (Contact Manufacturer) H, K = Non RoHS	Standard Suffix OR <b>0100</b> Low ESR in mΩ	Additional characters may be added for special requirements V = Dry pack Option (selected codes only)

### TECHNICAL SPECIFICATIONS

Technical Data:	All technical data relate to an ambient temperature of +25°C									
Capacitance Range:	0.10 µF to 470 µF									
Capacitance Tolerance:	±10%; ±20%									
Leakage Current DCL:	0.0075CV									
Rated Voltage (V <sub>R</sub> )	≤ +85°C:	4	6.3	10	16	20	25	35	50	
Category Voltage (V <sub>C</sub> )	≤ +125°C:	2.7	4	7	10	13	17	23	33	
Surge Voltage (V <sub>S</sub> )	≤ +85°C:	5.2	8	13	20	26	32	46	65	
Surge Voltage (V <sub>S</sub> )	≤ +125°C:	3.4	5	8	13	16	20	28	40	
Temperature Range:	-55°C to +125°C									
Reliability:	0.5% per 1000 hours at 85°C, V <sub>R</sub> with 0.1Ω/V series impedance, 60% confidence level									
Termination Plating:	Sn Plating (standard), Gold and SnPb Plating upon request Meets requirements of AEC-Q200									



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

Capacitance		Rated Voltage DC (V <sub>R</sub> ) to 85°C							
μF	Code	4V (G)	6.3V (J)	10V (A)	16V (C)	20V (D)	25V (E)	35V (V)	50V (T)
0.10	104							A	
0.15	154							A, A(6000)	
0.22	224							A, A(6000)	A, A(7000)
0.33	334							A, A(6000)	A
0.47	474						A, A(7000)	A, A(4000)	B
0.68	684						A, A(6000)	A, A(6000)	B, B(2000)
1.0	105				A	A, A(3000)	A, A(3000)	A, B, A(3000), B(2000)	C, B, B(2000)
1.5	155			A		A, A(3000)	A, B, A(3000)	A, B, A(2000), B(2500)	C, C(1500)
2.2	225			A	A, A(3500)	A, A(3000)	A, B, A(1600), B(1200)	B, B(2000)	C, D, C(1000), D(1200)
3.3	335				A, B, A(3500)	A, B, A(2500), B(1300)	B, B(2000)	B, C, D, B(1000), C(800)	C, D, C(1000), D(800)
4.7	475			A, A(2000)	A, B, A(2000), B(1500)	A, B, A(1800), B(1000)	B, B(1000)	B, C, D, B(1500), C(600)	D, D(600)
6.8	685			A, B, A(1800)	A, B, C, A(1500), B(1200)	B, C, B(1000)	B, C, B(1000), C(600)	C, D, C(600)	D
10	106		A, B, A(1500)	A, B, A(1800), B(800)	B, C, B(800)	B, C, B(1000), C(500)	C, D, C(600)	C, D, C(600), D(250,400)	E, E(300,400)
15	156	B	A, B, A(1500), B(700)	A, B, C, A(1000), B(600)	B, B(800)	B, C, D, B(500), C(400)	C, D, C(500), D(300)	D, D(225)	
22	226		A, B, C, A(900), B(600)	B, B(700)	B, C, D, B(600), C(350)	C, D, C(400), D(150,300)	D, D(300)	D, D(200,400)	
33	336	C	B, C, B(600)	B, C, D, B(650), C(300)	C, C(300)	C, D, C(300), D(250)	D, D(400)	E, E(250)	
47	476		B, C, B(500), C(250)	C, D, C(300)	C, D, C(350), D(200)	D, D(200)	D, E, D(250), E(150)		
68	686		C, C(200)	C, C(300)	D, D(150)	D, E, D(200), E(120,200)			
100	107		C, C(300)	C, D, E, C(200), D(150), E(100)	D, E, D(150), E(150)	E, E(150)			
150	157		C, D, C(300), D(150)	D, E, D(150), E(150)	E, E(150)				
220	227		D, D(150)	D, E, E(150)					
330	337		D, E, E(150)	E, E(100)					
470	477		E, E(200)						

Not recommended for new designs, higher voltage or smaller case size substitution are offered.

Available Ratings, (ESR ratings in mOhms in brackets)

Engineering samples - please contact manufacturer

\*Codes under development - subject to change

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.







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### RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	DCL (μA) Max.	DF % Max.	ESR Max. (mΩ) @100kHz	MSL	100kHz RMS Current (mA)			100kHz RMS Voltage (mV)		
								25°C	85°C	125°C	25°C	85°C	125°C
TRJA474*035#RJ	A	0.47	35	0.30	4	9530	1	89	80	35	845	761	338
TRJA474*035#4000	A	0.47	35	0.30	4	4000	1	137	123	55	548	493	219
TRJA684*035#RJ	A	0.68	35	0.30	4	7980	1	97	87	39	774	696	309
TRJA684*035#6000	A	0.68	35	0.30	4	6000	1	112	101	45	671	604	268
TRJA105*035#RJ	A	1	35	0.30	4	6630	1	106	96	43	705	635	282
TRJA105*035#3000	A	1	35	0.30	4	3000	1	158	142	63	474	427	190
TRJB105*035#RJ	B	1	35	0.30	4	3400	1	158	142	63	538	484	215
TRJB105*035#2000	B	1	35	0.30	4	2000	1	206	186	82	412	371	165
TRJA155*035#RJ	A	1.5	35	0.39	6	3100	1	166	149	66	513	462	205
TRJA155*035#2000	A	1.5	35	0.39	6	2000	1	206	186	82	412	371	165
TRJB155*035#RJ	B	1.5	35	0.39	6	5460	1	125	112	50	681	613	272
TRJB155*035#2500	B	1.5	35	0.39	6	2500	1	184	166	74	461	415	184
TRJB225*035#RJ	B	2.2	35	0.58	6	4550	1	137	123	55	622	560	249
TRJB225*035#2000	B	2.2	35	0.58	6	2000	1	206	186	82	412	371	165
TRJB335*035#RJ	B	3.3	35	0.87	6	3740	1	151	136	60	564	507	226
TRJB335*035#1000	B	3.3	35	0.87	6	1000	1	292	262	117	292	262	117
TRJC335*035#RJ	C	3.3	35	0.87	6	1840	1	245	220	98	450	405	180
TRJC335*035#0800	C	3.3	35	0.87	6	800	1	371	334	148	297	267	119
TRJD335*035#RJ	D	3.3	35	0.87	6	2000	1	274	246	110	548	493	219
TRJB475*035#RJ	B	4.7	35	1.20	6	2200	1	224	201	89	492	443	197
TRJB475*035#1500	B	4.7	35	1.20	6	1500	1	271	244	108	406	366	162
TRJC475*035#RJ	C	4.7	35	1.2	6	1410	1	279	251	112	394	354	158
TRJC475*035#0600	C	4.7	35	1.2	6	600	1	428	385	171	257	231	103
TRJD475*035#RJ	D	4.7	35	1.2	6	1500	1	316	285	126	474	427	190
TRJC685*035#RJ	C	6.8	35	1.8	6	1070	1	321	289	128	343	309	137
TRJC685*035#0600	C	6.8	35	1.8	6	600	1	428	385	171	257	231	103
TRJD685*035#RJ	D	6.8	35	1.8	6	1300	1	340	306	136	442	397	177
TRJC106*035#RJ	C	10	35	2.6	6	800	1	371	334	148	297	267	119
TRJC106*035#0600	C	10	35	2.6	6	600	1	428	385	171	257	231	103
TRJD106*035#RJ	D	10	35	2.6	6	800	1	433	390	173	346	312	139
TRJD106*035#0250	D	10	35	2.6	6	250	1	775	697	310	194	174	77
TRJD106*035#0400	D	10	35	2.6	6	400	1	612	551	245	245	220	98
TRJD156*035#RJ	D	15	35	3.9	6	720	1	456	411	183	329	296	131
TRJD156*035#0225	D	15	35	3.9	6	225	1	816	735	327	184	165	73
TRJD226*035#RJ	D	22	35	5.8	6	650	1	480	432	192	312	281	125
TRJD226*035#0200	D	22	35	5.8	6	200	1	866	779	346	173	156	69
TRJD226*035#0400	D	22	35	5.8	6	400	1	612	551	245	245	220	98
TRJE336*035#RJ	E	33	35	8.7	6	590	1 <sup>1)</sup>	529	476	212	312	281	125
TRJE336*035#0250	E	33	35	8.7	6	250	1 <sup>1)</sup>	812	731	325	203	183	81
<b>50 Volt @ 85°C (33 Volt @ 125°C)</b>													
TRJA224*050#RJ	A	0.22	50	0.3	4	7500	1	100	90	40	750	675	300
TRJA224*050#7000	A	0.22	50	0.3	4	7000	1	104	93	41	725	652	290
TRJA334*050#RJ	A	0.33	50	0.3	4	7000	1	104	93	41	725	652	290
TRJB474*050#RJ	B	0.47	50	0.3	4	5000	1	130	117	52	652	587	261
TRJB684*050#RJ	B	0.68	50	0.3	4	4000	1	146	131	58	583	525	233
TRJB684*050#2000	B	0.68	50	0.3	4	2000	1	206	186	82	412	371	165
TRJB105*050#RJ	B	1	50	0.4	4	3400	1	158	142	63	538	484	215
TRJB105*050#2000	B	1	50	0.4	4	2000	1	206	186	82	412	371	165
TRJC105*050#RJ	C	1	50	0.4	4	3000	1	191	172	77	574	517	230
TRJC155*050#RJ	C	1.5	50	0.6	6	2500	1	210	189	84	524	472	210
TRJC155*050#1500	C	1.5	50	0.6	6	1500	1	271	244	108	406	366	162
TRJC225*050#RJ	C	2.2	50	0.8	6	1700	1	254	229	102	432	389	173
TRJC225*050#1000	C	2.2	50	0.8	6	1000	1	332	298	133	332	298	133
TRJD225*050#RJ	D	2.2	50	0.8	4.5	2000	1	274	246	110	548	493	219
TRJD225*050#1200	D	2.2	50	0.8	4.5	1200	1	354	318	141	424	382	170
TRJC335*050#RJ	C	3.3	50	1.2	6	1400	1	280	252	112	392	353	157
TRJC335*050#1000	C	3.3	50	1.2	6	1000	1	332	298	133	332	298	133
TRJD335*050#RJ	D	3.3	50	1.20	4.5	1100	1	369	332	148	406	366	162
TRJD335*050#0800	D	3.3	50	1.20	4.5	800	1	433	390	173	346	312	139
TRJD475*050#RJ	D	4.7	50	1.80	4.5	900	1	408	367	163	367	331	147
TRJD475*050#0600	D	4.7	50	1.80	4.5	600	1	500	450	200	300	270	120
TRJD685*050#RJ	D	6.8	50	2.60	4.5	700	1	463	417	185	324	292	130
TRJE106*050#RJ	E	10	50	3.80	4.5	700	1 <sup>1)</sup>	486	437	194	340	306	136
TRJE106*050#0300	E	10	50	3.80	4.5	300	1 <sup>1)</sup>	742	667	297	222	200	89
TRJE106*050#0400	E	10	50	3.80	4.5	400	1 <sup>1)</sup>	642	578	257	257	231	103

<sup>1)</sup> Dry pack option (see How to order) recommended for reduction of stress during soldering. Dry pack parts should be treated as MSL 3.

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

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

The EIA & CECC standards for low ESR Solid Tantalum Capacitors allow an ESR movement to 1.25 times catalogue limit post mounting.

For typical weight and composition see page 120.

**NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.**



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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