

Type CSR23 (MIL-C-39003/03) Solid Tantalum Capacitors

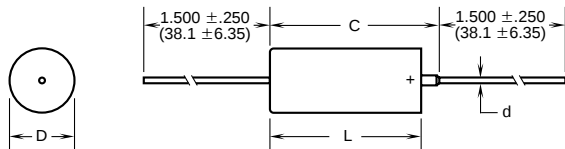
125 °C, Hermetically Sealed, Axial Leaded, Solid Tantalum Capacitors

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Type CSR23 (MIL-C-39003/03) military grade, axial leaded, solid tantalum capacitors are hermetically sealed for rugged environmental applications. They are miniature in size and have an extended capacitance range up to 1000 μF at 6WVdc.

Outline Drawing



Highlights

- Extended Capacitance Range
- Hermetically Sealed
- Graded Failure Rates
- Low DC Leakage
- Low DF
- Temperature Stable
- Frequency Stable

Specifications

Capacitance Range: 1.2 to 1000 μF

Voltage Range: 6 to 50 WVdc at +85 °C; 4 to 33 WVdc at 125 °C

Capacitance Tolerance: $\pm 10\%$, $\pm 20\%$, ($\pm 5\%$ by special order)

Operating Temperature Range: -55 to +125 °C

Reverse Voltage (Non-continuous)
15% of rated voltage @ +25 °C
5% of rated voltage @ +85 °C
1% of rated voltage @ +125 °C

DC Leakage:
At +25 °C – See ratings limit
At +85 °C – 10 x ratings limit
At +125 °C – 12.5 x ratings limit

Capacitance Change Maximum:
-10% @ -55°C
+8% @ +85 °C
+12% @ +125 °C

Maximum Power Dissipation @ +25 °C:

Case Code	Watts
A	.090
B	.100
C	.125
D	.180

Case Sizes

Case Code	Uninsulated		Insulated		C Maximum	d $\pm .001$ ($\pm .03$)	Quantity Per Reel
	D $\pm .005$ ($\pm .13$)	L $\pm .031$ ($\pm .79$)	D $\pm .010$ ($\pm .25$)	L $\pm .031$ ($\pm .79$)			
A	.125 (3.18)	.250 (6.35)	.135 (3.43)	.286 (7.26)	.422 (10.72)	.020 (.51)	3,500
B	.175 (4.45)	.438 (11.13)	.185 (4.70)	.474 (12.04)	.610 (15.49)	.020 (.51)	2,500
C	.279 (7.09)	.650 (16.51)	.289 (7.34)	.686 (17.42)	.822 (20.88)	.025 (.64)	500
D	.341 (8.66)	.750 (19.05)	.351 (8.92)	.786 (19.96)	.922 (23.42)	.025 (.64)	400

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Ratings

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Cap (μ F)	Cap Tol. $\pm$ (%)	Case Code	Max DCL @ 25 °C (μ A)	Max. DF @ 25 °C 120 Hz (%)	MIL-C-39003/03 (CSR23) Dash Numbers						
					Exponential Failure Rate (% per 1000 hours)				Weibull Failure Rate (% per 1000 hours)		
					'M' Level (1.0)	'P' Level (.10)	'R' Level (.01)	'S' Level (.001)	'B' Level (.10)	'C' Level (.01)	'D' Level (.001)
6 WVdc @ 85 °C — 4 WVdc @ 125 °C											
10	10	A	0.9	6	101	201	301	401	2001	3001	4001
10	20	A	0.9	6	102	202	302	402	2002	3002	4002
12	10	A	1.0	6	103	203	303	403	2003	3003	4003
100	10	B	6.0	8	104	204	304	404	2004	3004	4004
100	20	B	6.0	8	105	205	305	405	2005	3005	4005
330	10	C	15.0	8	106	206	306	406	2006	3006	4006
330	20	C	15.0	8	107	207	307	407	2007	3007	4007
390	10	C	15.0	10	108	208	308	408	2008	3008	4008
470	10	C	15.0	10	109	209	309	409	2009	3009	4009
470	20	C	15.0	10	110	210	310	410	2010	3010	4010
680	10	D	20.0	10	111	211	311	411	2011	3011	4011
680	20	D	20.0	10	112	212	312	412	2012	3012	4012
820	10	D	20.0	10	113	213	313	413	2013	3013	4013
1000	10	D	30.0	10	114	214	314	414	2014	3014	4014
1000	20	D	30.0	10	115	215	315	415	2015	3015	4015
10 WVdc @ 85 °C — 7 WVdc @ 125 °C											
6.8	10	A	1.0	6	116	216	316	416	2016	3016	4016
6.8	20	A	1.0	6	117	217	317	417	2017	3017	4017
8.2	10	A	1.2	6	118	218	318	418	2018	3018	4018
47	10	B	5.0	6	119	219	319	419	2019	3019	4019
47	20	B	5.0	6	120	220	320	420	2020	3020	4020
56	10	B	6.0	6	121	221	321	421	2021	3021	4021
68	10	B	7.0	6	122	222	322	422	2022	3022	4022
68	20	B	7.0	6	123	223	323	423	2023	3023	4023
82	10	B	8.0	6	124	224	324	424	2024	3024	4024
220	10	C	15.0	6	125	225	325	425	2025	3025	4025
220	20	C	15.0	6	126	226	326	426	2026	3026	4026
270	10	C	15.0	8	127	227	327	427	2027	3027	4027
390	10	D	20.0	10	128	228	328	428	2028	3028	4028
470	10	D	20.0	10	129	229	329	429	2029	3029	4029
470	20	D	20.0	10	130	230	330	430	2030	3030	4030
560	10	D	30.0	10	131	231	331	431	2031	3031	4031
15 WVdc @ 85 °C — 10 WVdc @ 125 °C											
4.7	10	A	1.0	4	132	232	332	432	2032	3032	4032
4.7	20	A	1.0	4	133	233	333	433	2033	3033	4033
5.6	10	A	1.3	4	134	234	334	434	2034	3034	4034
33	10	B	6.0	6	135	235	335	435	2035	3035	4035
33	20	B	6.0	6	136	236	336	436	2036	3036	4036
39	10	B	15.0	6.0	137	237	337	437	2037	3037	4037
150	10	C	15.0	8.0	138	238	338	438	2038	3038	4038
150	20	C	15.0	8.0	139	239	339	439	2039	3039	4039
180	10	C	20.0	8.0	140	240	340	440	2040	3040	4040
220	10	D	20.0	8.0	141	241	341	441	2041	3041	4041
220	20	D	20.0	8.0	142	242	342	442	2042	3042	4042
270	10	D	20.0	8.0	143	243	343	443	2043	3043	4043
330	10	D	20.0	8.0	144	244	344	444	2044	3044	4044

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Cap (μF)	Cap Tol. ± (%)	Case Code	Max DCL @ 25 °C (μA)	Max. DF @ 25 °C 120 Hz (%)	MIL-C-39003/03 (CSR23) Dash Numbers						
					Exponential Failure Rate (% per 1000 hours)				Weibull Failure Rate (% per 1000 hours)		
					'M' Level (1.0)	'P' Level (.10)	'R' Level (.01)	'S' Level (.001)	'B' Level (.10)	'C' Level (.01)	'D' Level (.001)
20 WVdc @ 85 °C — 13 WVdc @ 125 °C											
2.7	10	A	0.8	4	146	246	346	446	2046	3046	4046
3.3	10	A	1.0	4	147	247	347	447	2047	3047	4047
3.3	20	A	1.0	4	148	248	348	448	2048	3048	4048
3.9	10	A	1.2	4	149	249	349	449	2049	3049	4049
18	10	B	4.0	6	150	250	350	450	2050	3050	4050
22	10	B	4.0	6	151	251	351	451	2051	3051	4051
22	20	B	4.0	6	152	252	352	452	2052	3052	4052
27	10	B	5.0	6	153	253	353	453	2053	3053	4053
56	10	C	9.0	6	154	254	354	454	2054	3054	4054
68	10	C	10.0	6	155	255	355	455	2055	3055	4055
68	20	C	10.0	6	156	256	356	456	2056	3056	4056
82	10	C	10.0	6	157	257	357	457	2057	3057	4057
100	10	C	15.0	6	158	258	358	458	2058	3058	4058
100	20	C	15.0	6	159	259	359	459	2059	3059	4059
120	10	C	15.0	6	160	260	360	460	2060	3060	4060
150	10	D	20.0	8	161	261	361	461	2061	3061	4061
150	20	D	20.0	8	162	262	362	462	2062	3062	4062
180	10	D	20.0	8	163	263	363	463	2063	3063	4063
35 WVdc @ 85 °C — 23 WVdc @ 125 °C											
1.8	10	A	1.0	4	164	264	364	464	2064	3064	4064
8.2	10	B	3.5	6	165	265	365	465	2065	3065	4065
10.0	10	B	4.0	6	166	266	366	466	2066	3066	4066
10.0	20	B	4.0	6	167	267	367	467	2067	3067	4067
33.0	10	C	10.0	6	168	268	368	468	2068	3068	4068
33.0	20	C	10.0	6	169	269	369	469	2069	3069	4069
39.0	10	C	10.0	6	170	270	370	470	2070	3070	4070
47.0	10	C	10.0	6	171	271	371	471	2071	3071	4071
47.0	20	C	10.0	6	172	272	372	472	2072	3072	4072
56.0	10	D	15.0	6	173	273	373	473	2073	3073	4073
68.0	10	D	15.0	6	174	274	374	474	2074	3074	4074
68.0	20	D	15.0	6	175	275	375	475	2075	3075	4075
50 WVdc @ 85 °C — 33 WVdc @ 125 °C											
1.2	10	A	0.9	4	176	276	376	476	2076	3076	4076
1.5	10	A	1.2	4	177	277	377	477	2077	3077	4077
1.5	20	A	1.2	4	178	278	378	478	2078	3078	4078
5.6	10	B	4.5	4	179	279	379	479	2079	3079	4079
6.8	10	B	4.5	6	180	280	380	480	2080	3080	4080
6.8	20	B	4.5	6	181	281	381	481	2081	3081	4081
22	10	C	10	6	182	282	382	482	2082	3082	4082
22	20	C	10	6	183	283	383	483	2083	3083	4083
27	10	C	10	6	184	284	384	484	2084	3084	4084
33	10	D	10	6	185	285	385	485	2085	3085	4085
33	20	D	10	6	186	286	386	486	2086	3086	4086
39	10	D	10	6	187	287	387	487	2087	3087	4087

+ C failure rate: Not QPL for -3085 thru -3087

+D failure rate: Not QPL for -4085 thru -4087