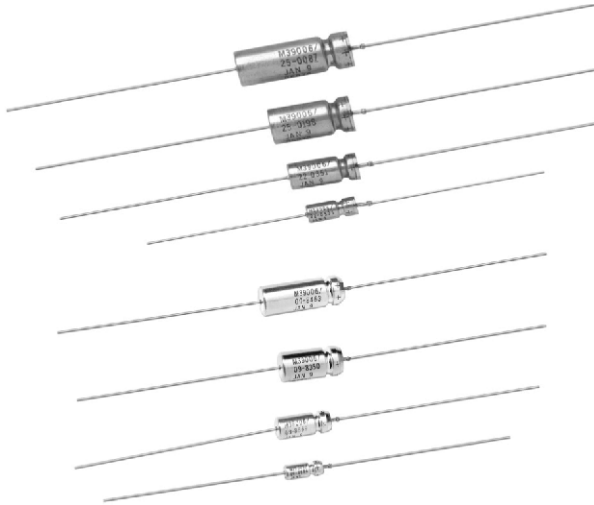


Wet Tantalum Capacitors, Military Established Reliability, MIL-PRF-39006/09/21 Qualified Styles CLR65, CLR69



FEATURES

- Hermetically sealed
- Metal cased
- Axial lead
- Tubular

STYLE, MILITARY SPECIFICATION

- CLR65, M39006/09 MIL-PRF-39006/09
- CLR69, M39006/21 MIL-PRF-39006/21

PERFORMANCE CHARACTERISTICS

Operating Temperature: - 55 °C to + 125 °C (above 85 °C, voltage derating is required)

Capacitance Range: M39006/09 - 1.7 μF to 1200 μF; M39006/21 - 6.8 μF to 2200 μF

Capacitance Tolerance: ± 5 %, ± 10 %, ± 20 %

Voltage Rating: 6 V_{DC} to 125 V_{DC}

Established Reliability Tantalum Capacitors to Military Specification MIL-PRF-39006: In accordance with the military specification MIL-PRF-39006 all capacitors are marked with the military part number (M39006/xx-xxxx) rather than the older style designation (CLR65, CLR69) and should be ordered as such.

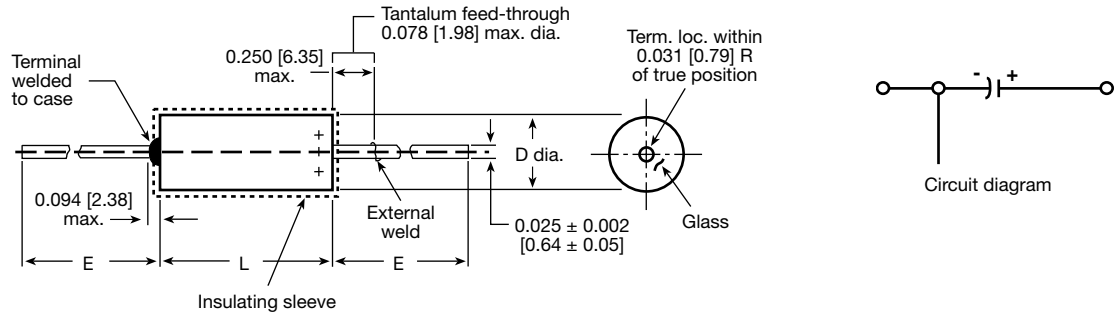
For information on the performance characteristics of these capacitors, please refer to the latest issue of the Military Specification. MIL-PRF-39006 establishes 1000 h failure

rate levels of 2 %, 1 %, 0.1 %, and 0.01 %. When ordering these parts, care must be exercised that the correct part number expressing the appropriate failure level be specified.

Each order for military style capacitors requiring government inspection must state whether inspection is to be at the destination or at the Vishay plant. Orders requiring source inspection cannot be shipped until this has been accomplished.

ORDERING INFORMATION		
M39006 BASIC DOCUMENT NUMBER	/09 SLASH SHEET	-8005 DASH NUMBER
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> Indicates the basic specification; in this case MIL-PRF-39006 </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> Indicates the specification sheet of the basic military specification </div>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> Taken from Standard/Extended Ratings tables </div>

DIMENSIONS in inches [millimeters]

 Style CLR65
 Style CLR69


CASE CODE	BARE CASE		WITH INSULATING SLEEVE		E LEAD LENGTH	WEIGHT (oz./g) (Max.)
	D	L	D (Max.)	L (Max.)		
T1	0.188 ± 0.016 [4.78 ± 0.41]	0.453 + 0.031/- 0.016 [11.51 + 0.79/- 0.41]	0.219 [5.56]	0.515 [13.08]	1.500 ± 0.250 [38.10 ± 6.35]	0.07 [2.0]
T2	0.281 ± 0.016 [7.14 ± 0.41]	0.641 + 0.031/- 0.016 [16.28 + 0.79/- 0.41]	0.312 [7.92]	0.704 [17.88]	2.250 ± 0.250 [57.15 ± 6.35]	0.18 [5.1]
T3	0.375 ± 0.016 [9.53 ± 0.41]	0.766 + 0.031/- 0.016 [19.46 + 0.79/- 0.41]	0.406 [10.31]	0.828 [21.03]	2.250 ± 0.250 [57.15 ± 6.35]	0.36 [10.2]
T4	0.375 ± 0.016 [9.53 ± 0.41]	1.062 + 0.031/- 0.016 [26.97 + 0.79/- 0.41]	0.406 [10.31]	1.126 [28.60]	2.250 ± 0.250 [57.15 ± 6.35]	0.49 [13.9]

RATINGS AND CASE CODES - M39006/09

μF	6	8	10	15	25	30	50	60	75	100	125
1.7											T1
2.5										T1	
3.5									T1		
3.6											T1
4.0								T1			
4.7										T1	
5.0							T1				
6.8									T1		
8.0						T1					
8.2								T1			
9.0											T2
10					T1		T1				
11										T2	
14											T2
15				T1		T1			T2		
18											T3
20			T1					T2			
22					T1					T2	
25		T1					T2				T3
30	T1									T3	
33				T1					T2		
39								T2			
40						T2			T3		
43										T3	
47			T1				T2				
50								T3			
56		T1							T3		T4
60							T3				
68	T1					T2		T3			
70				T2							
82							T3				



RATINGS AND CASE CODES - M39006/09											
μF	6	8	10	15	25	30	50	60	75	100	125
86										T4	
100			T2		T2	T3					
110									T4		
120				T2							
140	T2							T4			
150						T3					
160							T4				
170				T3							
180			T2		T3						
220		T2									
250			T3								
270	T2			T3							
300						T4					
330	T3										
350					T4						
390			T3								
430		T3									
540				T4							
560	T3										
750			T4								
850		T4									
1200	T4										

RATINGS AND CASE CODES - M39006/21											
μF	6	8	10	15	25	30	50	60	75	100	125
6.8											T1
10										T1	
22									T1		
27								T1			T2
33							T1				
39										T2	
47											T3
56						T1					
68					T1					T3	
82									T2		T4
100				T1				T2			
120							T2			T4	
150			T1								
180		T1							T3		
220	T1					T2		T3	T4		
270					T2		T3	T4			
330							T4				
390				T2							
470						T3					
560			T2		T3	T4					
680		T2			T4						
820	T2			T3							
1000				T4							
1200			T3								
1500	T3	T3	T4								
1800		T4									
2200	T4										



STANDARD RATINGS/EXTENDED RATINGS: CLR65 ⁽¹⁾ , M39006/09-XXXX															
CAPACITANCE (μ F)	CASE CODE	CAP. TOL. (\pm %)	PART NO. M39006/09-				MAX. DCL (μ A) AT		MAX. DF AT AT (%)	MAX. IMP. AT AT (Ω)	MAX. CAPACITANCE CHANGE (%) AT				
			FAILURE RATE LEVEL (%/1000 h)				+ 25 °C	+ 85 °C + 125 °C			+ 25 °C	- 55 °C	- 55 °C	+ 85 °C	+ 125 °C
			L 2.0	M 1.0	P 0.1	R 0.01									
6 V_{DC} AT + 85 °C; 4 V_{DC} AT + 125 °C															
30	T1	20	8001	8206	8411	8616	1	2	9.1	100	- 40	+ 10.5	+ 12		
30	T1	10	8002	8207	8412	8617	1	2	9.1	100	- 40	+ 10.5	+ 12		
30	T1	5	8003	8208	8413	8618	1	2	9.1	100	- 40	+ 10.5	+ 12		
68	T1	20	8004	8209	8414	8619	1	2	20.4	60	- 40	+ 14	+ 16		
68	T1	10	8005	8210	8415	8620	1	2	20.4	60	- 40	+ 14	+ 16		
68	T1	5	8006	8211	8416	8621	1	2	20.4	60	- 40	+ 14	+ 16		
140	T2	20	8007	8212	8417	8622	1	3	21.3	40	- 40	+ 14	+ 16		
140	T2	10	8008	8213	8418	8623	1	3	21.3	40	- 40	+ 14	+ 16		
140	T2	5	8009	8214	8419	8624	1	3	21.3	40	- 40	+ 14	+ 16		
270	T2	20	8010	8215	8420	8625	1	6.5	81.8	25	- 44	+ 17.5	+ 20		
270	T2	10	8011	8216	8421	8626	1	6.5	81.8	25	- 44	+ 17.5	+ 20		
270	T2	5	8012	8217	8422	8627	1	6.5	81.8	25	- 44	+ 17.5	+ 20		
330	T3	20	8013	8218	8423	8628	2	7.9	49.6	20	- 44	+ 14	+ 16		
330	T3	10	8014	8219	8424	8629	2	7.9	49.6	20	- 44	+ 14	+ 16		
330	T3	5	8015	8220	8425	8630	2	7.9	49.6	20	- 44	+ 14	+ 16		
560	T3	20	8016	8221	8426	8631	2	13	128	25	- 64	+ 17.5	+ 20		
560	T3	10	8017	8222	8427	8632	2	13	128	25	- 64	+ 17.5	+ 20		
560	T3	5	8018	8223	8428	8633	2	13	128	25	- 64	+ 17.5	+ 20		
1200	T4	20	8019	8224	8429	8634	3	14	144.4	20	- 80	+ 25	+ 25		
1200	T4	10	8020	8225	8430	8635	3	14	144.4	20	- 80	+ 25	+ 25		
8 V_{DC} AT + 85 °C; 5 V_{DC} AT + 125 °C															
25	T1	20	8021	8226	8431	8636	1	2	7.6	100	- 40	+ 10.5	+ 12		
25	T1	10	8022	8227	8432	8637	1	2	7.6	100	- 40	+ 10.5	+ 12		
25	T1	5	8023	8228	8433	8638	1	2	7.6	100	- 40	+ 10.5	+ 12		
56	T1	20	8024	8229	8434	8639	1	2	17	59	- 40	+ 14	+ 16		
56	T1	10	8025	8230	8435	8640	1	2	17	59	- 40	+ 14	+ 16		
56	T1	5	8026	8231	8436	8641	1	2	17	59	- 40	+ 14	+ 16		
220	T2	20	8027	8232	8437	8642	1	7	66.4	30	- 44	+ 17.5	+ 20		
220	T2	10	8028	8233	8438	8643	1	7	66.4	30	- 44	+ 17.5	+ 20		
220	T2	5	8029	8234	8439	8644	1	7	66.4	30	- 44	+ 17.5	+ 20		
430	T3	20	8030	8235	8440	8645	2	14	91.5	25	- 64	+ 17.5	+ 20		
430	T3	10	8031	8236	8441	8646	2	14	91.5	25	- 64	+ 17.5	+ 20		
430	T3	5	8032	8237	8442	8647	2	14	91.5	25	- 64	+ 17.5	+ 20		
850	T4	20	8033	8238	8443	8648	4	16	65.8	22	- 80	+ 25	+ 25		
850	T4	10	8034	8239	8444	8649	4	16	65.8	22	- 80	+ 25	+ 25		
10 V_{DC} AT + 85 °C; 7 V_{DC} AT + 125 °C															
20	T1	20	8035	8240	8445	8650	1	2	6.1	175	- 32	+ 10.5	+ 12		
20	T1	10	8036	8241	8446	8651	1	2	6.1	175	- 32	+ 10.5	+ 12		
20	T1	5	8037	8242	8447	8652	1	2	6.1	175	- 32	+ 10.5	+ 12		
47	T1	20	8038	8243	8448	8653	1	2	18.1	100	- 36	+ 14	+ 16		
47	T1	10	8039	8244	8449	8654	1	2	18.1	100	- 36	+ 14	+ 16		
47	T1	5	8040	8245	8450	8655	1	2	18.1	100	- 36	+ 14	+ 16		
100	T2	20	8041	8246	8451	8656	1	4	15.2	60	- 36	+ 14	+ 16		
100	T2	10	8042	8247	8452	8657	1	4	15.2	60	- 36	+ 14	+ 16		
100	T2	5	8043	8248	8453	8658	1	4	15.2	60	- 36	+ 14	+ 16		
180	T2	20	8044	8249	8454	8659	1	7	54.4	40	- 36	+ 14	+ 16		
180	T2	10	8045	8250	8455	8660	1	7	54.4	40	- 36	+ 14	+ 16		
180	T2	5	8046	8251	8456	8661	1	7	54.4	40	- 36	+ 14	+ 16		
250	T3	20	8047	8252	8457	8662	2	10	37.8	30	- 40	+ 14	+ 16		
250	T3	10	8048	8253	8458	8663	2	10	37.8	30	- 40	+ 14	+ 16		
250	T3	5	8049	8254	8459	8664	2	10	37.8	30	- 40	+ 14	+ 16		

Note

⁽¹⁾ Style CLR65 is inactive for new military design. For new design use style CLR79.



STANDARD RATINGS/EXTENDED RATINGS: CLR65 ⁽¹⁾ , M39006/09-XXXX													
CAPACITANCE (μ F)	CASE CODE	CAP. TOL. (\pm %)	PART NO. M39006/09- FAILURE RATE LEVEL (%/1000 h)				MAX. DCL (μ A) AT		MAX. DF AT (%)	MAX. IMP. AT (Ω)	MAX. CAPACITANCE CHANGE (%) AT		
			L 2.0	M 1.0	P 0.1	R 0.01	+ 25 °C	+ 85 °C + 125 °C			+ 25 °C	- 55 °C	- 55 °C
10 V_{DC} AT + 85 °C; 7 V_{DC} AT + 125 °C													
390	T3	20	8050	8255	8460	8665	2	16	87.6	25	- 64	+ 17.5	+ 20
390	T3	10	8051	8256	8461	8666	2	16	87.6	25	- 64	+ 17.5	+ 20
390	T3	5	8052	8257	8462	8667	2	16	87.6	25	- 64	+ 17.5	+ 20
750	T4	20	8053	8258	8463	8668	4	16	56.5	23	- 80	+ 25	+ 25
750	T4	10	8054	8259	8464	8669	4	16	56.5	23	- 80	+ 25	+ 25
15 V_{DC} AT + 85 °C; 10 V_{DC} AT + 125 °C													
15	T1	20	8055	8260	8465	8670	1	2	5.7	155	- 24	+ 10.5	+ 12
15	T1	10	8056	8261	8466	8671	1	2	5.7	155	- 24	+ 10.5	+ 12
15	T1	5	8057	8262	8467	8672	1	2	5.7	155	- 24	+ 10.5	+ 12
33	T1	20	8058	8263	8468	8673	1	2	12.5	90	- 28	+ 14	+ 16
33	T1	10	8059	8264	8469	8674	1	2	12.5	90	- 28	+ 14	+ 16
33	T1	5	8060	8265	8470	8675	1	2	12.5	90	- 28	+ 14	+ 16
70	T2	20	8061	8266	8471	8676	1	4	13.1	75	- 28	+ 14	+ 16
70	T2	10	8062	8267	8472	8677	1	4	13.1	75	- 28	+ 14	+ 16
70	T2	5	8063	8268	8473	8678	1	4	13.1	75	- 28	+ 14	+ 16
120	T2	20	8064	8269	8474	8679	1	7	36.8	50	- 28	+ 17.5	+ 20
120	T2	10	8065	8270	8475	8680	1	7	36.8	50	- 28	+ 17.5	+ 20
120	T2	5	8066	8271	8476	8681	1	7	36.8	50	- 28	+ 17.5	+ 20
170	T3	20	8067	8272	8477	8682	2	10	25.4	35	- 32	+ 14	+ 16
170	T3	10	8068	8273	8478	8683	2	10	25.4	35	- 32	+ 14	+ 16
170	T3	5	8069	8274	8479	8684	2	10	25.4	35	- 32	+ 14	+ 16
270	T3	20	8070	8275	8480	8685	2	16	60.9	30	- 56	+ 17.5	+ 20
270	T3	10	8071	8276	8481	8686	2	16	60.9	30	- 56	+ 17.5	+ 20
270	T3	5	8072	8277	8482	8687	2	16	60.9	30	- 56	+ 17.5	+ 20
540	T4	20	8073	8278	8483	8688	6	24	49	23	- 80	+ 25	+ 25
540	T4	10	8074	8279	8484	8689	6	24	49	23	- 80	+ 25	+ 25
25 V_{DC} AT + 85 °C; 15 V_{DC} AT + 125 °C													
10	T1	20	8075	8280	8485	8690	1	2	4.6	220	- 16	+ 8	+ 9
10	T1	10	8076	8281	8486	8691	1	2	4.6	220	- 16	+ 8	+ 9
10	T1	5	8077	8282	8487	8692	1	2	4.6	220	- 16	+ 8	+ 9
22	T1	20	8078	8283	8488	8693	1	2	8.3	140	- 20	+ 10.5	+ 12
22	T1	10	8079	8284	8489	8694	1	2	8.3	140	- 20	+ 10.5	+ 12
22	T1	5	8080	8285	8490	8695	1	2	8.3	140	- 20	+ 10.5	+ 12
100	T2	20	8081	8286	8491	8696	1	10	31.4	50	- 28	+ 13	+ 15
100	T2	10	8082	8287	8492	8697	1	10	31.4	50	- 28	+ 13	+ 15
100	T2	5	8083	8288	8493	8698	1	10	31.4	50	- 28	+ 13	+ 15
180	T3	20	8084	8289	8494	8699	2	18	54.3	32	- 48	+ 13	+ 15
180	T3	10	8085	8290	8495	8700	2	18	54.3	32	- 48	+ 13	+ 15
180	T3	5	8086	8291	8496	8701	2	18	54.3	32	- 48	+ 13	+ 15
350	T4	20	8087	8292	8497	8702	7	28	35	24	- 70	+ 25	+ 25
350	T4	10	8088	8293	8498	8703	7	28	35	24	- 70	+ 25	+ 25
30 V_{DC} AT + 85 °C; 20 V_{DC} AT + 125 °C													
8.0	T1	20	8089	8294	8499	8704	1	2	4.5	275	- 16	+ 8	+ 12
8.0	T1	10	8090	8295	8500	8705	1	2	4.5	275	- 16	+ 8	+ 12
8.0	T1	5	8091	8296	8501	8706	1	2	4.5	275	- 16	+ 8	+ 12
15	T1	20	8092	8297	8502	8707	1	2	9.1	175	- 20	+ 10.5	+ 12
15	T1	10	8093	8298	8503	8708	1	2	9.1	175	- 20	+ 10.5	+ 12
15	T1	5	8094	8299	8504	8709	1	2	9.1	175	- 20	+ 10.5	+ 12
40	T2	20	8095	8300	8505	8710	1	5	12.2	65	- 24	+ 10.5	+ 12
40	T2	10	8096	8301	8506	8711	1	5	12.2	65	- 24	+ 10.5	+ 12
40	T2	5	8097	8302	8507	8712	1	5	12.2	65	- 24	+ 10.5	+ 12

Note

⁽¹⁾ Style CLR65 is inactive for new military design. For new design use style CLR79.



STANDARD RATINGS/EXTENDED RATINGS: CLR65 ⁽¹⁾ , M39006/09-XXXX														
CAPACITANCE (μ F)	CASE CODE	CAP. TOL. (\pm %)	PART NO. M39006/09- FAILURE RATE LEVEL (%/1000 h)				MAX. DCL (μ A) AT		MAX. DF AT (%)	MAX. IMP. AT (Ω)	MAX. CAPACITANCE CHANGE (%) AT			
			L	M	P	R	+ 25 °C	+ 85 °C + 125 °C			- 55 °C	- 55 °C	+ 85 °C	+ 125 °C
			2.0	1.0	0.1	0.01								
30 V_{DC} AT + 85 °C; 20 V_{DC} AT + 125 °C														
68	T2	20	8098	8303	8508	8713	1	8	31	60	- 24	+ 13	+ 15	
68	T2	10	8099	8304	8509	8714	1	8	31	60	- 24	+ 13	+ 15	
68	T2	5	8100	8305	8510	8715	1	8	31	60	- 24	+ 13	+ 15	
100	T3	20	8101	8306	8511	8716	2	12	19	40	- 28	+ 10.5	+ 12	
100	T3	10	8102	8307	8512	8717	2	12	19	40	- 28	+ 10.5	+ 12	
100	T3	5	8103	8308	8513	8718	2	12	19	40	- 28	+ 10.5	+ 12	
150	T3	20	8104	8309	8514	8719	2	18	46	35	- 48	+ 13	+ 15	
150	T3	10	8105	8310	8515	8720	2	18	46	35	- 48	+ 13	+ 15	
150	T3	5	8106	8311	8516	8721	2	18	46	35	- 48	+ 13	+ 15	
300	T4	20	8107	8312	8517	8722	8	32	35	25	- 60	+ 25	+ 25	
300	T4	10	8108	8313	8518	8723	8	32	35	25	- 60	+ 25	+ 25	
50 V_{DC} AT + 85 °C; 30 V_{DC} AT + 125 °C														
5.0	T1	20	8109	8314	8519	8724	1	2	3.4	400	- 16	+ 5	+ 6	
5.0	T1	10	8110	8315	8520	8725	1	2	3.4	400	- 16	+ 5	+ 6	
5.0	T1	5	8111	8316	8521	8726	1	2	3.4	400	- 16	+ 5	+ 6	
10	T1	20	8112	8317	8522	8727	1	2	6	250	- 24	+ 8	+ 9	
10	T1	10	8113	8318	8523	8728	1	2	6	250	- 24	+ 8	+ 9	
10	T1	5	8114	8319	8524	8729	1	2	6	250	- 24	+ 8	+ 9	
25	T2	20	8115	8320	8525	8730	1	5	11.2	95	- 20	+ 10.5	+ 12	
25	T2	10	8116	8321	8526	8731	1	5	11.2	95	- 20	+ 10.5	+ 12	
25	T2	5	8117	8322	8527	8732	1	5	11.2	95	- 20	+ 10.5	+ 12	
47	T2	20	8118	8323	8528	8733	1	9	21.4	70	- 28	+ 13	+ 15	
47	T2	10	8119	8324	8529	8734	1	9	21.4	70	- 28	+ 13	+ 15	
47	T2	5	8120	8325	8530	8735	1	9	21.4	70	- 28	+ 13	+ 15	
60	T3	20	8121	8326	8531	8736	2	12	13.6	45	- 16	+ 10.5	+ 12	
60	T3	10	8122	8327	8532	8737	2	12	13.6	45	- 16	+ 10.5	+ 12	
60	T3	5	8123	8328	8533	8738	2	12	13.6	45	- 16	+ 10.5	+ 12	
82	T3	20	8124	8329	8534	8739	2	16	24.9	45	- 32	+ 13	+ 15	
82	T3	10	8125	8330	8535	8740	2	16	24.9	45	- 32	+ 13	+ 15	
82	T3	5	8126	8331	8536	8741	2	16	24.9	45	- 32	+ 13	+ 15	
160	T4	20	8127	8332	8537	8742	8	32	25.7	27	- 50	+ 25	+ 25	
160	T4	10	8128	8333	8538	8743	8	32	25.7	27	- 50	+ 25	+ 25	
60 V_{DC} AT + 85 °C; 40 V_{DC} AT + 125 °C														
4.0	T1	20	8129	8334	8539	8744	1	2	3	550	- 16	+ 5	+ 6	
4.0	T1	10	8130	8335	8540	8745	1	2	3	550	- 16	+ 5	+ 6	
4.0	T1	5	8131	8336	8541	8746	1	2	3	550	- 16	+ 5	+ 6	
8.2	T1	20	8132	8337	8542	8747	1	2	5	275	- 24	+ 8	+ 9	
8.2	T1	10	8133	8338	8543	8748	1	2	5	275	- 24	+ 8	+ 9	
8.2	T1	5	8134	8339	8544	8749	1	2	5	275	- 24	+ 8	+ 9	
20	T2	20	8135	8340	8545	8750	1	5	7.6	105	- 16	+ 10.5	+ 12	
20	T2	10	8136	8341	8546	8751	1	5	7.6	105	- 16	+ 10.5	+ 12	
20	T2	5	8137	8342	8547	8752	1	5	7.6	105	- 16	+ 10.5	+ 12	
39	T2	20	8138	8343	8548	8753	1	9	20.7	90	- 28	+ 10.5	+ 12	
39	T2	10	8139	8344	8549	8754	1	9	20.7	90	- 28	+ 10.5	+ 12	
39	T2	5	8140	8345	8550	8755	1	9	20.7	90	- 28	+ 10.5	+ 12	
50	T3	20	8141	8346	8551	8756	2	12	15.3	50	- 16	+ 10.5	+ 12	
50	T3	10	8142	8347	8552	8757	2	12	15.3	50	- 16	+ 10.5	+ 12	
50	T3	5	8143	8348	8553	8758	2	12	15.3	50	- 16	+ 10.5	+ 12	
68	T3	20	8144	8349	8554	8759	2	16	30.7	50	- 32	+ 10.5	+ 12	
68	T3	10	8145	8350	8555	8760	2	16	30.7	50	- 32	+ 10.5	+ 12	
68	T3	5	8146	8351	8556	8761	2	16	30.7	50	- 32	+ 10.5	+ 12	
140	T4	20	8147	8352	8557	8762	8	32	25.7	28	- 40	+ 20	+ 20	
140	T4	10	8148	8353	8558	8763	8	32	25.7	28	- 40	+ 20	+ 20	

Note

⁽¹⁾ Style CLR65 is inactive for new military design. For new design use style CLR79.



STANDARD RATINGS/EXTENDED RATINGS: CLR65 ⁽¹⁾ , M39006/09-XXXX													
CAPACITANCE (μ F)	CASE CODE	CAP. TOL. (\pm %)	PART NO. M39006/09- FAILURE RATE LEVEL (%/1000 h)				MAX. DCL (μ A) AT		MAX. DF AT AT (%)	MAX. IMP. AT AT (Ω)	MAX. CAPACITANCE CHANGE (%) AT		
			L 2.0	M 1.0	P 0.1	R 0.01	+ 25 °C	+ 85 °C + 125 °C			+ 25 °C	- 55 °C	- 55 °C
75 V_{DC} AT + 85 °C; 50 V_{DC} AT + 125 °C													
3.5	T1	20	8149	8354	8559	8764	1	2	2.5	650	- 16	+ 5	+ 6
3.5	T1	10	8150	8355	8560	8765	1	2	2.5	650	- 16	+ 5	+ 6
3.5	T1	5	8151	8356	8561	8766	1	2	2.5	650	- 16	+ 5	+ 6
6.8	T1	20	8152	8357	8562	8767	1	2	4.1	300	- 20	+ 8	+ 9
6.8	T1	10	8153	8358	8563	8768	1	2	4.1	300	- 20	+ 8	+ 9
6.8	T1	5	8154	8359	8564	8769	1	2	4.1	300	- 20	+ 8	+ 9
15	T2	20	8155	8360	8565	8770	1	5	7.5	150	- 16	+ 8	+ 9
15	T2	10	8156	8361	8566	8771	1	5	7.5	150	- 16	+ 8	+ 9
15	T2	5	8157	8362	8567	8772	1	5	7.4	150	- 16	+ 8	+ 9
33	T2	20	8158	8363	8568	8773	1	10	17.5	90	- 24	+ 10.5	+ 15
33	T2	10	8159	8364	8569	8774	1	10	17.5	90	- 24	+ 10.5	+ 15
33	T2	5	8160	8365	8570	8775	1	10	17.5	90	- 24	+ 10.5	+ 15
40	T3	20	8161	8366	8571	8776	2	12	15.2	60	- 16	+ 10.5	+ 12
40	T3	10	8162	8367	8572	8777	2	12	15.2	60	- 16	+ 10.5	+ 12
40	T3	5	8163	8368	8573	8778	2	12	15.2	60	- 16	+ 10.5	+ 12
56	T3	20	8164	8369	8574	8779	2	17	26	60	- 28	+ 10.5	+ 15
56	T3	10	8165	8370	8575	8780	2	17	26	60	- 28	+ 10.5	+ 15
56	T3	5	8166	8371	8576	8781	2	17	26	60	- 28	+ 10.5	+ 15
110	T4	20	8167	8372	8577	8782	9	36	25.7	29	- 35	+ 20	+ 20
110	T4	10	8168	8373	8578	8783	9	36	25.7	29	- 35	+ 20	+ 20
100 V_{DC} AT + 85 °C; 65 V_{DC} AT + 125 °C													
2.5	T1	20	8169	8374	8579	8784	1	2	5	950	- 16	+ 7	+ 8
2.5	T1	10	8170	8375	8580	8785	1	2	5	950	- 16	+ 7	+ 8
2.5	T1	5	8171	8376	8581	8786	1	2	5	950	- 16	+ 7	+ 8
4.7	T1	20	8172	8377	8582	8787	1	2	3.6	500	- 16	+ 7	+ 8
4.7	T1	10	8173	8378	8583	8788	1	2	3.6	500	- 16	+ 7	+ 8
4.7	T1	5	8174	8379	8584	8789	1	2	3.6	500	- 16	+ 7	+ 8
11	T2	20	8175	8380	8585	8790	1	4	5	200	- 16	+ 7	+ 8
11	T2	10	8176	8381	8586	8791	1	4	5	200	- 16	+ 7	+ 8
11	T2	5	8177	8382	8587	8792	1	4	5	200	- 16	+ 7	+ 8
22	T2	20	8178	8383	8588	8793	1	9	11.8	100	- 16	+ 7	+ 8
22	T2	10	8179	8384	8589	8794	1	9	11.8	100	- 16	+ 7	+ 8
22	T2	5	8180	8385	8590	8795	1	9	11.8	100	- 16	+ 7	+ 8
30	T3	20	8181	8386	8591	8796	2	12	9.1	80	- 16	+ 7	+ 8
30	T3	10	8182	8387	8592	8797	2	12	9.1	80	- 16	+ 7	+ 8
30	T3	5	8183	8388	8593	8798	2	12	9.1	80	- 16	+ 7	+ 8
43	T3	20	8184	8389	8594	8799	2	17	19.7	70	- 20	+ 7	+ 8
43	T3	10	8185	8390	8595	8800	2	17	19.7	70	- 20	+ 7	+ 8
43	T3	5	8186	8391	8596	8801	2	17	19.7	70	- 20	+ 7	+ 8
86	T4	20	8187	8392	8597	8802	9	36	20.7	30	- 25	+ 15	+ 15
86	T4	10	8188	8393	8598	8803	9	36	20.7	30	- 25	+ 15	+ 15

Note

⁽¹⁾ Style CLR65 is inactive for new military design. For new design use style CLR79.



STANDARD RATINGS/EXTENDED RATINGS: CLR65 ⁽¹⁾ , M39006/09-XXXX														
CAPACITANCE (μ F)	CASE CODE	CAP. TOL. (\pm %)	PART NO. M39006/09- FAILURE RATE LEVEL (%/1000 h)				MAX. DCL (μ A) AT		MAX. DF AT AT (%)	MAX. IMP. AT AT (Ω)	MAX. CAPACITANCE CHANGE (%) AT			
			L	M	P	R	+ 25 °C	+ 85 °C + 125 °C			- 55 °C	- 55 °C	+ 85 °C	+ 125 °C
			2.0	1.0	0.1	0.01								
125 V _{DC} AT + 85 °C; 85 V _{DC} AT + 125 °C														
1.7	T1	20	8189	8394	8599	8804	1	2	7	1250	- 16	+ 7	+ 8	
1.7	T1	10	8190	8395	8600	8805	1	2	7	1250	- 16	+ 7	+ 8	
1.7	T1	5	8191	8396	8601	8806	1	2	7	1250	- 16	+ 7	+ 8	
3.6	T1	20	8192	8397	8602	8807	1	2	4.1	600	- 16	+ 7	+ 8	
3.6	T1	10	8193	8398	8603	8808	1	2	4.1	600	- 16	+ 7	+ 8	
3.6	T1	5	8194	8399	8604	8809	1	2	4.1	600	- 16	+ 7	+ 8	
9.0	T2	20	8195	8400	8605	8810	1	5	10.2	240	- 16	+ 7	+ 8	
9.0	T2	10	8196	8401	8606	8811	1	5	10.2	240	- 16	+ 7	+ 8	
9.0	T2	5	8197	8402	8607	8812	1	5	10.2	240	- 16	+ 7	+ 8	
14	T2	20	8198	8403	8608	8813	1	7	12.7	167	- 16	+ 7	+ 8	
14	T2	10	8199	8404	8609	8814	1	7	12.7	167	- 16	+ 7	+ 8	
14	T2	5	8200	8405	8610	8815	1	7	12.7	167	- 16	+ 7	+ 8	
18	T3	20	8201	8406	8611	8816	2	9	15	129	- 16	+ 7	+ 8	
18	T3	10	8202	8407	8612	8817	2	9	15	129	- 16	+ 7	+ 8	
18	T3	5	8203	8408	8613	8818	2	9	15	129	- 16	+ 7	+ 8	
25	T3	20	8204	8409	8614	8819	2	13	19	93	- 16	+ 7	+ 8	
25	T3	10	8205	8410	8615	8820	2	13	19	93	- 16	+ 7	+ 8	
25	T3	5	9026	9029	9032	9035	2	13	19	93	- 16	+ 7	+ 8	
56	T4	20	9027	9030	9033	9036	10	40	17.5	32	- 25	+ 15	+ 15	
56	T4	10	9028	9031	9034	9037	10	40	17.5	32	- 25	+ 15	+ 15	

Note

⁽¹⁾ Style CLR65 is inactive for new military design. For new design use style CLR79.

STANDARD RATINGS/EXTENDED RATINGS: CLR69 ⁽¹⁾ , M39006/21-XXXX														
CAPACITANCE (μ F)	CASE CODE	CAP. TOL. (\pm %)	PART NO. M39006/21- FAILURE RATE LEVEL (%/1000 h)				MAX. DCL (μ A) AT		MAX. DF AT AT (%)	MAX. IMP. AT AT (Ω)	MAX. CAPACITANCE CHANGE (%) AT			
			L	M	P	R	+ 25 °C	+ 85 °C + 125 °C			- 55 °C	- 55 °C	+ 85 °C	+ 125 °C
			2.0	1.0	0.1	0.01								
6 V _{DC} AT + 85 °C; 4 V _{DC} AT + 125 °C														
220	T1	20	0001	0089	0177	0265	2	9	50	36	- 64	+ 13	+ 16	
220	T1	10	0002	0090	0178	0266	2	9	50	36	- 64	+ 13	+ 16	
820	T2	20	0003	0091	0179	0267	3	14	155	18	- 88	+ 16	+ 20	
820	T2	10	0004	0092	0180	0268	3	14	155	18	- 88	+ 16	+ 20	
1500	T3	20	0005	0093	0181	0269	5	20	172	18	- 90	+ 20	+ 25	
1500	T3	10	0006	0094	0182	0270	5	20	172	18	- 90	+ 20	+ 25	
2200	T4	20	0007	0095	0183	0271	6	24	170	13	- 90	+ 25	+ 30	
2200	T4	10	0008	0096	0184	0272	6	24	170	13	- 90	+ 25	+ 30	
8 V _{DC} AT + 85 °C; 5 V _{DC} AT + 125 °C														
180	T1	20	0009	0097	0185	0273	2	9	41	45	- 60	+ 13	+ 16	
180	T1	10	0010	0098	0186	0274	2	9	41	45	- 60	+ 13	+ 16	
680	T2	20	0011	0099	0187	0275	3	14	130	22	- 83	+ 16	+ 20	
680	T2	10	0012	0100	0188	0276	3	14	130	22	- 83	+ 16	+ 20	
1500	T3	20	0013	0101	0189	0277	5	20	170	18	- 90	+ 20	+ 25	
1500	T3	10	0014	0102	0190	0278	5	20	170	18	- 90	+ 20	+ 25	
1800	T4	20	0015	0103	0191	0279	7	25	138	14	- 90	+ 25	+ 30	
1800	T4	10	0016	0104	0192	0280	7	25	138	14	- 90	+ 25	+ 30	

Note

⁽¹⁾ Style CLR69 is inactive for new military design. For new design use style CLR81.



STANDARD RATINGS/EXTENDED RATINGS: CLR69 ⁽¹⁾ , M39006/21-XXXX															
CAPACITANCE (μ F)	CASE CODE	CAP. TOL. (\pm %)	PART NO. M39006/21- FAILURE RATE LEVEL (%/1000 h)				MAX. DCL (μ A) AT		MAX. DF AT AT (%)	MAX. IMP. AT AT (Ω)	MAX. CAPACITANCE CHANGE (%) AT				
			L	M	P	R	+ 25 °C	+ 85 °C + 125 °C			+ 25 °C	- 55 °C	- 55 °C	+ 85 °C	+ 125 °C
			2.0	1.0	0.1	0.01									
10 V_{DC} AT + 85 °C; 7 V_{DC} AT + 125 °C															
150	T1	20	0017	0105	0193	0281	2	9	34	54	- 55	+ 13	+ 16		
150	T1	10	0018	0106	0194	0282	2	9	34	54	- 55	+ 13	+ 16		
560	T2	20	0019	0107	0195	0283	3	16	106	27	- 77	+ 16	+ 20		
560	T2	10	0020	0108	0196	0284	3	16	106	27	- 77	+ 16	+ 20		
1200	T3	20	0021	0109	0197	0285	5	20	137	18	- 88	+ 20	+ 25		
1200	T3	10	0022	0110	0198	0286	5	20	137	18	- 88	+ 20	+ 25		
1500	T4	20	0023	0111	0199	0287	7	25	114	15	- 88	+ 25	+ 30		
1500	T4	10	0024	0112	0200	0288	7	25	114	15	- 88	+ 25	+ 30		
15 V_{DC} AT + 85 °C; 10 V_{DC} AT + 125 °C															
100	T1	20	0025	0113	0201	0289	2	9	30	72	- 44	+ 13	+ 16		
100	T1	10	0026	0114	0202	0290	2	9	30	72	- 44	+ 13	+ 16		
390	T2	20	0027	0115	0203	0291	3	16	74	31	- 66	+ 16	+ 20		
390	T2	10	0028	0116	0204	0292	3	16	74	31	- 66	+ 16	+ 20		
820	T3	20	0029	0117	0205	0293	6	24	111	22	- 77	+ 20	+ 25		
820	T3	10	0030	0118	0206	0294	6	24	111	22	- 77	+ 20	+ 25		
1000	T4	20	0031	0119	0207	0295	8	32	92	17	- 77	+ 25	+ 30		
1000	T4	10	0032	0120	0208	0296	8	32	92	17	- 77	+ 25	+ 30		
25 V_{DC} AT + 85 °C; 15 V_{DC} AT + 125 °C															
68	T1	20	0033	0121	0209	0297	2	9	22	90	- 40	+ 12	+ 15		
68	T1	10	0034	0122	0210	0298	2	9	22	90	- 40	+ 12	+ 15		
270	T2	20	0035	0123	0211	0299	3	16	55	33	- 62	+ 13	+ 16		
270	T2	10	0036	0124	0212	0300	3	16	55	33	- 62	+ 13	+ 16		
560	T3	20	0037	0125	0213	0301	7	28	76	24	- 72	+ 20	+ 25		
560	T3	10	0038	0126	0214	0302	7	28	76	24	- 72	+ 20	+ 25		
680	T4	20	0039	0127	0215	0303	8	32	63	19	- 72	+ 25	+ 30		
680	T4	10	0040	0128	0216	0304	8	32	63	19	- 72	+ 25	+ 30		
30 V_{DC} AT + 85 °C; 20 V_{DC} AT + 125 °C															
56	T1	20	0041	0129	0217	0305	2	9	22	100	- 38	+ 12	+ 15		
56	T1	10	0042	0130	0218	0306	2	9	22	100	- 38	+ 12	+ 15		
220	T2	20	0043	0131	0219	0307	3	16	42	36	- 60	+ 13	+ 16		
220	T2	10	0044	0132	0220	0308	3	16	42	36	- 60	+ 13	+ 16		
470	T3	20	0045	0133	0221	0309	8	32	64	25	- 65	+ 20	+ 25		
470	T3	10	0046	0134	0222	0310	8	32	64	25	- 65	+ 20	+ 25		
560	T4	20	0047	0135	0223	0311	9	36	55	20	- 65	+ 25	+ 30		
560	T4	10	0048	0136	0224	0312	9	36	55	20	- 65	+ 25	+ 30		
50 V_{DC} AT + 85 °C; 30 V_{DC} AT + 125 °C															
33	T1	20	0049	0137	0225	0313	2	9	12.3	135	- 29	+ 10	+ 12		
33	T1	10	0050	0138	0226	0314	2	9	12.3	135	- 29	+ 10	+ 12		
120	T2	20	0051	0139	0227	0315	4	24	22.5	49	- 42	+ 12	+ 15		
120	T2	10	0052	0140	0228	0316	4	24	22.5	49	- 42	+ 12	+ 15		
270	T3	20	0053	0141	0229	0317	8	32	37	29	- 46	+ 20	+ 25		
270	T3	10	0054	0142	0230	0318	8	32	37	29	- 46	+ 20	+ 25		
330	T4	20	0055	0143	0231	0319	9	36	38	22	- 46	+ 25	+ 30		
330	T4	10	0056	0144	0232	0320	9	36	38	22	- 46	+ 25	+ 30		
60 V_{DC} AT + 85 °C; 40 V_{DC} AT + 125 °C															
27	T1	20	0057	0145	0233	0321	3	12	10.2	144	- 24	+ 10	+ 12		
27	T1	10	0058	0146	0234	0322	3	12	10.2	144	- 24	+ 10	+ 12		
100	T2	20	0059	0147	0235	0323	4	20	19	54	- 36	+ 12	+ 15		
100	T2	10	0060	0148	0236	0324	4	20	19	54	- 36	+ 12	+ 15		
220	T3	20	0061	0149	0237	0325	8	32	30	29	- 40	+ 16	+ 20		
220	T3	10	0062	0150	0238	0326	8	32	30	29	- 40	+ 16	+ 20		
270	T4	20	0063	0151	0239	0327	9	36	27	23	- 45	+ 20	+ 25		
270	T4	10	0064	0152	0240	0328	9	36	27	23	- 45	+ 20	+ 25		

Note

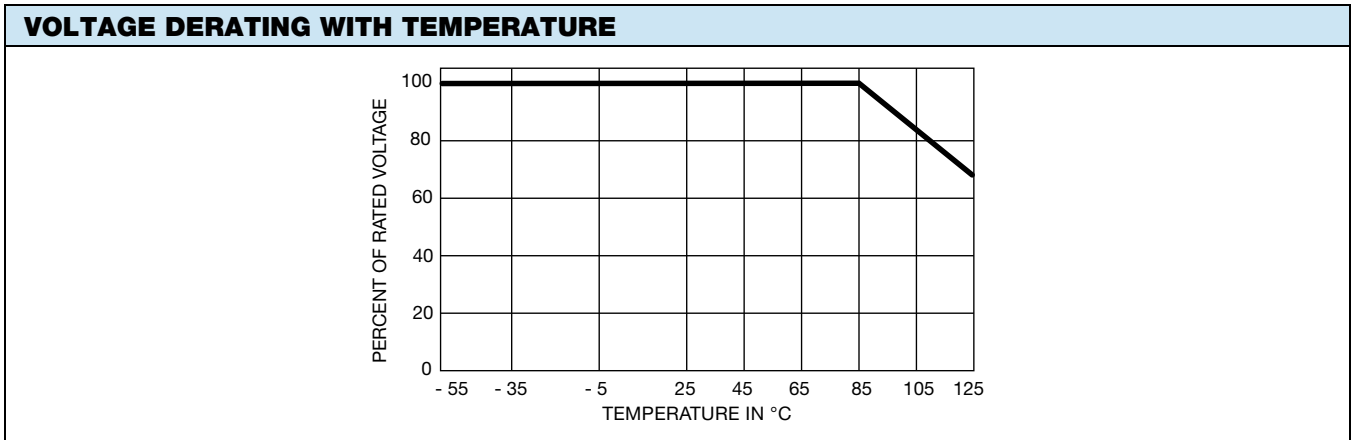
⁽¹⁾ Style CLR69 is inactive for new military design. For new design use style CLR81.



STANDARD RATINGS/EXTENDED RATINGS: CLR69 ⁽¹⁾ , M39006/21-XXXX													
CAPACITANCE (µF)	CASE CODE	CAP. TOL. (± %)	PART NO. M39006/21-FAILURE RATE LEVEL (%/1000 h)				MAX. DCL (µA) AT		MAX. DF AT +25 °C (%)	MAX. IMP. AT -55 °C (Ω)	MAX. CAPACITANCE CHANGE (%) AT		
			L 2.0	M 1.0	P 0.1	R 0.01	+25 °C	+85 °C +125 °C			-55 °C	+85 °C	+125 °C
75 V_{DC} AT + 85 °C; 50 V_{DC} AT + 125 °C													
22	T1	20	0065	0153	0241	0329	3	12	8.5	157	-19	+10	+12
22	T1	10	0066	0154	0242	0330	3	12	8.5	157	-19	+10	+12
82	T2	20	0067	0155	0243	0331	4	24	15.2	63	-30	+12	+15
82	T2	10	0068	0156	0244	0332	4	24	15.2	63	-30	+12	+15
180	T3	20	0069	0157	0245	0333	9	36	24.4	30	-35	+16	+20
180	T3	10	0070	0158	0246	0334	9	36	24.4	30	-35	+16	+20
220	T4	20	0071	0159	0247	0335	10	40	37	24	-40	+20	+25
220	T4	10	0072	0160	0248	0336	10	40	37	24	-40	+20	+25
100 V_{DC} AT + 85 °C; 65 V_{DC} AT + 125 °C													
10	T1	20	0073	0161	0249	0337	3	12	4.5	200	-17	+10	+12
10	T1	10	0074	0162	0250	0338	3	12	4.5	200	-17	+10	+12
39	T2	20	0075	0163	0251	0339	5	24	10.4	80	-20	+12	+15
39	T2	10	0076	0164	0252	0340	5	24	10.4	80	-20	+12	+15
68	T3	20	0077	0165	0253	0341	10	40	11.3	40	-30	+14	+16
68	T3	10	0078	0166	0254	0342	10	40	11.3	40	-30	+14	+16
120	T4	20	0079	0167	0255	0343	12	48	25	30	-35	+15	+17
120	T4	10	0080	0168	0256	0344	12	48	25	30	-35	+15	+17
125 V_{DC} AT + 85 °C; 85 V_{DC} AT + 125 °C													
6.8	T1	20	0081	0169	0257	0345	3	12	6	300	-14	+10	+12
6.8	T1	10	0082	0170	0258	0346	3	12	6	300	-14	+10	+12
27	T2	20	0083	0171	0259	0347	5	24	7.2	90	-18	+12	+15
27	T2	10	0084	0172	0260	0348	5	24	7.2	90	-18	+12	+15
47	T3	20	0085	0173	0261	0349	10	40	7.9	50	-26	+14	+16
47	T3	10	0086	0174	0262	0350	10	40	7.9	50	-26	+14	+16
82	T4	20	0087	0175	0263	0351	12	48	17.4	32	-30	+15	+17
82	T4	10	0088	0176	0264	0352	12	48	17.4	32	-30	+15	+17

Note

⁽¹⁾ Style CLR69 is inactive for new military design. For new design use style CLR81.





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