CKH/CKE

Aluminum Electrolytic Capacitors

+105°C General Purpose, Radial Lead

FEATURES

Small size - High voltage - General purpose

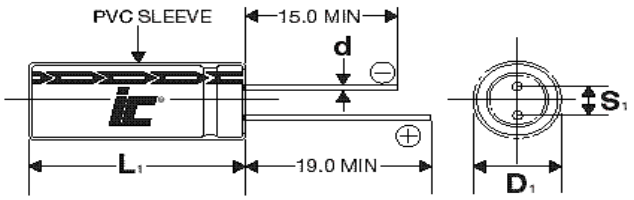
APPLICATIONS

Bypass – Coupling – Filter – De-coupling

Operating Temperature Range		**-40°C to +105°C (6.3 to 100 WVDC) -25°C to +105°C (160 to 400 WVDC)**													
Capacitance Tolerance		**±20% at 120 Hz, 20°C**													
Surge Voltage	**WVDC**	**6.3**	**10**	**16**	**25**	**35**	**50**	**63**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	SVDC	7.9	13	20	32	44	63	79	125	200	250	300	400	450	500
Dissipation Factor	**WVDC**	**6.3**	**10**	**16**	**25**	**35**	**50**	**63**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	Tan δ	.24	.22	.16	.14	.12	.1	.1	.1	.15	.15	.15	.2	.2	.2
		Add .02 for every 1000uF above 1000uF													
Leakage Current		**6.3 to 100 WVDC**								**160 to 450 WVDC**					
		2 Minutes								**2 Minutes**					
		.01CV or 3uA, Whichever is greater								.03CV+40uA					
Low temperature Stability Impedance Ratio (120 Hz)	**WVDC**	**6.3**	**10**	**16**	**25**	**35**	**50**	**63**	**100**	**160**	**200**	**250**	**350**	**400**	**450**
	-25°C to +20°C	4	3	2	2	2	2	2	2	4	4	4	6	6	7
	-40°C to +20°C	8	6	4	3	3	3	3	3	-	-	-	-	-	-

Load Life	**2000 hours at 105°C with rated WVDC applied**	
	Capacitance Change	≤20% of initial measured value
	Dissipation Factor	≤200% of maximum specified value
	Leakage Current	≤100% of maximum specified value
Shelf Life	**1000 hours at 105°C with no voltage applied**	
	Capacitance Change	≤20% of initial measured value
	Dissipation Factor	≤200% of maximum specified value
	Leakage Current	≤100% of maximum specified value

			Frequency (Hz)						**Temperature (°C)**				
Ripple Current Multipliers	**WVDC**	**Capacitance (uF)**	**50**	**120**	**300**	**1k**	**10k**	**100k**	**105**	**85**	**70**	**65**	**45**
	6.3 to 100V	<47	.75	1.0	1.36	1.57	2.0	2.3	1	1.75	1.9	2	2.23
		100 to 470	.8	1.0	1.23	1.34	11.5	1.65	1	1.75	1.9	2	2.23
		≥560	.85	1.0	1.1	1.13	1.15	1.4	1	1.75	1.9	2	2.23
	160 to 450V	.47 to 4.7	.65	1.0	1.35	1.75	2.3	2.5	1	1.75	1.9	2	2.23
		6.8 to 82	.75	1.0	1.25	1.5	1.75	1.8	1	1.75	1.9	2	2.23
		100 to 1000	.8	1.0	1.15	1.3	1.4	1.5	1	1.75	1.9	2	2.23



D	**5**	**6.3**	**8**	**10**	**12.5**	**16**	**18**
S	2.0	2.5	3.5	5.0	5.0	7.5	7.5
d	0.5	0.5	0.5	0.6	0.6	0.8	0.8

L_1=L+1.5mm Max. mm
D_1=D+0.5mm Max.
S_1=S+0.5 mm

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CKH_CKE

+105°C, Extended life 2000 hour

Capacitance (µF)	WVDC	IC PART NUMBER	Maximum ESR (Ω) 120 Hz, +20°C	Maximum RMS Ripple Current (mA) 120 Hz, +105°C	Dims DxL (mm)
0.1	50	104CKH050M	1657.86	1	5x11
0.22	50	224CKH050M	753.575	3	5x11
0.33	50	334CKH050M	502.38	4	5x11
0.47	100	474CKH100M	282.19	12	5x11
0.47	250	474CKH250M	529.106	15	6.3x11
1	50	105CKH050M	165.79	13	5x11
1	100	105CKE100M	165.79	15	5x11
1	250	105CKE250M	248.68	16	6.3x11
1	400	105CKE400M	331.57	21	8x11.5
1	450	105CKE450M	331.57	22	10x12.5
1	450	105CKE450MEBB	331.573	18	6.3x11
2.2	50	225CKH050M	75.358	20	5x11
2.2	100	225CKE100M	753.575	35	5x11
2.2	250	225CKH250M	113.036	29	6.3x11
2.2	350	225CKE350M	150.71	30	6.3x11
2.2	400	225CKE400M	150.71	26	8x11.5
2.2	450	225CKE450M	150.71	31	10x12.5
2.2	450	225CKE450MJM	150.71	30	8x11.5
3.3	50	335CKE050M	50.238	35	5x11
3.3	100	335CKE100M	40.19	35	5x11
3.3	200	335CKE200M	75.358	35	6.3x11
3.3	250	335CKE250M	75.358	44	8x11.5
3.3	250	335CKE250MGM	75.358	37	6.3x11
3.3	350	335CKE350MJM	100.477	30	8x11.5
3.3	400	335CKE400MJM	100.477	42	8x11.5
3.3	400	335CKE400M	100.477	41	10x12.5
3.3	450	335CKE450MFH	100.477	40	8x11.5
3.3	450	335CKE450MGJG	100.477	44	10x20
4.7	100	475CKE100M	35.274	40	5x11
4.7	160	475CKE160M	52.911	51	6.3x11
4.7	200	475CKE200M	52.911	53	6.3x11
4.7	250	475CKE250M	52.911	53	8x11.5
4.7	250	475CKH250M	52.911	60	10x12.5
4.7	350	475CKE350M	70.547	47	10x12.5
4.7	400	475CKE400M	70.547	55	10x16
4.7	400	475CKE400MFH	70.5474	56	8x11.5
4.7	450	475CKE450MLN	70.547	32	10x12.5
4.7	450	475CKE450M	70.547	43	10x20
6.8	50	685CKH050M	24.381	40	5x11
6.8	450	685CKE450MGBW	48.7607	90	10x16
10	50	106CKH050M	16.579	55	5x11
10	63	106CKE063M	16.579	60	5x11
10	100	106CKH100M	16.579	85	6.3x11
10	160	106CKE160M	24.868	91	8x11.5
10	200	106CKE200MJM	24.868	91	8x11.5
10	200	106CKE200M	24.868	75	10x12.5
10	250	106CKH250M	24.868	90	10x16
10	350	106CKE350M	24.868	85	10x20
10	350	106CKE350MLQ	33.157	64	10x16
10	400	106CKE400MLQ	33.157	64	10x16
10	400	106CKE400M	33.157	73	10x20
10	450	106CKE450M	33.157	65	12.5x20
10	450	106CKE450MLU	33.157	120	10x20
15	50	156CKH050M	11.052	58	5x11
15	250	156CKE250MGBW	22.1049	112	10x16
15	400	156CKE400MGJG	22.1049	115	10x20
15	450	156CKE450MTJG	22.1049	112	12.5x20
22	50	226CKH050M	7.536	80	5x11

Capacitance (µF)	WVDC	IC PART NUMBER	Maximum ESR (Ω) 120 Hz, +20°C	Maximum RMS Ripple Current (mA) 120 Hz, +105°C	Dims DxL (mm)
22	63	226CKH063M	7.536	90	6.3x11
22	63	226CKE063M	7.536	80	5x11
22	100	226CKH100M	7.536	150	8x11.5
22	100	226CKE100M	7.536	95	6.3x11
22	160	226CKE160MLN	11.304	150	10x12.5
22	200	226CKE200MLQ	11.304	165	10x16
22	250	226CKE250MLU	11.304	180	10x20
22	350	226CKE350MNU	15.072	105	12.5x20
22	450	226CKE450MNV	15.0715	215	12.5x25
33	50	336CKE050M	5.024	100	5x11
33	63	336CKE063M	5.024	120	6.3x11
33	100	336CKE100M	5.024	145	8x11.5
33	100	336CKH100M	5.0238	260	10x12.5
33	160	336CKE160MLQ	7.536	205	10x16
33	200	336CKE200MLU	7.536	225	10x20
33	250	336CKE250M	7.536	190	12.5x20
33	350	336CKE350MNV	10.048	270	12.5x25
33	400	336CKE400M	10.048	160	16x25
33	450	336CKE450MQV	10.048	120	16x25
47	25	476CKH025M	4.9383	100	5x11
47	35	476CKE035M	4.233	92	5x11
47	50	476CKE050M	3.527	135	6.3x11
47	63	476CKE063M	3.527	145	6.3x11
47	63	476CKH063M	3.527	155	8x11.5
47	100	476CKH100M	3.527	280	10x16
47	100	476CKE100M	3.527	280	10x12.5
47	160	476CKE160MLU	5.291	270	10x20
47	200	476CKE200M	5.291	210	12.5x20
47	250	476CKE250MNU	5.291	190	13x21
47	250	476CKE250M	5.291	320	12.5x25
47	350	476CKE350M	7.055	190	16x25
47	400	476CKE400M	7.055	210	16x30
47	400	476CKE400MQV	7.055	360	16x25
47	450	476CKE450MQW	7.055	395	16x30
68	50	686CKH050M	2.438	165	8x11.5
68	63	686CKH063M	2.438	190	10x12.5
68	100	686CKH100M	2.438	300	10x16
68	160	686CKE160MTJG	4.8761	350	12.5x20
68	200	686CKE200MTJD	4.8761	380	12.5x25
68	250	686CKE250MKJG	4.8761	400	16x20
68	400	686CKE400MKAG	4.8761	475	16x30
68	450	686CKE450MKAD	4.8761	510	16x35
100	25	107CKE025MEM	2.321	125	5x11
100	35	107CKE035M	1.989	170	6.3x11
100	50	107CKH050M	1.658	230	8x11.5
100	63	107CKH063M	1.658	260	10x12.5
100	100	107CKE100MLQ	1.658	240	10x16
100	160	107CKE160M	2.487	470	12.5x25
100	250	107CKE250MQV	2.487	530	16x25
100	350	107CKE350MKCG	3.3157	510	16x40
100	350	107CKE350M	3.316	410	18x40
100	400	107CKE400M	3.316	310	18x35
150	100	157CKH100M	1.105	410	12.5x20
150	160	157CKE160MKJD	1.65786	515	16x25
150	200	157CKE200MKJD	1.65786	660	16x25
150	250	157CKE250MKAD	1.65786	750	16x35
150	450	157CKE450MLCD	2.2105	880	18x45
220	10	227CKE010M	1.6579	170	5x11

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+105°C, Extended life 2000 hour

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220	16	227CKE016M	1.2057	215	6.3x11
220	25	227CKE025MGM	1.055	200	6.3x11
220	35	227CKE035M	0.904	295	8x11.5
220	50	227CKE050M	0.754	350	10x12.5
220	50	227CKH050M	0.7536	510	10x16
220	63	227CKH063M	0.7536	505	10x20
220	63	227CKE063M	0.754	390	10x16
220	100	227CKH100M	0.7536	960	16x25
220	100	227CKE100M	0.754	660	12.5x25
220	100	227CKE100MNU	0.754	390	12.5x20
220	160	227CKE160MQW	1.13	860	16x30
220	200	227CKE200M	1.13	920	16x35
220	250	227CKE250M	1.13	485	18x35
220	250	227CKE250MLCG	1.5071	1010	18x40
330	10	337CKE010M	1.1052	240	6.3x11
330	16	337CKE016MGM	0.8038	225	6.3x11
330	25	337CKE025M	0.4938	340	8x11.5
330	35	337CKE035M	0.603	420	10x12.5
330	50	337CKE050M	0.502	590	10x16
330	50	337CKH050M	0.502	490	10x20
330	63	337CKH063M	0.502	690	12.5x20
330	100	337CKH100M	0.502	1000	16x25
330	100	337CKE100M	0.502	800	12.5x25
330	160	337CKE160MKCG	1.0048	1200	16x40
330	200	337CKE200M	0.754	675	18x40
470	10	477CKE010M	0.776	285	6.3x11
470	16	477CKE016M	0.5644	365	8x11.5
470	16	477CKH016M	0.5644	440	10x12.5
470	25	477CKE025M	0.4938	470	10x12.5
470	35	477CKE035M	0.423	545	10x16
470	50	477CKE050M	0.353	705	10x20
470	50	477CKH050M	0.353	630	12.5x20
470	63	477CKH063M	0.353	690	12.5x25
470	63	477CKE063M	0.353	810	12.5x20
470	100	477CKE100M	0.353	1050	16x25
680	6.3	687CKH6R3M	0.0585	375	10x12.5
680	16	687CKH016M	0.3901	490	10x16
680	35	687CKE035MGJG	0.2926	680	10x20
680	50	687CKE050MTJG	0.2438	925	12.5x20
680	63	687CKH063M	0.244	925	16x25
1000	6.3	108CKE6R3M	0.3979	445	8x11.5
1000	10	108CKE010M	0.3647	570	10x12.5
1000	16	108CKE016M	0.2653	680	10x16
1000	16	108CKE016MLN	0.2653	500	10x12.5
1000	16	108CKH016M	0.2653	720	10x20
1000	25	108CKE025MLQ	0.2321	610	10x16
1000	25	108CKE025M	0.2321	820	10x20
1000	35	108CKH035M	0.199	1025	12.5x20
1000	50	108CKH050M	0.166	1010	16x25
1000	50	108CKE050M	0.166	1285	12.5x25
1000	63	108CKE063M	0.166	1450	16x25
1000	100	108CKE100M	0.166	2020	18x40
1000	100	108CKE100MRY	0.166	1000	18x35
1500	6.3	158CKH6R3M	0.2874	585	10x20
1500	16	158CKH016M	0.1989	800	12.5x20

Capacitance (µF)	WVDC	IC PART NUMBER	Maximum ESR (Ω) 120 Hz, +20°C	Maximum RMS Ripple Current (mA) 120 Hz, +105°C	Dims DxL (mm)
1500	25	158CKH025M	0.1768	905	12.5x25
1500	35	158CKH035M	0.1547	1140	16x25
1500	35	158CKE035MTJD	0.1326	1125	12.5x25
1500	50	158CKH050M	0.1326	1250	18x30
2200	6.3	228CKE6R3M	0.211	740	10x16
2200	10	228CKE010MLQ	0.1959	705	10x16
2200	10	228CKE010M	0.1959	900	10x20
2200	16	228CKE016M	0.1507	1110	12.5x20
2200	16	228CKE016MLU	0.1507	710	10x20
2200	16	228CKH016M	0.1507	1250	12.5x25
2200	25	228CKH025M	0.1356	1210	16x25
2200	25	228CKE025M	0.1356	1175	12.5x25
2200	35	228CKE035M	0.1206	1500	16x25
2200	35	228CKH035M	0.121	1730	16x30
2200	50	228CKH050M	0.106	1700	18x35
2200	50	228CKE050MQW	0.1055	1410	16x30
2200	50	228CKE050M	0.1055	1885	16x35
3300	6.3	338CKE6R3M	0.1507	1030	10x20
3300	10	338CKE010M	0.1407	1205	12.5x20
3300	16	338CKE016M	0.1105	1390	12.5x25
3300	25	338CKE025M	0.1005	1645	16x25
3300	25	338CKH025M	0.1005	1800	16x30
3300	35	338CKE035MQW	0.0905	1810	16x30
3300	35	338CKE035M	0.0905	1820	16x35
3300	50	338CKE050M	0.0804	2165	18x35
4700	10	478CKE010M	0.1058	1490	12.5x25
4700	10	478CKH010M	0.1058	1350	16x25
4700	16	478CKH016M	0.0847	1560	16x30
4700	16	478CKE016M	0.0847	1740	16x25
4700	25	478CKE025M	0.0776	2010	16x30
4700	25	478CKE025MQV	0.0776	1570	16x25
4700	35	478CKE035MQY	0.0706	1780	16x35
4700	35	478CKE035M	0.0706	2335	18x35
6800	6.3	688CKE6R3M	0.08777	1555	12.5x25
6800	10	688CKE010M	0.0756	1825	16x25
6800	16	688CKE016M	0.0707	2080	16x30
6800	16	688CKE016MQV	0.0707	1600	16x25
6800	25	688CKE025MQY	0.0634	2308	16x35
6800	25	688CKE025M	0.0634	2170	18x35
6800	35	688CKE035M	0.0585	2400	18x40
10000	6.3	109CKH6R3M	0.06963	1730	16x30
10000	6.3	109CKE6R3M	0.06963	1900	16x25
10000	10	109CKH010M	0.0663	2030	18x35
10000	10	109CKE010MQW	0.0663	1980	16x30
10000	16	109CKE016M	0.0564	2380	16x35
10000	25	109CKE025M	0.0531	2000	18x40
10000	25	109CKE025MLAD	0.0547	2500	18x35
15000	6.3	159CKE6R3M	0.05747	2140	16x35
15000	6.3	159CKE6R3MQW	0.05747	1820	16x30
15000	10	159CKE010MQY	0.0553	2050	16x35
15000	10	159CKE010M	0.0553	2370	18x35
15000	16	159CKE016M	0.0486	2210	18x40
22000	6.3	229CKE6R3MRY	0.04979	2400	18x35
22000	10	229CKE010M	0.0482	2410	18x40

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