

# CKR/CKS



## Radial Lead Aluminum Electrolytic Capacitors

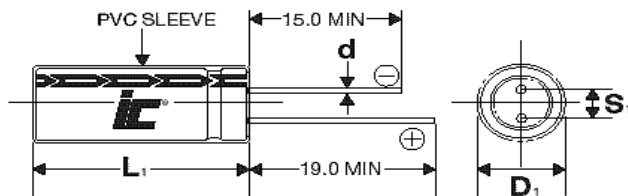
### FEATURES

Small size - High voltage - General purpose

### APPLICATIONS

Bypass - Coupling - Filtering - De-coupling

<b>Operating Temperature Range</b>		<b>-40°C to +85°C (6.3 to 160 WVDC) -25°C to +85°C (200 to 500 WVDC)</b>														
<b>Capacitance Tolerance</b>		<b>+20% at 120 Hz, 20°C</b>														
<b>Surge Voltage</b>	<b>WVDC</b>	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	500
	<b>SVDC</b>	7.9	13	20	32	44	63	79	125	200	250	300	400	450	500	550
<b>Dissipation Factor</b>	<b>WVDC</b>	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	500
	<b>Tan δ</b>	.22	.19	.16	.14	.12	.1	.09	.08	.15	.15	.15	.2	.2	.2	.24
		Add .02 for every 1000uF above 1000uF														
<b>Leakage Current</b>		<b>6.3 to 100 WVDC</b>									<b>160 to 500 WVDC</b>					
		<b>2 Minutes</b>									<b>2 Minutes</b>					
		.01CV or 3uA, Whichever is greater									.03CV+10uA					
<b>Low Temperature Stability Impedance Ratio (120 Hz)</b>	<b>WVDC</b>	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	500
	<b>-25°C to +20°C</b>	4	2	2	2	2	2	2	2	3	3	3	6	6	15	15
	<b>-40°C to +20°C</b>	8	6	4	3	3	3	3	3	6	6	6	6	6	-	-
<b>Load Life</b>		<b>2000 hours at 85°C with rated WVDC and ripple current applied</b>														
		<b>Capacitance Change</b>		≤20% of initial measured value												
		<b>Dissipation Factor</b>		≤150% of maximum specified value												
		<b>Leakage Current</b>		>100% of maximum specified value												
<b>Shelf Life</b>		<b>1000 hours at 85°C with no voltage applied</b>														
		<b>Capacitance Change</b>		≤20% initial measured value												
		<b>Dissipation Factor</b>		≤200% of maximum specified value												
		<b>Leakage Current</b>		≥100% of maximum specified value												
<b>Ripple Current Multipliers</b>		<b>WVDC</b>	<b>Capacitance (uF)</b>				<b>Frequency (Hz)</b>									
		<b>6.3 to 100V</b>	0.47 ~ 47	.75	1	1.35	1.57	2	2.3							
			100 ~ 470	.8	1	1.23	1.34	1.5	1.65							
			560+	.85	1	1.1	1.13	1.15	1.4							
		<b>160 to 500V</b>	0.47 ~ 4.7	.65	1	1.35	1.75	2.3	2.5							
			6.8 ~ 82	.75	1	1.25	1.5	1.75	1.8							
			100+	.8	1	1.15	1.3	1.4	1.5							



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	0.6	0.6	0.6	0.8	0.8

L<sub>1</sub>=L+1.5mm Max.  
D<sub>1</sub>=D+0.5mm Max.  
S<sub>1</sub>=S+0.5 mm

mm



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Cap (uF)	VDC	PART #	Maximum ESR $\Omega$ 120Hz 20°C	Maximum RMS ripple current (mA) 120Hz, 85°C	Dims DxDL (mm)
0.1	50	104CKR050M	1657.864	1.3	5x11
0.22	50	224CKR050M	753.575	2.9	5x11
0.33	50	334CKR050M	502.383	4.3	5x11
0.47	50	474CKR050M	352.737	6.2	5x11
0.47	100	474CKR100M	282.190	10	5x11
1	50	105CKR050M	165.786	13	5x11
1	100	105CKR100M	132.629	25	5x11
1	250	105CKR250M	248.680	18	6.3x11
1	450	105CKS450MEBB	331.573	20	6.3x11
1	450	105CKS450M	331.573	20	8x11.5
1	500	105CKS500MEBB	397.887	20	6.3x11
1.5	50	155CKR050M	110.524	18	5x11
2.2	50	225CKR050M	75.357	28	5x11
2.2	100	225CKS100M	60.286	40	5x11
2.2	250	225CKS250M	113.036	32	6.3x11
2.2	350	225CKS350M	150.715	38	6.3x11
2.2	400	225CKS400MEBB	150.715	38	6.3x11
2.2	400	225CKS400M	150.715	38	8x11.5
2.2	450	225CKS450MJM	150.715	38	8x11.5
2.2	500	225CKS500MFH	180.858	34	8x11.5
3.3	50	335CKS050M	50.238	35	5x11
3.3	100	335CKS100M	40.191	45	5x11
3.3	250	335CKS250MGM	75.357	40	6.3x11
3.3	250	335CKS250M	75.357	60	8x11.5
3.3	350	335CKS350MJM	100.477	55	8x11.5
3.3	400	335CKS400MJM	100.477	55	8x11.5
3.3	400	335CKS400M	100.477	55	10x12.5
3.3	450	335CKS450MLM	100.477	40	10x12.5
3.3	500	335CKS500MGBG	120.572	50	10x12.5
4.7	50	475CKR050M	35.274	50	5x11
4.7	100	475CKR100M	28.219	55	5x11
4.7	250	475CKS250MGM	52.911	58	6.3x11
4.7	350	475CKS350MJM	70.547	70	8x11.5
4.7	400	475CKS400MFH	70.547	70	8x11.5
4.7	400	475CKS400MLN	70.547	60	10x12.5
4.7	400	475CKS400M	70.547	75	10x16
4.7	450	475CKS450M	70.547	75	10x16
4.7	500	475CKS500MGBW	84.657	68	10x16
6.8	500	685CKS500MGJG	58.513	80	10x20
10	50	106CKR050M	16.579	75	5x11
10	63	106CKR063M	13.263	80	5x11
10	100	106CKS100MEM	13.263	80	5x11

Cap (uF)	VDC	PART #	Maximum ESR $\Omega$ 120Hz 20°C	Maximum RMS ripple current (mA) 120Hz, 85°C	Dims DxDL (mm)
10	100	106CKS100M	13.263	95	6.3x11
10	160	106CKS160M	24.868	90	8x11.5
10	200	106CKS200MJM	24.868	95	8x11.5
10	200	106CKS200M	24.868	100	10x12.5
10	250	106CKS250M	24.868	120	10x16
10	250	106CKS250MLN	33.157	105	10x12.5
10	400	106CKS400MLQ	33.157	120	10x16
10	450	106CKS450MLU	33.157	80	10x20
10	450	106CKS450MGBW	33.157	105	10x16
10	500	106CKS500MTJG	39.789	105	12.5x20
15	50	156CKR050M	11.052	78	5x11
22	50	226CKR050M	7.536	110	5x11
22	63	226CKS063M	7.536	115	5x11
22	63	226CKR063M	6.029	130	6.3x11
22	100	226CKS100M	6.029	135	6.3x11
22	100	226CKR100M	6.029	155	8x11.5
22	160	226CKS160M	11.304	172	10x16
22	200	226CKS200MLQ	11.304	175	10x16
22	250	226CKS250MLU	11.304	195	10x20
22	350	226CKS350M	15.071	210	12.5x20
22	400	226CKS400M	15.071	210	12.5x25
22	400	226CKS400MTJG	15.071	210	12.5x20
22	450	226CKS450MNV	15.071	140	12.5x25
22	450	226CKS450M	15.071	210	16x25
22	500	226CKS500MKJH	18.086	195	16x20
33	50	336CKS050M	5.024	130	5x11
33	63	336CKR063M	5.024	160	6.3x11
33	100	336CKS100M	4.019	190	8x11.5
33	160	336CKS160M	7.536	230	10x20
33	200	336CKS200MLU	7.536	240	10x20
33	250	336CKS250M	7.536	260	12.5x20
33	350	336CKS350M	10.048	300	12.5x25
33	400	336CKS400MTJD	10.048	300	12.5x25
33	400	336CKS400M	10.048	260	16x25
33	450	336CKS450M	10.048	280	16x31.5
33	450	336CKS450MQV	10.048	300	16x25
33	500	336CKS500MKJD	12.057	260	16x25
47	25	476CKR025M	4.938	130	5x11
47	35	476CKS035M	4.233	140	5x11
47	50	476CKR050M	3.527	180	6.3x11
47	63	476CKS063M	3.527	190	6.3x11
47	100	476CKR100M	2.822	280	10x16



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Cap (uF)	VDC	PART #	Maximum ESR $\Omega$ 120Hz 20°C	Maximum RMS ripple current (mA) 120Hz, 85°C	Dims DxL (mm)
47	100	476CKS100M	2.822	260	10x12.5
47	160	476CKS160MLU	7.055	285	10x20
47	160	476CKR160M	5.291	270	12.5x25
47	200	476CKS200MTJG	7.055	310	12.5x20
47	250	476CKS250MNU	7.055	310	12.5x20
47	250	476CKS250M	7.055	350	12.5x25
47	350	476CKS350M	7.055	390	16x25
47	400	476CKS400MQV	7.055	390	16x25
47	450	476CKS450MQW	7.055	380	16x31.5
47	500	476CKS500MKAG	8.466	320	16x30
68	500	686CKS500MKLAD	5.851	430	18x35
82	500	826CKS500MKLCG	4.852	500	18x40
100	16	107CKS016M	2.653	175	5x11
100	25	107CKS025MEM	2.321	180	5x11
100	35	107CKS035M	1.989	215	6.3x11
100	50	107CKR050M	1.658	310	8x11.5
100	63	107CKS063MJM	1.658	325	8x11.5
100	63	107CKR063M	1.658	330	10x12.5
100	100	107CKS100M	1.326	455	10x20
100	100	107CKS100MLQ	1.326	340	10x16
100	160	107CKS160M	3.316	490	12.5x25
100	200	107CKS200MKJG	3.316	520	16x20
100	250	107CKS250MQV	3.316	580	16x25
100	350	107CKS350M	3.316	550	18x35.5
100	400	107CKS400MKAD	3.316	640	16x35
100	450	107CKS450M	3.316	550	18x40
100	450	107CKS450MLAD	3.316	640	18x35
100	500	107CKS500MKLCD	3.979	590	18x45
150	25	157CKR025M	1.547	258	8x11.5
150	35	157CKR035M	1.326	291	10x12.5
150	450	157CKS450MLCG	2.210	860	18x40
150	450	157CKS450MLCD	2.210	850	18x45
220	10	227CKS010M	1.507	230	5x11
220	16	227CKS016M	1.206	290	6.3x11
220	25	227CKS025MGM	1.055	280	6.3x11
220	25	227CKR025M	1.055	370	8x11.5
220	35	227CKS035M	0.904	405	8x11.5
220	35	227CKR035M	0.904	450	10x12.5
220	50	227CKS050M	0.754	490	10x12.5
220	50	227CKR050M	0.754	510	10x16
220	100	227CKS100MNU	0.603	745	12.5x20
220	100	227CKR100M	0.603	790	16x25

Cap (uF)	VDC	PART #	Maximum ESR $\Omega$ 120Hz 20°C	Maximum RMS ripple current (mA) 120Hz, 85°C	Dims DxL (mm)
220	250	227CKS250M	1.130	1020	18x35.5
330	10	337CKS010M	1.005	325	6.3x11
330	16	337CKS016MGM	0.804	350	6.3x11
330	25	337CKS025M	0.703	455	8x11.5
330	35	337CKS035M	0.603	580	10x12.5
330	50	337CKS050M	0.502	710	10x16
330	50	337CKR050M	0.502	730	10x20
330	63	337CKS063M	0.502	825	10x20
330	100	337CKS100M	0.402	990	12.5x25
330	160	337CKS160MLAG	1.005	1150	18x30
470	10	477CKS010M	0.705	385	6.3x11
470	16	477CKS016M	0.564	500	8x11.5
470	25	477CKS025M	0.494	630	10x12.5
470	35	477CKS035M	0.423	755	10x16
470	50	477CKS050M	0.353	815	10x20
470	50	477CKR050M	0.353	930	12.5x20
470	63	477CKR063M	0.353	1030	12.5x25
470	63	477CKS063M	0.353	1155	12.5x20
470	100	477CKS100M	0.282	1395	16x25
470	160	477CKS160MLAD	0.705	1480	18x35
470	350	477CKS200MLCD	0.705	1610	18x45
680	50	687CKS050MTJG	0.244	1000	12.5x20
680	50	687CKR050M	0.244	810	12.5x25
680	63	687CKS063MTJD	0.244	1515	12.5x25
680	160	687CKS160MLCD	0.488	1600	18x45
1000	6.3	108CKS6R3M	0.398	610	8x11.5
1000	10	108CKS010M	0.332	795	10x12.5
1000	16	108CKS016MLN	0.332	700	10x12.5
1000	16	108CKS016M	0.332	930	10x16
1000	25	108CKS025M	0.232	1095	10x20
1000	25	108CKR025M	0.232	1095	12.5x20
1000	35	108CKR035M	0.199	1370	12.5x25
1000	35	108CKS035M	0.199	1410	12.5x20
1000	50	108CKS050M	0.166	1715	12.5x25
1000	50	108CKR050M	0.166	1510	16x25
1000	63	108CKR063M	0.166	1670	16x31.5
1000	63	108CKS063M	0.166	2040	16x25
1000	100	108CKS100MRY	0.133	1995	18x35.5
1500	10	158CKS010M	0.243	875	10x16
1500	16	158CKS016M	0.199	1025	10x20
1500	25	158CKS025M	0.177	1210	12.5x20
1500	35	158CKS035M	0.155	1590	12.5x25



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Cap (uF)	VDC	PART #	Maximum ESR $\Omega$ 120Hz 20°C	Maximum RMS ripple current (mA) 120Hz, 85°C	Dims DxL (mm)
1500	35	158CKR035M	0.155	1110	16x25
2200	6.3	228CKS6R3M	0.211	900	10x16
2200	10	228CKS010M	0.181	1230	10x20
2200	16	228CKS016MLU	0.151	1010	10x20
2200	16	228CKS016M	0.151	1555	12.5x20
2200	25	228CKS025M	0.136	1800	12.5x25
2200	25	228CKR025M	0.136	1800	16x25
2200	35	228CKS035M	0.121	2135	16x25
2200	35	228CKR035M	0.121	2090	16x31.5
2200	50	228CKS050MQW	0.106	2320	16x31.5
2200	50	228CKR050M	0.106	2550	18x35.5
2200	63	228CKS063M	0.106	2300	18x35.5
3300	6.3	338CKS6R3M	0.151	1350	10x20
3300	10	338CKS010M	0.131	1685	12.5x20
3300	16	338CKS016M	0.111	1990	12.5x25
3300	25	338CKS025M	0.100	2305	16x25
3300	35	338CKS035MQW	0.090	2340	16x31.5
3300	50	338CKS050M	0.080	3220	18x35.5
3300	63	338CKS063MLCG	0.080	2500	18x40
4700	6.3	478CKS6R3M	0.113	1830	12.5x20
4700	10	478CKS010M	0.099	2105	12.5x25
4700	16	478CKS016M	0.085	2490	16x25

Cap (uF)	VDC	PART #	Maximum ESR $\Omega$ 120Hz 20°C	Maximum RMS ripple current (mA) 120Hz, 85°C	Dims DxL (mm)
4700	25	478CKR025M	0.078	2810	18x35.5
4700	35	478CKS035MQY	0.071	2500	16x35.5
4700	35	478CKS035M	0.071	3400	18x35.5
4700	50	478CKS050MLCG	0.063	3340	18x40
6800	6.3	688CKS6R3M	0.088	1930	12.5x25
6800	10	688CKS010M	0.078	2610	16x25
6800	16	688CKS016MKAG	0.068	3010	16x30
6800	16	688CKS016MQV	0.068	2250	16x25
6800	25	688CKS025MQY	0.063	2600	16x35.5
6800	25	688CKS025M	0.063	3530	18x35.5
6800	35	688CKS035M	0.059	3500	18x40
10000	6.3	109CKS6R3M	0.070	2760	16x25
10000	10	109CKS010MQW	0.063	2960	16x31.5
10000	16	109CKS016MQY	0.056	3490	16x35.5
10000	16	109CKS016M	0.056	3230	18x35.5
10000	25	109CKS025M	0.053	2800	18x40
15000	6.3	159CKS6R3MQW	0.057	2550	16x31.5
15000	6.3	159CKS6R3M	0.057	2860	16x35.5
15000	10	159CKS010MKCG	0.053	3100	16x40
15000	16	159CKS016M	0.053	3100	18x40
22000	6.3	229CKS6R3MRY	0.050	3200	18x35.5
22000	10	229CKS010M	0.047	3400	18x40



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