

CKR/CKS

+85°C General Purpose Radial Lead Aluminum Electrolytic Capacitors



- Standard case sizes
- Multiple case sizes
- Lead free leads
- Bypass
- coupling
- filtering

Operating Temperature Range		-40°C to +85°C (6.3 to 400 WVDC) -25°C to +85°C (450 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	.22	.19	.16	.14	.12	.1	.09	.08	.15	.15	.15	.2	.2	.2
		Add .02 for every 1000uF above 1000uF													
Leakage current	6.3 to 100 WVDC							160 to 450 WVDC							
	1 Minutes							2 Minutes							
	.03CV or 4uA, Whichever is greater							.01CV or 3uA, Whichever is greater							
		.03CV+40uA													
Low temperature stability Impedance ratio (120 Hz)	Rated WVDC	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
	-25°C to +20°C	4	2	2	2	2	2	2	2	3	3	3	6	6	15
	-40°C to +20°C	8	6	4	3	3	3	3	3	6	6	6	6	6	-
Load Life	2000 hours at 85°C with rated WVDC applied														
	Capacitance change	<20% of initial measured value													
	Dissipation factor	<150% of maximum specified value													
	Leakage current	>100% of maximum specified value													
Shelf Life	1000 hours at 85°C with no voltage applied														
	Capacitance change	<20% initial measured value													
	Dissipation factor	<200% of maximum specified value													
	Insulation resistance	>100% of maximum specified value													
Ripple Current Multipliers		Frequency (Hz)				Temperature (°C)									
	WVDC	50	120	1k	10k	+85	+70	+60							
	6.3 to 25V	0.8	1.0	1.10	1.20	1.0	1.3	1.5							
	35 to 100V	0.8	1.0	1.15	1.25	1.0	1.3	1.5							
	160 to 250V	.75	1.0	1.25	1.40	1.0	1.3	1.5							
	350 to 450V	.7	1.0	1.30	1.80	1.0	1.3	1.5							



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Standard Part Listing

Physical Dimensions

WVDC (SV) uF	6.3 (7.9)	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)	63 (79)	100 (125)	160 (200)	200 (250)	250 (300)	350 (400)	400 (450)	450 (500)
0.1	-----	-----	-----	-----	----->	5x11								
0.15	-----	-----	-----	-----	----->	5x11								
0.22	-----	-----	-----	-----	----->	5x11								
0.33	-----	-----	-----	-----	----->	5x11								
0.47	-----	-----	-----	-----	----->	5x11	----->	5x11						
0.68	-----	-----	-----	-----	----->	5x11								
1	-----	-----	-----	-----	----->	5x11	----->	5x11	-----	----->	6.3x11	-----	----->	8x11.5
1.5	-----	-----	-----	-----	----->	5x11								
2.2	-----	-----	-----	-----	----->	5x11	----->	5x11	-----	----->	6.3x11 8x11.5	6.3x11	8x11.5	10x12.5 8x11.5
3.3	-----	-----	-----	-----	----->	5x11	----->	5x11	-----	----->	6.3x11 8x11.5	8x11.5	10x12.5 8x11.5	10x12.5 10x16
4.7	-----	-----	-----	-----	----->	5x11	----->	5x11	-----	----->	6.3x11 8x11.5	10x12.5 8x11.5	10x12.5 10x16	10x12.5 10x16
6.8	-----	-----	-----	-----	-----	----->	5x11							
10	-----	-----	-----	-----	----->	5x11	5x11	5x11 6.3x11	8x11.5	10x12.5 8x11.5	10x12.5 10x16	10x12.5 10x20	10x16	10x20 12.5x20
15	-----	-----	-----	-----	----->	5x11	----->	8x11.5						
22	-----	-----	-----	-----	----->	5x11	5x11 6.3x11	6.3x11 8x11.5	10x12.5 10x16	10x16 10x20	10x20	12.5x20	12.5x25	13x26 16x25
33	-----	-----	-----	-----	----->	5x11 6.3x11	6.3x11	10x12.5 8x11.5	10x16 10x20	10x20	12.5x20	12.5x25	16x25	16x25 16x31.5
47	-----	-----	-----	----->	5x11	6.3x11	6.3x11 8x11.5	10x12.5 10x16 8x11.5	10x21 12.5x25	----->	12.5x20 12.5x25 16x25	16x25	16x25 16x31.5	16x31.5 18x35.5
68	-----	-----	----->	6.3x11	----->	8x11.5	10x12.5	10x16						
100	-----	----->	5x11	5x11	6.3x11	8x11.5	10x12.5	10x16 10x20 12.5x20	12.5x25	----->	16x25 16x31.5	18x35.5	18x35.5	18x40
150	----->	6.3x11	----->	8x11.5	10x12.5	10x16	----->	12.5x20						
220	----->	5x11 6.3x11	6.3x11	6.3x11 8x11.5	10x12.5 8x11.5	10x12.5 10x16	10x16 10x20	12.5x20 12.5x25 16x25	16x31.5	16x35.5	18x35.5			
330	----->	6.3x11	6.3x11	8x11.5	10x12.5	10x16 10x20	10x20	12.5x25 16x25	18x35.5	18x40				
470	----->	6.3x11	8x11.5	10x12.5	10x16	10x20 12.5x20	12.5x20 12.5x25	16x25						
680	-----	----->	10x16	----->	12.5x20	12.5x25								
1000	8x11.5	10x12.5	10x12.5 10x16	10x16 10x20 12.5x20	12.5x20 12.5x25	12.5x25 16x25	16x25 16x31.5	18x35.5						
1500	----->	10x16	10x20	12.5x20	12.5x25 16x25	16x31.5								

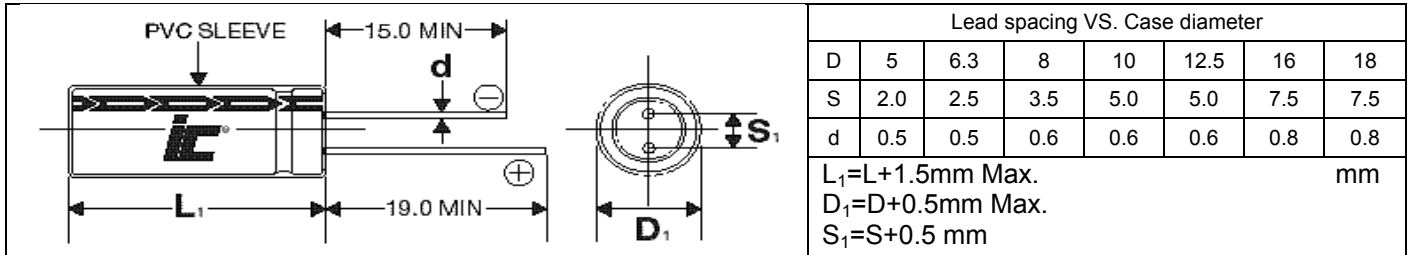


CKR/CKS

Radial lead General Purpose Aluminum Electrolytic Capacitor

Standard Part Listing

WVDC (SV) uF	6.3 (7.9)	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)	63 (79)	100 (125)	160 (200)	200 (250)	250 (300)	350 (400)	400 (450)	450 (500)
2200	10x16	10x16 10x20	10x21 12.5x20	12.5x25 16x25	16x25 16x31.5	16x31.5 16x35.5 18x35.5	18x35.5							
3300	10x20 12.5x20	12.5x20 12.5x25	12.5x25 16x25	16x25	16x31.5 16x35.5 18x35.5	18x35.5								
4700	12.5x20	12.5x25	16x25	16x25 16x31.5 18x35.5	16x35.5 18x35.5									
6800	12.5x25	16x25	16x25 16x35.5 18x35.5	16x35.5 18x35.5	18x40									
10000	16x25	16x31.5	16x35.5 18x35.5	18x40										
15000	16x31.5 16x35.5	16x35.5 18x35.5	18x40											
22000	18x35.5	18x40												



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Radial lead General Purpose Aluminum Electrolytic Capacitor

Standard Part Listing

Cap (uF)	VDC	PART #	Maximum ESR Ω 120Hz 20C	Maximum RMS ripple current (mA) 120Hz,85C	DxL (mm)
0.1	50	104CKR050M	1658.705	1.5	5x11
0.15	50	154CKR050M	1105.803	2	5x11
0.22	50	224CKR050M	753.957	9	5x11
0.33	50	334CKR050M	502.638	10	5x11
0.47	50	474CKR050M	352.916	16	5x11
0.47	100	474CKR100M	282.333	18	5x11
0.68	50	684CKR050M	243.927	9	5x11
1	50	105CKR050M	165.870	24	5x11
1	100	105CKR100M	132.696	26	5x11
1	250	105CKR250M	248.806	29	6.3x11
1	450	105CKS450M	331.741	29	8x11.5
1.5	50	155CKR050M	110.580	18	5x11
2.2	50	225CKR050M	75.396	35	5x11
2.2	100	225CKS100M	60.317	39	5x11
2.2	250	225CKS250M	113.094	43	6.3x11
2.2	250	225CKR250M	113.094	31	8x11.5
2.2	350	225CKS350M	150.791	30	6.3x11
2.2	400	225CKS400M	150.791	44	8x11.5
2.2	450	225CKS450M	150.791	45	10x12.5
2.2	450	225CKS450MJM	150.791	28	8x11.5
3.3	50	335CKS050M	50.264	43	5x11
3.3	100	335CKS100M	40.211	48	5x11
3.3	250	335CKS250MGM	75.396	40	6.3x11
3.3	250	335CKS250M	75.396	60	8x11.5
3.3	350	335CKS350MJM	100.528	43	8x11.5
3.3	400	335CKS400M	100.528	55	10x12.5
3.3	400	335CKS400MJM	100.528	48	8x11.5
3.3	450	335CKS450MLM	100.528	40	10x12.5
3.3	450	335CKS450M	100.528	60	10x16
4.7	50	475CKR050M	35.292	50	5x11
4.7	100	475CKR100M	28.233	55	5x11
4.7	250	475CKS250MGM	52.937	50	6.3x11
4.7	250	475CKS250M	52.937	75	8x11.5
4.7	350	475CKS350M	70.583	65	10x12.5
4.7	350	475CKS350MJM	70.583	55	8x11.5
4.7	400	475CKS400MLN	70.583	60	10x12.5
4.7	400	475CKS400M	70.583	75	10x16
4.7	450	475CKS450MLN	70.583	46	10x12.5
4.7	450	475CKS450M	70.583	75	10x16
6.8	63	685CKR063M	24.393	51	5x11
10	50	106CKR050M	16.587	110	5x11
10	63	106CKR063M	13.270	75	5x11
10	100	106CKS100MEM	13.270	70	5x11

Cap (uF)	VDC	PART #	Maximum ESR Ω 120Hz 20C	Maximum RMS ripple current (mA) 120Hz,85C	DxL (mm)
10	100	106CKS100M	13.270	95	6.3x11
10	160	106CKS160M	24.881	90	8x11.5
10	200	106CKS200M	24.881	100	10x12.5
10	200	106CKS200MJM	24.881	80	8x11.5
10	250	106CKS250MLN	24.881	100	10x12.5
10	250	106CKS250M	24.881	120	10x16
10	350	106CKS350MLQ	33.174	90	10x12.5
10	350	106CKS350M	33.174	120	10x20
10	400	106CKS400MLQ	33.174	90	10x16
10	450	106CKS450MLU	33.174	80	10x20
10	450	106CKS450M	33.174	130	12.5x20
15	50	156CKR050M	11.058	78	5x11
15	100	156CKR100M	8.846	98	8x11.5
22	50	226CKR050M	7.540	110	5x11
22	63	226CKS063M	7.540	110	5x11
22	63	226CKR063M	6.032	130	6.3x11
22	100	226CKS100M	6.032	140	6.3x11
22	100	226CKR100M	6.032	160	8x11.5
22	160	226CKS160MLN	11.309	130	10x12.5
22	160	226CKS160M	11.309	160	10x16
22	200	226CKS200MLQ	11.309	150	10x16
22	200	226CKS200M	11.309	190	10x20
22	250	226CKS250MLU	11.309	150	10x20
22	350	226CKS350M	15.079	190	12.5x20
22	400	226CKS400M	15.079	210	12.5x25
22	450	226CKS450MNV	15.079	140	13x26
22	450	226CKS450M	15.079	210	16x25
33	50	336CKS050M	5.026	140	5x11
33	50	336CKR050M	5.026	150	6.3x11
33	63	336CKR063M	5.026	150	6.3x11
33	100	336CKR100M	4.021	210	10x12.5
33	100	336CKS100M	4.021	200	8x11.5
33	160	336CKS160MLQ	7.540	180	10x16
33	160	336CKS160M	7.540	210	10x20
33	200	336CKS200MLU	7.540	200	10x20
33	250	336CKS250M	7.540	270	12.5x20
33	350	336CKS350M	10.053	250	12.5x25
33	400	336CKS400M	10.053	260	16x25
33	450	336CKS450MQV	10.053	180	16x25
33	450	336CKS450M	10.053	280	16x31.5
47	35	476CKS035M	4.235	150	5x11
47	50	476CKR050M	3.529	180	6.3x11
47	63	476CKS063M	3.529	180	6.3x11



CKR/CKS

Radial lead General Purpose Aluminum Electrolytic Capacitor

Standard Part Listing

Cap (uF)	VDC	PART #	Maximum ESR Ω 120Hz 20C	Maximum RMS ripple current (mA) 120Hz,85C	DxL (mm)
47	63	476CKR063M	3.529	210	8x11.5
47	100	476CKS100M	2.823	250	10x12.5
47	100	476CKR100M	2.823	280	10x16
47	100	476CKS100MJM	2.823	200	8x11.5
47	160	476CKS160MLU	5.294	210	10x21
47	160	476CKR160M	5.294	270	12.5x25
47	250	476CKS250M	5.294	350	12.5x25
47	250	476CKS250MNU	5.294	270	13x21
47	250	476CKR250M	5.294	350	16x25
47	350	476CKS350M	7.058	300	16x25
47	400	476CKS400MQV	7.058	280	16x25
47	400	476CKR400M	7.058	350	16x31.5
47	450	476CKS450MQW	7.058	220	16x31.5
47	450	476CKS450M	7.058	380	18x35.5
68	25	686CKR025M	3.415	170	6.3x11
68	50	686CKR050M	2.439	200	8x11.5
68	63	686CKR063M	1.951	215	10x12.5
68	100	686CKR100M	1.951	282	10x16
100	16	107CKS016M	2.654	180	5x11
100	25	107CKS025MEM	2.322	180	5x11
100	35	107CKS035M	1.990	240	6.3x11
100	50	107CKR050M	1.659	310	8x11.5
100	63	107CKR063M	1.659	330	10x12.5
100	63	107CKS063MJM	1.659	280	8x11.5
100	100	107CKS100MLQ	1.327	340	10x16
100	100	107CKS100M	1.327	450	10x20
100	100	107CKR100M	1.327	480	12.5x20
100	160	107CKS160M	2.488	440	12.5x25
100	250	107CKS250MQV	2.488	440	16x25
100	250	107CKS250M	2.488	570	16x31.5
100	350	107CKS350M	3.317	550	18x35.5
100	400	107CKS400M	3.317	570	18x35.5
100	450	107CKS450M	3.317	550	18x40
150	10	157CKR010M	2.212	188	6.3x11
150	25	157CKR025M	1.548	258	8x11.5
150	35	157CKR035M	1.327	291	10x12.5
150	50	157CKR050M	1.106	330	10x16
150	100	157CKR100M	0.885	425	12.5x20
220	10	227CKS010M	1.508	250	5x11
220	10	227CKR010M	1.508	290	6.3x11

Cap (uF)	VDC	PART #	Maximum ESR Ω 120Hz 20C	Maximum RMS ripple current (mA) 120Hz,85C	DxL (mm)
220	16	227CKS016M	1.206	310	6.3x11
220	25	227CKS025MGM	1.056	280	6.3x11
220	25	227CKR025M	1.056	390	8x11.5
220	35	227CKR035M	0.905	450	10x12.5
220	35	227CKS035M	0.905	420	8x11.5
220	50	227CKS050M	0.754	490	10x12.5
220	50	227CKR050M	0.754	540	10x16
220	63	227CKS063M	0.754	540	10x16
220	63	227CKR063M	0.754	600	10x20
220	100	227CKS100MNU	0.603	550	12.5x20
220	100	227CKS100M	0.603	790	12.5x25
220	100	227CKR100M	0.603	790	16x25
220	160	227CKS160MQW	1.131	580	16x31.5
220	200	227CKS200M	1.131	700	16x35.5
220	250	227CKS250M	1.131	680	18x35.5
330	10	337CKS010M	1.005	350	6.3x11
330	16	337CKS016MGM	0.804	320	6.3x11
330	25	337CKS025M	0.704	480	8x11.5
330	35	337CKS035M	0.603	550	10x12.5
330	50	337CKS050M	0.503	670	10x16
330	50	337CKR050M	0.503	730	10x20
330	63	337CKS063M	0.503	730	10x20
330	100	337CKS100M	0.402	960	12.5x25
330	100	337CKR100M	0.402	970	16x25
330	160	337CKS160M	0.754	800	18x35.5
330	200	337CKS200M	0.754	950	18x40
470	10	477CKS010M	0.706	420	6.3x11
470	16	477CKS016M	0.565	540	8x11.5
470	25	477CKS025M	0.494	600	10x12.5
470	35	477CKS035M	0.423	720	10x16
470	50	477CKS050M	0.353	820	10x20
470	50	477CKR050M	0.353	930	12.5x20
470	63	477CKS063M	0.353	930	12.5x20
470	63	477CKR063M	0.353	1030	12.5x25
470	100	477CKS100M	0.282	1160	16x25
680	16	687CKR016M	0.390	596	10x16
680	35	687CKR035M	0.293	770	12.5x20
680	50	687CKR050M	0.244	810	12.5x25
1000	6.3	108CKS6R3M	0.398	670	8x11.5
1000	10	108CKS010M	0.332	760	10x12.5



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Standard Part Listing

Cap (uF)	VDC	PART #	Maximum ESR Ω 120Hz 20C	Maximum RMS ripple current (mA) 120Hz,85C	DxL (mm)
1000	16	108CKS016MLN	0.332	700	10x12.5
1000	16	108CKS016M	0.332	920	10x16
1000	25	108CKS025MLQ	0.232	890	10x16
1000	25	108CKS025M	0.232	1080	10x20
1000	25	108CKR025M	0.232	1150	12.5x20
1000	35	108CKS035M	0.199	1240	12.5x20
1000	35	108CKR035M	0.199	1370	12.5x25
1000	50	108CKS050M	0.166	1500	12.5x25
1000	50	108CKR050M	0.166	1510	16x25
1000	63	108CKS063M	0.166	1510	16x25
1000	63	108CKR063M	0.166	1670	16x31.5
1000	100	108CKS100MRY	0.133	1350	18x35.5
1500	10	158CKS010M	0.243	897	10x16
1500	16	158CKS016M	0.199	1075	10x20
1500	25	158CKS025M	0.177	1340	12.5x20
1500	35	158CKS035M	0.155	1590	12.5x25
1500	35	158CKR035M	0.155	1110	16x25
1500	50	158CKS050M	0.133	1650	16x31.5
2200	6.3	228CKS6R3M	0.211	1110	10x16
2200	10	228CKS010MLQ	0.181	990	10x16
2200	10	228CKS010M	0.181	1310	10x20
2200	16	228CKS016MLU	0.151	1010	10x20
2200	16	228CKS016M	0.151	1510	12.5x20
2200	25	228CKS025M	0.136	1760	12.5x25
2200	25	228CKR025M	0.136	1770	16x25
2200	35	228CKS035M	0.121	1890	16x25
2200	35	228CKR035M	0.121	2090	16x31.5
2200	50	228CKS050MQW	0.106	1980	16x31.5
2200	50	228CKS050M	0.106	2390	16x35.5
2200	50	228CKR050M	0.106	2550	18x35.5
2200	63	228CKS063M	0.106	2300	18x35.5
3300	6.3	338CKS6R3M	0.151	1440	10x20
3300	6.3	338CKR6R3M	0.151	1380	12.5x20
3300	10	338CKS010M	0.131	1630	12.5x20
3300	10	338CKR010M	0.131	1800	12.5x25

Cap (uF)	VDC	PART #	Maximum ESR Ω 120Hz 20C	Maximum RMS ripple current (mA) 120Hz,85C	DxL (mm)
3300	16	338CKS016M	0.111	1930	12.5x25
3300	16	338CKR016M	0.111	1940	16x25
3300	25	338CKS025M	0.101	2040	16x25
3300	35	338CKS035MQW	0.090	2100	16x31.5
3300	35	338CKS035M	0.090	2530	16x35.5
3300	35	338CKR035M	0.090	2700	18x35.5
3300	50	338CKS050M	0.080	2890	18x35.5
4700	6.3	478CKS6R3M	0.113	1730	12.5x20
4700	10	478CKS010M	0.099	2020	12.5x25
4700	16	478CKS016M	0.085	2160	16x25
4700	25	478CKS025MQV	0.078	2200	16x25
4700	25	478CKS025M	0.078	2500	16x31.5
4700	25	478CKR025M	0.078	2810	18x35.5
4700	35	478CKS035MQY	0.071	2500	16x35.5
4700	35	478CKS035M	0.071	2960	18x35.5
6800	6.3	688CKS6R3M	0.088	2160	12.5x25
6800	10	688CKS010M	0.078	2270	16x25
6800	16	688CKS016MQV	0.068	2250	16x25
6800	16	688CKS016M	0.068	2600	16x35.5
6800	16	688CKR016M	0.068	2980	18x35.5
6800	25	688CKS025MQY	0.063	2600	16x35.5
6800	25	688CKS025M	0.063	2880	18x35.5
6800	35	688CKS035M	0.059	2800	18x40
10000	6.3	109CKS6R3M	0.066	2330	16x25
10000	10	109CKS010MQW	0.063	2550	16x31.5
10000	16	109CKS016MQY	0.056	2710	16x35.5
10000	16	109CKS016M	0.056	3230	18x35.5
10000	25	109CKS025M	0.053	2800	18x40
15000	6.3	159CKS6R3MQW	0.058	2550	16x31.5
15000	6.3	159CKS6R3M	0.058	3050	16x35.5
15000	10	159CKS010MQY	0.053	2880	16x35.5
15000	10	159CKS010M	0.053	3360	18x35.5
15000	16	159CKS016M	0.053	3100	18x40
22000	6.3	229CKS6R3MRY	0.050	3200	18x35.5
22000	10	229CKS010M	0.048	3400	18x40

