

# KXM

## +105°C Low Impedance Radial Lead Aluminum Electrolytic Capacitors



*For switching regulators and extended life applications*

### FEATURES

- High Ripple Current
  - High Frequency
  - Extended Life
- Voltage Range: 6.3 WVDC to 100 WVDC
  - Capacitance Range: .47  $\mu$ F to 15000  $\mu$ F

### SPECIFICATIONS

Capacitance Tolerance		$\pm 20\%$ at 120Hz, 20°C								
Operating Temperature Range		$-55^{\circ}\text{C}$ to $+105^{\circ}\text{C}$								
Dissipation Factor 120Hz, 20°C	WVDC	6.3	10	16	25	35	50	63	100	
	$\tan \delta$	.22	.19	.16	.14	.12	.1	.08	.08	
<b>Note:</b> For above D.F. specifications, add .02 for every 1,000 $\mu$ F above 1,000 $\mu$ F										
Impedance Ratio (Max.) @120Hz	WVDC	6.3	10	16	25	35	50	63	100	
	$-25^{\circ}\text{C}/20^{\circ}\text{C}$	2	2	2	2	2	2	2	2	
	$-40^{\circ}\text{C}/20^{\circ}\text{C}$	3	3	3	3	3	3	3	3	
Leakage Current	WVDC	$< 100$ WVDC								
	Time	<b>2 minutes</b>								
		.01 CV or 3 $\mu$ A whichever is greater								
Load Life	<b>5000 hours at <math>+105^{\circ}\text{C}</math> with rated WVDC and rated ripple current (4000 hours for D=10, 3000 hours for D=8, 2000 hours for D<math>\leq</math>6.3)</b>									
	Capacitors will meet the requirements listed below.									
	Capacitance change Dissipation factor Leakage current					$\leq 25\%$ of initial measured value $\leq 200\%$ of initial specified value $\leq 100\%$ of specified value				
Shelf Life	1,000 hours at $+105^{\circ}\text{C}$ with no voltage applied. Units will meet load life specifications									
Ripple Current Multipliers		Frequency (Hz)					Temperature ( $^{\circ}\text{C}$ )			
	Capacitance ( $\mu$ F)	50	120	1K	10K	100K	+105	+85	+70	
	$C \leq 33$	.45	.55	.75	.91	1.0	1.0	1.41	1.65	
	$47 < C \leq 330$	.60	.70	.85	.95	1.0	1.0	1.41	1.65	
	$470 < C \leq 1000$	.65	.75	.90	.98	1.0	1.0	1.41	1.65	
	$C > 1000$	.75	.80	.95	1.0	1.0	1.0	1.41	1.65	

### SPECIAL ORDER OPTIONS

(See pages 33 thru 37)

- Special tolerances:  $\pm 10\%$  (K),  $-10\% + 30\%$  (Q)
- Tape and Reel/Ammo-Pack
- Cut, Formed, Cut and Formed, and Snap In Leads



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## PHYSICAL DIMENSIONS

WVDC (µF)	6.3 (7.9)	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)	63 (79)	100 (125)
0.47								5x11
0.68								5x11
1								5x11
1.5								5x11
2.2								5x11
3.3								5x11
4.7						5x11		6.3x11
6.8								6.3x11
10						5x11	5x11	6.3x11
12							5x11	6.3x11
15							6.3x11	6.3x15
18							6.3x11	6.3x15
22						5x11	6.3x11	8x11.5
27							6.3x11	10x12.5 8x15
33					5x11	6.3x11	6.3x15	10x12.5 8x15
39							6.3x15	10x15 8x20
47				5x11		6.3x11	8x11.5	10x20 12.5x15
56			5x11		6.3x11	6.3x11	10x12.5 8x15	10x20 12.5x15
68			5x11		6.3x11	8x11.5	10x12.5 8x15	10x25 12.5x15
82							10x15 8x20	10x31.5 16x15
100		5x11		6.3x11		8x11.5	10x20 12.5x15	10x31.5 16x15
120			6.3x11			8x15	10x20 12.5x15	12.5x25 16x15
150	5x11				8x11.5	10x12.5	10x25 12.5x15	12.5x25 18x15
180						8x20	10x31.5 16x15	12.5x31.5 16x20
220		6.3x11		8x11.5	10x12.5 8x15	10x16	12.5x20 16x15	12.5x35.5 16x25
270					8x20	10x20	12.5x25 18x15	12.5x40 18x20
330	6.3x11		8x11.5	10x12.5 8x15	10x16	10x25	12.5x25 18x15	16x31.5 18x25
390							12.5x31.5 16x20	16x35.5 18x31.5
470		8x11.5	10x12.5 8x15	10x16 8x20	10x20	12.5x20	12.5x35.5 16x25	16x40 18x35.5
560	8x11.5				10x25	12.5x25	12.5x40 18x20	18x35.5
680		10x12.5 8x15	10x16 8x20	10x20	12.5x20	12.5x31.5	16x31.5 18x25	18x40
820	8x15			10x25		12.5x35.5	16x35.5 18x31.5	
1000	10x12.5	10x16 8x20	10x20	12.5x20	12.5x25	16x25	16x40 18x35.5	
1200	10x16 8x20	10x20	10x25	12.5x20	12.5x31.5	16x31.5	18x40	
1500	10x20	10x25	12.5x20	12.5x25	12.5x35.5 16x25	16x35.5		
1800				12.5x31.5	16x25			
2200	10x25	12.5x20	12.5x25	12.5x35.5 16x25	16x31.5	18x35.5		
2700			12.5x31.5	16x25				
3300	12.5x20	12.5x25	12.5x35.5 16x25	16x31.5	18x35.5	18x40		
3900	12.5x25	12.5x31.5	16x25					
4700	12.5x31.5	12.5x35.5 16x25	16x31.5	18x35.5				
5600	12.5x35.5	16x25						
6800	16x25	16x31.5	18x35.5					
10000	16x31.5	18x35.5	18x40					
15000	18x35.5	18x40						

D x L (mm)

Aluminum Electrolytic

## STANDARD PART LISTING

Capacitance (µF)	WVDC	IC® PART NUMBER	Maximum ESR Ω 120Hz, +20°C	Impedance Ω +20°C/-10°C 100kHz	Maximum RMS Ripple Current (mA) +105°C 100kHz	Dimensions DxL (mm)
0.47	100	474KXM100M	282.190	45/121.5	20	5x11
0.68	100	684KXM100M	195.043	25/67.5	24	5x11
1	100	105KXM100M	132.629	17/46	26	5x11
1.5	100	155KXM100M	88.419	10/27	33	5x11
2.2	100	225KXM100M	60.286	6.8/18.36	45	5x11
3.3	100	335KXM100M	40.191	4.15/11.205	55	5x11
4.7	50	475KXM050M	35.274	1.699/5.096	80	5x11
4.7	100	475KXM100M	28.219	3/8.1	70	6.3x11
6.8	100	685KXM100M	19.504	2/5.4	85	6.3x11
10	50	106KXM050M	16.579	1.331/3.992	110	5x11
10	63	106KXM063M	13.263	1.08/2.16	137	5x11
10	100	106KXM100M	13.263	1.25/3.375	106	6.3x11
12	63	126KXM063M	11.052	0.95/1.9	148	5x11
12	100	126KXM100M	11.052	1/2.7	115	6.3x11
15	63	156KXM063M	8.842	0.75/1.5	185	6.3x11
15	100	156KXM100M	8.842	0.82/2.214	132	6.3x15
18	63	186KXM063M	7.368	0.64/1.28	198	6.3x11
18	100	186KXM100M	7.368	0.69/1.863	155	6.3x15
22	50	226KXM050M	7.536	0.34/1.18	238	5x11
22	63	226KXM063M	6.029	0.53/1.06	220	6.3x11
22	100	226KXM100M	6.029	0.57/1.54	230	8x11.5
27	63	276KXM063M	4.912	0.43/0.86	240	6.3x11
27	100	276KXM100M	4.912	0.5/1.4	270	10x12.5
27	100	276KXM100MJP	4.912	0.48/1.3	280	8x15
33	35	336KXM035M	6.029	0.3/1	250	5x11
33	50	336KXM050M	5.024	0.564/1.411	230	6.3x11
33	63	336KXM063M	4.019	0.36/0.72	308	6.3x15
33	100	336KXM100M	4.019	0.44/1.19	295	10x12.5
33	100	336KXM100MJP	4.019	0.4/1.08	300	8x15
39	63	396KXM063M	3.401	0.31/0.62	325	6.3x15
39	100	396KXM100M	3.401	0.38/1.03	340	10x15
39	100	396KXM100MJU	3.401	0.34/0.92	350	8x20
47	25	476KXM025M	4.938	0.3/1	250	5x11
47	50	476KXM050M	3.527	0.453/1.132	270	6.3x11
47	63	476KXM063M	2.822	0.26/0.52	370	8x11.5
47	100	476KXM100M	2.822	0.3/0.81	420	10x20
47	100	476KXM100MNP	2.822	0.33/0.89	400	12.5x15
56	16	566KXM016M	4.737	0.3/1	250	5x11
56	35	566KXM035M	3.553	0.13/0.41	405	6.3x11
56	50	566KXM050M	2.960	0.14/0.5	385	6.3x11
56	63	566KXM063M	2.368	0.24/0.48	445	10x12.5
56	63	566KXM063MJP	2.368	0.22/0.44	460	8x15
56	100	566KXM100M	2.368	0.25/0.675	455	10x20
56	100	566KXM100MNP	2.368	0.29/0.78	430	12.5x15

Capacitance (µF)	WVDC	IC® PART NUMBER	Maximum ESR Ω 120Hz, +20°C	Impedance Ω +20°C/-10°C 100kHz	Maximum RMS Ripple Current (mA) +105°C 100kHz	Dimensions DxL (mm)
68	16	686KXM016M	3.901	0.5/1.25	180	5x11
68	35	686KXM035M	2.926	0.397/0.991	280	6.3x11
68	50	686KXM050M	2.438	0.352/0.88	380	8x11.5
68	100	686KXM100MNP	1.950	0.25/0.675	465	12.5x15
82	63	826KXM063M	1.617	0.16/0.32	580	10x15
82	63	826KXM063MJU	1.617	0.17/0.34	600	8x20
82	100	826KXM100M	1.617	0.2/0.54	610	10x31.5
82	100	826KXM100MQP	1.617	0.21/0.567	680	16x15
100	10	107KXM010M	3.150	0.3/1	250	5x11
100	25	107KXM025M	2.321	0.13/0.41	405	6.3x11
100	50	107KXM050M	1.658	0.074/0.22	724	8x11.5
100	63	107KXM063M	1.326	0.13/0.26	748	10x20
100	63	107KXM063MNP	1.326	0.15/0.3	700	12.5x15
100	100	107KXM100M	1.326	0.16/0.432	660	10x31.5
100	100	107KXM100MQP	1.326	0.18/0.486	715	16x15
120	16	127KXM016M	2.210	0.13/0.41	405	6.3x11
120	50	127KXM050M	1.382	0.061/0.18	950	8x15
120	63	127KXM063M	1.105	0.11/0.22	820	10x20
120	63	127KXM063MNP	1.105	0.125/0.15	755	12.5x15
120	100	127KXM100M	1.105	0.135/0.351	770	12.5x25
120	100	127KXM100MQP	1.105	0.15/0.405	795	16x15
150	6.3	157KXM6R3M	2.432	0.3/1	250	5x11
150	35	157KXM035M	1.326	0.072/0.22	760	8x11.5
150	50	157KXM050M	1.105	0.061/0.18	979	10x12.5
150	63	157KXM063M	0.884	0.092/0.184	940	10x25
150	63	157KXM063MNP	0.884	0.095/0.19	847	12.5x15
150	100	157KXM100M	0.884	0.12/0.324	800	12.5x25
150	100	157KXM100MRP	0.884	0.13/0.351	915	18x15
180	50	187KXM050M	0.921	0.046/0.14	1190	8x20
180	63	187KXM063M	0.737	0.077/0.154	1100	10x31.5
180	63	187KXM063MQP	0.737	0.082/0.164	1025	16x15
180	100	187KXM100M	0.737	0.1/0.27	900	12.5x31.5
180	100	187KXM100MQU	0.737	0.11/0.3	995	16x20
220	10	227KXM010M	1.432	0.13/0.41	405	6.3x11
220	25	227KXM025M	1.055	0.072/0.22	760	8x11.5
220	35	227KXM035MLN	0.904	0.128/0.319	630	10x12.5
220	35	227KXM035M	0.904	0.056/0.17	995	8x15
220	50	227KXM050M	0.754	0.042/0.12	1370	10x16
220	63	227KXM063M	0.603	0.067/0.134	1145	12.5x20
220	63	227KXM063MQP	0.603	0.072/0.144	1125	16x15
220	100	227KXM100M	0.603	0.088/0.238	1000	12.5x35.5
220	100	227KXM100MQV	0.603	0.094/0.254	1150	16x25
270	35	277KXM035M	0.737	0.041/0.13	1250	8x20
270	50	277KXM050M	0.614	0.03/0.09	1580	10x20

## STANDARD PART LISTING

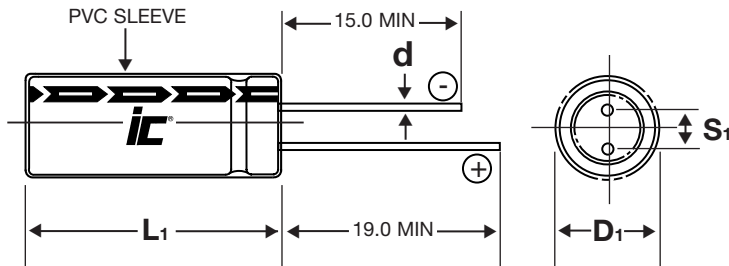
Capacitance (µF)	WVDC	IC <sup>®</sup> PART NUMBER	Maximum ESR Ω 120Hz, +20°C	Impedance Ω +20°C/-10°C 100kHz	Maximum RMS Ripple Current (mA) +105°C 100kHz	Dimensions DxL (mm)
270	63	277KXM063M	0.491	0.056/0.112	1350	12.5x25
270	63	277KXM063MRP	0.491	0.06/0.12	1300	18x15
270	100	277KXM100M	0.491	0.074/0.2	1110	12.5x40
270	100	277KXM100MRU	0.491	0.082/0.221	1225	18x20
330	6.3	337KXM6R3M	1.105	0.13/0.41	405	6.3x11
330	16	337KXM016M	0.804	0.072/0.22	760	8x11.5
330	25	337KXM025MLN	0.703	0.108/0.27	700	10x12.5
330	25	337KXM025M	0.703	0.056/0.17	995	8x15
330	35	337KXM035M	0.603	0.038/0.12	1430	10x16
330	50	337KXM050M	0.502	0.028/0.085	1870	10x25
330	63	337KXM063M	0.402	0.05/0.1	1425	12.5x25
330	63	337KXM063MRP	0.402	0.051/0.102	1400	18x15
330	100	337KXM100M	0.402	0.065/0.176	1520	16x31.5
330	100	337KXM100MRV	0.402	0.072/0.194	1425	18x25
390	63	397KXM063M	0.340	0.044/0.088	1625	12.5x31.5
390	63	397KXM063MQU	0.340	0.047/0.094	1500	16x20
390	100	397KXM100M	0.340	0.055/0.149	1725	16x35.5
390	100	397KXM100MRW	0.340	0.063/0.17	1600	18x31.5
470	10	477KXM010M	0.670	0.072/0.22	760	8x11.5
470	16	477KXM016MLN	0.564	0.093/0.233	660	10x12.5
470	16	477KXM016M	0.564	0.056/0.17	995	8x15
470	25	477KXM025MLQ	0.494	0.088/0.221	920	10x16
470	25	477KXM025M	0.494	0.041/0.13	1250	8x20
470	35	477KXM035M	0.423	0.023/0.069	1820	10x20
470	50	477KXM050M	0.353	0.027/0.068	2050	12.5x20
470	63	477KXM063M	0.282	0.04/0.08	1785	12.5x35.5
470	63	477KXM063MQV	0.282	0.042/0.084	1700	16x25
470	100	477KXM100M	0.282	0.049/0.132	1920	16x40
470	100	477KXM100MRY	0.282	0.056/0.157	1775	18x35.5
560	6.3	567KXM6R3M	0.651	0.072/0.22	760	8x11.5
560	35	567KXM035M	0.355	0.022/0.066	2150	10x25
560	50	567KXM050M	0.296	0.023/0.059	2410	12.5x25
560	63	567KXM063M	0.237	0.036/0.072	1950	12.5x40
560	63	567KXM063MRU	0.237	0.04/0.08	1725	18x20
560	100	567KXM100M	0.237	0.043/0.116	2050	18x35.5
680	10	687KXM010MLN	0.463	0.077/0.194	760	10x12.5
680	10	687KXM010M	0.463	0.056/0.17	995	8x15
680	16	687KXM016MLQ	0.390	0.074/0.184	880	10x16
680	16	687KXM016M	0.390	0.041/0.13	1250	8x20
680	25	687KXM025M	0.341	0.023/0.069	1820	10x20
680	35	687KXM035M	0.293	0.021/0.053	2360	12.5x20
680	50	687KXM050M	0.244	0.021/0.052	2860	12.5x31.5
680	63	687KXM063M	0.195	0.033/0.066	2050	16x31.5

Capacitance (µF)	WVDC	IC <sup>®</sup> PART NUMBER	Maximum ESR Ω 120Hz, +20°C	Impedance Ω +20°C/-10°C 100kHz	Maximum RMS Ripple Current (mA) +105°C 100kHz	Dimensions DxL (mm)
680	63	687KXM063MRV	0.195	0.036/0.072	1950	18x25
680	100	687KXM100M	0.195	0.038/0.103	2300	18x40
820	6.3	827KXM6R3M	0.445	0.056/0.17	995	8x15
820	25	827KXM025M	0.283	0.022/0.066	2150	10x25
820	50	827KXM050M	0.202	0.019/0.051	3960	12.5x35.5
820	63	827KXM063M	0.162	0.03/0.06	2225	16x35.5
820	63	827KXM063MRW	0.162	0.032/0.064	2100	18x31.5
1000	6.3	108KXM6R3M	0.365	0.053/0.16	1030	10x12.5
1000	10	108KXM010MLQ	0.315	0.063/0.158	1030	10x16
1000	10	108KXM010M	0.315	0.041/0.13	1250	8x20
1000	16	108KXM016M	0.265	0.023/0.069	1820	10x20
1000	25	108KXM025M	0.199	0.021/0.053	2360	12.5x20
1000	35	108KXM035M	0.199	0.018/0.045	2770	12.5x25
1000	50	108KXM050M	0.166	0.021/0.056	3010	16x25
1000	63	108KXM063M	0.133	0.028/0.056	2375	16x40
1000	63	108KXM063MRY	0.133	0.03/0.06	2280	18x35.5
1200	6.3	128KXM6R3MLQ	0.332	0.058/0.144	1090	10x16
1200	6.3	128KXM6R3M	0.332	0.041/0.13	1250	8x20
1200	10	128KXM010M	0.290	0.023/0.069	1820	10x20
1200	16	128KXM016M	0.249	0.022/0.066	2150	10x25
1200	25	128KXM025M	0.221	0.05/0.124	1730	12.5x20
1200	35	128KXM035M	0.193	0.016/0.041	3290	12.5x31.5
1200	50	128KXM050M	0.138	0.042/0.083	2710	16x31.5
1200	63	128KXM063M	0.138	0.026/0.052	2500	18x40
1500	6.3	158KXM6R3M	0.265	0.023/0.069	1820	10x20
1500	10	158KXM010M	0.232	0.022/0.066	2150	10x25
1500	16	158KXM016M	0.199	0.021/0.053	2360	12.5x20
1500	25	158KXM025M	0.177	0.018/0.045	2770	12.5x25
1500	35	158KXM035M	0.155	0.015/0.039	3400	12.5x35.5
1500	35	158KXM035MQV	0.155	0.04/0.079	2250	16x25
1500	50	158KXM050M	0.133	0.035/0.071	3010	16x35.5
1800	25	188KXM025M	0.147	0.016/0.041	3290	12.5x31.5
1800	35	188KXM035M	0.129	0.016/0.043	3460	16x25
2200	6.3	228KXM6R3M	0.196	0.022/0.066	2150	10x25
2200	10	228KXM010M	0.173	0.021/0.053	2360	12.5x20
2200	16	228KXM016M	0.151	0.018/0.045	2770	12.5x25
2200	25	228KXM025M	0.136	0.015/0.039	3400	12.5x35.5
2200	25	228KXM025MQV	0.136	0.032/0.065	2390	16x25
2200	35	228KXM035M	0.121	0.031/0.077	2880	16x31.5
2200	50	228KXM050M	0.106	0.027/0.055	3690	18x35.5
2700	16	278KXM016M	0.123	0.016/0.041	3290	12.5x31.5
2700	25	278KXM025M	0.111	0.016/0.043	3460	16x25
3300	6.3	338KXM6R3M	0.141	0.021/0.053	2360	12.5x20

## STANDARD PART LISTING

Capacitance (µF)	WVDC	IC® PART NUMBER	Maximum ESR Ω 120Hz, +20°C	Impedance Ω +20°C/-10°C 100kHz	Maximum RMS Ripple Current (mA) +105°C 100kHz	Dimensions DxL (mm)
3300	10	338KXM010M	0.126	0.018/0.045	2770	12.5x25
3300	16	338KXM016M	0.111	0.015/0.039	3400	12.5x35.5
3300	16	338KXM016MQV	0.111	0.029/0.057	2200	16x25
3300	25	338KXM025M	0.100	0.027/0.054	3020	16x31.5
3300	35	338KXM035M	0.090	0.026/0.064	3650	18x35.5
3300	50	338KXM050M	0.080	0.023/0.046	4350	18x40
3900	6.3	398KXM6R3M	0.119	0.018/0.045	2770	12.5x25
3900	10	398KXM010M	0.106	0.016/0.041	3290	12.5x31.5
3900	16	398KXM016M	0.094	0.016/0.043	3460	16x25
4700	6.3	478KXM6R3M	0.106	0.016/0.041	3290	12.5x31.5
4700	10	478KXM010M	0.095	0.015/0.039	3400	12.5x35.5
4700	10	478KXM010MQV	0.095	0.025/0.051	2350	16x25

Capacitance (µF)	WVDC	IC® PART NUMBER	Maximum ESR Ω 120Hz, +20°C	Impedance Ω +20°C/-10°C 100kHz	Maximum RMS Ripple Current (mA) +105°C 100kHz	Dimensions DxL (mm)
4700	16	478KXM016M	0.085	0.024/0.048	2670	16x31.5
4700	25	478KXM025M	0.078	0.023/0.046	3700	18x35.5
5600	6.3	568KXM6R3M	0.095	0.015/0.039	3400	12.5x35.5
5600	10	568KXM010M	0.086	0.016/0.043	3460	16x25
6800	6.3	688KXM6R3M	0.083	0.016/0.043	3460	16x25
6800	10	688KXM010M	0.076	0.023/0.045	2850	16x31.5
6800	16	688KXM016M	0.068	0.022/0.043	3280	18x35.5
10000	6.3	109KXM6R3M	0.055	0.022/0.043	3000	16x31.5
10000	10	109KXM010M	0.061	0.021/0.041	3430	18x35.5
10000	16	109KXM016M	0.060	0.019/0.039	3670	18x40
15000	6.3	159KXM6R3M	0.048	0.02/0.041	3610	18x35.5
15000	10	159KXM010M	0.052	0.019/0.039	3850	18x40



NOTE: Case Vent is standard on all diameter ≥8.0mm

### LEAD INFORMATION V.S. CASE DIAMETER

D	5.0	6.3	8.0	10.0	12.5	16.0	18.0
d	0.5	0.5	0.6	0.6	0.6	0.8	0.8
S	2.0	2.5	3.5	5.0	5.0	7.5	7.5

L<sub>1</sub>=L + 2.0 Max.  
D<sub>1</sub>=D + 0.5 mm Max.  
S<sub>1</sub>=S ± 0.5 mm Max.