

# FXM

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



For all general purpose applications

### FEATURES

- Low Profile
  - Extended Life
- Voltage Range: 6.3 WVDC to 400 WVDC
  - Capacitance Range: 0.1  $\mu$ F to 10,000  $\mu$ F

### SPECIFICATIONS

Capacitance Tolerance		$\pm 20\%$ at 120Hz, 25°C											
Operating Temperature Range		-55°C to + 105°C								-40°C to + 105°C			
Dissipation Factor 120Hz, 20	WVDC	6.3	10	16	25	35	50	63	100	160	200	250	400
	$\tan \delta$	.28	.24	.20	.16	.14	.12	.1	.08	.2	.2	.2	.25
Note: 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	160	200	250	400
	-25°C/20°C	5	4	3	2	2	2	2	2	4	4	4	4
	-40°C/20°C	10	8	6	4	3	3	3	3	15	15	15	10
Leakage Current	WVDC	$\leq 100$ WVDC				$\leq 100$ WVDC				$\geq 160$ WVDC			
	Time	1 minute				2 minutes				1 minute			
		.03 CV or 4 $\mu$ A whichever is greater				.01 CV or 3 $\mu$ A whichever is greater				.04 CV + 100 $\mu$ A			
Load Life	1000 hours at +105°C with rated WVDC												
	Capacitance change Dissipation factor Leakage current						$\leq 20\%$ of initial measured value $\leq 200\%$ of initial specified value $\leq 100\%$ of specified value						
Shelf Life	1,000 hours at +105°C with no voltage applied. Units will meet load life specifications												
Ripple Current Multipliers	WVDC	Capacitance ( $\mu$ F)	Frequency (Hz)					Temperature (°C)					
			50	120	300	1K	10K	+105	+85	+60			
	6.3 to 100	$C \leq 47$	.75	1.0	1.35	1.57	2.0	1.0	1.4	1.75			
	6.3 to 100	$47 < C \leq 470$	.8	1.0	1.23	1.34	1.5	1.0	1.4	1.75			
	6.3 to 100	$C > 470$	.85	1.0	1.10	1.13	1.15	1.0	1.4	1.75			
	160 to 400	$10 \leq C \leq 150$	.8	1.0	1.25	1.40	1.6	1.0	1.4	1.75			

Aluminum Electrolytic

### 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



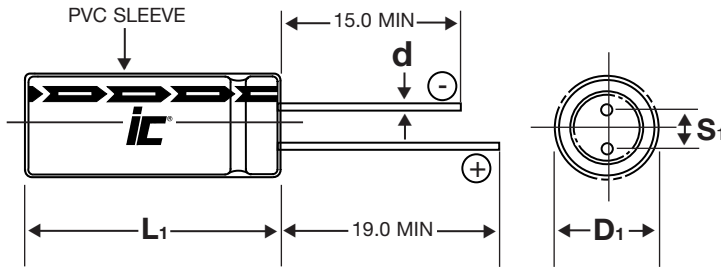
ILLINOIS CAPACITOR, INC. 3757 W. Touhy Ave., Lincolnwood, IL 60712 • (847) 675-1760 • Fax (847) 673-2850 • www.illcap.com

## PHYSICAL DIMENSIONS

WVDC (SV) (μF)	6.3 (7.9)	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)	63 (79)	100 (125)	160 (200)	200 (250)	250 (300)	400 (450)
0.1						5x9		5x9				
0.22						5x9		5x9				
0.33						5x9		5x9				
0.47						5x9		5x9				
1						5x9		5x9				
2.2						5x9		5x9				
3.3						5x9		5x9				
4.7						5x9		5x9				
10						5x9	5x9	6.3x9				16x15
22						5x9	6.3x9	8x9			16x15	18x15
33					5x9	6.3x9	6.3x9	10x9		16x15	18x15	18x20
47				5x9	6.3x9	6.3x9	8x9	10x12.5	16x15	18x15	18x20	18x25
68									18x15	18x20	18x20	
100	5x9	6.3x9	6.3x9	8x9	10x9	10x12.5	12.5x15	12.5x15	18x20	18x25	18x25	
150									18x25	18x25		
220	6.3x9	6.3x9	8x9	10x9	10x9	10x12.5	12.5x12.5	16x15				
330	6.3x9	8x9	10x9	10x9	10x12.5	12.5x12.5	12.5x15	18x20				
470	8x9	8x9	10x9	10x12.5	12.5x12.5	16x15	18x15	18x25				
1000	10x9	10x12.5	12.5x12.5	12.5x15	16x15	18x20	18x25					
2200	12.5x15	12.5x15	16x15	18x15	18x20							
3300	16x15	16x15	18x15	18x20								
4700	16x15	18x15	18x20	18x25								
6800	18x15	18x20	18x25									
10000	18x20	18x25										

Convert to inches, divide by 25.4

DxL(mm)



Note: Case Vent is standard on all diameters ≥ 8.0 mm.

### LEAD INFORMATION V.S. CASE DIAMETER

D	5.0	6.3	8.0	10.0	12.5	16.0	18.0
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
B	0.5	0.5	0.5	0.5	0.8	0.5	0.5

L<sub>1</sub>=L+1.5mm Max. L≤20mm

L<sub>1</sub>=L+2mm Max. L>20mm

D<sub>1</sub>=D+B Max.

S<sub>1</sub>=S±0.5 Max.

## STANDARD PART LISTING

Capacitance (μF)	WVDC	IC <sup>®</sup> PART NUMBER	Maximum ESR Ω 120Hz, +20°C	Maximum RMS Ripple Current (mA) 120Hz, +105°C	Dimensions DxL (mm)
0.1	50	104FXM050M	1989.437	1	5x9
0.1	100	104FXM100M	1326.291	2	5x9
0.22	50	224FXM050M	904.289	2	5x9
0.22	100	224FXM100M	602.860	4	5x9
0.33	50	334FXM050M	602.860	3	5x9
0.33	100	334FXM100M	401.906	7	5x9
0.47	50	474FXM050M	423.284	5	5x9
0.47	100	474FXM100M	282.190	10	5x9
1	50	105FXM050M	198.944	12	5x9
1	100	105FXM100M	132.629	15	5x9
2.2	50	225FXM050M	90.429	18	5x9
2.2	100	225FXM100M	60.286	21	5x9
3.3	50	335FXM050M	60.286	25	5x9
3.3	100	335FXM100M	40.191	29	5x9
4.7	50	475FXM050M	42.328	30	5x9
4.7	100	475FXM100M	28.219	32	5x9
10	50	106FXM050M	19.894	46	5x9
10	63	106FXM063M	16.579	50	5x9
10	100	106FXM100M	13.263	55	6.3x9
10	400	106FXM400M	41.447	100	16x15
22	50	226FXM050M	9.043	85	5x9
22	63	226FXM063M	7.536	80	6.3x9
22	100	226FXM100M	6.029	95	8x9
22	250	226FXM250M	15.071	200	16x15
22	400	226FXM400M	18.839	200	18x15
33	35	336FXM035M	7.033	75	5x9
33	50	336FXM050M	6.029	85	6.3x9
33	63	336FXM063M	5.024	95	6.3x9
33	100	336FXM100M	4.019	120	10x9
33	200	336FXM200M	10.048	250	16x15
33	250	336FXM250M	10.048	250	18x15
33	400	336FXM400M	12.560	250	18x20
47	25	476FXM025M	5.644	80	5x9
47	35	476FXM035M	4.938	95	6.3x9
47	50	476FXM050M	4.233	100	6.3x9
47	63	476FXM063M	3.527	125	8x9
47	100	476FXM100M	2.822	165	10x12.5
47	160	476FXM160M	7.055	300	16x15

Capacitance (μF)	WVDC	IC <sup>®</sup> PART NUMBER	Maximum ESR Ω 120Hz, +20°C	Maximum RMS Ripple Current (mA) 120Hz, +105°C	Dimensions DxL (mm)
47	200	476FXM200M	7.055	300	18x15
47	250	476FXM250M	7.055	300	18x20
47	400	476FXM400M	8.818	300	18x25
68	160	686FXM160M	4.876	350	18x15
68	200	686FXM200M	4.876	350	18x20
68	250	686FXM250M	4.876	350	18x20
100	10	107FXM010M	3.979	95	5x9
100	16	107FXM016M	3.316	115	6.3x9
100	25	107FXM025M	2.653	130	6.3x9
100	35	107FXM035M	2.321	155	8x9
100	50	107FXM050M	1.989	170	10x9
100	63	107FXM063M	1.658	220	10x12.5
100	100	107FXM100M	1.326	260	12.5x15
100	160	107FXM160M	3.316	420	18x20
100	200	107FXM200M	3.316	420	18x25
100	250	107FXM250M	3.316	420	18x25
150	160	157FXM160M	2.210	510	18x25
150	200	157FXM200M	2.210	510	18x25
220	6.3	227FXM6R3M	2.110	145	6.3x9
220	10	227FXM010M	1.809	155	6.3x9
220	16	227FXM016M	1.507	205	8x9
220	25	227FXM025M	1.206	220	10x9
220	35	227FXM035M	1.055	235	10x9
220	50	227FXM050M	0.904	290	10x12.5
220	63	227FXM063M	0.754	330	12.5x12.5
220	100	227FXM100M	0.603	440	16x15
330	6.3	337FXM6R3M	1.407	180	6.3x9
330	10	337FXM010M	1.206	210	8x9
330	16	337FXM016M	1.005	240	10x9
330	25	337FXM025M	0.804	270	10x9
330	35	337FXM035M	0.703	340	10x12.5
330	50	337FXM050M	0.603	370	12.5x12.5
330	63	337FXM063M	0.502	430	12.5x15
330	100	337FXM100M	0.402	590	18x20
470	6.3	477FXM6R3M	0.988	235	8x9
470	10	477FXM010M	0.847	275	8x9
470	16	477FXM016M	0.705	290	10x9
470	25	477FXM025M	0.564	370	10x12.5

## STANDARD PART LISTING

Capacitance (μF)	WVDC	IC <sup>®</sup> PART NUMBER	Maximum ESR Ω 120Hz, +20°C	Maximum RMS Ripple Current (mA) 120Hz, +105°C	Dimensions DxL (mm)
470	35	477FXM035M	0.494	420	12.5x12.5
470	50	477FXM050M	0.423	540	16x15
470	63	477FXM063M	0.353	600	18x15
470	100	477FXM100M	0.282	770	18x25
1000	6.3	108FXM6R3M	0.464	370	10x9
1000	10	108FXM010M	0.398	450	10x12.5
1000	16	108FXM016M	0.332	520	12.5x12.5
1000	25	108FXM025M	0.265	590	12.5x15
1000	35	108FXM035M	0.232	720	16x15
1000	50	108FXM050M	0.199	830	18x20
1000	63	108FXM063M	0.166	1000	18x25
2200	6.3	228FXM6R3M	0.241	635	12.5x15
2200	10	228FXM010M	0.211	690	12.5x15
2200	16	228FXM016M	0.181	830	16x15
2200	25	228FXM025M	0.151	970	18x15

Capacitance (μF)	WVDC	IC <sup>®</sup> PART NUMBER	Maximum ESR Ω 120Hz, +20°C	Maximum RMS Ripple Current (mA) 120Hz, +105°C	Dimensions DxL (mm)
2200	35	228FXM035M	0.136	1110	18x20
3300	6.3	338FXM6R3M	0.171	860	16x15
3300	10	338FXM010M	0.151	940	16x15
3300	16	338FXM016M	0.131	1050	18x15
3300	25	338FXM025M	0.111	1220	18x20
4700	6.3	478FXM6R3M	0.127	1010	16x15
4700	10	478FXM010M	0.113	1120	18x15
4700	16	478FXM016M	0.099	1260	18x20
4700	25	478FXM025M	0.085	1470	18x25
6800	6.3	688FXM6R3M	0.098	1200	18x15
6800	10	688FXM010M	0.088	1330	18x20
6800	16	688FXM016M	0.078	1560	18x25
10000	6.3	109FXM6R3M	0.076	1450	18x20
10000	10	109FXM010M	0.070	1700	18x25