

Aluminum Electrolytic Capacitor

MF series

- Low impedance, high reliability, 2000~5000 hours load life.
- Suitable for switching regulator of computer, etc.
- RoHS Compliance
- 低阻抗、高信賴性、3000~5000小時壽命。
- 適用於電腦類開關調節器。

SPECIFICATIONS

Items 項目	Characteristics 特性											
Capacitance Tolerance 靜電容量誤差	± 20%(120Hz,20°C)											
Operating Temperature Range 適用溫度範圍	-40 ~ +105°C						-25 ~ +105°C					
Rated Voltage Range 額定電壓範圍	6.3 ~ 400VDC						450VDC					
Leakage Current 洩漏電流	V ≤ 100V I ≤ 0.01CV or 3 (μA) (After 2 minutes application of DC rated voltage, at 20°C) V > 100V I ≤ 0.03CV +20 (μA) (After 5 minutes application of DC rated voltage, at 20°C)											
Dissipation Factor 散逸因素(tan δ)	Measurement Frequency: 120Hz. Temperature: 20°C											
	Rated Voltage(V)	6.3	10	16	25	35	50	63	100	160~250	350	400~450
	tan δ(Max)	0.20	0.17	0.16	0.14	0.12	0.10	0.08	0.08	0.15	0.20	0.25
Low Temperature Stability 低溫特性 Impedance Ratio(Max) 阻抗比率(最大值)	Measurement Frequency: 120Hz.											
	Rated Voltage(V)	6.3	10	16	25	35	50	63~100	160~250	350~400	450	
	Z(-25°C)/Z(20°C)	4	3	2	2	2	2	2	3	6	15	
	Z(-40°C)/Z(20°C)	8	6	4	3	3	3	3	4	10	-	
Load Life 負荷壽命	5000hours,with application of rated voltage at 105°C (ϕ D ≤ 6.3mm, 3,000 hrs)											
	Capacitance Change		Within ± 20% of Initial Value									
	tan δ		200% or less of Initial Specified Value									
	Leakage Current		Initial Specified Value or less									
Shelf Life 放置壽命	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to them 4.1 of JIS C5101-4.											
	Capacitance Change		Within ± 20% of Initial Value									
	tan δ		150% or less of Initial Specified Value									
	Leakage Current		Initial Specified Value or less									
Standards 參照標準	JIS C 5101-4 (IEC 60384)											

Frequency Coefficient of Permissible Ripple Current

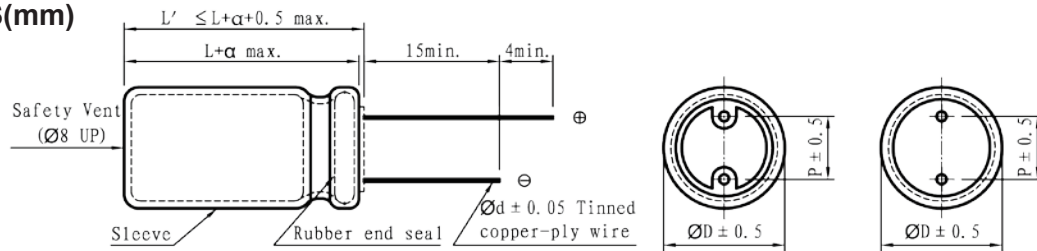
Rated Voltage (V)	Capacitance (μF)	Frequency (Hz)				
		50	120	1K	10K	100K
6.3 ~ 100	10 ~ 150	0.60	0.70	0.85	0.95	1.00
	220 ~ 1800	0.65	0.75	0.90	0.98	1.00
	2200 ~ 15000	0.75	0.80	1.00	1.00	1.00
160 ~ 450	1 ~ 330	0.55	0.65	0.80	0.90	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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DIMENSIONS(mm)



ϕD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ϕd	0.5	0.5	0.5	0.6	0.6	0.8	0.8

α	(L < 16) 1.0 (L ≥ 16) 2.0
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STANDARD RATINGS

D×L(mm) ; R.C.(mA rms) at 105°C 100KHz ; IMP (Ω max)at 20°C 100KHz.

Cap (μF)	V (Code)	6.3 (0J)			10 (1A)			16 (1C)			25 (1E)		
	Item	D x L	R.C.	IMP	D x L	R.C.	IMP	D x L	R.C.	IMP	D x L	R.C.	IMP
33											5x11	145	0.920
47								5x11	180	0.650	6.3x11	210	0.600
100		5x11	140	0.920	5x11	180	0.650	5x11	230	0.550	6.3x11	370	0.350
220		6.3x11	275	0.300	6.3x11	340	0.300	8x12	580	0.280	8x12	640	0.230
330		6.3x11	320	0.300	8x12	580	0.280	8x12	640	0.230	10x13	865	0.080
470		8x12	580	0.280	8x12	640	0.230	8x16	840	0.150	10x16	1210	0.060
560		8x12	640	0.230	10x13	780	0.160	10x13	880	0.100	10x16	1320	0.055
680		8x12	720	0.140	10x13	820	0.110	10x16	1000	0.085	10x20	1380	0.052
820		8x16	840	0.087	8x16	865	0.080	10x16	1040	0.076	10x20	1400	0.046
1000		10x13	865	0.080	10x16	1040	0.076	10x20	1210	0.060	13x21	1900	0.035
1200		10x16	960	0.064	10x16	1210	0.060	10x25	1580	0.042	13x25	2058	0.032
1500		10x16	1210	0.060	10x20	1400	0.058	13x21	1870	0.035	13x25	2124	0.030
1800		10x20	1400	0.058	13x21	1580	0.042	13x21	1900	0.032	13x30	2340	0.028
2200		10x25	1450	0.046	13x21	1900	0.032	13x25	2124	0.030	13x35	2450	0.026
2700		13x21	1580	0.042	13x25	2124	0.030	13x30	2340	0.028	13x35	2743	0.024
3300		13x21	1870	0.035	13x30	2340	0.028	13x35	2450	0.026	16x32	3029	0.022
3900		13x21	1900	0.032	13x35	2450	0.026	16x26	2500	0.028	16x36	3124	0.020
4700		13x25	2124	0.030	16x26	2500	0.028	16x32	3029	0.022	18x35	3638	0.019
5600		13x30	2524	0.026	16x26	2552	0.026	16x36	3124	0.020	18x40	3781	0.016
6800		16x26	2760	0.028	16x32	3029	0.022	16x40	3586	0.019			
8200		16x32	3029	0.022	16x32	3600	0.020	18x35	3750	0.018			
10000		16x36	3124	0.020	18x35	3638	0.019						
12000		18x32	3600	0.020									
15000		18x35	3781	0.018									

Cap (μF)	V (Code)	35 (1V)			50 (1H)			63 (1J)			100 (2A)		
	Item	D x L	R.C.	IMP	D x L	R.C.	IMP	D x L	R.C.	IMP	D x L	R.C.	IMP
10					5x11	120	1.400	5x11	125	1.650	6.3x11	130	1.250
22		5x11	150	0.920	5x11	160	1.200	6.3x11	240	0.780	8x12	230	0.850
33		5x11	220	0.430	6.3x11	230	0.300	8x12	270	0.650	10x13	330	0.690
47		6.3x11	280	0.300	6.3x11	295	0.300	8x12	300	0.504	10x13	370	0.450
100		8x12	450	0.200	10x13	760	0.120	10x16	610	0.160	10x25	560	0.300
220		10x13	760	0.100	10x16	1150	0.078	10x20	1100	0.120	13x25	880	0.280
330		10x16	1210	0.060	13x21	1660	0.055	13x21	1280	0.100	16x26	1440	0.130
470		10x20	1400	0.058	13x25	1950	0.046	13x25	1710	0.082	18x32	1690	0.110
560		13x21	1660	0.055	13x25	2124	0.034	16x26	1820	0.058	18x35	2020	0.043
680		13x21	1900	0.035	13x30	2310	0.030	16x26	1850	0.055	18x35	2100	0.043
820		13x25	2124	0.030	13x35	2510	0.025	16x32	2250	0.043			
1000		13x25	2340	0.028	13x35	2920	0.022	16x36	2450	0.036			
1200		13x30	2524	0.026	16x32	3010	0.022	18x32	2580	0.031			
1500		16x26	2600	0.026	16x36	3150	0.020						
1800		16x26	2850	0.025	18x32	3635	0.020						
2200		16x32	3029	0.022	18x35	3680	0.017						
2700		18x32	3600	0.020									
3300		18x40	3781	0.015									

※ 13mm may be replaced by 12.5mm upon customer's request.

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STANDARD RATINGS

D×L(mm) ; R.C.(mA rms) at 105°C 100KHz ; IMP(Ω max)at 20°C 100KHz

Cap (μF)	V (Code)	160 (2C)		200 (2D)		250 (2E)	
	Item	D x L	R.C.	D x L	R.C.	D x L	R.C.
4.7						8x12	150
10		10x16	330	10x16	330	10x16	330
22		10x20	510	10x20	510	10x20	510
33		10x20	650	10x20	650	13x21	800
47		10x20	750	13x21	980	13x21	980
100		13x25	1420	16x25	1580	16x32	1750
150		16x25	1900	16x25	1900	18x32	2050
330		18x25	2380	18x32	2700		

Cap (μF)	V (Code)	350 (2V)		400 (2G)		450 (2W)	
	Item	D x L	R.C.	D x L	R.C.	D x L	R.C.
2.2				10x13	150		
3.3				10x13	160		
4.7		10x13	140	10x16	230	10x20	210
10		10x20	350	10x20	350	13x21	450
22		13x21	640	13x21	640	16x22	750
33		16x22	850	16x22	850	16x25	950
47		16x25	1030	16x25	1030	18x25	1150
100		16x32	1180	18x32	1180	18x35	1230

※ 13mm may be replaced by 12.5mm upon customer's request.