

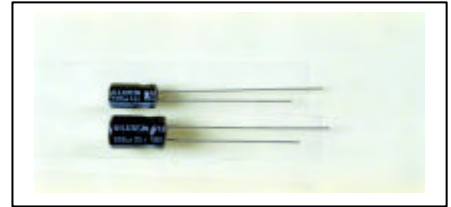


Sharma Electrolytic Capacitors

FM Series

Features
 Lifetime: 105 ,
 2000~ 5000hrs
 Wide temperature range
 Long life

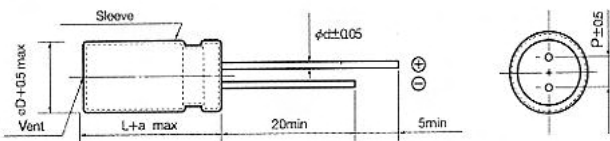
Recommended Applications
 Circuit for control(Low
 voltage)
 Electronic Ballast(High
 voltage)
 SMPS



Specifications

Items	Characteristics											
Capacitance Tolerance	$\pm 20\%$ (M) (120Hz, 20)											
Rated Voltage Range (WV)	10~250 VDC											
Operating Temperature Range	-55 ~ +105											
Surge Voltage (V) (20)	WV	10	16	25	35	50	63	100	160	200	250	
	SV	13	20	32	44	63	79	125	200	250	300	
Leakage Current (Max) (20)	I = 0.01CV or 3 μ A whichever is greater (After rated voltage applied for 2 minutes)						I = 0.03CV+10 μ A (After rated voltage applied for 3 minutes)					
	I= Leakage Current (μ A) C= Nominal Capacitance (μ F) V= Rated Voltage (V)											
Dissipation Factor (Max) (tan) (120Hz , 20)	WV	10	16	25	35	50	63	100	160	200	250	
	tan	0.30	0.25	0.22	0.18	0.15	0.15	0.15	0.20	0.20	0.20	
When nominal capacitance is over 1000 μ F, tan shall be added 0.02 to the listed value with increase of every 1000 μ F.												
Low Temperature Stability Impedance Ratio (Max)	WV		10	16	25	35	50	63	100	160	200	250
	Z (120Hz)											
	Z(-40) / Z(20)		3	2	2	2	2	2	2	2	2	2
Z(-55) / Z(20)		9	6	6	5	5	5	5	5	5	5	
Load Life	After applying rated voltage for 5000 hours at 105 , the capacitor shall meet the following requirement.											
	Capacitance Change		Within $\pm 30\%$ of the initial value									
	Dissipation Factor		Not more than 300% of the specified value									
Leakage Current		Not more than the specified value										
Shelf Life	After placed at 105 without voltage applied for 1000 hours, the capacitor shall meet the same requirement as load life.											
Applicable standards	Refer to JIS C 5101											

Dimensions (mm)



D	8	10	13	16	18
P	3.5	5.0	5.0	7.5	7.5
d	0.6	0.6	0.6 (0.8)	0.8	0.8
a	1.0	1.0	2.0	2.0	2.0

Multiplier for Ripple Current

() : L 30

Frequency coefficient

WV (VDC)	Freq.(Hz)				
	Cap (μ F)	50	120	1K	10K
10~100	0.47~82	0.75	1.00	1.57	2.00
	100~820	0.80	1.00	1.34	1.50
	1000~4700	0.85	1.00	1.13	1.15
160~250	0.47~100	0.80	1.00	1.40	1.60

Temperature coefficient

Ambient Temperature ()	50	70	85	105
Coefficient	1.90	1.75	1.40	1.00



Case Size / Ripple Current / ESR

CASE SIZE (DxL(mm)) / MAX PERMISSIBLE RIPPLE CURRENT (RC(mArms) / 120Hz,105)

wv	10		16		25		35		50		63		100	
SPEC μF	DxL	RC	DxL	RC	DxL	RC	DxL	RC	DxL	RC	DxL	RC	DxL	RC
0.47													8x11	5
1													8x11	15
2.2													8x11	30
3.3													8x11	45
4.7									8x11	70	8x11	70	8x11	70
10									8x11	85	8x11	90	8x11	105
22									8x11	130	8x11	135	10x15	190
33							8x11	150	10x12.5	175	10x12.5	190	10x20	240
47					8x11	160	8x11	170	10x12.5	225	10x12.5	250	13x20	365
100	8x11	210	8x11	220	10x12.5	275	10x12.5	295	10x17	390	10x20	450	16x26	570
220	10x12.5	350	10x12.5	360	10x17	470	10x20	500	13x20	630	13x25	760	16x32	890
330	10x15	490	10x17	520	10x20	620	13x20	740	13x25	840	16x26	1030	16x36	1050
470	10x17	600	10x20	710	13x20	840	13x25	1000	16x26	1100	16x32	1260		
1000	13x20	960	13x25	1130	16x26	1300	16x26	1310	16x36	1630	18x40	2000		
2200	16x26	1470	16x26	1815	16x36	1910	18x36	2100						
3300	16x32	1910	16x36	2160	18x40	2340								
4700	16x36	2630	18x36	2650										

wv	160		200		250	
SPEC μF	DxL	RC	DxL	RC	DxL	RC
0.47					8x11	5
1					8x11	15
2.2	8x11	30	8x11	30	10x12.5	30
3.3	10x12.5	45	10x12.5	45	10x15	45
4.7	10x12.5	70	10x17	70	10x17	70
10	10x17	135	10x20	160	13x20	180
22	13x20	240	13x25	280	13x25	305
33	13x25	315	16x26	400	16x26	430
47	16x26	410	16x26	450	16x32	560
100	16x36	710	18x36	770		