

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

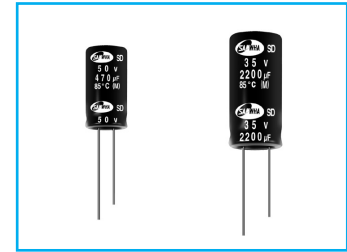
UPGRADE



Standard, For General Purposes Series



Solvent Proof  
WV ≤ 100V

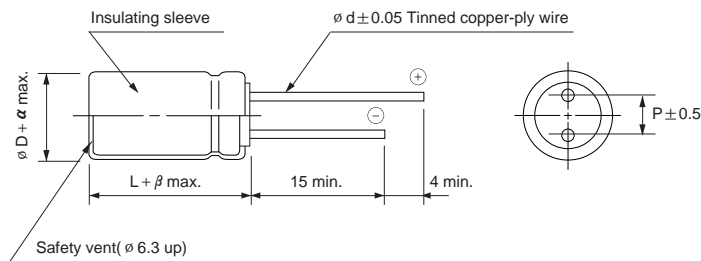


- Standard series for general purposes
- High CV value
- Voltage range of 6.3~500V
- Complied to the RoHS directive

Item	Characteristics										
Operating temperature range	WV	6.3~350      400 ~ 500									
	Temperature range	-40 ~ +85°C      -25 ~ +85°C									
Leakage current max.	WV ≤ 100	WV > 100									
	I = 0.01CV or 3µA whichever is greater (after 2 min) I = 0.03CV or 4µA whichever is greater (after 1 min)      I = 0.02CV+15µA (after 5 min)										
Capacitance tolerance	±20% at 120Hz, 20°C										
Dissipation factor max. (at 120Hz, 20°C)	Capacitance > 1000µF : tanδ increases by 0.02 for each 1000µF from below value.										
	WV	6.3	10	16	25	35	50	63	100	160 ~ 250	350 ~ 500
tanδ	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.08	0.15	0.20
Low temperature characteristics (Impedance ratio at 120Hz)	WV	6.3	10	16	25	35	50 ~ 100	160	200 ~ 350	400 ~ 500	
	Z-25°C/Z+20°C	5	4	3	2	2	2	4	6	12	
	Z-40°C/Z+20°C	12	10	8	5	4	3	6	8	—	
Load life (after application of the rated voltage for 2000 hours at 85°C)	Leakage current	Less than specified value									
	Capacitance change	Within ±20% of initial value									
	tanδ	Less than 200% of specified value									
Shelf life (at 85°C)	After 1000 hours no load test, leakage current, capacitance and tanδ are same as load life value.										

## ● DRAWING

Unit : mm



ø D	5	6.3	8	10	12.5	16	18	22	25.4
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	12.5
ø d	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0
α	0.5							1.0	
β	1.5			2.0					

## SD series

### ● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV μF	SD series																
	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	500		
1.0						5×11 21	5×11 23	5×11 23						8×11.5 26			
1.5						5×11 26	5×11 28	5×11 28						8×11.5 32			
2.2						5×11 32	5×11 34	5×11 34						8×11.5 33			
3.3						5×11 39	5×11 42	5×11 42	6.3×11 45	6.3×11 45	6.3×11 48	8×11.5 53	8×11.5 56	8×11.5 50			
4.7						5×11 46	5×11 50	5×11 50	6.3×11 53	6.3×11 57	6.3×11 57	8×11.5 66	10×12.5 61	10×12.5 72	10×16 69		
6.8						5×11 56	5×11 60	5×11 60	8×11.5 76	8×11.5 76	8×11.5 76	10×12.5 88	10×12.5 87	10×16 86	10×16 76		
10						5×11 68	5×11 72	5×11 76	8×11.5 96	8×11.5 96	10×12.5 107	10×12.5 107	10×16 115	10×20 115	12.5×25 178		
15						5×11 83	5×11 89	6.3×11 89	10×12.5 131	10×16 143	10×16 143	10×20 156	12.5×20 165	12.5×20 164			
22						5×11 101	5×11 108	6.3×11 124	10×12.5 156	10×16 173	10×16 170	12.5×20 222	12.5×20 218	12.5×25 217	16×25 265		
33						5×11 123	6.3×11 151	8×11.5 178	10×16 209	10×20 232	10×20 247	16×20 297	12.5×25 296	16×25 294	16×31.5 310		
47					5×11 131	*6.3×11 169	6.3×11 181	8×11.5 222	10×20 293	10×20 293	12.5×20 319	16×20 353	16×25 387	16×31.5 384	18×31.5 412		
68				5×11 144	*6.3×11 182	6.3×11 203	8×11.5 256	10×12.5 293	12.5×20 391	12.5×25 426	16×20 425	16×25 465	16×31.5 488	16×35.5 503	18×35.5 457		
100			5×11 162	* 5×11 181	6.3×11 220	8×11.5 291	8×11.5 311	10×16 388	12.5×25 516	16×25 516	16×25 564	18×31.5 592	18×35.5 667	18×40 546			
150			* 5×11 198	6.3×11 246	8×11.5 318	●10×12.5 414	10×12.5 422	10×20 528	16×20 632	16×25 691	16×31.5 726	18×40 845	18×40 863	22×45 1283			
220	5×11 201	* 5×11 218	6.3×11 276	6.3×11 327	● 8×11.5 386	10×12.5 501	10×16 586	12.5×20 737	16×25 873	18×31.5 962	18×35.5 988	22×41 1112	22×45 1183				
330	*6.3×11 283	6.3×11 307	6.3×11 359	● 8×11.5 431	10×12.5 549	10×16 672	10×20 784	12.5×25 1002	16×35.5 1152	18×35.5 1206	22×41 1495						
470	6.3×11 338	6.3×11 366	● 8×11.5 476	10×12.5 550	10×16 740	10×20 875	12.5×20 1098	16×25 1328	18×40 1434	22×41 1495	25.4×41 1612						
680	● 8×11.5 480	● 8×11.5 520	8×11.5 600	10×16 754	10×20 947	12.5×20 1235	12.5×25 1440	16×31.5 1643	22×41 1831	22×51 1902	25.4×51 2151						
1000	8×11.5 581	10×12.5 659	10×12.5 796	10×16 942	12.5×20 1306	12.5×25 1633	16×25 1937	18×31.5 1965	25.4×51 2105								
2200	10×16 983	10×16 1051	10×20 1331	12.5×20 1542	16×25 2032	16×31.5 2220	18×31.5 2445	22×51 2612									
3300	10×20 1286	12.5×20 1545	12.5×20 1686	16×25 2194	16×31.5 2502	18×31.5 2765	18×40 2987										
4700	12.5×20 1736	12.5×25 1903	12.5×25 2129	16×25 2448	16×35.5 2905	18×40 3272	25.4×41 3412										
6800	12.5×25 2129	16×25 2332	16×25 2577	18×31.5 3114	18×40 3408	25.4×41 4251	25.4×51 4351	← Case size ϕ D × L (mm) ← Ripple current (mA rms) at 85°C, 120Hz									
10000	16×25 2629	16×31.5 2830	16×31.5 3176	18×40 3544	25.4×41 3899												
15000	16×35.5 2959	16×35.5 3284	18×35.5 3656	25.4×41 4399													
22000	18×40 3733	18×40 3843	22×41 4012														
33000	22×41 5992	25.4×41 6187	25.4×51 6276														
39000	25.4×41 7487	25.4×51 7613															

Size ϕ 8 × 9 is available for capacitors marked "★"  
 Size ϕ 10 × 9 is available for capacitors marked "●"

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

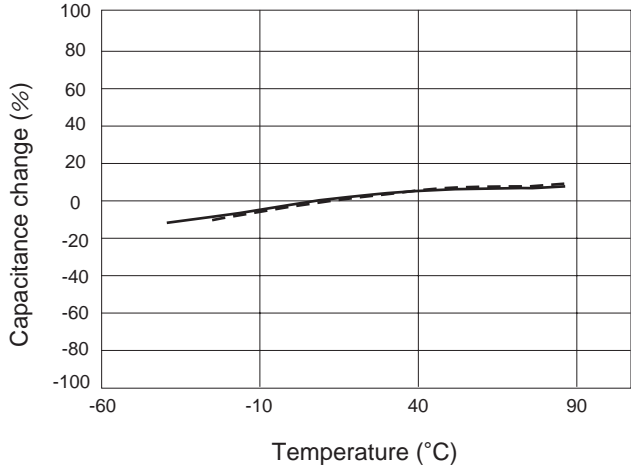
**SD** series

## TYPICAL PERFORMANCE

— 16V 1000 $\mu$ F  
 ..... 400V 10 $\mu$ F

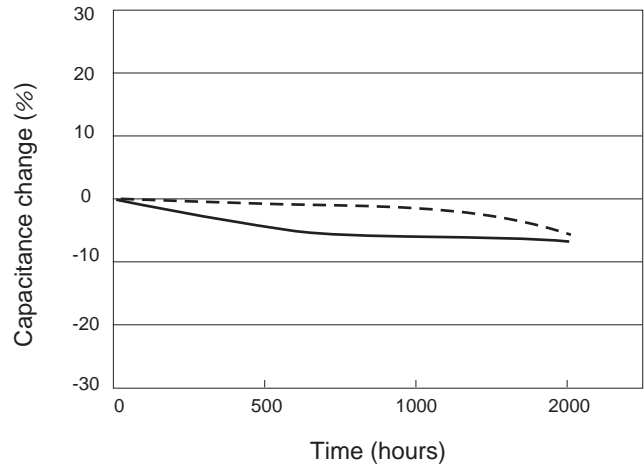
### ● TEMPERATURE CHARACTERISTICS

Capacitance change vs. temperature

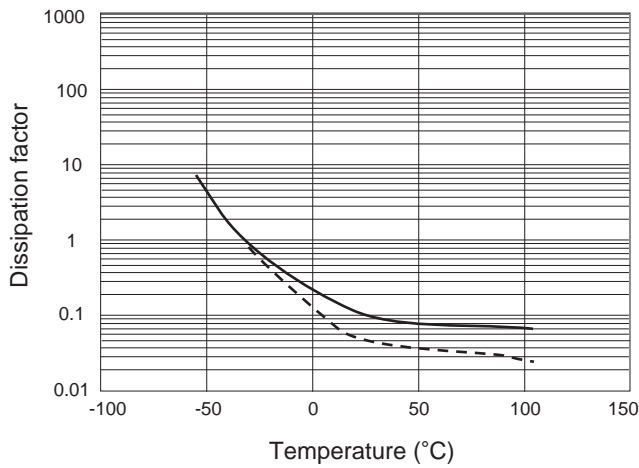


### ● LOAD LIFE (at +85°C)

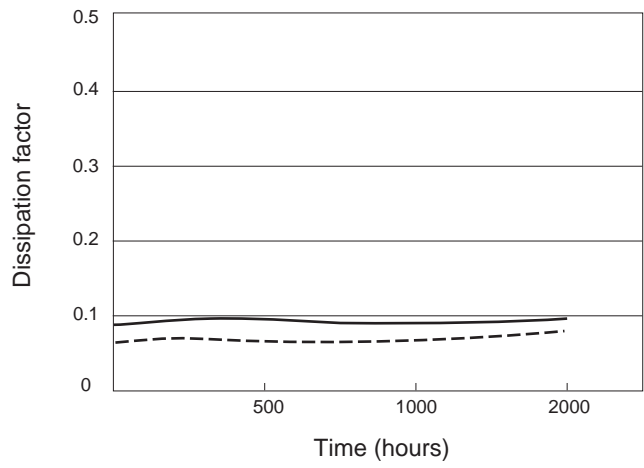
Capacitance change vs. time



Dissipation factor vs. temperature

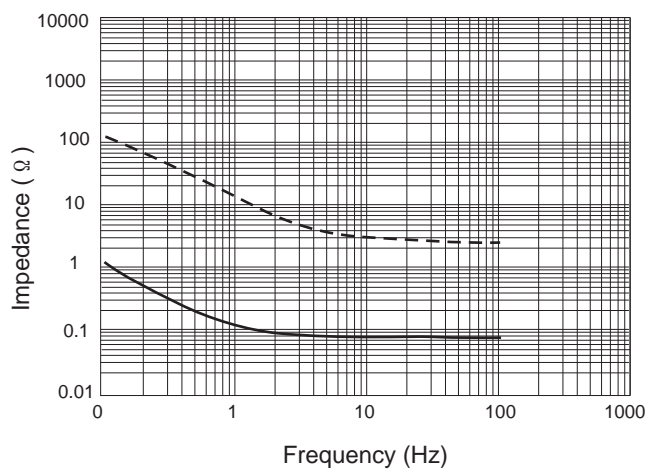


Dissipation factor vs. time

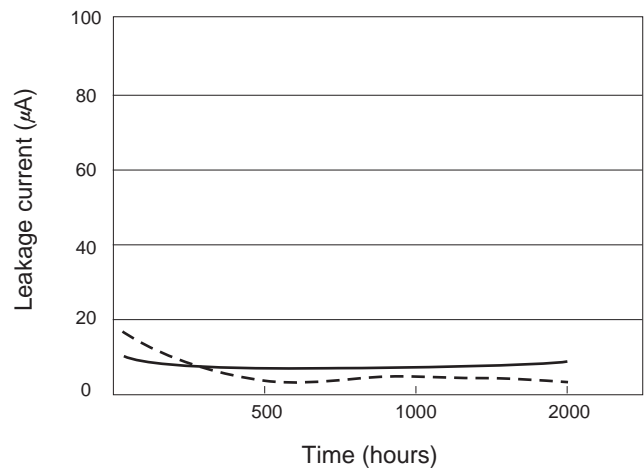


### ● FREQUENCY CHARACTERISTICS

Impedance vs. frequency



Leakage current vs. time



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[450MXK330MA2RFC22X50](#) [63ZLH560MEFCG412.5X30](#) [ELH2DM331O25KT](#) [ELH2DM471P30KT](#)