

ALUMINUM ELECTROLYTIC CAPACITORS



CED Series

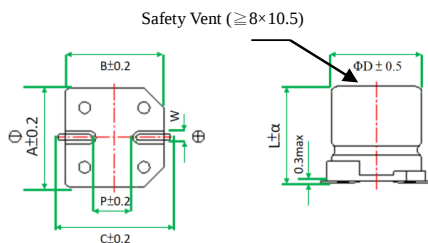
- Extra Low Impedance
- Load life 2,000 to 3,000 hours at 105°C



◆ SPECIFICATIONS

Item	Performance Characteristics																																												
Category Temperature Range	-55 ~ +105°C																																												
Working Voltage Range	6.3 ~ 50Vdc																																												
Capacitance Range	4.7 ~ 3,300 μF																																												
Capacitance Tolerance	±20% (at 25°C and 120Hz)																																												
Dissipation Factor (tanδ) (at 25°C, 120Hz)	<table><tr><td colspan="2">Rated Voltage (V)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td rowspan="2">tanδ(Max)</td><td>Φ4 ~ Φ10</td><td>0.22</td><td>0.20</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.12</td></tr><tr><td>Φ12.5</td><td>0.26</td><td>0.22</td><td>0.18</td><td>0.16</td><td>0.14</td><td>0.12</td></tr></table>							Rated Voltage (V)		6.3	10	16	25	35	50	tanδ(Max)	Φ4 ~ Φ10	0.22	0.20	0.16	0.14	0.12	0.12	Φ12.5	0.26	0.22	0.18	0.16	0.14	0.12															
	Rated Voltage (V)		6.3	10	16	25	35	50																																					
	tanδ(Max)	Φ4 ~ Φ10	0.22	0.20	0.16	0.14	0.12	0.12																																					
Φ12.5		0.26	0.22	0.18	0.16	0.14	0.12																																						
	When nominal capacitance exceeds 1,000uF, add 0.02 to the value above for each 1,000uF increase.																																												
Leakage Current	(Φ 4~ Φ 10) I=0.01CV or 3μA whichever is greater impress the rated voltage for 2 minutes (Φ 12.5) I=0.03CV or 4μA whichever is greater impress the rated voltage for 1 minute I : Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V)																																												
Low Temperature Characteristics Impedance Ratio(MAX)	<table><tr><td colspan="2">Rated voltage (V)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td rowspan="2">Φ4~Φ10</td><td>Z(-25°C)/Z(+20°C)</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-55°C)/Z(+20°C)</td><td>5</td><td>4</td><td>4</td><td>3</td><td>3</td><td>3</td></tr><tr><td rowspan="2">Φ12.5</td><td>Z(-25°C)/Z(+20°C)</td><td>3</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-55°C)/Z(+20°C)</td><td>10</td><td>8</td><td>6</td><td>4</td><td>3</td><td>3</td></tr></table>							Rated voltage (V)		6.3	10	16	25	35	50	Φ4~Φ10	Z(-25°C)/Z(+20°C)	2	2	2	2	2	2	Z(-55°C)/Z(+20°C)	5	4	4	3	3	3	Φ12.5	Z(-25°C)/Z(+20°C)	3	3	2	2	2	2	Z(-55°C)/Z(+20°C)	10	8	6	4	3	3
	Rated voltage (V)		6.3	10	16	25	35	50																																					
	Φ4~Φ10	Z(-25°C)/Z(+20°C)	2	2	2	2	2	2																																					
		Z(-55°C)/Z(+20°C)	5	4	4	3	3	3																																					
	Φ12.5	Z(-25°C)/Z(+20°C)	3	3	2	2	2	2																																					
Z(-55°C)/Z(+20°C)		10	8	6	4	3	3																																						
	(at 120Hz)																																												
Endurance	The following specifications shall be satisfied when the capacitor are restored to 25°C after subjected to DC voltage with the rated voltage is applied for 3,000 hours (Φ 4~6.3×5.8,8×6.5 for 2,000 hours) at 105°C.																																												
	Capacitance change		≦ ±30% of the initial value																																										
	Dissipation factor(tanδ)		≦ 300% of the specified value																																										
	Leakage current		≦ specified value																																										
Shelf Life	The following requirements shall be satisfied when the capacitor are restored to 25°C after exposing them for 1,000 hours at 105°C without voltage applied.																																												
	Capacitance change		≦ ±30% of the initial value																																										
	Dissipation factor(tanδ)		≦ 300% of the specified value																																										
	Leakage current		≦ 200% of the specified value																																										
Others	Conforms to JIS-C-5101-18-2 (1999)																																												

◆ DIMENSIONS (mm)



Code	Size	ΦD	L	α	A	B	C	W	P
0458	4×5.8	4.0	5.8	+0.4 -0.1	4.3	4.3	5.0	0.5~0.8	1.0
0558	5×5.8	5.0	5.8	+0.4 -0.1	5.3	5.3	5.9	0.5~0.8	1.5
6358	6.3×5.8	6.3	5.8	+0.4 -0.1	6.6	6.6	7.3	0.5~0.8	2.1
6377	6.3×7.7	6.3	7.7	± 0.3	6.6	6.6	7.3	0.5~0.8	2.1
0862	8×6.5	8.0	6.5	± 0.3	8.3	8.3	8.8	0.5~0.8	2.2
08A5	8×10.5	8.0	10.5	± 0.5	8.3	8.3	9.1	0.8~1.2	3.1
10A5	10×10.5	10.0	10.5	± 0.5	10.3	10.3	11	0.8~1.2	4.6
10C5	10×12.5	10.0	12.5	± 0.5	10.3	10.3	11	0.8~1.2	4.6
12D5	12.5×13.5	12.5	13.5	± 1.0	12.8	12.8	13.8	0.8~1.2	4.6
1216	12.5×16	12.5	16.0	± 1.0	12.8	12.8	13.8	0.8~1.2	4.6

◆ MARKING

$\leq 4 \Phi$



5~6.3 Φ



$\geq 8 \Phi$



◆ **PART NUMBER SYSTEM (Example : 16V 100 μ F)**

C	E	D	1	C	1	0	1	M	C	B	6	3	7	7					
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Series code (CED)

WV (Vdc)	Cap (μF)	Case Size (mm) ΦD×L	IMP.D. (Ωmax/ 20°C, 100kHz)	Rated Ripple current (mA rms/ 105°C, 100kHz)	Part Number
6.3 (0J)	22	4×5.8	1.8	80	CED0J220MCB0458
	33	4×5.8	1.8	80	CED0J330MCB0458
	33	5×5.8	0.76	150	CED0J330MCB0558
	47	4×5.8	1.8	80	CED0J470MCB0458
	47	5×5.8	1.2	150	CED0J470MCB0558
	56	5×5.8	0.76	150	CED0J560MCB0558
	68	5×5.8	0.76	150	CED0J680MCB0558
	68	6.3×5.8	0.44	230	CED0J680MCB6358
	100	5×5.8	0.76	150	CED0J101MCB0558
	100	6.3×5.8	0.44	230	CED0J101MCB6358
	150	6.3×5.8	0.44	230	CED0J151MCB6358
	220	6.3×5.8	0.44	230	CED0J221MCB6358
	220	6.3×7.7	0.34	280	CED0J221MCB6377
	220	8×6.5	0.34	280	CED0J221MCB0865
	330	6.3×7.7	0.34	280	CED0J331MCB6377
	330	8×6.5	0.34	280	CED0J331MCB0865
	470	8×10.5	0.17	450	CED0J471MCB08A5
	680	8×10.5	0.17	450	CED0J681MCB08A5
	680	10×10.5	0.09	670	CED0J681MCB10A5
	10 (1A)	1000	8×10.5	0.17	450
1000		10×10.5	0.09	670	CED0J102MCB10A5
1500		10×10.5	0.09	670	CED0J152MCB10A5
1500		10×12.5	0.075	800	CED0J152MCB10C5
2200		12.5×13.5	0.065	900	CED0J222MCB12D5
3300		12.5×16	0.060	1050	CED0J332MCB1216
22		4×5.8	1.8	80	CED1A220MCB0458
33		4×5.8	1.8	80	CED1A330MCB0458
33		5×5.8	0.76	150	CED1A330MCB0558
47		5×5.8	0.76	150	CED1A470MCB0558
47		6.3×5.8	0.44	230	CED1A470MCB6358
56		6.3×5.8	0.44	230	CED1A560MCB6358
68		6.3×5.8	0.44	230	CED1A680MCB6358
100		6.3×5.8	0.44	230	CED1A101MCB6358
100		6.3×7.7	0.34	280	CED1A101MCB6377
100		8×6.5	0.34	280	CED1A101MCB0865
150		6.3×7.7	0.34	280	CED1A151MCB6377
220		6.3×7.7	0.34	280	CED1A221MCB6377
220		8×6.5	0.34	280	CED1A221MCB0865
330		8×10.5	0.17	450	CED1A331MCB08A5
470	8×10.5	0.17	450	CED1A471MCB08A5	
680	10×10.5	0.09	670	CED1A681MCB10A5	
1000	10×10.5	0.09	670	CED1A102MCB10A5	

WV (Vdc)	Cap (μF)	Case Size (mm) ΦD×L	IMP.D. (Ωmax/ 20°C, 100kHz)	Rated Ripple current (mA rms/ 105°C, 100kHz)	Part Number
10 (1A)	1500	12.5×13.5	0.065	900	CED1A152MCB12D5
	2200	12.5×16	0.060	1050	CED1A222MCB1216
16 (1C)	10	4×5.8	1.8	80	CED1C100MCB0458
	15	4×5.8	1.8	80	CED1C150MCB0458
	22	4×5.8	1.8	80	CED1C220MCB0458
	22	5×5.8	0.76	150	CED1C220MCB0558
	33	5×5.8	0.76	150	CED1C330MCB0558
	33	6.3×5.8	0.44	230	CED1C330MCB6358
	47	5×5.8	0.8	150	CED1C470MCB0558
	47	6.3×5.8	0.44	230	CED1C470MCB6358
	56	6.3×5.8	0.44	230	CED1C560MCB6358
	68	6.3×5.8	0.44	230	CED1C680MCB6358
	68	6.3×7.7	0.34	280	CED1C680MCB6377
	68	8×6.5	0.34	280	CED1C680MCB0865
	100	6.3×5.8	0.44	230	CED1C101MCB6358
	100	6.3×7.7	0.34	280	CED1C101MCB6377
	100	8×6.5	0.34	280	CED1C101MCB0865
	150	6.3×7.7	0.34	280	CED1C151MCB6377
	220	6.3×7.7	0.34	280	CED1C221MCB6377
	220	8×10.5	0.17	450	CED1C221MCB08A5
	330	8×10.5	0.17	450	CED1C331MCB08A5
	330	10×10.5	0.09	670	CED1C331MCB10A5
	470	8×10.5	0.17	450	CED1C471MCB08A5
	470	10×10.5	0.09	670	CED1C471MCB10A5
	680	10×10.5	0.09	670	CED1C681MCB10A5
	680	10×12.5	0.075	800	CED1C681MCB10C5
1000	12.5×13.5	0.065	900	CED1C102MCB12D5	
1000	12.5×16	0.060	1050	CED1C102MCB1216	
25 (1E)	10	4×5.8	1.8	80	CED1E100MCB0458
	15	5×5.8	0.76	150	CED1E150MCB0558
	22	5×5.8	0.76	150	CED1E220MCB0558
	22	6.3×5.8	0.44	230	CED1E220MCB6358
	33	5×5.8	1.2	150	CED1E330MCB0558
	33	6.3×5.8	0.44	230	CED1E330MCB6358
	47	6.3×5.8	0.44	230	CED1E470MCB6358
	47	6.3×7.7	0.34	280	CED1E470MCB6377
	47	8×6.5	0.34	280	CED1E470MCB0865
	56	6.3×5.8	0.44	230	CED1E560MCB6358
	56	6.3×7.7	0.34	280	CED1E560MCB6377
	68	6.3×7.7	0.34	280	CED1E680MCB6377
	100	6.3×7.7	0.34	280	CED1E101MCB6377
	100	8×6.5	0.34	280	CED1E101MCB0865
	150	6.3×7.7	0.34	280	CED1E151MCB6377

CED Series

◆ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case Size (mm) ΦD×L	IMPD. (Ωmax/ 20°C, 100kHz)	Rated Ripple current (mA _{rms} / 105°C, 100kHz)	Part Number
25 (1E)	150	8×6.5	0.17	450	CED1E151MCB0865
	220	8×10.5	0.17	450	CED1E221MCB08A5
	330	8×10.5	0.17	450	CED1E331MCB08A5
	330	10×10.5	0.09	670	CED1E331MCB10A5
	470	10×10.5	0.09	670	CED1E471MCB10A5
	470	10×12.5	0.075	800	CED1E471MCB10C5
	680	12.5×13.5	0.065	900	CED1E681MCB12D5
	1000	12.5×16	0.060	1050	CED1E102MCB1216
35 (1V)	4.7	4×5.8	1.8	80	CED1V4R7MCB0458
	10	4×5.8	1.8	80	CED1V100MCB0458
	10	5×5.8	0.8	150	CED1V100MCB0558
	15	5×5.8	0.76	150	CED1V150MCB0558
	22	5×5.8	0.76	150	CED1V220MCB0558
	22	6.3×5.8	0.6	230	CED1V220MCB6358
	33	6.3×5.8	0.44	230	CED1V330MCB6358
	33	8×6.5	0.34	280	CED1V330MCB0865
	47	6.3×5.8	0.44	230	CED1V470MCB6358
	47	6.3×7.7	0.34	280	CED1V470MCB6377
	47	8×6.5	0.34	280	CED1V470MCB0865
	56	6.3×7.7	0.34	280	CED1V560MCB6377
	68	6.3×7.7	0.34	280	CED1V680MCB6377
	100	8×10.5	0.17	450	CED1V101MCB08A5
	150	10×10.5	0.09	670	CED1V151MCB10A5
	220	10×10.5	0.09	670	CED1V221MCB10A5
	330	10×10.5	0.09	670	CED1V331MCB10A5
	470	10×12.5	0.075	800	CED1V471MCB10C5

WV (Vdc)	Cap (μF)	Case Size (mm) ΦD×L	IMPD. (Ωmax/ 20°C, 100kHz)	Rated Ripple current (mA _{rms} / 105°C, 100kHz)	Part Number
35 (1V)	470	12.5×13.5	0.065	900	CED1V471MCB12D5
	680	12.5×13.5	0.065	900	CED1V681MCB12D5
	680	12.5×16	0.060	1050	CED1V681MCB1216
	4.7	4×5.8	5	60	CED1H4R7MCB0458
50 (1H)	4.7	5×5.8	1.52	85	CED1H4R7MCB0558
	10	5×5.8	1.52	85	CED1H100MCB0558
	10	6.3×5.8	0.88	165	CED1H100MCB6358
	15	6.3×5.8	0.88	165	CED1H150MCB6358
	22	6.3×5.8	0.88	165	CED1H220MCB6358
	22	6.3×7.7	0.68	185	CED1H220MCB6377
	22	8×6.5	0.68	185	CED1H220MCB0865
	33	6.3×7.7	0.68	185	CED1H330MCB6377
	33	8×6.5	0.68	185	CED1H330MCB0865
	47	6.3×7.7	0.68	185	CED1H470MCB6377
	47	8×6.5	0.68	185	CED1H470MCB0865
	56	6.3×7.7	0.68	185	CED1H560MCB6377
	56	8×10.5	0.34	350	CED1H560MCB08A5
	68	8×10.5	0.34	350	CED1H680MCB08A5
	100	8×10.5	0.34	350	CED1H101MCB08A5
	100	10×10.5	0.18	670	CED1H101MCB10A5
	150	10×10.5	0.18	670	CED1H151MCB10A5
	220	10×10.5	0.18	670	CED1H221MCB10A5
	220	10×12.5	0.16	750	CED1H221MCB10C5
	330	12.5×13.5	0.14	800	CED1H331MCB12D5
	470	12.5×16	0.12	900	CED1H471MCB1216

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Size	Cap(μF)	Frequency (Hz)				
		50	120	300	1K	10K~
Φ4~Φ10	1~68	0.35	0.50	0.64	0.83	1.00
	100~1500	0.40	0.55	0.70	0.85	1.00
Φ12.5	~680	0.45	0.65	0.80	0.90	1.00
	1000~3300	0.65	0.85	0.95	1.00	1.00