

SMD ALUMINUM ELECTROLYTIC CAPACITORS

- CV2 SERIES -

FEATURES

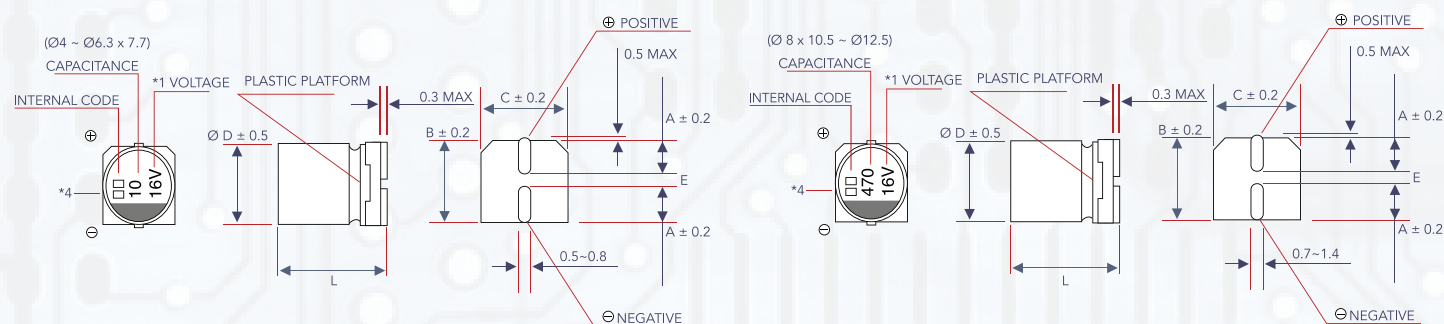
- Designed for surface mounting on high density circuit board
- Emboss carrier tape packing system is available for automatic insertion.

SPECIFICATIONS



ITEM	SPECIFICATION																																																						
Operating Temperature Range	-40°C ~ +85°C																																																						
Voltage Range	4V ~ 100 VDC																																																						
Capacitance Range	1 ~ 10000 μF																																																						
Capacitance Tolerance	±20% (at 120Hz, 20°C)																																																						
Leakage Current (at 20°C)	Leakage current (Ø4 ~ Ø10) ≤0.01CV or 3 μA, whichever is greater (after 2 minutes application of rated voltage) Leakage current (Ø12.5) ≤0.03 CV or 4 μA, whichever is greater (after 1 minute application of rated voltage)																																																						
Dissipation Factor Tan δ at 120Hz, 20°C	<table><tr><td colspan="2">RATED VOLTAGE (V)</td><td>4</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td></tr><tr><td rowspan="2">TAN δ (MAX)</td><td>Ø4~Ø10</td><td>0.35</td><td>0.32</td><td>0.26</td><td>0.20</td><td>0.18</td><td>0.16</td><td>0.14</td><td>0.14</td><td>0.14</td></tr><tr><td>Ø12.5</td><td>0.42</td><td>0.42</td><td>0.38</td><td>0.30</td><td>0.28</td><td>0.22</td><td>0.18</td><td>0.16</td><td>0.16</td></tr></table>											RATED VOLTAGE (V)		4	6.3	10	16	25	35	50	63	100	TAN δ (MAX)	Ø4~Ø10	0.35	0.32	0.26	0.20	0.18	0.16	0.14	0.14	0.14	Ø12.5	0.42	0.42	0.38	0.30	0.28	0.22	0.18	0.16	0.16												
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Stability at Low Temperature Characteristics (at 120Hz)	<table><tr><td colspan="2">RATED VOLTAGE (V)</td><td>4</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50~100</td></tr><tr><td rowspan="4">IMPEDANCE RATIO ZT / Z20 (max.)</td><td rowspan="2">Ø4~Ø10</td><td>Z (-25°C) / Z (+20°C)</td><td>7</td><td>4</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z (-40°C) / Z (+20°C)</td><td>15</td><td>8</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td></tr><tr><td rowspan="2">Ø12.5</td><td>Z (-25°C) / Z (+20°C)</td><td>7</td><td>5</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z (-40°C) / Z (+20°C)</td><td>17</td><td>12</td><td>10</td><td>8</td><td>5</td><td>4</td><td>3</td></tr></table>											RATED VOLTAGE (V)		4	6.3	10	16	25	35	50~100	IMPEDANCE RATIO ZT / Z20 (max.)	Ø4~Ø10	Z (-25°C) / Z (+20°C)	7	4	4	3	2	2	2	Z (-40°C) / Z (+20°C)	15	8	6	4	4	3	3	Ø12.5	Z (-25°C) / Z (+20°C)	7	5	4	3	2	2	2	Z (-40°C) / Z (+20°C)	17	12	10	8	5	4	3
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Load Life Test	After 2000 hours application of rated voltage at 85°C Capacitors meet the characteristics requirements listed below. <table><tr><td>CAPACITANCE CHANGE</td><td>Within ±20% of initial value (within ± 30% of initial value for 4V)</td></tr><tr><td>DISSIPATION FACTOR</td><td>200% or less of initial specified value</td></tr><tr><td>LEAKAGE CURRENT</td><td>Initial specified value or less</td></tr></table>											CAPACITANCE CHANGE	Within ±20% of initial value (within ± 30% of initial value for 4V)	DISSIPATION FACTOR	200% or less of initial specified value	LEAKAGE CURRENT	Initial specified value or less																																						
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Shelf Life Test	After leaving capacitors under no load at 85°C for 1000 hours The meet the specified value for load life characteristics listed above.																																																						
Ripple Current & Frequency Multipliers	After reflow soldering and restored at room temperature, they meet the characteristics listed below. <table><tr><td>CAPACITANCE CHANGE</td><td>Within ±10% of initial value</td></tr><tr><td>DISSIPATION FACTOR</td><td>Initial specified value or less</td></tr><tr><td>LEAKAGE CURRENT</td><td>Initial specified value or less</td></tr></table>											CAPACITANCE CHANGE	Within ±10% of initial value	DISSIPATION FACTOR	Initial specified value or less	LEAKAGE CURRENT	Initial specified value or less																																						
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DIMENSIONS



$\varnothing D \times L$	4 x 5.4	5 x 5.4	6.3 x 5.4	6.3 x 7.7	8 x 6.5	8 x 10.5	10 x 10.5	10 x 13.5	12.5 x 13.5	12.5 x 16	16 x 16.5	18 x 16.5
A	1.8	2.1	2.4	2.4	3.3	2.9	3.2	3.2	4.7	4.8	6.0	6.4
B	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.2	17.2	19.2
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.2	17.2	19.2
E	1.0 $\pm$ 0.2	1.3 $\pm$ 0.2	2.2 $\pm$ 0.2	2.2 $\pm$ 0.2	2.2 $\pm$ 0.2 / 3.1 $\pm$ 0.2	3.1 $\pm$ 0.2	4.4 $\pm$ 0.2	4.4 $\pm$ 0.2	4.8 $\pm$ 0.6	4.6	6.6	6.6
L	5.4 $\pm$ 0.6	5.4 $\pm$ 0.6	5.4 $\pm$ 0.6	7.7 $\pm$ 0.6	6.5 $\pm$ 0.6	10.5 $\pm$ 0.6	10.5 $\pm$ 0.6	13.5 $\pm$ 1.0	13.5 $\pm$ 1.0	16.3	16.8	16.8

**PART NUMBER****CV2**

SERIES NAME

Series is represented by a three/four digit code

1C

RATED VOLTAGE

OG - 4V
OJ - 6.3V
1A - 10V
1C - 16V
1E - 25V
1V - 35V
1H - 50V
1J - 63V
2A - 100V**100**

CAPACITANCE

4R7 - 4.7 μ F
100 - 10 μ F
471 - 470 μ F
102 - 1000 μ F**M**

TOLERANCE

M: -20% ~ +20%

D55

CASE SIZE

D55-4x5.4 G68-8x6.5
E55-5x5.4 G10-8x10.5
F55-6.3x5.4 H10-10x10.5
F80-6.3x7.7 H13-10x13.5
K14-12.5x13.5
K16-12.5x16
L17-16x16.5
M17-18x16.5**R**

PACKAGE TYPE

R - Taping polarity with reel package in 380mm

**FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT**

	FREQUENCY	50Hz	120Hz	1KHz	10KHz~
COEFFICIENT	$\leq 1000 \mu\text{F}$	0.70	1.00	1.20	1.30
	$> 1000 \mu\text{F}$	0.80	1.00	1.10	1.20

**STANDARD SIZE**

- Allowable Ripple (mA ms) at 85°C 120Hz

WV	CAP (μF)	4V		6.3V		10V		16V		25V		35V		50V	
		(OG)		(OJ)		(1A)		(1C)		(1E)		(1V)		(1H)	
		CASE SIZE	RIPPLE CURRENT	CASE SIZE	RIPPLE CURRENT	CASE SIZE	RIPPLE CURRENT	CASE SIZE	RIPPLE CURRENT	CASE SIZE	RIPPLE CURRENT	CASE SIZE	RIPPLE CURRENT	CASE SIZE	RIPPLE CURRENT
4.7	4R7	--	--	--	--	--	--	--	--	4 x 5.4	13				
10	100	--	--	--	--	--	--	4 x 5.4	18	4 x 5.4	14				
										5 x 5.4	20				
15	150	--	--	--	--	--	--	4 x 5.4	25	5 x 5.4	27				
22	220	--	--	4 x 5.4	20	4 x 5.4	20	4 x 5.4	20	5 x 5.4	25				
						5 x 5.4	25	5 x 5.4	27	6.3 x 5.4	36				
33	330	4 x 5.4	18	4 x 5.4	22	4 x 5.4	22	5 x 5.4	28	5 x 5.4	29				
				5 x 5.4	27	5 x 5.4	30	6.3 x 5.4	31	6.3 x 5.4	44				
47	470	4 x 5.4	24	4 x 5.4	23	5 x 5.4	30	5 x 5.4	30	6.3 x 5.4	48				
				5 x 5.4	30	6.3 x 5.4	49	6.3 x 5.4	48	8 x 6.5	80				
56	560	4 x 5.4	27	5 x 5.4	32	6.3 x 5.4	40	6.3 x 5.4	52	6.3 x 5.4	48				
68	680	5 x 5.4	31	5 x 5.4	41	6.3 x 5.4	50	6.3 x 5.4	56	6.3 x 5.4	50				
				6.3 x 5.4	43										
				5 x 5.4	40	5 x 5.4	40	6.3 x 5.4	60	6.3 x 5.4	80				
100	101	5 x 5.4	39					6.3 x 7.7	109	6.3 x 7.7	91				
				6.3 x 5.4	50	6.3 x 5.4	53	8 x 6.5	100	8 x 6.5	100				
										8 x 10.5	180				
150	151	6.3 x 5.4	52	6.3 x 5.4	55	6.3 x 5.4	62	6.3 x 7.7	80	6.3 x 7.7	100				
								8 x 6.5	120	8 x 10.5	140				
				6.3 x 5.4	67	6.3 x 5.4	67	6.3 x 7.7	86	8 x 10.5	175				
220	221	6.3 x 5.4	57			6.3 x 7.7	88	8 x 6.5	105						
				6.3 x 7.7	105			8 x 10.5	150	10 x 7.7	160				
						8 x 6.5	105	8 x 10.5	195	8 x 10.5	220				
330	331	6.3 x 7.7	100	6.3 x 7.7	105	6.3 x 7.7	135	8 x 10.5	195	8 x 10.5	220				
				8 x 6.5	105	8 x 10.5	195	10 x 7.7	175	10 x 10.5	220				
				6.3 x 7.7	120	6.3 x 7.7	120								
470	471	6.3 x 7.7	105			8 x 10.5	210	8 x 10.5	270	10 x 10.5	280			12.5 x 16	740
				8 x 10.5	230	10 x 10.5	232	10 x 10.5	280					16 x 16.5	850
680	681	8 x 10.5	210	8 x 10.5	230	8 x 10.5	230	10 x 10.5	315	10 x 13.5	400			16 x 16.5	950
				10 x 10.5	270										
				8 x 10.5	290			10 x 10.5	315			12.5 x 16	840		
1000	102	8 x 10.5	230	10 x 10.5	315	10 x 10.5	315	10 x 13.5	390	12.5 x 13.5	580	16 x 16.5	1100	18 x 1 6.5	1350
								12.5 x 13.5	500						
1500	152	10 x 10.5	315	10 x 10.5	410	12.5 x 13.5	458	12.5 x 13.5	550	---	---				
2200	222	---	---	12.5 x 13.5	620	12.5 x 13.5	680	12.5 x 16	900	16 x 16.5	1250	18 x 16.5	1450		
								16 x 16.5	1150						
3300	332							16 x 16.5	1350						
4700	472	--	--					18 x 16.5	1600						





STANDARD SIZE

- Allowable Ripple (mA ms) at 85°C 120Hz

WV		35		50		63		100	
		1V		1H		1J		2A	
CAP (μF)		CASE SIZE	RIPPLE CURRENT	CASE SIZE	RIPPLE CURRENT	CASE SIZE	RIPPLE CURRENT	CASE SIZE	RIPPLE CURRENT
1	010	--	--	4 x 5.4	8	4 x 5.4	8	4 x 5.4	8
1.5	1R5	--	--	4 x 5.4	9	4 x 5.4	9	6.3 x 5.4	12
2.2	2R2	--	--	4 x 5.4	11	4 x 5.4	11	6.3 x 5.4	14
3.3	3R3	--	--	4 x 5.4	12	5 x 5.4	12	6.3 x 5.4	23
						6.3 x 5.4	30	6.3 x 7.7	41
4.7	4R7	4 x 5.4	15	4 x 5.4	14	5 x 5.4	18	5 x 5.4	15
				5 x 5.4	19	6.3 x 5.4	23	6.3 x 5.4	21
								6.3 x 7.7	35
10	100	4 x 5.4	18	5 x 5.4	20	6.3 x 5.4	24	6.3 x 5.4	25
		5 x 5.4	25	6.3 x 5.4	28	6.3 x 7.7	39	6.3 x 7.7	35
						8 x 6.5	25	8 x 6.5	50
								8 x 10.5	90
22	220	5 x 5.4	34	6.3 x 5.4	42	6.3 x 7.7	48	8 x 10.5	84
		6.3 x 5.4	29	6.3 x 7.7	51	8 x 6.5	55	10 x 10.5	120
				8 x 6.5	70	8 x 10.5	98		
33	330	6.3 x 5.4	46	6.3 x 5.4	60	6.3 x 7.7	49	10 x 10.5	120
		8 x 6.5	85	8 x 6.5	70				
		6.3 x 5.4	55	6.3 x 7.7	63	8 x 10.5	119	10 x 10.5	120
47	470			8 x 6.5	85	10 x 10.5	160	10 x 13.5	160
				8 x 10.5	119				
		8 x 6.5	85	10 x 10.5	170			12.5 x 13.5	250
56	560	6.3 x 7.7	65	6.3 x 7.7	90	10 x 10.5	210	--	--
68	680	6.3 x 7.7	69	8 x 6.5	70	10 x 10.5	140	10 x 13.5	180
				8 x 10.5	110			12.5 x 13.5	300
100	101	6.3 x 7.7	80	8 x 10.5	145	10 x 10.5	196	12.5 x 13.5	380
		8 x 10.5	80			10 x 13.5	210		
		10 x 7.7	160	10 x 10.5	175	12.5 x 13.5	270		
150	151	8 x 10.5	175	10 x 10.5	200	--	--	--	--
220	221	8 x 10.5	185	10 x 10.5	220	12.5 x 13.5	470	--	--
		10 x 10.5	250	10 x 13.5	280				
330	331	10 x 10.5	300	10 x 13.5	295	--	--	--	--
		10 x 13.5	330	12.5 x 13.5	420				
470	471	10 x 10.5	324						
		10 x 13.5	375	--	--	--	--		
		12.5 x 13.5	520						
680	681	12.5 x 13.5	530	--	--	--	--		