WVT Series

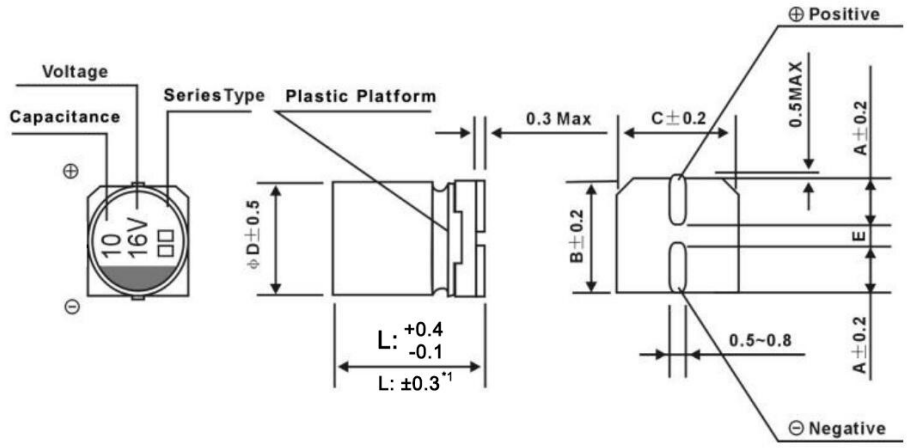
SMD Standard Aluminum Electrolytic Capacitor

FEATURES

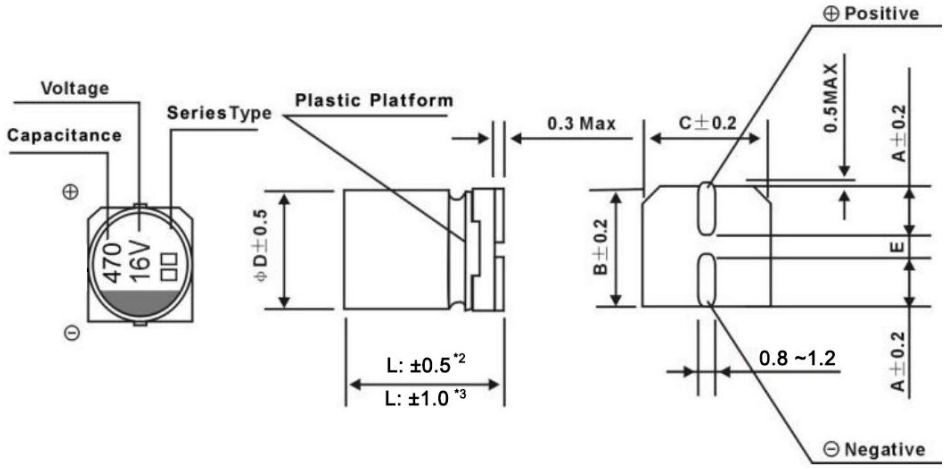
- WIDE TEMPERATURE
- Operating with wide temperature range -55 ~ +105° C
- Load life of 2000 Hours
- Comply with the RoHS directive

DIMENSIONS (mm)

(⌀4 ~⌀8x6.2)



(⌀8x10.5 ~ ⌀18)



*1. Applicable to ⌀6.3*7.7mm

*2. Applicable to ⌀8*10.5mm~⌀10mm

*3. Applicable to ⌀12.5mm~⌀18mm

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WVT Series

SMD Standard Aluminum Electrolytic Capacitor

SPECIFICATIONS

Items	Characteristics
Operation Temperature Range	-55 ~ +105°C
Voltage Range	4 ~ 450V
Capacitance Range	0.1 ~ 8200μF
Capacitance Tolerance	±20% at 120Hz, 20°C

Leakage Current

Rated Voltage	6.3~100V		160~450V
Case size	∅4~∅10	∅12.5~∅18	∅6.3~∅18
Time	after 2 min.(application of rated voltage)	after 1 min.(application of rated voltage)	after 5 min.(application of rated voltage)
Leakage Current	≦0.01CV or 3μA, whichever is greater	≦0.03CV or 4μA, whichever is greater	≦0.04CV or 100μA, whichever is greater

Dissipation Factor (tan δ)

Measurement frequency : 120Hz, Temperature : 20°C

Rated Voltage (V)		4	6.3	10	16	25	35	50	63	100	160~250	350~450
tan δ (max.)	∅4~∅10	0.35	0.30	0.24	0.20	0.16	0.14	0.14	0.12	0.12	0.20	0.25
	∅12.5~∅18	0.42	0.38	0.34	0.30	0.26	0.22	0.18	0.14	0.12	0.20	0.25

Stability at Low Temperature

Measurement frequency: 120Hz

Rated Voltage (V)			4	6.3	10	16	25	35	50~63	100	160~250	350~450
Impedance Ratio ZT/Z20 (max.)	∅4~∅10	Z(-25°C) / Z(20°C)	7	4	3	2	2	2	2	3	2	3
		Z(-40°C) / Z(20°C)	15	8	6	4	4	3	3	4	3	6
	∅12.5~∅18	Z(-25°C) / Z(20°C)	7	5	4	3	2	2	2	2	2	4
		Z(-40°C) / Z(20°C)	17	12	10	8	5	4	3	3	6	10

Load Life

After 2000 hrs. (1000 hrs. for ∅4~∅6.3×5.4) application of the rated voltage at 105°C, they meet th e characteristics listed below.

Capacitance Change	Within ±20% of initial value for capacitors of 10V or more (Within ±30% of initial value for capacitors of 4V or less)
Dissipation Factor	200% or less of initial specified value
Leakage Current	initial specified value or less

Shelf Life

After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above

Resistance to Soldering Heat

After reflow soldering and restored at room temperature, they meet the characteristics listed below.

Capacitance Change	Within ±10% of initial value
Dissipation Factor	initial specified value or less
Leakage Current	initial specified value or less

Marking

Black print on the case top.

DIMENSIONS (Unit: mm)

∅D x L	4 x 5.4	5 x 5.4	6.3 x 5.4/7.7	8 x 6.2	8 x 10.5	10 x 10.5	10 x 12.5	12.5 x 13.5	12.5 x 16	16 x 16.5	18 x 16.5/18.5
A	2.0	2.2	2.6	3.3	3.0	3.2	3.2	4.7	4.7	5.8	6.2
B	4.3	5.3	6.6	8.3	8.3	10.3	10.3	12.8	12.8	17.0	19.0
C	4.3	5.3	6.6	8.3	8.3	10.3	10.3	12.8	12.8	17.0	19.0
E ± 0.2	1.0	1.5	2.1	2.2	3.1	4.6	4.6	4.6	4.6	6.4	6.4
L	5.4	5.4	5.4/7.7	6.2	10.5	10.5	13.5	13.5	16.0	16.5	16.5/18.5

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DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

Case size ∅D×L(mm), ripple current (mA rms) at 105°C 120Hz

WV / Code / μF		4		6.3		10		16		25	
		0G		0J		1A		1C		1E	
4.7	4R7					4 × 5.4	13	4 × 5.4	13	4 × 5.4	13
0.33	R33							4 × 5.4	13		
10	100					4 × 5.4	18	4 × 5.4	18	5 × 5.4 (4 × 5.4)	20 (14)
22	220			4 × 5.4	22	5 × 5.4 (4 × 5.4)	25 (20)	5 × 5.4 (4 × 5.4)	27 (20)	6.3 × 5.4 (5 × 5.4)	36 (25)
33	330	5 × 5.4 (4 × 5.4)	30 (18)	5 × 5.4 (4 × 5.4)	27 (22)	5 × 5.4 (4 × 5.4)	30 (22)	6.3 × 5.4 (5 × 5.4)	40 (28)	6.3 × 5.4 (5 × 5.4)	44 (29)
47	470	5 × 5.4 (4 × 5.4)	36 (24)	5 × 5.4 (4 × 5.4)	33 (25)	6.3 × 5.4 (5 × 5.4)	41 (30)	6.3 × 5.4 (5 × 5.4)	48 (31)	6.3 × 5.4	48
100	101	6.3 × 5.4 (5 × 5.4)	60 (43)	6.3 × 5.4 (5 × 5.4)	50 (39)	5 × 5.4 6.3 × 5.4	39 (53)	6.3 × 5.4 (8 × 6.2)	60 (120)	6.3 × 7.7 (8 × 6.2)	85 91
150	151	6.3 × 5.4	52	6.3 × 5.4	55	6.3 × 5.4	62	6.3 × 7.7	95	8 × 10.5 (6.3 × 7.7)	140 (100)
220	221	6.3 × 5.4	57	6.3 × 7.7 (6.3 × 5.4)	105 (67)	6.3 × 5.4 6.3 × 7.7 (8 × 6.2)	85 105 (105)	8 × 10.5 (6.3 × 7.7) (8 × 6.2)	150 (105) (85)	8 × 10.5	175
330	331	6.3 × 7.7	100	6.3 × 7.7	105	6.3 × 7.7 8×10.5	105 196	8 × 10.5	195	10 × 10.5 (8 × 10.5)	240 (220)
470	471	6.3 × 7.7	105	8 × 10.5 (6.3 x 7.7)	210 (120)	10 × 10.5 (8 × 10.5)	260 (210)	10 × 10.5 (8 × 10.5)	295 (230)	10 × 10.5	280
560	561									10 × 10.5	320
680	681	8 × 10.5	210	8 × 10.5	210	10 × 10.5	270	10 × 10.5	315	10 × 12.5	400
1000	102	8 × 10.5	230	10 × 10.5 (8 × 10.5)	300 (230)	10 × 10.5	315	12.5 × 13.5 (10 × 12.5) (10 × 10.5)	500 (390) (340)	12.5 × 13.5	580
1500	152	10 × 10.5	315	10 × 12.5 (10 × 10.5)	450 (315)	10 × 12.5	460	12.5 × 13.5	550	12.5 × 16	850
2200	222	10 × 12.5 (10 × 10.5)	440 （340）	12.5 × 13.5 (10 × 12.5)	620 (500)	12.5 × 13.5	680	16 × 16.5 (12.5 × 16)	950 (750)	16 × 16.5	1050
3300	332	10 × 12.5	490	12.5 × 16 (12.5 × 13.5)	700 (660)	16 × 16.5	1000	16 × 16.5	1000	18 × 16.5	1150
4700	472	12.5 × 13.5	600	16 × 16.5	1000	16 × 16.5	1000	18 × 16.5	1225	18× 18.5	1300
6800	682	16 × 16.5 (12.5 × 16)	950 （650）	18 × 16.5	1290	18 × 16.5	1290			Case size	Ripple Current
8200	822			18× 18.5	1450	18× 18.5	1450				

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DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

Case size ∅D×L(mm), ripple current (mA rms) at 105°C 120Hz

WV / Code / μF		35		50		63		100	
		1V		1H		1J		2A	
0.1	0R1			4 × 5.4	0.7	4 × 5.4	0.7		
0.22	R22			4 × 5.4	1.6	4 × 5.4	1.6		
0.33	R33			4 × 5.4	2.5	4 × 5.4	2.5		
0.47	R47			4 × 5.4	3.5	4 × 5.4	3.5		
1	010			4 × 5.4	7	4 × 5.4	7	4 × 5.4	7
2.2	2R2			4 × 5.4	11	4 × 5.4	11	6.3 × 5.4	14
		4 × 5.4	13	4 × 5.4	13	5 × 5.4	13	6.3 × 7.7 (6.3 × 5.4) (8 × 6.2)	32 (20) (30)
4.7	4R7	4 × 5.4	14	5 × 5.4 (4 × 5.4)	16 (13)	5 × 5.4	16	6.3 × 7.7 (6.3 × 5.4)	35 (21)
10	100	5 × 5.4 (4 × 5.4)	21 (14)	6.3 × 5.4	24	6.3 × 7.7 (6.3 × 5.4) (8 × 6.2)	39 (24) (25)	8 × 10.5 (6.3 × 7.7)	77 (35)
22	220	6.3 × 5.4	38	6.3 × 7.7 (6.3 × 5.4) (8 × 6.2)	51 (42) (70)	8 × 10.5 (6.3 × 7.7)	98 (49)	10 × 10.5 (8 × 10.5)	126 (84)
33	330	6.3 × 5.4 (8 × 6.2)	42 (70)	6.3 × 7.7	60	8 × 10.5	112	10 × 10.5	133
47	470	6.3 × 7.7 (6.3 × 5.4)	70 (50)	8 × 10.5 (6.3 × 7.7)	120 (63)	10 × 10.5 （8 × 10.5）	160 (119)	12.5 × 13.5 (10 × 12.5) (10 × 10.5)	250 (160) (140)
56	470					10 × 10.5 (8 × 10.5)	165 (120)		
68	680	4 × 5.4	13					12.5 × 13.5 (10 × 12.5)	300 (180)
100	101	8 × 10.5 (6.3 × 7.7)	120 (84)	10 × 10.5 (8 × 10.5)	170 (140)	12.5 × 13.5 (10 × 12.5) (10 × 10.5)	270 (210) (196)	16× 16.5 (12.5 × 13.5)	450 (380)
150	151	8 × 10.5	155	10 × 10.5	170	10 × 12.5	225		
220	221	10 × 10.5 (8 × 10.5)	220 (190)	10 × 12.5 (10 × 10.5)	280 (220)	16× 16.5 (12.5 × 13.5)	560 （470） (235)	16 × 16.5	550
330	331	10 × 10.5	245	16× 16.5 (12.5 × 13.5) (10 × 12.5)	600 （420） (295)	16 × 16.5 (12.5 × 16)	700 (510)	18 × 16.5	590
470	471	12.5 × 13.5 (10 × 12.5) (10 × 10.5)	520 (375) (280)	16 × 16.5 (12.5 × 16)	700 (420)	16 × 16.5	750	18 × 18.5	980
680	681	12.5 × 13.5 (10 × 12.5)	530 (395)	16 × 16.5	750	18 × 16.5	790		
1000	102	16 × 16.5 (12.5 × 16)	750 (600)	18 × 16.5	990				
1500	152	16 × 16.5	750					Case size	Ripple current
2200	222	18 × 16.5	1050						

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DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

Case size ∅D×L(mm), ripple current (mA rms) at 105°C 120Hz

WV / Code / μF		160		200		250		350	
		2C		2D		2E		2V	
4.7	4R7					10 × 13.5	65	10 × 13.5	45
10	100			10 × 13.5	75	10 × 13.5	70	12.5 × 13.5	50
22	220	10 × 13.5	50	12.5 × 13.5	105	12.5 × 13.5	105	16× 16.5	85
33	330	12.5 × 13.5	95	12.5 × 13.5	120	16× 16.5	180	18× 16.5	100
47	470	12.5 × 13.5 (16 × 16.5)	205 (240)	16× 16.5	220	16× 16.5	220	Case size	Ripple current
100	101	16× 16.5	250	18× 16.5	280	18× 16.5	260		

WV / Code / μF		400		450					
		2G		2W					
3.3	3R3	10 × 13.5 (8 × 10.5)	40 (35)	10 × 13.5 (8 × 12.5)	40 (38)				
4.7	4R7	10 × 13.5 (12.5× 13.5)	45 (48)	10 × 13.5 (12.5× 13.5)	42 45				
10	100	12.5 × 13.5	50	12.5 × 13.5	70				
22	220	16 × 16.5	85	16 × 16.5	85			Case size	Ripple current
33	330	18× 16.5	100	18× 16.5	100				

FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT

Frequency			50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient	∅4 ~ ∅10	0.1 ~ 68μF	0.80	1.00	1.17	1.36	1.50
		100 ~ 3300μF	0.85	1.00	1.08	1.20	1.30
	∅12.5 ~ ∅16	~ 68μF	0.80	1.00	1.35	1.57	2.00
		100 ~ 680μF	0.80	1.00	1.23	1.34	1.50
		1000 ~ 8200μF	0.85	1.00	1.10	1.13	1.15

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PN Structure

WVT	0J	0R1	M	040054	T	R
Series	Rated Voltage 1.	Capacitance 2.	Capacitance Tolerance 3.	Dimension 4.	Packing 5.	Pb 6.

1. Rated Voltage

Code	0J	1A	1C	1D	1E	1V	1G	1H	1J	1K	2A
Voltage	6.3V	10V	16V	20V	25V	35V	40V	50V	63	80V	100V

2. Capacitance

Code	0R1	R22	R33	R47	010	2R2	3R3	4R7	100	220	330	470	101
Capacitance (μF)	0.1	0.22	0.33	0.47	1	2.2	3.3	4.7	10	22	33	47	100

3. Capacitance Tolerance

Code	K	L	M
Tolerance	±10%	±15%	±20%

4. Dimension

Code	040054	050054	063054	080105	100105
Dimension (mm)	4x5.4	5×5.4	6.3×5.4	8x10.5	10x10.5

5. Packing

Code	T
Packing	Tape & Reel

6. Pb

Code	L	R
Pb	Leaded	RoHS

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