VA series

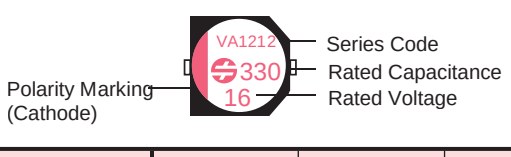
- Standard SMD type
- Rated voltage : 2.5~25V
- Endurance : 2,000 hours at 105℃
- Applications : motherboards,serves,VGA. etc.
- RoHS Compliance.

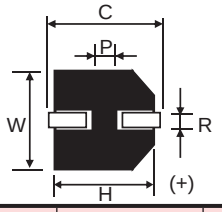
SPECIFICATIONS

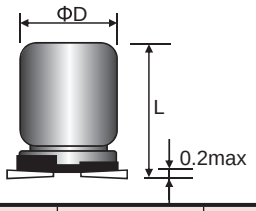
Items	Conditions	Characteristics	
Category Temperature Range	—	-55 to +105℃	
Rated Voltage Range	—	2.5 ~ 25V	
Capacitance Tolerance	at 20℃, 120 Hz	±20% (M)	
Surge Voltage	at 105℃	Rated voltage x1.15V ※25WV→25V	
Leakage Current	at 20℃ after 2 minutes	Please see the attached characteristics list	
Dissipation Factor (tan δ)	at 20℃, 120 Hz	Please see the attached characteristics list	
Characteristics of Impedance at low, high temperature	at -55℃, 100 KHz	Z(-55℃) / Z(+20℃)	≦0.75 to 1.25
	at +105℃, 100 KHz	Z(+105℃) / Z(+20℃)	≦0.75 to 1.25
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 2,000 hours at 105℃.	Appearance	NO significant damage.
		Capacitance change	≦ ±20% of the initial value.
		DF (tan δ)	≦ 150% of the initial specified value.
		ESR	≦ 150% of the initial specified value.
		Leakage current	≦ The initial specified value.
Damp Heag (Steady State)	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to store 60℃, 90 to 95% RH for 1,000 hours, without DC applied.	Appearance	NO significant damage.
		Capacitance change	≦ ±20% of the initial value.
		DF (tan δ)	≦ 150% of the initial specified value.
		ESR	≦ 150% of the initial specified value.
		Leakage current	≦ The initial specified value.
Surge Voltage	The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltages specified at 105℃ for 30 seconds through aprotective resistor (R = 1 kΩ) and discharge for 5 minutes 30 seconds.	Appearance	NO significant damage.
		Capacitance change	≦ ±20% of the initial value.
		DF (tan δ)	≦ 150% of the initial specified value.
		ESR	≦ 150% of the initial specified value.
		Leakage current	≦ The initial specified value.

※ Note：If any doubt arises, measure the leakage current after following voltage treatment.
Voltage treatment：DC rated voltage are applied to the capacitors for 60 minutes at 105℃.

MARKING AND DIMENSIONS







(Unit:mm)

ΦDxL	ΦD+0.5	Lmax	W±0.2	H±0.2	C±0.2	R	P±0.2
4x5	4.0	5.5	4.3	4.3	5.0	0.5~0.8	1.0
5x6	5.0	6.0	5.3	5.3	6.0	0.5~0.8	1.4
6.3x6	6.3	6.0	6.6	6.6	7.3	0.5~0.8	2.1
8x7	8.0	8.0	8.3	8.3	9.3	0.5~0.8	3.2
8x12	8.0	12.0	8.3	8.3	9.0	0.8~1.1	3.2
10x8	10.0	8.0	10.3	10.3	11.0	0.8~1.1	4.6
10x12	10.0	12.7	10.3	10.3	11.0	0.8~1.1	4.6

VA SERIES STANRD CHARACTERISITICS LIST

WV/Vdc (S.V.)	Cap (μF)	Size DxL	Leakage current (μA) max. ※2	ESR (mΩ) max. 100K to 300 KHz / 20℃	Rated Ripple Current (mA rms) 100KHz / 105℃	D.F. (tanδ) max. 120Hz / 20℃
2.5 (2.9)	220	6.3x6	110	23	2,390	0.12
	680	8x12	340	13	4,520	0.15
	1,500	10x12	750	12	5,440	0.18
4 (4.6)	33	4x5	200	66	740	0.12
	39	5x6	78	70	1,100	0.12
	68	5x6	136	30	1,400	0.12
	150	8x7	120	35	2,390	0.12
	330	8x7	264	35	2,560	0.12
	560	8x12	448	13	4,560	0.15
	680	10x8	544	25	3,700	0.15
	1,200	10x12	960	12	5,440	0.18
6.3 (7.2)	22	4x5	70	200	740	0.12
	47	5x6	148	70	1,100	0.12
	82	6.3x6	103	27	2,400	0.12
	100	6.3x6	126	27	2,400	0.12
	120	6.3x6	151	27	2,400	0.12
	220	8x7	277	25	3,020	0.12
	220	10x8	277	25	3,700	0.12
	330	10x8	416	25	3,700	0.12
	470	8x12	592	15	4,210	0.15
	470	10x8	592	25	3,700	0.15
	820	10x12	1033	12	5,440	0.15
10 (11.5)	4.7	4x5	24	240	670	0.12
	6.8	4x5	34	240	670	0.12
	10	4x5	50	220	700	0.12
	15	4x5	75	200	740	0.12
	33	5x6	165	70	1,100	0.12
	47	6.3x6	94	50	1,620	0.12
	56	6.3x6	112	45	1,700	0.12
	120	8x7	240	35	2,560	0.12
	150	8x7	300	30	2,560	0.12
	150	10x8	300	30	3,020	0.12
	270	10x8	540	25	3,700	0.15
	330	8x12	660	17	3,950	0.15
	330	10x8	660	25	3,700	0.15
	470	10x12	940	12	5,300	0.15
	560	10x12	1120	13	5,230	0.15

※ 1. Capacitance tolerance：±20% (M)
※ 2. After 2 minutes

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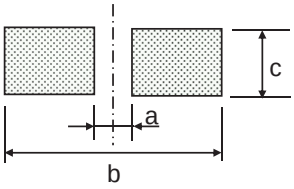
VA SERIES STANRD CHARACTERISITICS LIST

WV/Vdc (S.V.)	Cap (μF)	Size DxL	Leakage current (μA) max. ※2	ESR (mΩ) max. 100K to 300 KHz / 20℃	Rated Ripple Current (mA rms) 100KHz / 105℃	D.F. (tanδ) max. 120Hz / 20℃
16 (18.4)	3.3	4x5	26	260	660	0.12
	15	5x6	120	120	1,020	0.12
	22	5x6	176	90	1,060	0.12
	39	6.3x6	312	50	1,620	0.12
	56	8x7	448	45	1,890	0.12
	82	8x7	656	40	2,120	0.12
	100	10x8	800	35	2,670	0.12
	150	10x8	1,200	30	3,020	0.12
	180	8x12	576	20	3,640	0.12
	180	10x8	1,440	30	3,020	0.12
	330	10x12	1,056	16	4,720	0.15
20 (23.0)	10	5x6	100	120	1,020	0.10
	22	6.3x6	88	60	1,450	0.10
	27	6.3x6	108	60	1,450	0.10
	33	8x7	132	45	1,890	0.12
	47	8x7	188	45	1,890	0.12
	56	10x8	224	40	2,400	0.12
	68	10x8	272	40	2,400	0.12
	100	8x12	400	24	3,320	0.15
	150	10x12	600	20	4,320	0.15
25 (25)	6.8	6.3x6	34	80	1,200	0.10
	10	8x7	50	60	1,500	0.10
	22	10x8	110	50	2,000	0.10
	33	8x12	165	30	2,980	0.12
	56	10x12	280	28	3,800	0.12

※ 1. Capacitance tolerance：±20% (M)
※ 2. After 2 minutes

RECOMMENDED LAND PATTEND DIMENSION OF PCB



(Unit:mm)

ΦDxL	a	b	c
4x5	1.0	6.2	1.6
5x6	1.4	7.4	1.6
6.3x6	2.1	9.1	1.6
8x7	2.8	11.1	1.9
8x12	2.8	11.1	1.9
10x8	4.3	13.1	1.9
10x12	4.3	13.1	1.9

FREQUENCY COEFFICIENT FOR RIPPLE CURRENT

Frequency	120Hz ≦ f ＜ 1KHz	1KHz ≦ f ＜ 10KHz	10KHz ≦ f ＜ 100KHz	100KHz ≦ f ＜ 500KHz
Coefficient	0.05	0.3	0.7	1