

VS series

- Standard SMD (V-Chip) type
- Super low ESR at a high frequency
- High ripple current



Specifications

Items	Characteristics	
Temperature range	-55°C ~ +105°C	
Rated voltage range	2.5Vdc ~ 25.0Vdc	
Capacitance range	6.8μF ~ 1,500μF	
Capacitance tolerance	±20% [M] (at 20°C, 120Hz)	
Tangent of loss angle	Less than or equal to the value of STANDARD RATING (at 20°C, 120Hz)	
Leakage current	Less than or equal to the value of STANDARD RATING (at 20°C, after 2 minutes)	
ESR	Less than or equal to the value of STANDARD RATING	
Characteristics of impedance	Z _{+105°C} /Z _{+20°C} ≤ 1.25, Z _{-55°C} /Z _{+20°C} ≤ 1.25 at 100kHz 105°C, 2,000 hrs at rated voltage	
Endurance	Appearance	No significant damage
	Capacitance change	Within±20% of the initial value
	Tangent of loss angle (tanδ)	≤150% of the initial specified value
	ESR(mΩ)	≤150% of the initial specified value
	Leakage current	≤The initial specified value
Damp Heat (Steady state)	60°C, 90 to 95% RH, 1000 hrs, No-applied Voltage	
	Appearance	No significant damage
	Capacitance change	Within±20% of the initial value
	Tangent of loss angle (tanδ)	≤150% of the initial specified value
	ESR(mΩ)	≤150% of the initial specified value
Resistance to soldering heat	VPS (230°C, 75s)	
	Appearance	No significant damage
	Capacitance change	Within±10% of the initial value
	Tangent of loss angle (tanδ)	≤130% of the initial specified value
	ESR(mΩ)	≤130% of the initial specified value
	Leakage current	≤The initial specified value

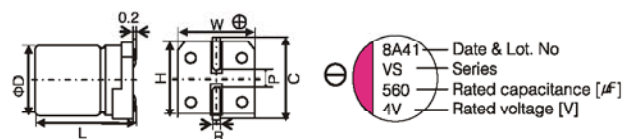
* In case of some problems for measured values, measure after applying rated voltage for 120 minutes at 105°C

Dimensions

μF	RV (eV)							
	2.5(3.3)	4(5.2)	6.3(8.2)	10(11.5)	16(18.4)	20(23.0)	25(28.7)	
6.8								6.3x5.9
10								8.0x6.9
22						6.3x5.9		6.3x5.9
27					6.3x5.9	6.3x5.9		6.3x5.9
33						8.0x6.9		8.0x11.9
39					6.3x5.9			6.3x5.9
47				6.3x5.9	6.3x5.9	8.0x6.9		6.3x5.9
56				6.3x5.9	8.0x6.9			10x12.6
82			6.3x5.9		8.0x6.9			8.0x6.9
100		6.3x5.9	6.3x5.9		8.0x6.9	8.0x11.9		8.0x6.9
120			6.3x5.9 8.0x6.9	8.0x6.9				8.0x6.9
150		6.3x5.9	8.0x6.9	8.0x6.9				10x12.6
180					8.0x11.9			8.0x11.9
220	6.3x5.9		8.0x6.9					8.0x6.9
330		8.0x6.9		8.0x11.9	10x12.6			8.0x6.9
470	8.0x6.9		8.0x11.9		10x12.6			8.0x6.9
560		8.0x11.9		10x12.6				8.0x11.9
680	8.0x11.9							8.0x11.9
820			10x12.6					10x12.6
1000			10x12.6					10x12.6
1200		10x12.6						10x12.6
1500	10x12.6							10x12.6

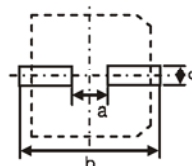
RV:Rated voltage [V] SV:Surge voltage [V] (at room temperature)

Marking and Size list



Size	φD±0.5	L ^{+0.1} _{-0.4}	W±0.2	H±0.2	C±0.2	R	P±0.2
6.3x5.9	6.3	5.9	6.6	6.6	7.3	0.6~0.8	2.1
8.0x6.9	8.0	6.9	8.3	8.3	9.0	0.6~0.8	3.2
8.0x11.9	8.0	11.9	8.3	8.3	9.0	0.8~1.1	3.2
10.0x12.6	10.0	12.6	10.3	10.3	11.0	0.8~1.1	4.6

Recommended land pattern dimension of PCB



Size	a	b	c
6.3x5.9	2.1	9.1	1.6
8.0x6.9	2.8	11.1	1.9
8.0x11.9	2.8	11.1	1.9
10.0x12.6	4.3	13.1	1.9

Standard ratings

Rated Voltage [Vdc]	Rated Capacitance [μF]	Size Φ D x L [mm]	ESR (20°C, 100kHz) [mΩ][max.]	Rated Ripple Current (105°C, 100kHz) [mA rms, max.]	Tangent of Loss Angle [max.]	Leakage Current [μA, max.]	Part Number
2.5	220	6.3x5.9	23	2390	0.10	110	2VS220MC6
	470	8.0x6.9	23	3300	0.10	235	2VS470MD7
	680	8.0x11.9	13	4520	0.10	340	2VS680MD12
	1500	10x12.6	12	5440	0.10	750	2VS1500ME12
4	100	6.3x5.9	45	1810	0.10	80	4VS100MC6
	150	6.3x5.9	40	1810	0.10	120	4VS150MC6
	330	8.0x6.9	35	2560	0.10	264	4VS330MD7
	560	8.0x11.9	13	4520	0.10	448	4VS560MD12
	1200	10x12.6	12	5440	0.10	960	4VS1200ME12
6.3	82	6.3x5.9	45	1700	0.10	103	6VS82MC6
	100	6.3x5.9	40	1810	0.10	126	6VS100MC6
	120	6.3x5.9	40	1810	0.10	151	6VS120MC6
	120	8.0x6.9	50	2560	0.10	151	6VS120MD7
	150	8.0x6.9	40	2560	0.10	189	6VS150MD7
	220	8.0x6.9	35	2560	0.10	277	6VS220MD7
	470	8.0x11.9	15	4210	0.10	592	6VS470MD12
	820	10x12.6	12	5440	0.10	1033	6VS820ME12
1000	10x12.6	12	5440	0.10	1260	6VS1000ME12	
10	47	6.3x5.9	50	1620	0.10	94	10VS47MC6
	56	6.3x5.9	45	1700	0.10	112	10VS56MC6
	120	8.0x6.9	35	2560	0.10	240	10VS120MD7
	150	8.0x6.9	35	2560	0.10	300	10VS150MD7
	330	8.0x11.9	17	3950	0.10	660	10VS330MD12
	560	10x12.6	13	5230	0.10	1120	10VS560ME12
16	27	6.3x5.9	50	1620	0.10	86	16VS27MC6
	39	6.3x5.9	50	1620	0.10	125	16VS39MC6
	47	6.3x5.9	50	1620	0.10	150	16VS47MC6
	56	8.0x6.9	45	1890	0.10	179	16VS56MD7
	82	8.0x6.9	40	2120	0.10	262	16VS82MD7
	100	8.0x6.9	40	2120	0.10	320	16VS100MD7
	180	8.0x11.9	20	3640	0.10	576	16VS180MD12
	330	10x12.6	16	4720	0.10	1056	16VS330ME12
	470	10x12.6	16	4720	0.10	1504	16VS470ME12
20	22	6.3x5.9	60	1450	0.10	88	20VS22MC6
	27	6.3x5.9	60	1450	0.10	108	20VS27MC6
	33	8.0x6.9	45	1890	0.10	132	20VS33MD7
	47	8.0x6.9	45	1890	0.10	188	20VS47MD7
	100	8.0x11.9	24	3320	0.10	400	20VS100MD12
	150	10x12.6	20	4320	0.10	600	20VS150ME12
25	6.8	6.3x5.9	80	1200	0.10	85	25VS6R8MC6
	10	8.0x6.9	60	1500	0.10	125	25VS10MD7
	33	8.0x11.9	30	2980	0.10	413	25VS33MD12
	56	10x12.6	28	3800	0.10	700	25VS56ME12