

VSH series

- Higher temperature guaranteed than VS series
- High ripple current



Specifications

Items	Characteristics	
Temperature range	-55°C ~ +125°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	$Z_{+105^{\circ}\text{C}}/Z_{+20^{\circ}\text{C}} \leq 1.25$, $Z_{-55^{\circ}\text{C}}/Z_{+20^{\circ}\text{C}} \leq 1.25$ at 100kHz	
Endurance	125°C, 1,000 hrs at rated 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
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	

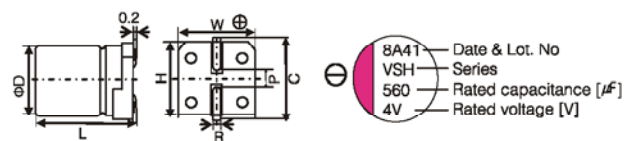
* In case of some problems for measured values, measure after applying rated voltage for 120 minutes at 125°C

Dimensions

RV μF	(unit : mm)						
	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	
27					6.3x5.9	6.3x5.9	
33						8.0x6.9	8.0x11.9
39					6.3x5.9		
47				6.3x5.9	6.3x5.9	8.0x6.9	
56				6.3x5.9	8.0x6.9		10x12.6
82			6.3x5.9		8.0x6.9		
100		6.3x5.9	6.3x5.9		8.0x6.9	8.0x11.9	
120			6.3x5.9 8.0x6.9	8.0x6.9			
150		6.3x5.9	8.0x6.9	8.0x6.9		10x12.6	
180					8.0x11.9		
220	6.3x5.9		8.0x6.9				
330		8.0x6.9		8.0x11.9	10x12.6		
470	8.0x6.9		8.0x11.9		10x12.6		
560		8.0x11.9		10x12.6			
680	8.0x11.9						
820			10x12.6				
1000			10x12.6				
1200	8.0x11.9	10x12.6					
1500	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 ΦD 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	2VSH220MC6
	470	8.0x6.9	23	3300	0.10	235	2VSH470MD7
	680	8.0x11.9	13	4520	0.10	340	2VSH680MD12
	1500	10x12.6	12	5440	0.10	750	2VSH1500ME12
4	100	6.3x5.9	45	1810	0.10	80	4VSH100MC6
	150	6.3x5.9	40	1810	0.10	120	4VSH150MC6
	330	8.0x6.9	35	2560	0.10	264	4VSH330MD7
	560	8.0x11.9	13	4520	0.10	448	4VSH560MD12
	1200	10x12.6	12	5440	0.10	960	4VSH1200ME12
6.3	82	6.3x5.9	45	1700	0.10	103	6VSH82MC6
	100	6.3x5.9	40	1810	0.10	126	6VSH100MC6
	120	6.3x5.9	40	1810	0.10	151	6VSH120MC6
	120	8.0x6.9	50	2560	0.10	151	6VSH120MD7
	150	8.0x6.9	40	2560	0.10	189	6VSH150MD7
	220	8.0x6.9	35	2560	0.10	277	6VSH220MD7
	470	8.0x11.9	15	4210	0.10	592	6VSH470MD12
	820	10x12.6	12	5440	0.10	1033	6VSH820ME12
	1000	10x12.6	12	5440	0.10	1260	6VSH1000ME12
10	47	6.3x5.9	50	1620	0.10	94	10VSH47MC6
	56	6.3x5.9	45	1700	0.10	112	10VSH56MC6
	120	8.0x6.9	35	2560	0.10	240	10VSH120MD7
	150	8.0x6.9	35	2560	0.10	300	10VSH150MD7
	330	8.0x11.9	17	3950	0.10	660	10VSH330MD12
	560	10x12.6	13	5230	0.10	1120	10VSH560ME12
16	27	6.3x5.9	50	1620	0.10	86	16VSH27MC6
	39	6.3x5.9	50	1620	0.10	125	16VSH39MC6
	47	6.3x5.9	50	1620	0.10	150	16VSH47MC6
	56	8.0x6.9	45	1890	0.10	179	16VSH56MD7
	82	8.0x6.9	40	2120	0.10	262	16VSH82MD7
	100	8.0x6.9	40	2120	0.10	320	16VSH100MD7
	180	8.0x11.9	20	3640	0.10	576	16VSH180MD12
	330	10x12.6	16	4720	0.10	1056	16VSH330ME12
	470	10x12.6	16	4720	0.10	1504	16VSH470ME12
20	22	6.3x5.9	60	1450	0.10	88	20VSH22MC6
	27	6.3x5.9	60	1450	0.10	108	20VSH27MC6
	33	8.0x6.9	45	1890	0.10	132	20VSH33MD7
	47	8.0x6.9	45	1890	0.10	188	20VSH47MD7
	100	8.0x11.9	24	3320	0.10	400	20VSH100MD12
	150	10x12.6	20	4320	0.10	600	20VSH150ME12
25	6.8	6.3x5.9	80	1200	0.10	85	25VSH6.8MC6
	10	8.0x6.9	60	1500	0.10	125	25VSH10MD7
	33	8.0x11.9	30	2980	0.10	413	25VSH33MD12
	56	10x12.6	28	3800	0.10	700	25VSH56ME12