

# VSH

Surface mount type series

- Higher temperature endurance guaranteed than VS series
- Low ESR, High ripple current
- Load life of 1,000h at 125°C



## SPECIFICATIONS

Items	Characteristics	
Temperature range	-55 to +125°C	
Rated voltage range	2.5 to 25Vdc	
Capacitance range	6.8 to 1,500μF	
Capacitance tolerance	±20% [M] (at 20°C, 120Hz)	
Tangent of loss angle	Less than or equal to the value of Standard Ratings (at 20°C, 120Hz)	
Leakage current	Less than or equal to the value of Standard Ratings (at 20°C, after 2 minutes)	
ESR	Less than or equal to the value of Standard Ratings	
Characteristics of impedance	Z <sub>+125°C</sub> /Z <sub>+20°C</sub> ≤ 1.25, Z <sub>-55°C</sub> /Z <sub>+20°C</sub> ≤ 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, 1,000 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

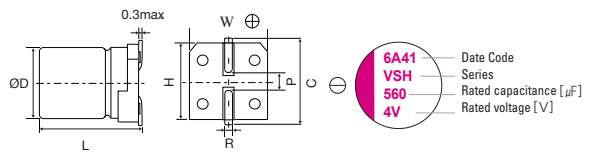
## SIZE LIST

(unit : mm)

μF	RV(sv)	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								6.3 x 5.9
10							5 x 5.9	8 x 6.9
15						5 x 5.9		
22						5 x 5.9	6.3 x 5.9	10 x 7.9
27							6.3 x 5.9	
33					5 x 5.9		8 x 6.9	8 x 11.9
39		5 x 5.9				6.3 x 5.9		
47			5 x 5.9	5 x 5.9	6.3x5.9	6.3 x 5.9	8 x 6.9	
56					6.3x5.9	8 x 6.9	10 x 7.9	10 x 12.6
68		5 x 5.9					10 x 7.9	
82				6.3 x 5.9		8 x 6.9		
100				6.3 x 5.9		10 x 7.9	8 x 11.9	8 x 11.9
120				6.3 x 5.9	8 x 6.9			
150		6.3 x 5.9			8 x 6.9 10 x 7.9	10 x 7.9	10 x 12.6	10 x 12.6
180						8 x 11.9 10 x 7.9		
220	6.3 x 5.9			8 x 11.9 10 x 7.9				
270					10 x 7.9			
330		8 x 6.9	10 x 7.9	8 x 11.9 10 x 7.9	10 x 12.6			
470	8 x 6.9			8 x 11.9 10 x 7.9	10 x 12.6			
560		8 x 11.9						
680	8 x 11.9	10 x 7.9						
820				10 x 12.6				
1000				10 x 12.6				
1200			10 x 12.6					
1500	10 x 12.6							

\*RV : Rated Voltage [V] SV : Surge Voltage [V] (at room temperature)

## MARKING AND DIMENSIONS



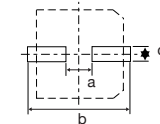
(unit : mm)

Size	ØD±0.5	L	W±0.2	H±0.2	C±0.2	R	P±0.2
5 x 5.9	5.0	5.9	5.3	5.3	6.0	0.6 to 0.8	1.4
6.3 x 5.9	6.3	5.9	6.6	6.6	7.3	0.6 to 0.8	2.1
8 x 6.9	8.0	6.9	8.3	8.3	9.0	0.6 to 0.8	3.2
10 x 7.9	10.0	7.9	10.3	10.3	11.0	0.6 to 0.8	4.6
8 x 11.9	8.0	11.9	8.3	8.3	9.0	0.8 to 1.1	3.2
10 x 12.6	10.0	12.6	10.3	10.3	11.0	0.8 to 1.1	4.6

## RECOMMENDED LAND PATTERN DIMENSION OF PCB

(unit : mm)

Size	a	b	c
5 x 5.9	1.4	7.4	1.6
6.3 x 5.9	2.1	9.1	1.6
8 x 6.9	2.8	11.1	1.9
10 x 7.9	4.3	13.1	1.9
8 x 11.9	2.8	11.1	1.9
10 x 12.6	4.3	13.1	1.9



# Conductive Polymer Aluminum Capacitors

## STANDARD RATINGS

Rated Voltage [Vdc]	Rated Capacitance [μF]	Size Φ D x L [mm]	ESR (20°C, 100kHz) [mΩ] [max.]	Rated Ripple Current (100kHz)[mA rms]		Tangent of Loss Angel [max.]	Leakage Current [μA, max.]	Part Number
				-55 to +105°C	+105 to +125°C			
2.5	220	6.3 x 5.9	23	2390	756	0.10	110	2VSH220MC6
	470	8 x 6.9	23	3300	1044	0.10	235	2VSH470MD7
	680	8 x 11.9	13	4520	1430	0.10	340	2VSH680MD12
	1500	10 x 12.6	12	5440	1721	0.10	750	2VSH1500ME12
4	39	5 x 5.9	70	1100	348	0.10	78	4VSH39MB6
	68	5 x 5.9	60	1400	443	0.10	136	4VSH68MB6
	150	6.3 x 5.9	40	1810	572	0.10	120	4VSH150MC6
	330	8 x 6.9	35	2560	810	0.10	264	4VSH330MD7
	560	8 x 11.9	13	4520	1430	0.10	448	4VSH560MD12
	680	10 x 7.9	25	3700	1170	0.10	544	4VSH680ME8
	1200	10 x 12.6	12	5440	1721	0.10	960	4VSH1200ME12
	47	5 x 5.9	70	1100	348	0.10	148	6VSH47MB6
6.3	82	6.3 x 5.9	45	1700	537	0.10	103	6VSH82MC6
	100	6.3 x 5.9	40	1810	572	0.10	126	6VSH100MC6
	120	6.3 x 5.9	40	1810	572	0.10	151	6VSH120MC6
	220	8 x 6.9	35	2560	810	0.10	277	6VSH220MD7
	220	10 x 7.9	25	3700	1170	0.10	277	6VSH220ME8
	330	10 x 7.9	25	3700	1170	0.10	416	6VSH330ME8
	470	10 x 7.9	25	3700	1170	0.10	592	6VSH470ME
	470	8 x 11.9	15	4210	1332	0.10	592	6VSH470MD12
	820	10 x 12.6	12	5440	1721	0.10	1033	6VSH820ME12
	1000	10 x 12.6	12	5440	1721	0.10	1260	6VSH1000ME12
10	33	5 x 5.9	70	1100	348	0.10	165	10VSH33MB6
	47	6.3 x 5.9	50	1620	512	0.10	94	10VSH47MC6
	56	6.3 x 5.9	45	1700	537	0.10	112	10VSH56MC6
	120	8 x 6.9	35	2560	810	0.10	240	10VSH120MD7
	150	8 x 6.9	35	2560	810	0.10	300	10VSH150MD7
	150	10 x 7.9	30	3020	955	0.10	300	10VSH150ME8
	270	10 x 7.9	25	3700	1170	0.10	540	10VSH270ME8
	330	8 x 11.9	17	3950	1250	0.10	660	10VSH330MD12
	330	10 x 7.9	25	3700	1170	0.10	660	10VSH330ME8
	560	10 x 12.6	13	5230	1655	0.10	1120	10VSH560ME12
16	15	5 x 5.9	120	1020	322	0.10	120	16VSH15MB6
	22	5 x 5.9	90	1060	335	0.10	176	16VSH22MB6
	39	6.3 x 5.9	50	1620	512	0.10	125	16VSH39MC6
	47	6.3 x 5.9	50	1620	512	0.10	150	16VSH47MC6
	56	8 x 6.9	45	1890	598	0.10	179	16VSH56MD7
	82	8 x 6.9	40	2120	670	0.10	262	16VSH82MD7
	100	10 x 7.9	35	2670	845	0.10	320	16VSH100ME8
	150	10 x 7.9	30	3020	955	0.10	480	16VSH150ME8
	180	8 x 11.9	20	3640	1151	0.10	576	16VSH180MD12
	180	10 x 7.9	30	3020	955	0.10	576	16VSH180ME8
20	330	10 x 12.6	16	4720	1493	0.10	1056	16VSH330ME12
	470	10 x 12.6	16	4720	1493	0.10	1504	16VSH470ME12
	10	5 x 5.9	120	1020	322	0.10	100	20VSH10MB6
	22	6.3 x 5.9	60	1450	458	0.10	88	20VSH22MC6
	27	6.3 x 5.9	60	1450	458	0.10	108	20VSH27MC6
	33	8 x 6.9	45	1890	598	0.10	132	20VSH33MD7
	47	8 x 6.9	45	1890	598	0.10	188	20VSH47MD7
	56	10 x 7.9	40	2400	759	0.10	224	20VSH56ME8
	68	10 x 7.9	40	2400	759	0.10	272	20VSH68ME8
	100	8 x 11.9	24	3320	1050	0.10	400	20VSH100MD12
25	150	10 x 12.6	20	4320	1367	0.10	600	20VSH150ME12
	6.8	6.3 x 5.9	80	1200	377	0.10	85	25VSH6R8MC6
	10	8 x 6.9	60	1500	471	0.10	125	25VSH10MD7
	22	10 x 7.9	50	2000	632	0.10	275	25VSH22ME8
	33	8 x 11.9	30	2980	943	0.10	413	25VSH33MD12
	56	10 x 12.6	28	3800	1202	0.10	700	25VSH56ME12
	100	8 x 11.9	30	3320	1050	0.10	500	25VSH100MD12
	150	10 x 12.6	25	3800	1367	0.10	750	25VSH150ME12

