VL

Surface mount type

series

Super low ESR, High ripple current
Large capacitance, Small size
Load life of 2,000h at 105°C

LEAD FREE

Halogen Less

RoHS COMPLIANT

• Specifications

Items	Characteristics	
Temperature range	-55 to +105°C	
Rated voltage range	2.5 to 16Vdc	
Capacitance range	22 to 2,700μF	
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	$Z_{+105°C}/Z_{+20°C} \leq 1.25$, $Z_{-55°C}/Z_{+20°C} \leq 1.25$ at 100kHz	
Endurance	105°C, 2,000 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
	Leakage current	≤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
	Leakage current	≤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

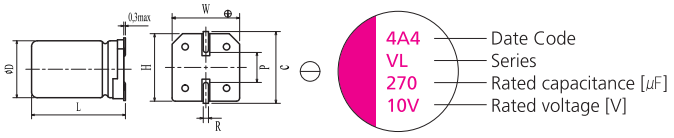
• Size List

(unit: mm)

RV (SV) / μF	2.5 (2.9)	4 (4.6)	6.3 (7.2)	10 (11.5)	16 (18.4)
39					5×5.9
47				5×5.9	
68				5×5.9	6.3×5.9
82					6.3×5.9
100			5×5.9	5×5.9	6.3×5.9
120			5×5.9	6.3×5.9	8×6.9
150		5×5.9		6.3×5.9	8×6.9
180	5×5.9				
220			6.3×5.9	6.3×5.9	
270				8×6.9	8×11.9
330		6.3×5.9	6.3×5.9		8×11.9
390	6.3×5.9		8×6.9		
560	6.3×5.9	8×6.9 8×11.9			
680	8×6.9				
820	8×11.9		8×11.9		
1000	8×11.9			8×11.9 10×12.6	10×12.6
1200		8×11.9			
1500	8×11.9	8×11.9	8×11.9	10×12.6	
2200			10×12.6		
2700	10×12.6				

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

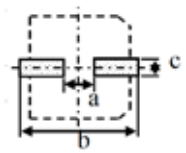
• Marking and Dimensions



(unit: mm)

Size	ØD±0.5	L +0.1 -0.4	W±0.2	H±0.2	C±0.2	R	P±0.2
5×5.9	5.0	5.9	5.3	5.3	6.0	0.6 to 0.8	1.4
6.3×5.9	6.3	5.9	6.6	6.6	7.3	0.6 to 0.8	2.1
8×6.9	8.0	6.9	8.3	8.3	9.0	0.6 to 0.8	3.2
8×11.9	8.0	11.9	8.3	8.3	9.0	0.8 to 1.1	3.2
10×12.6	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
5×5.9	1.4	7.4	1.6
6.3×5.9	2.1	9.1	1.6
8×6.9	2.8	11.1	1.9
8×11.9	2.8	11.1	1.9
10×12.6	4.3	13.1	1.9

• Standard Ratings

Rated Voltage [Vdc]	Rated Capacitance [µF]	Size ØD x L [mm]	ESR (20°C, 100kHz) [mΩ] [max.]	Rated Ripple Current (105°C, 100kHz) [mArms]	Tangent of Loss Angel [max]	Leakage Current [µA, max]	Part Number
2.5	180	5 x 5.9	19	2800	0.1	300	2VL180MB6
	390	6.3 x 5.9	15	3160	0.1	300	2VL390MC6
	560	6.3 x 5.9	16	3500	0.1	300	2VL560MC6
	680	8 x 6.9	20	3370	0.1	500	2VL680MD7
	820	8 x 11.9	9	5380	0.1	500	2VL820MD12
	1000	8 x 11.9	10	5380	0.1	500	2VL1000MD12
	1500	8 x 11.9	10	5150	0.1	750	2VL1500MD12
	2700	10 x 12.6	12	5070	0.1	1350	2VL2700ME12
4	150	5 x 5.9	20	2730	0.1	300	4VL150MB6
	330	6.3 x 5.9	15	3160	0.1	300	4VL330MC6
	560	8 x 6.9	22	3220	0.1	500	4VL560MD7
	560	8 x 11.9	9	5380	0.1	500	4VL560MD12
	1200	8 x 11.9	12	4700	0.1	960	4VL1200MD12
	1500	8 x 11.9	12	4700	0.1	1200	4VL1500MD12
6.3	100	5 x 5.9	25	2150	0.1	300	6VL100MB6
	120	5 x 5.9	21	2660	0.1	300	6VL120MB6
	220	6.3 x 5.9	15	3160	0.1	300	6VL220MC6
	330	6.3 x 5.9	17	3390	0.1	415	6VL330MC6
	390	8 x 6.9	22	3220	0.1	491	6VL390MD7
	820	8 x 11.9	12	4700	0.1	1033	6VL820MD12
	1500	8 x 11.9	11	5000	0.1	1800	6VL1500MD12
	2200	10 x 12.6	11	5500	0.1	2640	6VL2200ME12
10	47	5 x 5.9	40	1270	0.1	300	10VL47MB6
	68	5 x 5.9	28	2540	0.1	300	10VL68MB6
	100	5 x 5.9	30	2540	0.1	300	10VL100MB6
	120	6.3 x 5.9	22	2600	0.1	300	10VL120MC6
	150	6.3 x 5.9	22	2600	0.1	300	10VL150MC6
	220	6.3 x 5.9	22	2600	0.1	440	10VL220MC6
	270	8 x 6.9	22	2600	0.1	500	10VL270MD7
	1000	8 x 11.9	15	4000	0.1	2000	10VL1000MD12
	1000	10 x 12.6	13	4800	0.1	2000	10VL1000ME12
	1500	10 x 12.6	13	4900	0.1	3000	10VL1500ME12
16	39	5 x 5.9	27	2350	0.1	300	16VL39MB6
	68	6.3 x 5.9	25	2440	0.1	300	16VL68MC6
	82	6.3 x 5.9	25	2490	0.1	300	16VL82MC6
	100	6.3 x 5.9	24	2490	0.1	300	16VL100MC6
	120	8 x 6.9	27	2900	0.1	500	16VL120MD7
	150	8 x 6.9	22	3220	0.1	500	16VL150MD7
	270	8 x 11.9	16	4070	0.1	864	16VL270MD12
	330	8 x 11.9	16	4070	0.1	1056	16VL330MD12
	1000	10 x 12.6	10	6100	0.1	3200	16VL1000ME12