Surface mount type

SVP Series

- RoHS compliance
- Standard

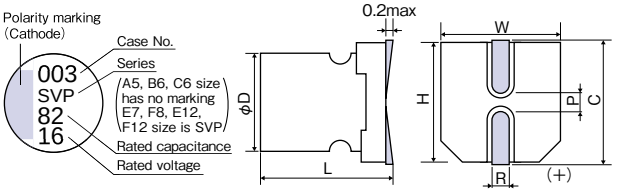
SVP sets the standard for our SMD version of the OS-CON product line.
Recommended for your SMD needs in switching power supplies.
This product can support lead free-reflow.※2

Specifications

Items	Condition		Specifications						
Rated voltage (V)	–		2.5	4.0	6.3	10	16	20	25
Surge voltage (V)	Room temperature		3.3	5.2	8.2	12	18	23	25
Category temperature range (℃)	–		−55 to +105						
Capacitance tolerance (%)	120Hz/20℃		M : ±20						
Dissipation Factor (DF)	120Hz/20℃		Please see the attached characteristics list						
Leakage current※1	Rated voltage applied, after 2 minutes		Please see the attached characteristics list						
Equivalent series resistance (ESR)	100kHz to 300kHz/20℃		Please see the attached characteristics list						
Characteristics of impedance ratio at high temp. and low temp.	Based the value at 100kHz, +20℃	−55℃ Z/Z20℃	0.75 to 1.25						
		+105℃ Z/Z20℃	0.75 to 1.25						
Endurance	105℃, 2,000h, Rated voltage applied (25V → 20V applied)	△C/C	Within ±20% of the initial value						
		DF	Within 1.5 times of the initial limit						
		ESR	Within 1.5 times of the initial limit						
		LC	Within the initial limit						
Damp heat(Steady state)	60℃, 90 to 95%RH, 1,000h, No applied voltage	△C/C	Within ±20% of the initial value						
		DF	Within 1.5 times of the initial limit						
		ESR	Within 1.5 times of the initial limit						
		LC	Within the initial limit (after voltage processing)						
Resistance to soldering heat※2	VPS (230℃ X 75s)	△C/C	Within ±10% of the initial value						
		DF	Within 1.3 times of the initial limit						
		ESR	Within 1.3 times of the initial limit						
		LC	Within the initial limit (after voltage processing)						

※1 In case of some problems for measured values, measure after applying rated voltage for 2.5 to 20V products or 20V for 25V products for 120 minutes at 105℃.
※2 Please refer to page 26 for reflow soldering conditions.

Marking and dimensions



(unit : mm)

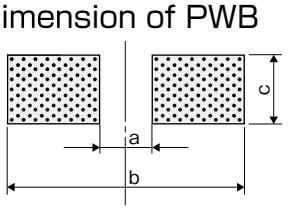
Size code	φD ±0.5	L +0.1 −0.4	W ±0.2	H ±0.2	C ±0.2	R	P ±0.2
A5	4.0	5.4	4.3	4.3	5.0	0.6 to 0.8	1.0
B6	5.0	5.9	5.3	5.3	6.0	0.6 to 0.8	1.4
C6	6.3	5.9	6.6	6.6	7.3	0.6 to 0.8	2.1
E7	8.0	6.9	8.3	8.3	9.0	0.6 to 0.8	3.2
F8	10.0	7.9	10.3	10.3	11.0	0.6 to 0.8	4.6
E12	8.0	11.9	8.3	8.3	9.0	0.8 to 1.1	3.2
F12	10.0	12.6	10.3	10.3	11.0	0.8 to 1.1	4.6

Size list

RV : Rated voltage

μF \ RV	2.5	4.0	6.3	10	16	20	25
3.3					A5		
4.7				A5			
6.8				A5			C6
10				A5		B6	E7
15				A5	B6		
22			A5		B6	C6	F8
27						C6	
33		A5		B6		E7	E12
39		B6			C6		
47			B6	C6		E7	
56				C6	E7	F8	F12
68		B6				F8	
82			C6		E7		
100			C6		F8	E12	
120			C6	E7			
150		C6		E7,F8	F8	F12	
180					F8,E12		
220	C6		E7,F8				
270				F8			
330		E7	F8	F8,E12	F12		
470			F8,E12				
560		E12		F12			
680	E12	F8					
820			F12				
1,200		F12					
1,500	F12						

Recommended land pattern dimension of PWB



(unit : mm)

Size code	a	b	c
A5	1.0	6.2	1.6
B6	1.4	7.4	1.6
C6	2.1	9.1	1.6
E7	2.8	11.1	1.9
F8	4.3	13.1	1.9
E12	2.8	11.1	1.9
F12	4.3	13.1	1.9

SVP series characteristics list

Size code	Part number	Rated voltage (V)	Rated capacitance (μF)	ESR(mΩ) (max) 100kHz to 300kHz/20℃	Rated ripple current 100kHz (mArms) at 105℃	DF (% max)	Leakage current (μA)(max) After 2 minutes
A5	16SVP3R3M	16	3.3	260	660	7	26.4
	10SVP4R7M	10	4.7	240	670	8	23.5
	10SVP6R8M	10	6.8	240	670	9	34
	10SVP10M	10	10	220	700	10	50
	10SVP15M	10	15	200	740	10	75
	6SVP22M	6.3	22	200	740	12	69.3
	4SVP33M	4.0	33	200	740	15	66
B6	20SVP10M	20	10	120	1020	10	100
	16SVP15M	16	15	120	1020	10	120
	16SVP22M	16	22	90	1060	10	176
	10SVP33M	10	33	70	1100	12	165
	6SVP47M	6.3	47	70	1100	12	148
	4SVP39M	4.0	39	70	1100	12	78
	4SVP68M	4.0	68	60	1400	12	136
C6	25SVP6R8M※1	25	6.8	80	1200	10	85
	20SVP22M	20	22	60	1450	10	88
	20SVP27M	20	27	60	1450	10	108
	16SVP39M	16	39	50	1620	10	125
	10SVP47M	10	47	50	1620	12	94
	10SVP56M	10	56	45	1700	12	112
	6SVP82M	6.3	82	45	1700	12	103
	6SVP100M	6.3	100	40	1810	12	126
	6SVP120MV	6.3	120	17	2780	12	151
	4SVP150MX	4.0	150	40	1810	12	120
	2R5SVP220M	2.5	220	23	2390	12	110
E7	25SVP10M※1	25	10	60	1500	10	125
	20SVP33M	20	33	45	1890	12	132
	20SVP47M	20	47	45	1890	12	188
	16SVP56M	16	56	45	1890	12	179
	16SVP82M	16	82	40	2120	12	262
	10SVP120M	10	120	35	2560	12	240
	10SVP150MX	10	150	35	2560	12	300
	6SVP220MX	6.3	220	35	2560	12	277
	4SVP330M	4.0	330	35	2560	12	264
F8	25SVP22M※1	25	22	50	2000	10	275
	20SVP56M	20	56	40	2400	12	224
	20SVP68M	20	68	40	2400	12	272
	16SVP100M	16	100	35	2670	12	320
	16SVP150M	16	150	30	3020	12	480
	16SVP180MX	16	180	30	3020	12	576
	10SVP150M	10	150	30	3020	12	300
	10SVP270M	10	270	25	3700	12	540
	10SVP330MX	10	330	25	3700	12	660
	6SVP220M	6.3	220	25	3700	12	277
	6SVP330M	6.3	330	25	3700	12	416
	6SVP470MX	6.3	470	25	3700	12	592
	4SVP680M	4.0	680	25	3700	12	544
E12	25SVP33M※1	25	33	30	2980	12	413
	20SVP100M	20	100	24	3320	15	400
	16SVP180M	16	180	20	3640	15	576
	10SVP330M	10	330	17	3950	15	660
	6SVP470M	6.3	470	15	4210	15	592
	4SVP560M	4.0	560	13	4520	15	448
	2R5SVP680M	2.5	680	13	4520	15	340
F12	25SVP56M※1	25	56	28	3800	12	700
	20SVP150M	20	150	20	4320	15	600
	16SVP330M	16	330	16	4720	15	792
	10SVP560M	10	560	13	5230	15	840
	6SVP820M	6.3	820	12	5440	15	775
	4SVP1200M	4.0	1200	12	5440	18	960
	2R5SVP1500M	2.5	1500	12	5440	18	750

※1 The surge voltage of 25V products is 25V. Please consider SVPD series 25V products (whose surge voltage is 29V) in placing a new order.

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