Vertical Surface Mounting Capacitors

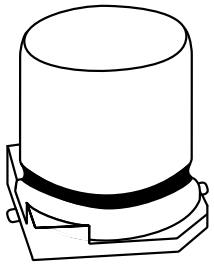


Fig.1 Component outline

FEATURES

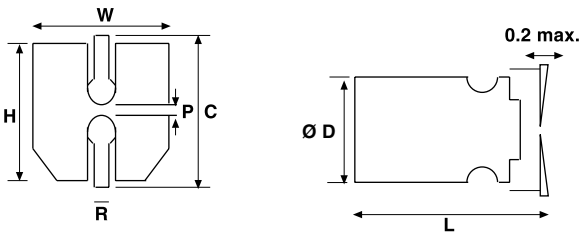
- New Vishay OS-CON series as results of polymerized organic semiconductor as electrolyte
- Features superior heat-proof characteristics compared with previously developed Vishay OS-CON series
- Particularly effective when used as surface mounting devices of the switching power supply
- Rated ripple current values are guaranteed at 105 °C
- No need to consider derating on maximum allowable ripple current

Pb-free
RoHS COMPLIANT

QUICK REFERENCE DATA			
DESCRIPTION	VALUE		
Operating Temperature Range	- 55 °C to + 105 °C		
Capacitance Tolerance at 120 Hz	M: ± 20 %		
Tangent of Loss Angle (tan δ) at 120 Hz	Values in Standard Ratings Table		
Leakage Current (μA/2 minutes) (or less)*	Values in Standard Ratings Table		
Equivalent Series Resistance (Ω), (100 k to 300 kHz)	Values in Standard Ratings Table		
Characteristics at high temp. and low temp. Impedance Ratio at 100 kHz, + 20 °C	- 55 °C	$Z/Z_{20\,°C}$	1.0 to 1.25
	+ 105 °C	$Z/Z_{20\,°C}$	0.75 to1.0
Endurance + 105 °C, 2000 hours Rated Voltage Applied (25 WV to 20 V) (1000 hours for A5/B6 sizes)	ΔC/C	Within ± 20 %	
	tan δ	≤ 1.5 x the value of Tangent of Loss Angle	
	ESR	≤ 1.5 x the value of ESR	
	Leakage Current	≤ The Value of Leakage Current	
Damp heat (Steady state) (+ 60 °C, 90 to 95 % RH, 1000 hours, no voltage) (500 hours for A5/B6 sizes)	ΔC/C	Within ± 20 %	
	tan δ	≤ 1.5 x the value of Tangent of Loss Angle	
	ESR	≤ 1.5 x the value of ESR	
	Leakage Current	≤ The Value of Leakage Current after Voltage Treatment	
Reverse Voltage Guarantee	Temporary: < 20 % of the rated voltage Continuous: < 10 % of the rated voltage		
Solder heat resistance (VPS)** (215 °C x 90 s) or (230 °C x 60 s) (Please consult us for A5/B6 sizes)	ΔC/C	Within ± 10 %	
	tan δ	≤ 1.3 x the value of Tangent of Loss Angle	
	ESR	≤ 1.3 x the value of ESR	
	Leakage Current	≤ The Value of Leakage Current after Voltage Treatment	

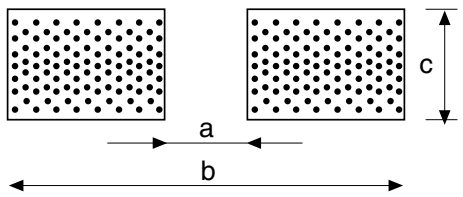
* If any doubt arises, measure the current after applying voltage (voltage treatment). Voltage Treatment: The rated voltage is applied to Vishay OS-CON (2.5 to 20 WV) for 120 minutes at 105 °C. (However, 20 V is applied to a 25 WV Vishay OS-CON).
** Refer to Standard Ratings table for soldering recommendation.

DIMENSIONS in millimeters



DIMENSIONS in millimeters							
SIZE CODE	∅ D ± 0.5	L max.	W ± 0.2	H ± 0.2	C ± 0.2	R	P ± 0.2
A5	4.0	5.5	4.3	4.3	5.0	0.5 to 0.8	1.0
B6	5.0	6.0	5.3	5.3	6.0	0.5 to 0.8	1.4
C6	6.3	6.0	6.6	6.6	7.3	0.5 to 0.8	2.1
E7	8.0	7.0	8.3	8.3	9.0	0.5 to 0.8	3.2
F8	10.0	8.0	10.3	10.3	11.0	0.5 to 0.8	4.6
E12	8.0	12.0	8.3	8.3	9.0	0.8 to 1.1	3.2
F12	10.0	12.7	10.3	10.3	11.0	0.8 to 1.1	4.6

RECOMMENDED LAND PATTERN



DIMENSIONS in millimeters			
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

CASE CODE LIST

CAPACITANCE (µF) \ WV (SV)	2.5 (3.3)	4 (5.2)	6.3 (8.2)	10 (11.5)	16 (18.4)	20 (23)	25 (25)
3.3	-	-	-	-	A5	-	-
4.7	-	-	-	A5	-	-	-
6.8	-	-	-	A5	-	-	C6
10.0	-	-	-	A5	-	B6	E7
15.0	-	-	-	A5	B6	-	-
27.0	-	-	-	-	-	C6	-
22.0	-	-	A5	-	B6	C6	F8
33.0	-	A5	-	B6	-	E7	E12
39.0	-	B6	-	-	C6	-	-
47.0	-	-	B6	C6	-	E7	-
56.0	-	-	-	C6	E7	F8	F12
68.0	-	B6	-	-	-	F8	-
82.0	-	-	C6	-	E7	-	-
100.0	-	-	C6	-	F8	E12	-
120.0	-	-	-	E7	-	-	-
150.0	-	C6, E7	-	E7, F8	F8	F12	-
180.0	-	-	-	-	E12	-	-
220.0	-	-	E7, F8	-	-	-	-
270.0	-	-	-	E7, F8	-	-	-
330.0	-	E7	F8	E12	F12	-	-
470.0	-	-	F8,E12	-	-	-	-
560.0	-	E12	-	F12	-	-	-
680.0	E12	F8	-	-	-	-	-
820.0	-	-	F12	-	-	-	-
1200.0	-	F12	-	-	-	-	-
1500.0	F12	-	-	-	-	-	-

*** WV = Rated Voltage. **** (SV) = Surge Voltage (at room temperature). The description contents are subject to chage due to technical improvement without notice. Please ask for latest specifications for order and use.

STANDARD RATINGS

CASE CODE	PART NUMBER*	RATED VOLTAGE (V)	RATED CAPACITANCE (µF)	MAX. ESR (100 k to 300 kHz) (mΩ)	ALLOWABLE RIPPLE CURRENT (mAmps) at 100 kHz, + 105 °C	MAX. TANGENT OF LOSS ANGLE	MAX. LEAKAGE CURRENT (µA) (After 2 Minutes)
A5	94SVP335X0016A5	16	3.3	280	590	0.07	26.4
	94SVP475X0010A5	10	4.7	260	660	0.08	23.5
	94SVP685X0010A5	10	6.8	260	660	0.09	34.0
	94SVP106X0010A5	10	10	240	670	0.10	50.0
	94SVP156X0010A5	10	15	240	670	0.10	75.0
	94SVP226X06R3A5	6.3	22	220	700	0.12	69.3
	94SVP336X0004A5	4	33	200	740	0.15	66.0

* Part Numbers shown are for ± 20 % capacitance tolerance (X0).

STANDARD RATINGS							
CASE CODE	PART NUMBER*	RATED VOLTAGE (V)	RATED CAPACITANCE (µF)	MAX. ESR (100 k to 300 kHz) (mΩ)	ALLOWABLE RIPPLE CURRENT (mAmps) at 100 kHz, + 105 °C	MAX. TANGENT OF LOSS ANGLE	MAX. LEAKAGE CURRENT (µA) (After 2 Minutes)
B6	94SVP106X0020B6	20	10	170	850	0.10	100
	94SVP156X0016B6	16	15	150	920	0.10	120
	94SVP226X0016B6	16	22	150	920	0.15	176
	94SVP336X0010B6	10	33	130	990	0.15	165
	94SVP476X06R3B6	6.3	47	90	1060	0.15	148
	94SVP396X0004B6	4	39	70	1100	0.15	78
	94SVP686X0004B6	4	68	70	1100	0.15	136
C6	94SVP685X0025C6	25	6.8	80	1200	0.10	85
	94SVP226X0020C6	20	22	65	1390	0.10	88
	94SVP276X0020C6	20	27	60	1450	0.10	108
	94SVP396X0016C6	16	39	65	1390	0.10	125
	94SVP476X0010C6	10	47	60	1450	0.12	94
	94SVP566X0010C6	10	56	55	1510	0.12	112
	94SVP107X06R3C6	6.3	100	40	1810	0.12	126
	94SVP826X06R3C6	6.3	82	50	1570	0.12	103
	94SVP157X0004C6	4	150	50	1620	0.12	120
E7	94SVP106X0025E7	25	10	60	1500	0.10	125
	94SVP336X0020E7	20	33	50	1700	0.12	132
	94SVP476X0020E7	20	47	50	1700	0.12	188
	94SVP566X0016E7	16	56	50	1800	0.12	179
	94SVP826X0016E7	16	82	45	1890	0.12	262
	94SVP127X0010E7	10	120	40	2120	0.12	240
	94SVP157X0010E7	10	150	35	2560	0.12	300
	94SVP157X0004E7	4	150	35	2350	0.12	120
	94SVP337X0004E7	4	330	35	2560	0.12	264
	94SVP227X06R3E7	6.3	220	35	2560	0.12	277
F8	94SVP226X0025F8	25	22	50	2000	0.10	275
	94SVP566X0020F8	20	56	45	2200	0.12	224
	94SVP686X0020F8	20	68	45	2200	0.12	272
	94SVP107X0016F8	16	100	40	2400	0.12	320
	94SVP157X0016F8	16	150	35	2670	0.12	480
	94SVP157X0010F8	10	150	35	2670	0.12	300
	94SVP277X0010F8	10	270	30	3020	0.12	540
	94SVP227X06R3F8	6.3	220	30	3020	0.12	277
	94SVP477X06R3F8	6.3	470	25	3700	0.12	592
	94SVP337X06R3F8	6.3	330	25	3300	0.12	416
	94SVP687X0004F8	4	680	25	3700	0.12	544
E12	94SVP336X0025E12	25	33	30	2980	0.12	413
	94SVP107X0020E12	20	100	25	3260	0.15	400
	94SVP187X0016E12	16	180	22	3480	0.15	576
	94SVP337X0010E12	10	330	19	3740	0.15	660
	94SVP477X06R3E12	6.3	470	17	3960	0.15	592
	94SVP567X0004E12	4	560	16	4080	0.15	448
	94SVP687X02R5E12	2.5	680	16	4080	0.15	340
F12	94SVP566X0025F12	25	56	28	3800	0.12	700
	94SVP157X0020F12	20	150	21	4220	0.15	600
	94SVP337X0016F12	16	330	17	4580	0.15	792
	94SVP567X0010F12	10	560	15	4870	0.15	840
	94SVP827X06R3F12	6.3	820	14	5040	0.15	775
	94SVP128X0004F12	4	1200	13	5230	0.18	960
	94SVP158X02R5F12	2.5	1500	13	5230	0.18	750

* Part Numbers shown are for ± 20 % capacitance tolerance (X0).

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