

Solid Aluminum Capacitors with Organic Semiconductor Electrolyte

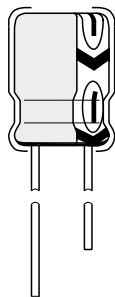


Fig.1 Component outline

FEATURES

- Guaranteed long life (+ 105 °C x 5000 hours)
- 94SH capacitors are used for industrial equipment
- Radial lead
- Compliant to RoHS directive 2002/95 EC



RoHS
COMPLIANT

PART MARKING

Sleeve color: Blue; Marking: White

- Polarity -
- Rated voltage
- Capacitance
- Vishay OS-CON
- Lot number
- Type
- Maximum operating temperature (+ 105 °C)

QUICK REFERENCE DATA			
DESCRIPTION	VALUE		
Operating temperature range	- 55 °C to + 105 °C		
Capacitance tolerance at 120 Hz	X0 = ± 20 %		
Tangent of loss angle (tan δ) at 120 Hz	≤ values in standard ratings table		
Leakage current (μA/2 minutes) (or less) ⁽¹⁾	0.02 CV or 0.5 (whichever is greater)		
Equivalent series resistance (Ω), (100 kHz to 300 kHz)	≤ values in standard ratings table		
Temperature characteristics Impedance ratio at 100 kHz	- 55 °C	Z/Z _{20 °C}	1.0 to 1.25
	+ 105 °C	Z/Z _{20 °C}	0.75 to 1.0
High temperature load (+ 105 °C, 5000 hours) Rated voltage applied (25 WV - 20 V) ⁽²⁾	ΔC/C	within ± 30 % of the initial value	
	tan δ	≤ 1.5 x the value of tangent of loss angle	
	leakage current	≤ 5 x the value of leakage current	
Moisture resistance (+ 60 °C, 90 % to 95 % RH, 1000 hours, no voltage)	ΔC/C	within ± 10 % of the initial value	
	tan δ	≤ 1.5 x the value of tangent of loss angle	
	leakage current	≤ the value of leakage current	
Reverse voltage guarantee	temporary: ≤ 20 % of the rated voltage continuous: ≤ 10 % of the rated voltage		

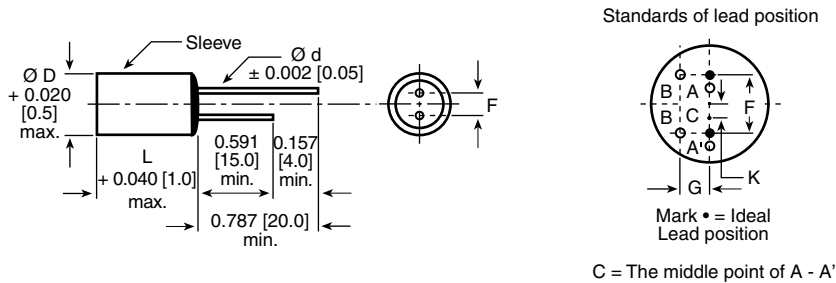
Notes

⁽¹⁾ If any doubt arises, measure the current after applying voltage (voltage treatment) for 30 minutes at + 105 °C. The rated voltage should be applied for 4 WV to 16 WV, while temperature reduction voltage should be applied for 25 WV.

⁽²⁾ To use a Vishay OS-CON capacitor when the operating temperature exceeds + 85 °C on a component with a rated voltage of 25 V, reduce the voltage by 0.25 V for every degree (1 °C) relative to the value at + 85 °C (25 V).

TEMPERATURE COEFFICIENT RIPPLE CURRENT	
AMBIENT TEMPERATURE	COEFFICIENT
~ + 45 °C	1.0
+ 85 °C	0.7
+ 95 °C	0.4
+ 105 °C	0.25

DIMENSIONS in inches (millimeters)					
CASE CODE	NOMINAL CASE SIZE $\varnothing D \times L$	F	$\varnothing d$	G (max.)	K (max.)
A	0.158 x 0.268 [4.0 x 6.8]	0.079 [2.0]	0.018 [0.45]	0.020 [0.5]	0.020 [0.5]
B	0.197 x 0.268 [5.0 x 6.8]	0.079 [2.0]	0.018 [0.45]	0.020 [0.5]	0.020 [0.5]
C	0.248 x 0.268 [6.3 x 6.8]	0.098 [2.5]	0.018 [0.45]	0.020 [0.5]	0.020 [0.5]
D	0.248 x 0.386 [6.3 x 9.8]	0.098 [2.5]	0.024 [0.6]	0.020 [0.5]	0.020 [0.5]
E	0.315 x 0.413 [8.0 x 10.5]	0.138 [3.5]	0.024 [0.6]	0.031 [0.8]	0.031 [0.8]
F	0.394 x 0.413 [10.0 x 10.5]	0.020 [5.0]	0.024 [0.6]	0.031 [0.8]	0.031 [0.8]

DIMENSIONS in inches (millimeters)


CASE CODE LIST						
WV ⁽¹⁾	(SV) ⁽¹⁾	6.3	10	16	20	25
CAPACITANCE (μ F)		(7.2)	(11.5)	(18.4)	(23)	(25)
1.0	-	-	-	A	-	A
1.5	-	-	-	-	-	A
2.2	-	-	-	A	-	B
3.3	-	-	-	A	-	B
4.7	-	-	A	B	-	C
6.8	A	-	-	B	-	C
10.0	-	-	B	C	-	C
15.0	B	-	-	-	C	D
22.0	-	-	-	-	C	-
33.0	-	-	-	C	D	-
47.0	C	-	-	D	E	-
68.0	-	-	D	-	E	-
100.0	-	-	-	E	F	-
150.0	E	-	-	F	-	-
220.0	-	-	F	-	-	-
330.0	F	-	-	-	-	-

Notes

(1) WV = Rated Voltage.

(2) (SV) = Surge Voltage (at room temperature).

STANDARD RATINGS

CASE CODE	PART NUMBER ⁽¹⁾	RATED VOLTAGE (V)	NOMINAL CAPACITANCE (μF)	ALLOWABLE RIPPLE CURRENT (mA) at 100 kHz, + 45 °C	MAX. LEAKAGE CURRENT (μA) (after 2 min)	MAX. TANGENT OF LOSS ANGLE	MAX. ESR 100 kHz to 300 kHz (mΩ)
A	94SH105X0025ABP	25.0	1.0	430	0.50	0.03	350
	94SH155X0025ABP	25.0	1.5	435	0.75	0.03	300
	94SH105X0016ABP	16.0	1.0	430	0.50	0.03	350
	94SH225X0016ABP	16.0	2.2	450	0.70	0.04	280
	94SH335X0016ABP	16.0	3.3	500	1.06	0.04	280
	94SH475X0010ABP	10.0	4.7	540	0.94	0.05	280
	94SH685X06R3ABP	6.3	6.8	560	0.86	0.05	250
B	94SH225X0025BBP	25.0	2.2	695	1.10	0.03	200
	94SH335X0025BBP	25.0	3.3	700	1.65	0.03	200
	94SH475X0016BBP	16.0	4.7	720	1.50	0.04	180
	94SH685X0016BBP	16.0	6.8	745	2.18	0.04	150
	94SH106X0010BBP	10.0	10.0	780	2.00	0.05	150
	94SH156X06R3BBP	6.3	15.0	815	1.89	0.05	120
C	94SH475X0025CBP	25.0	4.7	1130	2.35	0.03	100
	94SH685X0025CBP	25.0	6.8	1140	3.40	0.03	100
	94SH106X0025CBP	25.0	10.0	1150	5.00	0.03	90
	94SH156X0020CBP	20.0	15.0	1200	6.00	0.05	90
	94SH226X0020CBP	20.0	22.0	1300	8.80	0.05	70
	94SH106X0016CBP	16.0	10.0	1150	3.20	0.04	90
	94SH336X0016CBP	16.0	33.0	1370	10.56	0.06	70
	94SH476X06R3CBP	6.3	47.0	1430	5.92	0.07	60
D	94SH156X0025DBP	25.0	15.0	1650	7.50	0.04	70
	94SH336X0020DBP	20.0	33.0	1710	13.20	0.06	70
	94SH476X0016DBP	16.0	47.0	1830	15.04	0.06	60
	94SH686X0010DBP	10.0	68.0	2000	13.60	0.07	50
E	94SH476X0020EBP	20.0	47.0	2450	18.80	0.06	40
	94SH686X0020EBP	20.0	68.0	2600	27.20	0.06	36
	94SH107X0016EBP	16.0	100.0	2740	32.00	0.06	30
	94SH157X06R3EBP	6.3	150.0	2780	18.90	0.07	30
F	94SH107X0020FBP	20.0	100.0	3210	40.00	0.06	30
	94SH157X0016FBP	16.0	150.0	3260	48.00	0.06	28
	94SH227X0010FBP	10.0	220.0	3370	44.00	0.07	27
	94SH337X06R3FBP	6.3	330.0	3500	41.58	0.07	25

Note

⁽¹⁾ Part Numbers shown are for ± 20 % capacitance tolerance (X0).

94SH106X0016... Part Number is complete with Case Code and 2 character Package or Process Code. BP as shown indicates Bulk Pack.



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