



**HESTORE.HU**

elektronikai alkatrész áruház

**EN:** This Datasheet is presented by the manufacturer.

Please visit our website for pricing and availability at [www.hestore.hu](http://www.hestore.hu).

SC

Low Impedance and high frequency  
Series

- Features: 105°C 1000~3000 hours, Low impedance, high permissible ripple current at high frequency and high operation temperature (-40 ~ +105°C)
- Recommended Applications: Applicable for switching regulator of computer, especially for high frequency
- Corresponding product to RoHS

SY

↑ Long Life

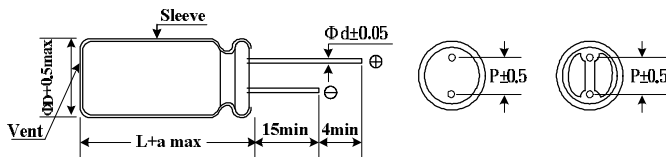
SC



### Specifications

Item	Characteristics																																				
Operating Temperature Range	-40 ~ +105°C																																				
Rated Voltage Range	6.3 ~ 100VDC																																				
Rated Capacitance Range	4.7 ~ 15000 $\mu$ F																																				
Capacitance Tolerance	$\pm 20\%$ at 120Hz, 20°C																																				
Leakage Current (MAX)(20°C)	$I=0.01CV$ or $3\mu$ A, whichever is greater. (After rated voltage applied for 2 minutes)																																				
Dissipation Factor (MAX) ( $\tan \delta$ ) (120Hz, 20°C)	<table border="1"> <thead> <tr> <th>WV</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td><math>\tan \delta</math></td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> </tr> </tbody> </table>	WV	6.3	10	16	25	35	50	63	100	$\tan \delta$	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08																		
	WV	6.3	10	16	25	35	50	63	100																												
$\tan \delta$	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08																													
When nominal capacitance is over 1000 $\mu$ F, $\tan \delta$ shall be added 0.02 to the listed value with increase of every 1000 $\mu$ F.																																					
Low Temperature Stability Impedance Ratio (MAX)	<table border="1"> <thead> <tr> <th>WV</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td>Z(120Hz)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Z-25°C / Z+20°C</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / Z+20°C</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </tbody> </table>	WV	6.3	10	16	25	35	50	63	100	Z(120Hz)									Z-25°C / Z+20°C	4	3	3	3	3	2	2	2	Z-40°C / Z+20°C	8	6	4	4	4	4	4	4
	WV	6.3	10	16	25	35	50	63	100																												
Z(120Hz)																																					
Z-25°C / Z+20°C	4	3	3	3	3	2	2	2																													
Z-40°C / Z+20°C	8	6	4	4	4	4	4	4																													
After applying rated voltage with ripple current for 3000 hours at 105°C, the capacitors shall meet the following requirements. If dimension is down size, Endurance will be less 1000 hours than standard																																					
Endurance	<table border="1"> <tbody> <tr> <td>Capacitance Change</td> <td>Within <math>\pm 20\%</math> of initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Not more than the specified value</td> </tr> </tbody> </table>	Capacitance Change	Within $\pm 20\%$ of initial value	Dissipation Factor	Not more than 200% of specified value	Leakage Current	Not more than the specified value																														
	Capacitance Change	Within $\pm 20\%$ of initial value																																			
	Dissipation Factor	Not more than 200% of specified value																																			
	Leakage Current	Not more than the specified value																																			
<table border="1"> <tbody> <tr> <td>Case Dia</td> <td>5 x 11 ~ 10 x 12.5</td> <td>10 x 15 higher</td> </tr> <tr> <td>Life</td> <td>2000</td> <td>3000</td> </tr> </tbody> </table>	Case Dia	5 x 11 ~ 10 x 12.5	10 x 15 higher	Life	2000	3000																															
Case Dia	5 x 11 ~ 10 x 12.5	10 x 15 higher																																			
Life	2000	3000																																			
* If dimension is down size, Endurance will be less 1000hrs than standard.																																					
Shelf Life	After placed at 105°C without voltage applied for 1000 hours, the capacitors shall meet the same requirement as Endurance.																																				

### Diagram of Dimensions



$\phi$ D	5	6.3	8	10	13	16	18	22
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0
$\phi$ d	0.50	0.5	0.6	0.6	0.6	0.8	0.8	0.8
a	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0

### Multiplier for Ripple Current

Frequency coefficient

Frequency (Hz)	50	120	300	1K	10K	100K
Below 4.7 $\mu$ F	0.30	0.40	0.50	0.70	0.80	1.00
5.6 ~ 33 $\mu$ F	0.40	0.50	0.60	0.80	0.90	1.00
34 ~ 330 $\mu$ F	0.60	0.70	0.80	0.90	0.95	1.00
331 ~ 1000 $\mu$ F	0.65	0.90	0.90	0.98	1.00	1.00
1200 $\mu$ F Above	0.85	0.90	0.95	0.98	1.00	1.00

**■ Dimensions, Rated Ripple Current, Max Impedance**

Capacitance ( $\mu\text{F}$ )	Rated ( Surge) Voltage											
	6.3V ( 8 )			10V ( 13 )			16V ( 20 )			25V ( 32 )		
	SIZE	Ripple	Z	SIZE	Ripple	Z	SIZE	Ripple	Z	SIZE	Ripple	Z
4.7												
6.8												
10										5x11	50	0.550
22												
33												
47										5x11	150	0.450
56							5x11	100	0.630	5x11	150	0.420
68							5x11	150	0.420	6.3x11	200	0.370
100				5x11	150	0.420	5x11	200	0.370	6.3x11	250	0.220
120				5x11	200	0.370	6.3x11	250	0.320	8x11	300	0.200
150	5x11	200	0.420	6.3x11	250	0.320	6.3x11	300	0.220	8x11	550	0.140
220	6.3x11	250	0.320	6.3x11	300	0.220	8x11	550	0.140	*8x11	620	0.120
270										8x15	750	0.100
330	*6.3x11	300	0.220									
330	*6.3x11	320	0.230	8x11	550	0.140	*8x11	620	0.120	*8x15	660	0.100
330	8x11	400	0.180				8x15	750	0.100	8x20	800	0.069
330							10x12.5	688	0.080	10x16	900	0.086
470	*6.3x11	440	0.180	*8x11	620	0.120	*8x15	730	0.093	*8x20	1000	0.067
470	8x11	550	0.140	8x15	750	0.100	10x12.5	800	0.085	*10x12.5	900	0.086
470										10x16	1050	0.064
680	*8x11	580	0.120	*8x11	640	0.110	10x16	1050	0.064	10x20	1100	0.039
680	8x15	700	0.100	10x12.5	800	0.085						
820	8x20	750	0.085	10x16	1050	0.064	10x20	1100	0.044	10x20	1250	0.039
1000	*8x11	580	0.150	8x20	1080	0.065	*10x16	1140	0.043	*10x20	1160	0.047
1000	*8x15	670	0.085	*10x12.5	930	0.075	10x20	1250	0.039	*10x25	1310	0.042
1000	8x20	800	0.069	10x16	990	0.085				13x20	1450	0.038
1000	10x12.5	690	0.080	10x20	1100	0.050						
1200	10x16	1000	0.064	10x20	1250	0.044	*10x25	1310	0.042	13x25	1600	0.290
1200							13x20	1450	0.038			
1500	*8x15	980	0.085	10x20	1450	0.039	*10x20	1200	0.045	*13x30	1750	0.032
1500	*8x20	1070	0.051				13x20	1600	0.034	16x25	2000	0.028
1500	*10x16	1070	0.055									
1500	10x20	1250	0.044									
2200	*10x20	1220	0.051	*10x20	1330	0.047	*10x30	1780	0.032	*13x30	1810	0.029
2200	*10x25	1310	0.048	*10x25	1450	0.039	*13x20	1720	0.033	*16x25	1660	0.032
2200	13x20	1450	0.043	13x20	1600	0.038	13x25	2000	0.028	16x32	2200	0.024
3300	*10x25	1400	0.043	*10x30	1740	0.032	*13x40	2200	0.026	*16x36	2540	0.019
3300	13x25	1700	0.035	13x25	2000	0.028	16x25	2200	0.024	18x36	2550	0.019
3900	13x25	1750	0.032									
4700	*13x30	1570	0.033	*13x25	1860	0.028	16x36	2550	0.019	18x36	2800	0.019
4700	*13x25	1520	0.032	16x25	2200	0.024						
4700	16x25	1800	0.028									
6800	16x32	2000	0.024	16x36	2550	0.019	18x36	2800	0.019	18x36	2800	0.019
8200	16x32	2350	0.019	18x36	2800	0.019						
10000	16x36	2550	0.019									
15000	18x36	3000	0.019									

☆ Size:  $D \phi \times L$  (mm) ☆ Ripple Current: (mA/rms), 105°C, 100KHz ☆ Impedance ( $\Omega$ ), 20°C, 100KHz

" \* " is down size , Ripple Life is less 1000 hrs than standard

**■ Dimensions, Rated Ripple Current, Max Impedance**

Capacitance ( $\mu$ F)	RATED ( SURAGE ) VOLTAGE											
	35V ( 44 )			50V ( 63 )			63V ( 79 )			100V ( 125 )		
	SIZE	Ripple	Z	SIZE	Ripple	Z	SIZE	Ripple	Z	SIZE	Ripple	Z
4.7	5x11	115	1.200	5x11	115	2.000	5x11	115	2.200	5x11	120	2.000
6.8	5x11	120	1.000	5x11	120	1.850	5x11	120	2.000	5x11	140	1.850
10	5x11	140	0.900	5x11	140	1.700	5x11	140	1.850	6.3x11	200	1.500
15	5x11	170	0.690	5x11	180	1.200	5x11	200	1.700	6.3x11	250	1.200
22	5x11	190	0.420	5x11	200	0.700	6.3x11	250	1.200	8x11	300	0.790
33	5x11	200	0.420	6.3x11	250	0.600	6.3x11	300	0.900	8x15	450	0.590
47	6.3x11	250	0.370	6.3x11	300	0.520	8x11	450	0.700	10x16	550	0.350
68	6.3x11	300	0.220	8x11	450	0.350	8x11	550	0.520	10x20	650	0.240
100	*6.3x11	360	0.180	*8x11	480	0.290	8x20	650	0.350	13x20	800	0.180
	8x11	450	0.140	8x15	550	0.250						
120	8x11	550	0.130	8x20	650	0.210	10x16	800	0.300	13x25	1050	0.150
150	8x15	650	0.100	10x12.5	800	0.160	10x16	1050	0.200	13x25	1300	0.110
220	*8x15	730	0.100	*10x16	1050	0.100	10x20	1300	0.150	16x25	1400	0.071
	10x12.5	800	0.069	10x25	1050	0.068						
330	*10x16	900	0.052	10x20	1300	0.072	13x20	1400	0.100	16x32	1550	0.049
	10x20	1050	0.044									
470	10x20	1300	0.039	*10x20	1390	0.075	13x25	1550	0.064	18x36	1770	0.038
				13x20	1400	0.060						
680	13x20	1400	0.038	13x25	1550	0.050	16x25	1700	0.052			
820	13x20	1550	0.034	16x25	1700	0.040	16x32	1900	0.048			
1000	13x25	1700	0.029	16x25	1900	0.039	16x32	2100	0.042			
1200	16x25	1900	0.028	16x32	2100	0.025	16x36	2550	0.036			
1500	16x25	2100	0.024	16x36	2550	0.025	18x36	2800	0.033			
2200	*16x32	2300	0.021	18x40	2800	0.025						
	16x36	2550	0.019									
3300	18x36	2880	0.019									
3900												
4700												
6800												
8200												
10000												
15000												

☆ Size:  $D \phi \times L$  (mm)    ☆ Ripple Current: (mA/rms), 105°C, 100KHz    ☆ Impedance ( $\Omega$ ), 20°C, 100KHz

" \* " is down size , Ripple Life is less 1000 hrs than standard