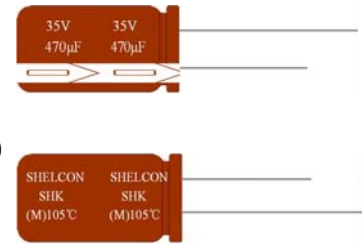


### SHK SERIES

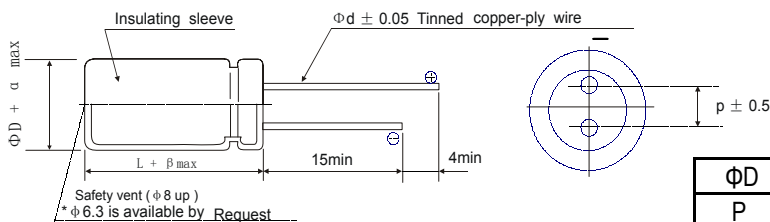
- 105°C High ripple current , Low Impe
- 3000 hours guaranteed for  $\Phi D \cong \Phi 8$ ; 5000 hours guaranteed for  $\Phi D = \Phi 10$
- 7000 hours guaranteed for  $\Phi D \cong \Phi 13$



#### ◆ SPECIFICATIONS

Item	Characteristics																		
Operating Temperature Range	-40 ~ +105°C																		
Voltage Range	6.3 ~ 100 V.DC																		
Nominal Cap. Range	6.8~ 18000 µF																		
Capacitance Tolerance	- 20% ~ + 20% (at 20°C, 120Hz)																		
Leakage Current	$I = 0.01CV$ or $3(\mu A)$ whichever is greater.(after 2 minutes) where, I: Max Leakage Current( $\mu A$ ), C: Nominal Capacitance( $\mu F$ ), V: Rated Voltage(V) (at 20°C)																		
Dissipation Factor (tan $\delta$ ) (at 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>tan<math>\delta</math></td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.1</td> <td>0.09</td> <td>0.08</td> </tr> </tbody> </table> <p>Add 0.02 per 1,000 µF for more than 1,000µF items .</p>	WV	6.3	10	16	25	35	50	63	100	tan $\delta$	0.22	0.19	0.16	0.14	0.12	0.1	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	0.1	0.09	0.08											
Low Temp. Impedance Stability at 120Hz	<table border="1"> <thead> <tr> <th>W.V.</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25 ~ 100</th> </tr> </thead> <tbody> <tr> <td><math>Z(-25^\circ C)/Z(+20^\circ C)</math></td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> </tr> <tr> <td><math>Z(-40^\circ C)/Z(+20^\circ C)</math></td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> </tr> </tbody> </table>	W.V.	6.3	10	16	25 ~ 100	$Z(-25^\circ C)/Z(+20^\circ C)$	4	3	2	2	$Z(-40^\circ C)/Z(+20^\circ C)$	8	6	4	3			
W.V.	6.3	10	16	25 ~ 100															
$Z(-25^\circ C)/Z(+20^\circ C)$	4	3	2	2															
$Z(-40^\circ C)/Z(+20^\circ C)$	8	6	4	3															
Impedance( $\Omega$ )	See case size table																		
High Temp. Load Test	After $\Phi D \leq \Phi 8$ : 3000 hours; $\Phi D = \Phi 10$ : 5000 hours; $\Phi D \cong \Phi 13$ : 7000 hours application of DC rated working voltage at +105°C, the capacitor shall meet the following limits. Capacitance change ... $\cong \pm 20\%$ of the initial measured value Tan $\delta$ ... $\leq 200\%$ of the initial specified value DC leakage current ... $\cong$ the initial specified value																		
High Temp. Non-Load Test	After storage for 1000 hours at 105°C with no voltage applied ,voltage treatment of JIS-C-5102 article 4-4 is to be given and then measurement shall be made, at which time requirements specified in the table "High Temperature Loading" can be met.																		

#### ◆ DRAWING



Unit: (mm)

$\Phi D$	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
$\Phi d$	0.5	0.5	0.5	0.6	0.6	0.8	0.8
$\beta$	+1.5						
$\alpha$	+0.5						

#### ▼ MULTIPLIER FOR RIPPLE CURRENT

(1) Frequency coefficient

Cap( $\mu F$ ) \ Freq.(HZ)	120	1K	10K	100K
6.8~680	0.49	0.73	0.92	1.00
820~1800	0.60	0.80	0.96	1.00
2200~18000	0.70	0.85	0.98	1.00

(2) Temperature coefficient

Ambient Temperature(°C)	40	60	70	85	105
Coefficient	2.40	2.10	1.78	1.65	1.00

### SHK SERIES

#### STANDARD RATINGS

WV(Vdc) Parameter Cap(μF)	6.3V				WV(Vdc) Parameter Cap(μF)	10V			
	ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance			ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance	
			20°C 100KHZ	-10°C 100KHZ				20°C 100KHZ	-10°C 100KHZ
150	5X11	210	0.58	2.3	100	5X11	210	0.58	2.3
330	6.3X11	340	0.22	0.87	220	6.3X11	340	0.22	0.87
680	8X11.5	640	0.13	0.52	470	8X11.5	640	0.13	0.52
820	10X12.5	865	0.08	0.32	680	10X12.5	865	0.08	0.32
1000	8X16	840	0.087	0.35	1000	10X16	1210	0.06	0.24
1200	8X20	1050	0.069	0.27	1200	10X20	1400	0.046	0.18
1200	10X16	1210	0.066	0.24	1500	10X25	1650	0.042	0.17
1500	10X20	1400	0.05	0.18	2200	13X20	1900	0.035	0.12
1800	13X20	1450	0.049	0.16	2700	18X16	2210	0.043	0.11
2200	13X25	1650	0.042	0.17	3300	13X25	2230	0.027	0.089
2700	16X16	1940	0.042	0.12	4700	16X31.5	2880	0.020	0.065
3300	13X20	1900	0.035	0.12	5600	16X31.5	3350	0.017	0.056
4700	13X30	2650	0.03	0.078	6800	18X31.5	3450	0.017	0.05
5600	16X20	2530	0.027	0.078	6800	18X25	3140	0.019	0.049
6800	16X25	2930	0.021	0.06	8200	16X35.5	3610	0.015	0.044
8200	16X31.5	3450	0.017	0.05	8200	18X31.5	4170	0.015	0.04
10000	16X35.5	3610	0.015	0.044	10000	18X35.5	4080	0.013	0.038
15000	18X35.5	4220	0.014	0.038	10000	18X40	4220	0.014	0.038
18000	18X40	4280	0.012	0.032	12000	18X40	4280	0.012	0.032

WV(Vdc) Parameter Cap(μF)	16V				WV(Vdc) Parameter Cap(μF)	25V			
	ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance			ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance	
			20°C 100KHZ	-10°C 100KHZ				20°C 100KHZ	-10°C 100KHZ
56	5X11	210	0.58	2.3	47	5X11	210	0.58	2.3
120	6.3X11	340	0.22	0.87	100	6.3X11	340	0.22	0.87
330	8X11.5	640	0.13	0.52	220	8X11.5	640	0.13	0.52
470	10X12.5	865	0.087	0.35	330	10X12.5	865	0.08	0.32
680	10X16	1430	0.06	0.24	470	10X16	1430	0.06	0.24
1000	10X20	1455	0.046	0.18	680	10X20	1455	0.046	0.18
1500	13X30	1900	0.035	0.12	820	10X25	1650	0.042	0.17
2200	13X25	2230	0.027	0.089	1000	13X20	1900	0.035	0.12
2700	16X20	2530	0.027	0.078	1200	18X16	2210	0.043	0.11
3300	16X31.5	2880	0.02	0.065	1500	13X25	2230	0.027	0.089
4700	16X31.5	3450	0.017	0.056	2200	18X20	2860	0.026	0.067
5600	18X31.5	4170	0.015	0.05	2700	16X25	2930	0.021	0.06
6800	18X35.5	4200	0.014	0.04	3300	18X25	3140	0.019	0.049
8200	18X35.5	4220	0.014	0.038	4700	18X35.5	4080	0.013	0.038
10000	18X40	4280	0.012	0.032	5600	18X40	4280	0.012	0.032

### SHK SERIES

#### STANDARD RATINGS

WV(Vdc) Parameter Cap(μF)	35V				WV(Vdc) Parameter Cap(μF)	50V			
	ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance			ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance	
			20°C 100KHZ	-10°C 100KHZ				20°C 100KHZ	-10°C 100KHZ
33	5X11	210	0.58	2.3	22	5X11	180	0.7	2.8
56	6.3X11	340	0.22	0.87	56	6.3X11	295	0.3	1.2
150	8X11.5	640	0.13	0.52	100	8X11.5	555	0.17	0.68
220	10X12.5	865	0.08	0.32	120	8X16	730	0.12	0.48
330	10X16	1210	0.06	0.24	150	10X12.5	760	0.12	0.48
470	10X20	1400	0.046	0.18	180	8X20	910	0.091	0.36
560	10X25	1650	0.042	0.17	220	10X16	1050	0.084	0.34
680	13X20	1900	0.035	0.12	330	10X23	1440	0.055	0.22
1000	13X25	2230	0.027	0.089	470	13X21	1660	0.045	0.15
1200	16X20	2530	0.027	0.078	560	13X25	1950	0.034	0.11
1500	13X35	2880	0.02	0.065	680	13X30	2310	0.03	0.1
1800	16X25	2930	0.021	0.06	820	16X20	2210	0.034	0.1
2200	18X25	3140	0.019	0.049	1000	18X20	2490	0.036	0.097
2700	18X31.5	4170	0.015	0.044	1200	18X25	2740	0.026	0.07
3300	18X35.5	4220	0.014	0.038	1500	16X35.5	3150	0.019	0.057
3900	18X40	4280	0.012	0.032	1800	18X31.5	3635	0.016	0.048
					2200	18X35.5	3680	0.017	0.046
					2700	18X40	3800	0.014	0.038

WV(Vdc) Parameter Cap(μF)	63V				WV(Vdc) Parameter Cap(μF)	100V			
	ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance			ΦDxL (mm)	Ripple current (mArms) 105°C, 100KHZ	Impedance	
			20°C 100KHZ	-10°C 100KHZ				20°C 100KHZ	-10°C 100KHZ
15	5X11	62	1.8	7.3	6.8	5X11	62	1.8	7.3
33	6.3X11	126	1	4.1	15	6.3X11	126	1.0	4.1
56	8X11.5	260	0.5	2.2	47	8X11.5	325	0.34	1.4
82	10X12.5	325	0.36	1.7	68	10X16	400	0.25	1.2
120	10X16	400	0.25	1.2	82	10X20	518	0.17	0.76
180	10X20	518	0.17	0.76	100	10X23	595	0.16	0.67
220	10X23	595	0.16	0.67	120	13X20	765	0.13	0.52
330	13X25	875	0.096	0.36	150	16X16	895	0.11	0.52
470	16X20	1130	0.077	0.32	180	13X25	875	0.096	0.36
560	16X25	1350	0.062	0.23	220	16X20	1130	0.077	0.32
680	18X20	1300	0.072	0.27	330	18X20	1300	0.072	0.27
820	18X25	1560	0.052	0.19	470	18X31.5	1720	0.042	0.15
1000	18X31.5	1720	0.042	0.15	560	18X35.5	2130	0.036	0.13
1200	18X35.5	1890	0.036	0.13	680	18X35.5	1890	0.036	0.13
1500	18X40	2470	0.032	0.12	820	18X40	2470	0.032	0.12