

HA Series Load Life of 1000 hours at 105°C
HL Series Load Life of 2000 hours at 105°C

- Wide temperature range of -40 ~ +105°C
- Standard snap-in terminal type
- HA series are solvent proof type

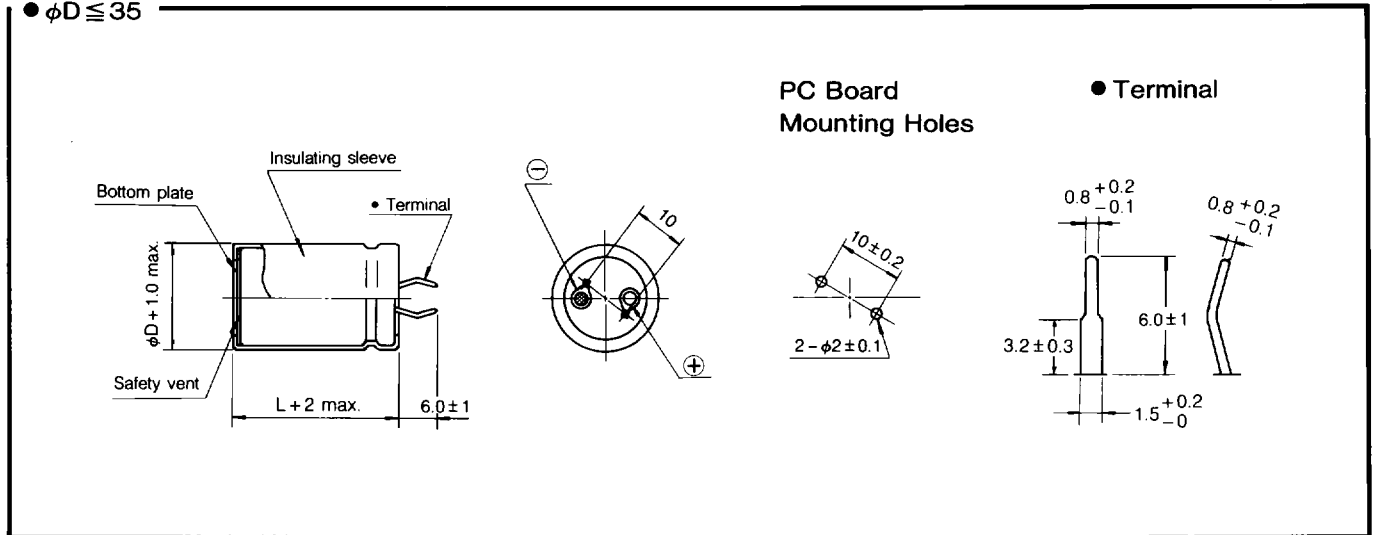


Item	Characteristics															
Operating temperature range	-40 ~ +105°C															
Capacitance tolerance	±20% at 120Hz, 20°C															
Leakage current max.	$I = 0.02CV$ (μA) or 3mA whichever is smaller (after 5 minutes)															
Dissipation factor max. (at 120Hz, 20°C)	Capacitance > 1000 μF : $\tan\delta$ increases by 0.01 for each 1000 μF from below value.															
	<table border="1"> <thead> <tr> <th>WV</th> <th>6.3,10</th> <th>16</th> <th>25,35</th> <th>50,63</th> <th>80,100</th> <th>160~315</th> <th>350,400</th> </tr> </thead> <tbody> <tr> <td>$\tan\delta$</td> <td>0.50</td> <td>0.40</td> <td>0.35</td> <td>0.25</td> <td>0.20</td> <td>0.15</td> <td>0.20</td> </tr> </tbody> </table>	WV	6.3,10	16	25,35	50,63	80,100	160~315	350,400	$\tan\delta$	0.50	0.40	0.35	0.25	0.20	0.15
WV	6.3,10	16	25,35	50,63	80,100	160~315	350,400									
$\tan\delta$	0.50	0.40	0.35	0.25	0.20	0.15	0.20									
Load life (after application of the rated voltage for 1000 hours at 105°C, HL series are for 2000 hours)	Leakage current	Less than specified value														
	Capacitance change	Within ±20% of initial value														
	$\tan\delta$	Less than 200% of specified value														
Shelf life (at 105°C)	After 500 hours no load test, leakage current, capacitance and $\tan\delta$ are same as load life value.															

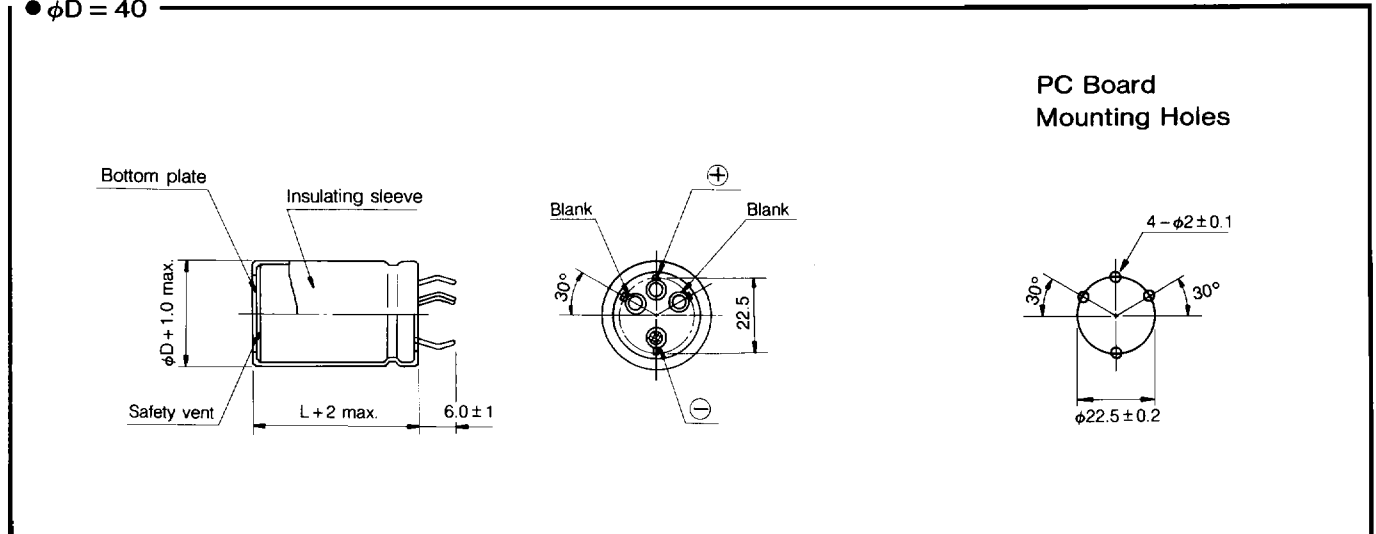
● DRAWING

Unit : mm

● $\phi D \leq 35$



● $\phi D = 40$





● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT A (rms) at 120Hz, 105°C $\phi D \times L(\text{mm}) / A(\text{rms})$

WV μF	φD	6.3						10						16					
		20	22	25.4	30	35	40	20	22	25.4	30	35	40	20	22	25.4	30	35	40
2200														20×25 1.0					
3300								20×25 1.1						20×30 1.3	22×25 1.3				
4700	20×25 1.2							20×30 1.4	22×25 1.4					20×35 1.6	22×30 1.6	25.4×25 1.6			
6800	20×30 1.5	22×25 1.5						20×35 1.7	22×30 1.7	25.4×25 1.8					22×35 2.0	25.4×30 2.0	30×25 2.1		
10000	20×35 1.9	22×30 1.9	25.4×25 2.0					22×35 2.1	25.4×30 2.2	30×25 2.3					22×45 2.5	25.4×40 2.6	30×30 2.6	35×25 2.6	
15000		22×40 2.5	25.4×35 2.6	30×25 2.5				22×45 2.7	25.4×40 2.9	30×30 2.8	35×25 2.9				25.4×50 3.3	30×40 3.3	35×30 3.2		
22000			25.4×40 3.1	30×30 3.2	35×30 3.3				25.4×45 3.4	30×40 3.5	35×30 3.4						30×50 4.0	35×40 4.0	
33000				30×45 4.0	35×35 3.9					30×50 4.3	35×45 4.4	40×40 4.5						35×60 5.1	40×50 5.0
47000				30×60 4.8	35×45 4.6	40×40 4.7					35×60 5.3	40×50 5.3						35×70 5.8	40×60 5.8
68000					35×60 5.6	40×50 5.5					35×70 6.1	40×60 6.0							
100000					35×70 6.3	40×60 6.3													

WV μF	φD	25						35						50					
		20	22	25.4	30	35	40	20	22	25.4	30	35	40	20	22	25.4	30	35	40
1000								20×25 0.7						20×25 1.0					
1500	20×25 0.9							20×30 1.0	22×25 1.0					20×30 1.2	22×25 1.2				
2200	20×30 1.1	22×25 1.1						20×35 1.2	22×30 1.2	25.4×25 1.3				20×40 1.6	22×35 1.6	25.4×30 1.7	30×25 1.7		
3300	20×35 1.5	22×30 1.5	25.4×25 1.5					20×40 1.5	22×35 1.5	25.4×30 1.6	30×25 1.6				22×45 2.1	25.4×40 2.2	30×30 2.2	35×25 2.2	
4700	20×40 1.8	22×35 1.8	25.4×30 1.9	30×25 1.9					22×45 2.0	25.4×35 2.0	30×30 2.0	35×25 2.1			25.4×45 2.7	30×35 2.7	35×30 2.7		
6800		22×45 2.3	25.4×35 2.3	30×30 2.4	35×25 2.4					25.4×50 2.6	30×40 2.6	35×30 2.6					30×45 3.3	35×40 3.4	
10000			25.4×50 3.1	30×40 3.0	35×30 3.0						30×50 3.3	35×40 3.3					30×60 4.2	35×50 4.2	40×40 4.1
15000				30×50 3.8	35×40 3.7							35×60 4.3	40×50 4.3					35×70 5.3	40×60 5.3
22000					35×60 4.8	40×50 4.8						35×70 5.1	40×60 5.1						
33000					35×70 5.7	40×60 5.6													

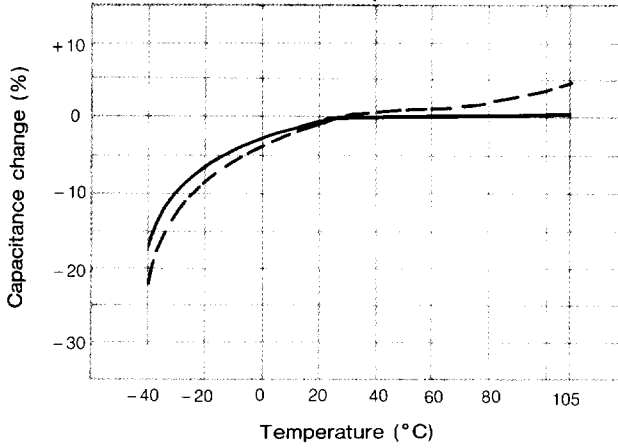
WV μF	φD	63						80						100					
		20	22	25.4	30	35	40	20	22	25.4	30	35	40	20	22	25.4	30	35	40
150														20×25 0.5					
220														20×30 0.6	22×25 0.6				
330														20×35 0.8	22×30 0.8	25.4×25 0.8			
470								20×25 0.8						20×45 1.0	22×40 1.0	25.4×35 1.1	30×25 1.0		
680	20×25 0.8							20×30 1.0	22×25 1.0						22×50 1.4	25.4×45 1.4	30×35 1.4	35×30 1.4	
1000	20×30 1.0	22×25 1.0						20×40 1.4	22×35 1.4	25.4×30 1.5	30×25 1.5						30×45 1.9	35×40 1.9	
1500	20×40 1.4	22×35 1.4	25.4×30 1.4	30×25 1.5					22×45 1.8	25.4×35 1.8	30×30 1.9	35×25 1.9					30×60 2.4	35×50 2.4	40×40 2.4
2200		22×40 1.7	25.4×35 1.8	30×30 1.8	35×25 1.9					25.4×45 2.3	30×35 2.3	35×30 2.3						35×60 3.0	40×50 3.0
3300			25.4×45 2.3	30×35 2.3	35×30 2.3						30×45 2.9	35×35 2.9							
4700				30×45 2.9	35×40 3.0						30×60 3.8	35×50 3.8	40×40 3.7						
6800				30×60 3.7	35×50 3.7	40×40 3.6						35×70 4.8	40×60 4.8						
10000					35×70 4.8	40×50 4.5													



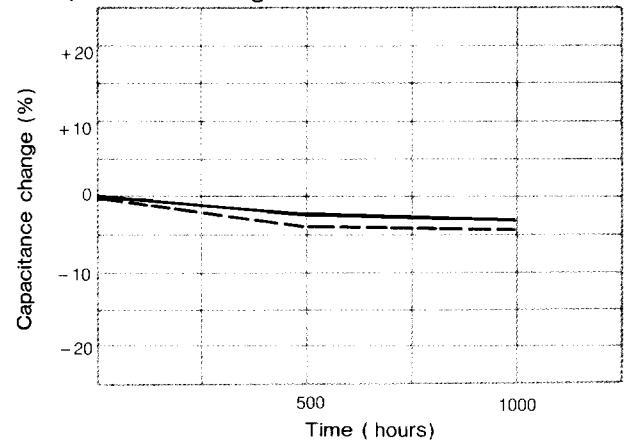
TYPICAL PERFORMANCE

— 50V 10000 μ F
 ---200V 470 μ F

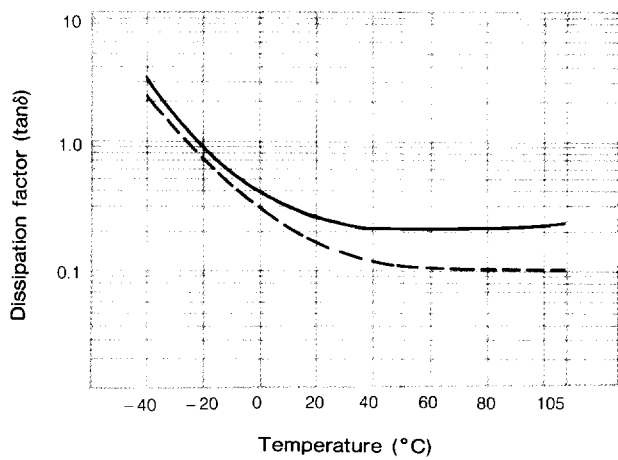
● TEMPERATURE CHARACTERISTICS
 Capacitance change vs. temperature



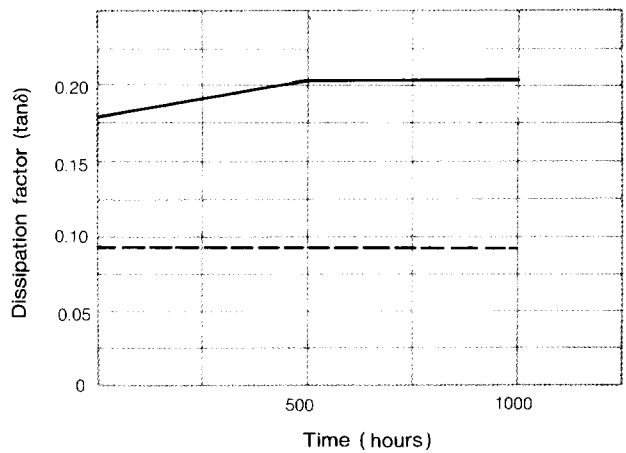
● LOAD LIFE (at + 105°C)
 Capacitance change vs. time



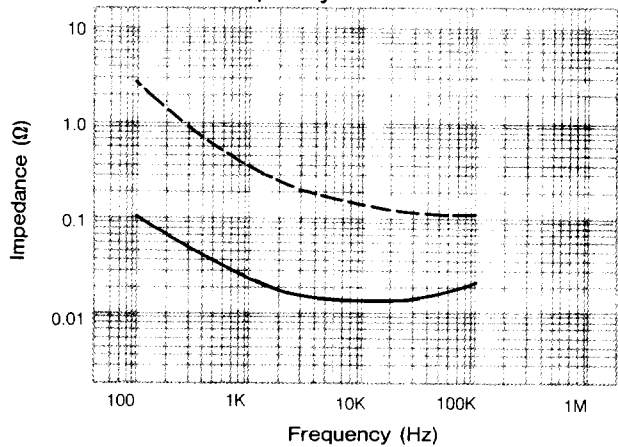
Dissipation factor vs. temperature



Dissipation factor vs. time



● FREQUENCY CHARACTERISTICS
 Impedance vs. frequency



Leakage current vs. time

