

LARGE ALUMINUM ELECTROLYTIC CAPACITORS

HK Wide Temperature Range, Miniaturized Series



Miniaturized



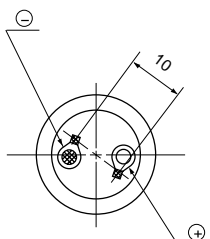
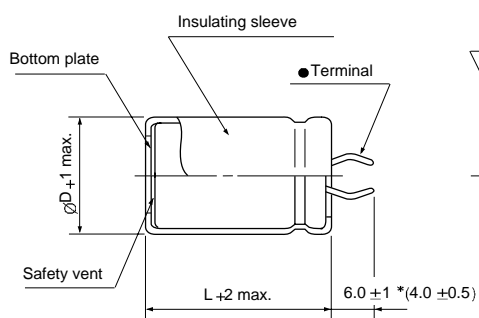
- Smaller case sizes than HE series
- High CV series
- Load life of 3000 hours at 105°C
- Voltage range of 160 ~ 450V



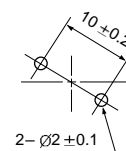
Item	Characteristics													
Operating temperature range	WV ≤ 400 : -40 ~ +105°C, WV = 450 : -25 ~ +105°C													
Capacitance tolerance	±20% at 120Hz, 20°C													
Leakage current max.	$I = 3\sqrt{CV}$ (µA) (after 5 minutes)													
Dissipation factor max. (at 120Hz, 20°C)	Capacitance > 1000µF : $\tan \delta$ increases by 0.01 for each 1000µF from below value.													
	<table border="1"> <tr> <td>WV</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>$\tan \delta$</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.20</td> </tr> </table>	WV	160	200	250	350	400	450	$\tan \delta$	0.15	0.15	0.15	0.15	0.15
WV	160	200	250	350	400	450								
$\tan \delta$	0.15	0.15	0.15	0.15	0.15	0.20								
Load life (after application of the rated voltage for 3000 hours at 105°C)	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 1000 hours no load test, leakage current, capacitance and $\tan \delta$ are same as load life value.													

● DRAWING

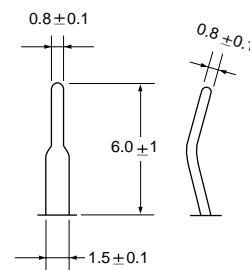
Unit : mm



PC Board Mounting Holes



● Terminal



* Shorter terminal (4.0 ± 0.5) is also available upon request.
Terminal length of height 20mm products is applied shorter terminal to standard terminal type.

LARGE ALUMINUM ELECTROLYTIC CAPACITORS



HK series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV μF ∅D	160				200				250			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
120									22 × 20 0.56			
150					22 × 20 0.63				22 × 25 0.68	25.4 × 20 0.69		
180					22 × 20 0.69	25.4 × 20 0.76			22 × 25 0.74	25.4 × 20 0.76		
220	22 × 20 0.76				22 × 25 0.82	25.4 × 20 0.84			22 × 25 0.82	25.4 × 25 0.90	30 × 20 0.92	
270	22 × 25 0.91	25.4 × 20 0.93			22 × 25 0.91	25.4 × 25 1.00	30 × 20 1.02		22 × 30 0.97	25.4 × 25 1.00	30 × 20 1.02	
330	22 × 25 1.01	25.4 × 20 1.03			22 × 30 1.07	25.4 × 25 1.11	30 × 20 1.13		22 × 35 1.14	25.4 × 30 1.18	30 × 25 1.21	35 × 20 1.23
390	22 × 25 1.09	25.4 × 25 1.2	30 × 20 1.23		22 × 30 1.17	25.4 × 25 1.20	30 × 25 1.31	35 × 20 1.34	22 × 40 1.30	25.4 × 35 1.35	30 × 25 1.31	35 × 25 1.42
470	22 × 30 1.28	25.4 × 25 1.32	30 × 20 1.35		22 × 35 1.36	25.4 × 30 1.40	30 × 25 1.44	35 × 20 1.47	22 × 45 1.50	25.4 × 35 1.48	30 × 30 1.53	35 × 25 1.56
560	22 × 35 1.48	25.4 × 30 1.53	30 × 25 1.57	35 × 20 1.60	22 × 40 1.56	25.4 × 30 1.53	30 × 25 1.57	35 × 25 1.7	22 × 50 1.71	25.4 × 40 1.70	30 × 30 1.67	35 × 25 1.70
680	22 × 40 1.72	25.4 × 30 1.69	30 × 25 1.73	35 × 20 1.76	22 × 45 1.80	25.4 × 35 1.79	30 × 30 1.84	35 × 25 1.88		25.4 × 50 2.05	30 × 35 1.94	35 × 30 1.98
820	22 × 45 1.98	25.4 × 35 1.96	30 × 30 2.02	35 × 25 2.06		25.4 × 45 2.16	30 × 30 2.02	35 × 25 2.06			30 × 40 2.23	35 × 35 2.29
1000	22 × 50 2.28	25.4 × 40 2.28	30 × 30 2.23	35 × 25 2.28		25.4 × 50 2.48	30 × 35 2.35	35 × 30 2.41			30 × 50 2.68	35 × 40 2.65
1200		25.4 × 45 2.41	30 × 35 2.38	35 × 30 2.44			30 × 40 2.50	35 × 35 2.57			30 × 60 2.92	35 × 45 2.80
1500		25.4 × 50 2.81	30 × 40 2.79	35 × 30 2.73			30 × 50 3.04	35 × 40 3.00				35 × 50 3.25
1800			30 × 45 3.19	35 × 35 3.14				35 × 45 3.43				
2200			30 × 50 3.44	35 × 45 3.55				35 × 50 3.68				
2700				35 × 50 4.08								

WV μF ∅D	350				400				450			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
47					22 × 20 0.34							
56	22 × 20 0.37				22 × 20 0.37	25.4 × 20 0.41			22 × 25 0.29			
68	22 × 20 0.41	25.4 × 20 0.45			22 × 25 0.44	25.4 × 20 0.45			22 × 30 0.34	25.4 × 25 0.35		
82	22 × 25 0.48	25.4 × 20 0.49			22 × 25 0.48	25.4 × 25 0.53	30 × 20 0.54		22 × 30 0.38	25.4 × 25 0.39		
100	22 × 25 0.53	25.4 × 25 0.58	30 × 20 0.60		22 × 30 0.57	25.4 × 25 0.58	30 × 20 0.60		22 × 35 0.44	25.4 × 30 0.46	30 × 25 0.47	
120	22 × 30 0.62	25.4 × 25 0.64	30 × 20 0.65		22 × 35 0.66	25.4 × 25 0.64	30 × 25 0.70	35 × 20 0.71	22 × 40 0.51	25.4 × 30 0.50	30 × 25 0.51	35 × 25 0.56
150	22 × 35 0.74	25.4 × 30 0.76	30 × 25 0.78	35 × 20 0.80	22 × 40 0.78	25.4 × 30 0.76	30 × 25 0.78	35 × 20 0.80	22 × 45 0.60	25.4 × 40 0.62	30 × 30 0.61	35 × 25 0.62
180	22 × 40 0.85	25.4 × 30 0.83	30 × 25 0.86	35 × 20 0.87	22 × 45 0.89	25.4 × 35 0.88	30 × 30 0.91	35 × 25 0.93	22 × 50 0.68	25.4 × 40 0.68	30 × 30 0.67	35 × 25 0.68
220	22 × 45 0.98	25.4 × 35 0.98	30 × 30 1.00	35 × 25 1.03	22 × 50 1.03	25.4 × 40 1.03	30 × 30 1.00	35 × 25 1.03		25.4 × 45 0.79	30 × 35 0.78	35 × 25 0.75
270	22 × 50 1.14	25.4 × 40 1.14	30 × 30 1.11	35 × 25 1.14		25.4 × 45 1.19	30 × 35 1.17	35 × 30 1.20			30 × 40 0.90	35 × 30 0.88
330		25.4 × 45 1.31	30 × 35 1.30	35 × 30 1.33		25.4 × 50 1.37	30 × 40 1.36	35 × 30 1.33			30 × 45 1.04	35 × 35 1.03
390		25.4 × 50 1.49	30 × 40 1.48	35 × 35 1.52			30 × 45 1.54	35 × 35 1.52			30 × 50 1.18	35 × 40 1.17
470			30 × 45 1.69	35 × 35 1.67			30 × 50 1.76	35 × 40 1.74				35 × 45 1.34
560			30 × 50 1.92	35 × 40 1.90				35 × 45 1.98				35 × 50 1.52
680				35 × 50 2.27				35 × 50 2.27				

← Case size ∅D × L (mm)
← Ripple current (Arms) at 105°C, 120Hz