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Sourcing Simplified



LARGE ALUMINUM ELECTROLYTIC CAPACITORS



Upgrade

HK Miniaturized Series

- Smaller case sizes than HE series
- Load life of 3000 hours at 105°C
- Complied to the RoHS directive



Solvent Proof
WV ≤ 100V



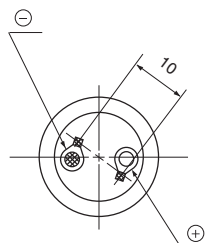
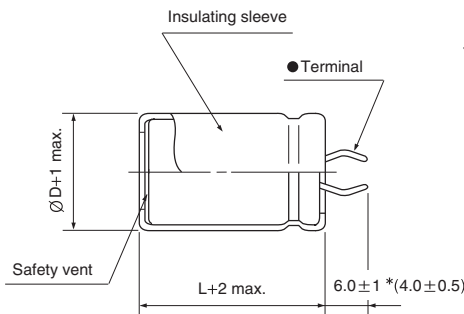
Miniaturized



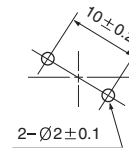
Item	Characteristics															
Operating temperature range	WV < 350 : -40 ~ +105°C, WV ≥ 350 : -25 ~ +105°C															
Capacitance tolerance	±20% at 120Hz, 20°C															
Leakage current max.	$I = 3\sqrt{CV}$ (µA) (after 5 minutes)															
Dissipation factor max. (at 120Hz, 20°C)	Capacitance > 1000µF : tanδ increases by 0.01 for each 1000µF 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>160~400</th> <th>450, 500</th> </tr> </thead> <tbody> <tr> <td>tanδ</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	160~400	450, 500	tanδ	0.50	0.40	0.35	0.25	0.20	0.15
WV	6.3, 10	16	25, 35	50, 63	80, 100	160~400	450, 500									
tanδ	0.50	0.40	0.35	0.25	0.20	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														
	tanδ	Less than 200% of specified value														
Shelf life (at 105°C)	After 1000 hours no load test, leakage current, capacitance and tanδ are same as load life value. The measurement shall be performed at 20°C by the KS C IEC 60384 - 4															

● DRAWING

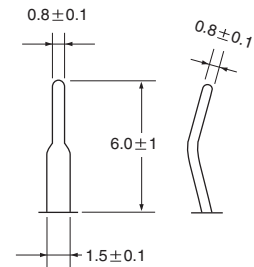
Unit : mm



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.

● FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

WV	Frequency	50Hz	120Hz	300Hz	1kHz	10kHz ≤
~ 100		0.85	1.00	1.06	1.15	1.20
160 ~ 250		0.85	1.00	1.20	1.25	1.45
350 ~		0.85	1.00	1.15	1.20	1.40

LARGE TYPES

LARGE ALUMINUM ELECTROLYTIC CAPACITORS

HK series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV μF / ØD	6.3					10					16				
	22	25.4	30	35	40	22	25.4	30	35	40	22	25.4	30	35	40
8200											22 × 25 2.14				
10000						22 × 25 2.17					22 × 30 2.48	25.4 × 25 2.56			
12000	22 × 25 2.19					22 × 30 2.48					22 × 35 2.80	25.4 × 30 2.90	30 × 25 2.97		
15000	22 × 30 2.53					22 × 35 2.83	25.4 × 25 2.75				22 × 40 3.17	25.4 × 35 3.29	30 × 30 3.38		
18000	22 × 35 2.85	25.4 × 25 2.77				22 × 35 3.00	25.4 × 30 3.11				22 × 45 3.50	25.4 × 40 3.65	30 × 30 3.57		
22000	22 × 35 3.04	25.4 × 30 3.15				22 × 40 3.35	25.4 × 35 3.48	30 × 25 3.38				25.4 × 45 4.03	30 × 35 3.98		
27000	22 × 40 3.40	25.4 × 35 3.53	30 × 25 3.42			22 × 50 3.88	25.4 × 40 3.87	30 × 30 3.79				25.4 × 50 4.42	30 × 40 4.39	35 × 30 4.29	
33000	22 × 50 3.92	25.4 × 40 3.91	30 × 30 3.83				25.4 × 45 4.26	30 × 35 4.20					30 × 45 4.79	35 × 35 4.71	
39000		25.4 × 45 4.26	30 × 35 4.20				25.4 × 50 4.60	30 × 40 4.57	35 × 30 4.46				30 × 50 5.16	35 × 40 5.10	
47000		25.4 × 50 4.63	30 × 40 4.60	35 × 30 4.50				30 × 45 4.95	35 × 35 4.87					35 × 45 5.50	40 × 40 5.60
56000			30 × 50 5.17	35 × 40 5.12					35 × 45 5.49	40 × 40 5.59					40 × 50 6.22
68000				35 × 45 5.52	40 × 40 5.62					40 × 50 6.22					40 × 60 6.83

WV μF / ØD	25					35					50				
	22	25.4	30	35	40	22	25.4	30	35	40	22	25.4	30	35	40
2700											22 × 30 1.94				
3300						22 × 25 1.62					22 × 35 2.20				
3900						22 × 30 1.88					22 × 40 2.52	25.4 × 35 2.62	30 × 25 2.54		
4700	22 × 25 1.73					22 × 35 2.14	25.4 × 25 2.09				22 × 45 2.81	25.4 × 40 2.93	30 × 30 2.87		
5600	22 × 30 1.98					22 × 35 2.29	25.4 × 30 2.37	30 × 25 2.43			22 × 50 3.11	25.4 × 40 3.11	30 × 35 3.21		
6800	22 × 30 2.14					22 × 40 2.61	25.4 × 35 2.71	30 × 30 2.79				25.4 × 50 3.64	30 × 40 3.61	35 × 30 3.53	
8200	22 × 35 2.42	25.4 × 30 2.50				22 × 50 3.02	25.4 × 40 3.02	30 × 30 2.95					30 × 45 3.94	35 × 35 3.87	
10000	22 × 40 2.77	25.4 × 35 2.88					25.4 × 45 3.43	30 × 35 3.38					30 × 50 4.42	35 × 40 4.37	
12000	22 × 45 3.09	25.4 × 40 3.22	30 × 30 3.15				25.4 × 50 3.78	30 × 40 3.75	35 × 30 3.67					35 × 45 4.78	
15000		25.4 × 45 3.62	30 × 35 3.65	35 × 30 3.65				30 × 45 4.19	35 × 35 4.12					35 × 50 5.24	40 × 40 5.13
18000		25.4 × 50 3.98	30 × 40 3.95	35 × 35 4.06					35 × 40 4.52						40 × 50 5.76
22000			30 × 45 4.36	35 × 35 4.28					35 × 45 4.95	40 × 40 5.04					40 × 50 5.98
27000				35 × 45 4.92	40 × 40 5.01					40 × 50 5.92					40 × 60 6.61

WV μF / ØD	63					80					100				
	22	25.4	30	35	40	22	25.4	30	35	40	22	25.4	30	35	40
820						22 × 25 1.37					22 × 30 1.46	25.4 × 25 1.51			
1000						22 × 30 1.62	25.4 × 25 1.67				22 × 35 1.71	25.4 × 30 1.77			
1200	22 × 25 1.37					22 × 30 1.67	25.4 × 25 1.72				22 × 40 1.86	25.4 × 35 1.94	30 × 25 1.88		
1500	22 × 30 1.50	25.4 × 25 1.54				22 × 35 1.98	25.4 × 30 2.05				22 × 45 2.18	25.4 × 40 2.28	30 × 30 2.23		
1800	22 × 30 1.64	25.4 × 25 1.69				22 × 40 2.28	25.4 × 35 2.37	30 × 25 2.30				25.4 × 45 2.61	30 × 35 2.57		
2200	22 × 35 1.86	25.4 × 30 1.92				22 × 45 2.51	25.4 × 35 2.49	30 × 30 2.56				25.4 × 50 2.85	30 × 40 2.83	35 × 30 2.76	
2700	22 × 40 2.17	25.4 × 30 2.13	30 × 25 2.18				25.4 × 45 3.03	30 × 35 2.99					30 × 45 3.27	35 × 35 3.22	
3300	22 × 50 2.53	25.4 × 40 2.53	30 × 30 2.48				25.4 × 50 3.33	30 × 40 3.30	35 × 30 3.23				30 × 50 3.59	35 × 40 3.55	
3900		25.4 × 45 2.88	30 × 35 2.84					30 × 45 3.75	35 × 35 3.69					35 × 45 4.03	
4700		25.4 × 50 3.20	30 × 40 3.17	35 × 30 3.10				30 × 50 4.10	35 × 40 4.06					35 × 50 4.40	40 × 40 4.31
5600			30 × 45 3.51	35 × 35 3.46					35 × 45 4.44						40 × 50 4.88
6800			30 × 50 3.92	35 × 40 3.88					35 × 50 4.90	40 × 40 4.80					40 × 50 5.18
8200				35 × 45 4.22						40 × 50 5.32	← Case size ØD × L (mm) ← Ripple current (Arms) at 105°C, 120Hz				
10000				35 × 50 4.74	40 × 40 4.64										

LARGE ALUMINUM ELECTROLYTIC CAPACITORS



HK series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV μF / ØD	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				22×20 0.68			
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	
390	22×25 1.09	25.4×25 1.20	30×20 1.23		22×30 1.17	25.4×25 1.20	30×25 1.31		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		22×40 1.56	25.4×30 1.53	30×25 1.57	35×25 1.70	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 / ØD	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				22×25 0.40			
68	22×20 0.41	25.4×20 0.45			22×20 0.44	25.4×20 0.45			22×30 0.47	25.4×20 0.48		
82	22×25 0.48	25.4×20 0.49			22×25 0.48	25.4×20 0.53			22×30 0.51	25.4×25 0.53		
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 0.60	25.4×30 0.62	30×25 0.64	
120	22×30 0.62	25.4×25 0.64	30×20 0.65		22×30 0.66	25.4×25 0.64	30×25 0.70		22×40 0.69	25.4×30 0.68	30×25 0.70	
150	22×35 0.74	25.4×30 0.76	30×25 0.78		22×35 0.78	25.4×30 0.76	30×25 0.78	35×20 0.80	22×45 0.81	25.4×35 0.85	30×25 0.83	35×25 0.85
180	22×40 0.85	25.4×30 0.83	30×25 0.86	35×20 0.87	22×40 0.89	25.4×35 0.88	30×30 0.91	35×25 0.93	22×50 0.93	25.4×30 0.83 25.4×35 0.93	30×30 0.91	35×25 0.93
220	22×45 0.98	25.4×30 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		25.4×40 1.07	30×35 1.06	35×25 1.03
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			30×35 1.23	35×30 1.20
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			30×40 1.42	35×35 1.40
390		25.4×45 1.49	30×40 1.48	35×35 1.52			30×45 1.54	35×35 1.52			30×45 1.61	35×40 1.59
470			30×45 1.69	35×35 1.67			30×50 1.76	35×40 1.74				35×45 1.82
560			30×50 1.92	35×40 1.90				35×45 1.98				35×50 2.06
680				35×45 2.27				35×50 2.27				

WV μF / ØD	500				
	22	25.4	30	35	40
82	22×35 0.42	25.4×30 0.43			
100	22×40 0.49	25.4×35 0.48	30×25 0.50		
120	22×45 0.51	25.4×35 0.50	30×30 0.50	35×25 0.51	
150		25.4×40 0.53	30×35 0.53	35×30 0.54	
180		25.4×45 0.74	30×40 0.74	35×35 0.76	
220			30×50 0.89	35×35 0.84	
270			30×50 1.02	35×40 0.97	
330			30×55 1.17	35×50 1.17	
390				35×60 1.36	
470				35×60 1.53	40×60 1.57
560					40×70 1.82

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