

HLM series

Features

- ◆ Directly mountable on printed circuit board, without holders.
- ◆ Aluminum case deaigned explosion –proof vent.
- ◆ For detail specifications, please refer to Engineering Bulletin No.E106
- ◆ HoHS Compliant



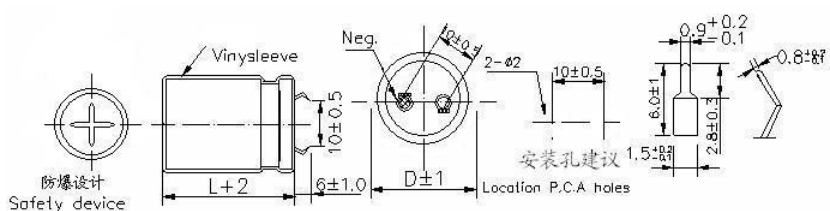
Specifications

Item	Performance Characteristics									
Operating Temperature Range	-25~+85℃									
Rate Voltage Range	160~450VDC									
Capacitance Range	47~27000µF									
Capacitance Tolerance	±20% (120Hz, +20℃)									
Leakage current (+20℃,max.)	1 ≤ 0.02CVA After 5 minutes with rated working voltage applied.									
Dissipation factor (tgδ)	Less than the value under table (%)									
	<table border="1"> <tr> <td>Uf \ VDC</td> <td>160~250</td> <td>315~450</td> </tr> <tr> <td>47~390</td> <td>15</td> <td>20</td> </tr> <tr> <td>470~2700</td> <td>15</td> <td>20</td> </tr> </table>	Uf \ VDC	160~250	315~450	47~390	15	20	470~2700	15	20
	Uf \ VDC	160~250	315~450							
	47~390	15	20							
470~2700	15	20								
Low Temperature Characteristics (120Hz)	Impedance ratio max.									
	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>160</td> <td>200~250</td> <td>400~450</td> </tr> <tr> <td>Z-25℃ / Z+20℃</td> <td>4</td> <td>4</td> <td>8</td> </tr> </table>	Rated voltage (V)	160	200~250	400~450	Z-25℃ / Z+20℃	4	4	8	
	Rated voltage (V)	160	200~250	400~450						
Z-25℃ / Z+20℃	4	4	8							
Load Life	Test conditions									
	Duration time : 2000Hrs									
	Ambient temperature : +85℃									
	Applied voltage : Rated DC working voltage									
	After test requirement at +20℃									
	Capacitance change : ≤±20% of the initial measured value									
	Dissipation factor : ≤200% of the initial specified value									
Leakage current : ≤The initial specified value										
Shelf Life	Test conditions									
	Duration time : 1000Hrs									
	Ambient temperature : +85℃									
	Applied voltage : None									
	After test requirement at +20℃ : The same limits as Load life									
	Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes									

Multiplier for Ripple Current vs. Frequency

CAP(µF)	50(60)	120	1k	10k	50k-100k
Frequency (Hz)					
10 < CAP ≤ 100	0.8	1	1.36	1.48	1.53
100 < CAP ≤ 1000	0.8	1	1.25	1.35	1.38
1000 < CAP	0.8	1	1.17	1.25	1.28

Diagram of Dimensions



HLM series

Case Size

Φ D × L

wv ΦD Cap (uF)	160								200							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
150									22×21	0.96						
180	22×21	1.12							22×21	1.00						
220	22×21	1.35							22×21	1.36						
270	22×21	1.40							22×26	1.50						
330	22×26	1.44							22×26	1.70	25×26	1.70				
390	22×26	1.66	25×21	1.66					22×26	1.80	25×26	1.80				
470	22×31	1.76	25×26	1.76	30×21	1.76			22×31	2.23	25×26	2.23	30×21	2.23		
560	22×31	2.03	25×26	2.03	30×26	2.03	35×27	3.13	22×36	2.40	25×31	2.40	30×26	2.40		
					30×21	1.87										
680	22×36	2.36	25×31	2.36	30×26	2.36	35×32	3.44	22×41	2.25	25×36	2.55	30×26	2.55	35×32	3.52
							35×27	3.20							35×27	3.29
820	22×41	2.27	25×36	2.27	30×31	2.27	35×32	3.96			25×36	3.00	30×31	3.00	35×32	3.80
					30×26	2.10	35×27	2.10	22×46	2.80					35×27	3.50
1000			25×41	3.13	30×31	3.13	35×32	4.47			25×46	3.52	30×36	3.52	35×37	4.40
	22×51	2.50	25×36	2.95			35×27								35×32	4.10
1200			25×46	3.44	30×36	3.44	35×37	4.65					30×41	3.80	35×42	5.00
							35×32	4.10							35×37	4.70
1500					30×41	3.96	35×42	4.76					30×46	4.40	35×47	5.40
							35×37	4.30							35×42	5.10
1800					30×46	4.47	35×47	4.60					30×56	5.15	35×52	5.15
2200					30×56	4.60	35×52	4.60							35×57	5.21

wv ΦD Cap (uF)	220								250							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
120									22×21	0.85						
150	22×21	0.71							22×21	0.95						
180	22×21	0.90							22×26	1.12	25×21	1.12				
220	22×26	1.04							22×26	1.25	25×21	1.20				
270	22×26	1.23	25×26	1.32					22×26	1.50	25×26	1.25				
330	22×31	1.47	25×26	1.47					22×31	1.70	25×26	1.50	30×21	1.70		
			25×21	1.35												
390	22×36	1.56	25×31	1.58					22×36	1.92	25×31	1.70	30×26	1.92		
	22×31	1.46	25×26	1.46												
470	22×36	1.75	25×31	1.75	30×26	1.75			22×41	2.2	25×31	1.92	30×26	2.20		
560	22×41	2.09	25×36	2.09	30×31	2.09	35×27	2.09			25×36	2.20	30×31	2.52	35×27	2.52
			25×31	1.92	30×26	1.92										
680	22×46	2.18	25×41	2.18	30×31	2.18	35×27	2.18			25×41	2.52	30×36	2.80	35×27	2.80
			25×36	2.05												
820			25×46	2.34	30×36	2.34	35×32	2.34			25×46	2.80	30×41	3.15	35×32	3.15
	22×51	2.21	25×41	2.21												
1000			25×51	3.04	30×41	3.04	35×32	3.04					30×46	3.60	35×37	3.60
1200					30×51	3.51	35×37	3.51					30×56	3.90	35×42	3.90
			25×56	3.30	30×46	3.30										
1500					30×56	3.65	35×42	3.65							35×47	4.50
1800							35×52	3.80							35×63	4.60
2200							35×57	3.99							35×70	4.72

Ripple Current (A,ms) at 85°C 120Hz

HLM series

Case Size

Φ D×L

wv ΦD Cap (uF)	350								400							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
47									22×21	0.42						
68									22×21	0.51						
82									22×26	0.83						
100	22×26	0.76							22×26	0.95	25×21	0.95				
120	22×26	0.89	25×26	0.89					22×26	1.07	25×21	1.07				
150	22×31	0.99	25×26	0.99	30×21	0.99			22×31	1.26	25×26	1.26	30×21	1.26		
180	22×36	1.15	25×31	1.15	30×26	1.15			22×36	1.46	25×31	1.46	30×26	1.46		
									22×31	1.35	25×26	1.35				
220	22×41	1.40	25×36	1.40	30×26	1.40	35×22	1.40	22×41	1.75	25×36	1.75	30×31	1.75		
											25×31	1.62	30×26	1.62		
270			25×41	1.63	30×31	1.63	35×27	1.63			25×41	1.85	30×31	1.85	35×27	1.85
									22×46	1.73	25×36	1.73				
330			25×46	1.88	30×36	1.88	35×27	1.88			25×46	2.10	30×36	2.10	35×32	2.10
									22×51	1.98	25×41	1.98	30×31	1.98	35×27	1.98
390					30×36	2.12	35×32	2.12					30×41	2.35	35×37	2.35
									22×56	2.20	25×51	2.20	30×36	2.20	35×32	2.20
470					30×41	2.41	35×37	2.41							35×42	2.60
											25×56	2.45	30×41	2.45	35×37	2.45
560							35×42	2.80							35×47	2.95
													30×46	2.90	35×42	2.90
680									35×47	3.20					35×47	3.15
													30×56	3.05		

wv ΦD Cap (uF)	450									
	22		25		30		35		40	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
47	22×21	0.36								
68	22×26	0.60								
82	22×26	0.89	25×21	0.89						
100	22×31	1.03	25×26	1.03						
120	22×36	1.10	25×31	1.10						
150	22×41	1.30	25×36	1.30	30×26	1.30				
	22×36	1.13	25×31	1.13	30×21	1.13				
180	22×46	1.45	25×41	1.45	30×31	1.45				
	22×41	1.36	25×36	1.36	30×26	1.36				
220	22×51	1.65	25×46	1.65	30×36	1.65	35×27	1.65		
			25×41	1.55	30×31	1.55				
270			25×51	1.90	30×41	1.90	35×32	1.90		
			25×46	1.80	30×36	1.80				
330			25×56	2.20	30×41	2.20	35×37	2.20		
							35×32	2.21		
390							35×42	2.40	40×32	2.40
							35×37	2.30		
470							35×47	2.75	40×37	2.75
							35×42	2.60		
560							35×52	2.90	40×42	2.90
							35×47	2.78		
680							35×57	3.0	40×47	3.0
820							35×63	3.2	40×57	3.2

Ripple Current (A,ms) at 85°C 120Hz