

LH [For 85°C, 2000 Hours Miniature]

For Printed Circuit Board High-Performance Aluminum Electrolytic Power Supply Input and Output Filter Capacitors

Miniature Size Aluminum Electrolytic Capacitors

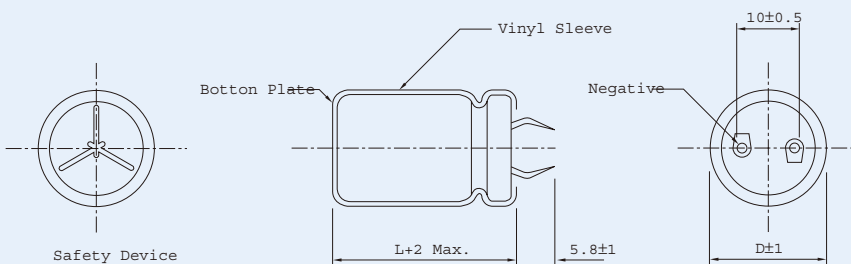
ELECTRICAL CHARACTERISTICS

Operating Temperature Range	-40 to+85°C	-25 to+85°C
Rated Voltage Range	10 to 400V	160 to 450VDC
Capacitance Tolerance	±20% (at 20°C, 120Hz)	
Leakage Current	I = 0.02CV or 3mA Whichever is smaller. (At 20°C, After 5 Minutes Application of DC Working Voltage at 20°C)	
Dissipation Factor	Where, I; Leakage Current (µA) C: Nominal Capacitance (µF) V; Rated Voltage (V)	
	Rate Voltage (V)	6.3 10 16 25 35-50 63-100 160~200 250~450
	D.F (%)	60 50 40 35 35 20 10* 15
Load Life	Note: * (15%) For Case Size D L(mm) = 35x20	
	The value of D.F.(%) is increased by 2% for every addition of 1000µF.	
	Rated Voltage(v)	6.3~16 25 35 50~63 80~100 160~400 450
	Z(-25°C) / Z(20°C)	5 4 4 3 3 4 8
	Z(-40°C) / Z(20°C)	18 15 10 10 10 8 -
	After the capacitors are subjected to DC with the full rated ripple current at 85°C for 2000 hours.	
Shelf Life	The following specifications shall be satisfied when the capacitor are restored to 25°C	
	after exposing them for 1000 hours at 85°C without voltage applied.	
	Capacitance Change	Within 20% of the Initial Value
	D.F (%)	150% or less of initial Specified Value
	Leakage Current	not exceed the Initial Specified Value



RoHS
COMPLIANT

DIAGRAM OF DIMENSIONS



DESCRIPTION

LH type capacitors, size are combined with snap-lock terminals for easy to mount on P.C. Board.

They are ideally suitable to be used in switching.

Power Supplies and Orther Industrial or Commercial Applications

Multiplier for Ripple Current

Frequency coefficient

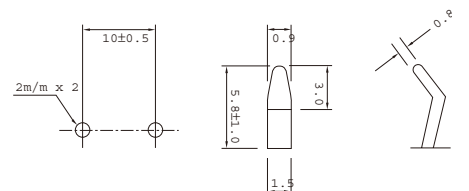
Frequency(Hz)	50	60	120	1K	10K~00K
6.3~100V	0.88	0.90	1.00	1.15	1.16
160~250V	0.75	0.78	1.00	1.16	1.23
350~450V	0.74	0.76	1.00	1.10	1.15

Temperature coefficient

Temperature(°C)	45	60	70	85
Factor	1.48	1.42	1.30	1.00

Location of P.C.B. Holes

Unit : mm





CASE SIZE OF STANDARD PRODUCTS AND PERMISSIBLE RIPPLE CURRENT

CAP. (μF)	RATED VOLTAGE WV							
	6.3		10		16		25	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
5600							22 x 25	2.00
6800							22 x 25	2.30
							22 x 30	2.30
							25 x 25	2.30
8200					22 x 25	2.50	22 x 35	2.60
							25 x 25	2.75
10000			22 x 25	2.50	22 x 30	2.6	22 x 40	2.90
					25 x 25	2.6	25 x 30	2.80
							30 x 25	3.00
12000			22 x 25	2.40	22 x 30	2.90	22 x 45	3.30
					22 x 40	2.90	25 x 35	3.20
					25 x 30	2.90	30 x 30	3.40
					30 x 25	2.90	35 x 25	3.50
15000	22 x 25	2.44	22 x 30	2.75	22 x 35	3.30	22 x 50	3.70
			25 x 25	2.75	25 x 40	3.30	25 x 40	3.70
					30 x 25	3.40	30 x 35	3.90
					25 x 30	3.30	35 x 25	3.90
							35 x 30	3.90
18000	22 x 30	2.60	22 x 35	3.15	22 x 40	3.70	25 x 45	4.30
							25 x 50	4.30
	25 x 25	2.62	25 x 25	3.05	25 x 35	3.70	30 x 35	4.20
			25 x 30	3.05	30 x 30	3.80	35 x 30	4.40
22000	22 x 30	3.06	22 x 40	3.55	22 x 50	4.20	30 x 40	4.80
	25 x 25	3.07	25 x 30	3.50	25 x 40	4.20	35 x 35	5.00
			25 x 35	3.50	30 x 30	4.20		
			30 x 25	3.55	35 x 25	4.20		
27000	22 x 25	3.49	22 x 45	4.05	25 x 45	4.65	30 x 45	5.90
	25 x 30	3.52	25 x 35	4.00	30 x 35	4.65	35 x 40	5.90
	30 x 25	3.57	30 x 30	4.05	35 x 30	4.65		
33000	22 x 40	3.97	22 x 50	4.60	30 x 40	5.60	30 x 50	6.50
	25 x 35	4.02	25 x 40	4.55	35 x 30	5.60	35 x 40	6.50
	30 x 30	4.05	30 x 30	4.50			35 x 45	6.50
	35 x 25	4.10	35 x 25	4.50				
39000	22 x 45	4.56	25 x 45	5.10	30 x 45	6.00	34 x 45	7.50
	25 x 40	4.50	30 x 35	5.05	35 x 35	5.95	35 x 50	7.50
	30 x 30	4.46	35 x 30	5.05				
	35 x 25	4.51						
47000	25 x 45	5.09	25 x 50	5.75	30 x 50	6.80		
	30 x 35	5.06	30 x 40	5.70	35 x 40	6.75		
	35 x 30	5.03	35 x 30	5.65				
56000	25 x 50	5.71	30 x 45	6.45	35 x 45	7.60		
	30 x 40	5.70	35 x 35	6.40				
68000	35 x 40	5.75						
	30 x 45	6.48	30 x 50	7.05	35 x 50	8.00		
82000	35 x 35	6.42	35 x 40	7.10				
	30 x 50	7.32	35 x 50	7.50				
100000	35 x 40	7.29	35 x 45	7.50				
	35 x 45	8.31						
120000	35 x 50	8.60						

Note : *1. D x L : mm

*2. Ripple Current : (A r.m.s 85°C / 120Hz)



CASE SIZE OF STANDARD PRODUCTS AND PERMISSIBLE RIPPLE CURRENT

CAP. (μF)	RATED VOLTAGE WV							
	35		50		63		80	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
1000							22 × 5	1.30
1200							22 × 25	1.50
							22 × 33	1.50
1500							22 × 30	1.70
					22 × 25	1.60	25 × 25	1.70
1800					22 × 25	1.85	22 × 35	1.90
							25 × 30	1.90
							30 × 25	1.90
2200			22 × 25	1.70	22 × 30	2.0	22 × 40	2.10
					25 × 25	2.0	25 × 30	2.10
							25 × 35	2.10
							30 × 25	2.20
2700			22 × 30	1.90	22 × 35	2.20	22 × 45	2.50
							22 × 50	2.50
			25 × 25	1.90	25 × 30	2.30	25 × 35	2.50
							25 × 40	2.50
					30 × 25	2.50	30 × 30	2.50
							30 × 25	2.50
3300							35 × 25	2.85
	22 × 25	1.80			22 × 40	2.30	22 × 50	2.80
					25 × 30	2.30	25 × 40	2.80
					25 × 35	2.30	25 × 45	2.80
					30 × 25	2.30	30 × 30	2.80
							30 × 35	
3900							35 × 25	3.20
	22 × 25	2.10	22 × 35	2.10	22 × 45	2.50	25 × 45	3.10
	22 × 30	2.10					25 × 30	3.10
			25 × 30	2.10	25 × 35	2.60	30 × 35	3.20
					25 × 40	2.60	25 × 50	3.10
			30 × 25	2.40	30 × 30	2.60	35 × 30	3.20
4700							30 × 40	3.20
	22 × 30	2.20	22 × 40	2.40	22 × 50	3.40	25 × 50	3.60
	25 × 25	2.20	25 × 35	2.40	25 × 40	3.35	30 × 40	3.60
					30 × 30	3.35	30 × 45	3.60
5600							35 × 25	3.60
			22 × 35	2.30	22 × 50	2.50	25 × 45	3.50
					25 × 45	3.10	30 × 45	3.50
			25 × 40	2.50	30 × 35	3.20	30 × 50	4.10
			30 × 30	2.50	35 × 30	3.30	35 × 35	3.50
			35 × 25	2.60			35 × 40	3.50
6800								
					30 × 40	3.60	30 × 50	4.10
			25 × 45	2.80	35 × 30	3.60	35 × 40	4.10
					35 × 35	3.70	35 × 50	4.10
			30 × 30	3.80				
6900			30 × 35	3.85				
					35 × 25	2.70		
8200			25 × 50	3.20	30 × 45	4.80	35 × 45	5.85
			22 × 45	2.80				
			25 × 35	2.80	30 × 40	3.20		
			25 × 40	2.80	35 × 35	4.80		
10000			30 × 30	3.0				
			35 × 25	2.90				
					30 × 45	3.40	30 × 50	5.50
			22 × 50	3.10	35 × 35	3.40	35 × 50	6.60
			25 × 40	3.10				
			25 × 45	3.10				
12000					35 × 35	4.30		
					35 × 40	4.30		
			25 × 45	3.50	30 × 50	3.80	35 × 45	4.80
			25 × 50	3.50	35 × 50	4.80		
15000			30 × 35	3.50				
			30 × 40	3.50				
			35 × 30	3.60				
18000			25 × 50	4.10	35 × 45	3.80		
			30 × 40	4.10	35 × 50	4.50		
			30 × 45	4.10				
22000			35 × 35	4.10				
			30 × 45	4.60	35 × 50	6.70		
27000			30 × 50	4.60				
			35 × 40	4.70				
22000								
			30 × 50	5.30	35 × 50	6.70		
27000								
			35 × 45	5.30				
27000								
			35 × 50	6.90				

Note : *1. D × L : mm

*2. Ripple Current : (A r.m.s 85°C / 120Hz)



CASE SIZE OF STANDARD PRODUCTS AND PERMISSIBLE RIPPLE CURRENT

CAP. (μF)	RATED VOLTAGE W V							
	100		160		180		200	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
180					22 × 20	1.00	22 × 25	0.95
220					22 × 25	1.10	22 × 25	1.10
270			22 × 25	1.15	22 × 25	1.25	22 × 25	1.25
					25 × 20	1.25	22 × 30	1.25
330			22 × 25	1.30			22 × 25	1.40
			25 × 20	1.30	22 × 30	1.40	22 × 30	1.40
					25 × 25	1.40	25 × 25	1.40
			22 × 30	1.50	22 × 30	1.60	22 × 30	1.60
390			25 × 25	1.50			22 × 35	1.60
			30 × 25	1.50	25 × 25	1.50	25 × 25	1.55
							25 × 30	1.55
			22 × 30	1.70	22 × 35	1.70	22 × 30	1.80
							22 × 35	1.80
470			25 × 25	1.70			22 × 40	1.80
			30 × 25	1.70	25 × 30	1.70	25 × 30	1.80
					30 × 25	1.80	30 × 25	1.80
			22 × 35	1.90			22 × 40	2.00
560			25 × 30	1.90	22 × 40	1.90	22 × 45	2.00
					25 × 35	1.95	25 × 35	2.00
			30 × 25	1.90	30 × 35	1.95	30 × 30	2.00
					30 × 25	1.95	30 × 25	2.00
					30 × 25	2.00	35 × 25	2.00
			22 × 40	2.10	22 × 45	2.25	22 × 45	2.35
680	22 × 25	1.10			22 × 50	2.30		
			25 × 30	2.20	25 × 35	2.20	25 × 40	2.30
			25 × 35	2.20	25 × 40	2.20		
			30 × 25	2.15	30 × 30	2.20	30 × 30	2.30
							30 × 25	2.30
					30 × 25	2.20	35 × 25	2.30
	22 × 25	1.10	22 × 45	2.50	22 × 50	2.55	25 × 40	2.60
820	22 × 30	1.20	22 × 50	2.40	25 × 45	2.55	25 × 50	2.60
			25 × 35	2.40	30 × 30	2.55	30 × 35	2.60
			25 × 40	2.40	30 × 35	2.60	30 × 40	2.60
			30 × 30	2.40	35 × 25	2.50	35 × 30	2.50
			35 × 25	2.40	35 × 30	2.50		
	22 × 30	1.40	22 × 50	2.70	25 × 45	2.85	25 × 50	2.80
			25 × 40	2.70	25 × 50	2.85	30 × 35	2.80
	25 × 25	1.40	25 × 45	2.70	30 × 35	2.85	30 × 40	2.80
					30 × 40	2.85	30 × 45	2.80
1000			30 × 35	2.70	35 × 30	2.90		
			35 × 25	2.70			35 × 30	2.80
			35 × 30	2.70			35 × 35	2.80
1200	22 × 35	1.60	25 × 45	3.10	30 × 40	3.25	30 × 45	3.20
			25 × 50	3.10			35 × 50	3.20
	25 × 30	1.60	30 × 35	3.15	35 × 45	3.25	35 × 35	3.20
			30 × 40	3.15			35 × 40	3.20
			35 × 30	3.00	35 × 35	3.10		
			35 × 35	3.00				
1500	22 × 40	1.80	30 × 45	3.50	30 × 45	3.60	30 × 50	3.80
	25 × 30	1.70	35 × 35	3.50	35 × 40	3.60	35 × 40	3.80
	25 × 35	1.70						
	30 × 25	1.80	35 × 40	3.50	35 × 45	3.60	35 × 50	3.80
	22 × 45	2.10	30 × 50	3.90			35 × 45	4.35
1800	22 × 50	2.10						
	25 × 35	2.20	35 × 40	3.90	35 × 50	4.10		
	25 × 40	2.20						
	30 × 30	2.10	35 × 45	3.90				
	35 × 25	2.20						
2200	22 × 50	2.20						
	25 × 40	2.20	35 × 45	4.50	35 × 50	4.90	35 × 50	4.95
	25 × 45	2.20	35 × 50	4.50				
	30 × 30	2.30						
	30 × 35	2.30						
	35 × 25	2.50						
	35 × 30	2.50						
	25 × 45	2.60						
2700	25 × 50	2.60						
	30 × 35	2.70						
	30 × 40	2.70						
	35 × 25	4.05						
3300	25 × 50	3.00						
	30 × 40	3.00						
	30 × 45	3.00						
	35 × 30	3.10						
	35 × 35	3.10						
3900	30 × 45	3.40						
	30 × 50	3.40						
	35 × 35	3.40						
	35 × 40	3.40						
4700	35 × 40	4.00						
	35 × 50	4.00						
5600	35 × 50	6.20						
10000	35 × 60	7.88						

Note : *1. D × L : mm

*2. Ripple Current : (A r.m.s 85°C / 120Hz)



CASE SIZE OF STANDARD PRODUCTS AND PERMISSIBLE RIPPLE CURRENT

CAP. (μF) RATED VOLTAGE WV

	250		315		350		400		450	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
47							22 x 25	0.45	22 x 25	0.50
56							22 x 20	0.55	25 x 25	0.65
68					22 x 20	0.55	22 x 25	0.55	22 x 30	0.57
							25 x 20	0.60	22 x 25	0.70
82					22 x 25	0.64	22 x 25	0.80	22 x 30	0.80
					25 x 20	0.64	25 x 25	0.80	25 x 25	0.80
100					22 x 30	0.90	22 x 30	0.70	22 x 35	0.72
			22 x 25	0.67	25 x 20	0.90	25 x 25	0.70	25 x 30	0.73
									30 x 25	0.95
120	22 x 20	0.78			22 x 30	0.82	22 x 35	0.79	22 x 40	0.80
					25 x 25	0.81	25 x 25	0.79	25 x 30	0.83
									25 x 35	0.83
									30 x 25	0.95
150	22 x 25	0.90	22 x 30	0.85	22 x 35	0.94	22 x 40	0.9	22 x 45	0.95
									22 x 50	0.95
									25 x 30	0.73
			25 x 25	0.85	25 x 30	0.94	25 x 30	0.89	25 x 35	0.95
									25 x 40	0.98
					30 x 25	1.15	30 x 25	0.95	30 x 30	0.98
180	22 x 25	0.94	22 x 35	0.96	22 x 40	1.10	22 x 45	1.0	25 x 40	1.10
	25 x 20	1.00	25 x 30	0.96	25 x 30	1.10	25 x 35	1.0	25 x 45	1.10
					30 x 25	1.10	30 x 30	1.1	30 x 35	1.10
							35 x 25	1.20	35 x 25	1.20
220	22 x 30	1.15	22 x 40	1.10	22 x 45	1.20	22 x 50	1.10	25 x 50	1.20
	22 x 35	1.15	25 x 35	1.10	25 x 35	1.20	25 x 40	1.20	30 x 40	1.30
	25 x 25	1.15	30 x 25	1.10	30 x 30	1.20	30 x 30	1.20	35 x 30	1.30
					35 x 25	1.30	30 x 35	1.20		
							35 x 25	1.50		
270	22 x 30	1.20	22 x 45	1.20	25 x 40	1.40	25 x 40	1.30	30 x 45	1.40
	22 x 35	1.20	25 x 40	1.30	25 x 45	1.40	25 x 45	1.30	35 x 35	1.50
	25 x 25	1.30	30 x 30	1.30	30 x 35	1.40	30 x 35	1.40		
			35 x 25	1.30	35 x 25	1.65	30 x 40	1.40		
							35 x 30	1.50		
300	25 x 30	1.40								
330	22 x 35	1.40	25 x 45	1.40	22 x 50	1.60	25 x 50	1.60	30 x 40	2.00
	22 x 40	1.40	30 x 35	1.40	25 x 50	1.60	30 x 40	1.60	30 x 50	2.00
	25 x 30	1.50			30 x 40	1.60	30 x 45	1.60	35 x 35	2.00
	30 x 25	1.50			35 x 30	1.60	35 x 30	1.80	35 x 40	2.00
390	22 x 40	1.60	25 x 50	1.60	30 x 40	1.70	30 x 45	1.80	35 x 45	1.90
	22 x 45	1.60	30 x 40	1.60	35 x 30	1.80	30 x 35	1.80		
	25 x 35	1.60	35 x 30	1.60	35 x 35	1.80	35 x 35	1.80		
	30 x 25	1.65					35 x 40	1.80		
470	22 x 45	1.80	30 x 45	1.80	30 x 45	2.00	30 x 50	2.40	35 x 50	2.20
	22 x 50	1.80	35 x 35	1.80	35 x 35	2.00	35 x 40	2.10		
	25 x 35	1.80			35 x 40	2.00	35 x 45	2.10		
	25 x 40	1.80								
	30 x 30	1.80								
	35 x 25	1.90								
560	22 x 50	2.0	30 x 50	2.00	35 x 40	2.30	35 x 45	2.30		
	25 x 40	2.0	35 x 40	2.00	35 x 45	2.30	35 x 50	2.30		
	25 x 45	2.0								
	30 x 35	2.0								
	35 x 25	2.10								
680	25 x 50	2.30	35 x 45	2.30	35 x 45	2.60	35 x 50	2.90	35 x 60	2.9
	30 x 40	2.30			35 x 50	2.60				
	35 x 30	2.45								
820	30 x 45	2.60								
	35 x 35	2.60								
1000	30 x 50	3.00								
	35 x 40	3.00								
1200	35 x 45	3.40								

Note : *1. $D \times L$: mm

*2. Ripple Current : (A r.m.s 105°C / 120Hz)