



GNP Non-Polarized, 85°C



Features

- GNP Series for crossover networks of high-pitched, mean and low pitched sounds in high-fidelity sound systems.
- The series offers excellent frequency characteristics and minimal capacitance deviation with frequency.

Specifications

Item	Performance Characteristics												
Operating Temperature Range	-40 to +85°C							-25 to +85°C					
Rated voltage Range	6.3 to 100 VDC							160 to 250 VDC					
Capacitance Range	0.47 to 3300 μF							0.47 to 47 μF					
Capacitance Tolerance	±20%(120Hz, +20°C)												
Leakage Current(+20°C, max.)	I≤0.03 CV or 3(μA) After 1minute with rated working voltage applied..												
Dissipation Factor (tanδ)	Working Voltage (VDC)	6.3	10	16	25	35	50	63	100	160	200	250	
	D.F.(%)max	25	25	20	16	15	14	10	10	20	20	20	
	(+20°C, at 120Hz)												
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.												
	Working Voltage (VDC)	6.3	10	16	25	35	50	63	100	160	200	250	
	Z (-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2	2	2	3	
	Z (-40°C)/Z(+20°C)	8	6	6	4	4	3	3	3	-	-	-	
	For Capacitance Value 1000μF , add 0.5 per another 1000μF for -25°C/+20°C For Capacitance Value 1000μF , add 1 per another 1000μF for -40°C/+20°C												
Load Life	Test conditions Duration time : 5φ~6φ 1000Hrs D≥8φ 2000Hrs Ambient temperature:+85°C Applied voltage: Rated DC working voltage After test requirements: at +20% Dissipation Factor: ≤150% of the initial specified value Leakage current: ≤The initial specified value												
Shelf Life	Test conditions Duration time :1000Hrs Ambient temperature:+85°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.												

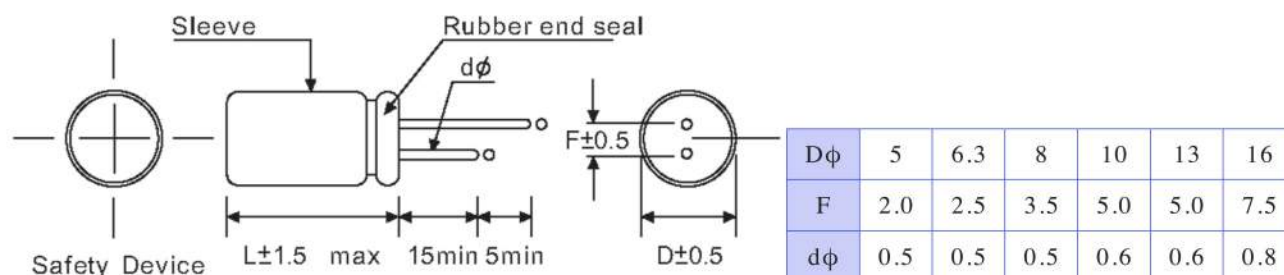
Multiplier for Ripple Current VS, Frequency

CAP(µF)/Hz		50 (60)	120	400	1K	10K	50K-100K
Multiplier	CAP≤10	0.8	1.0	1.30	1.45	1.65	1.70
	10<CAP≤100	0.8	1.0	1.23	1.36	1.48	1.53
	100<CAP≤1000	0.8	1.0	1.16	1.25	1.35	1.38
	1000<CAP	0.8	1.0	1.11	1.15	1.25	1.28

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	70	85
Multiplier	1.80	1.50	1.30	1.00

Diagram of Dimensions: (Unit: mm)





GNP Non-Polarized, 85°C

Case Size

φD x L (mm)

μF	W.V. {S.V.}	6.3 {8}		10 {13}		16 {20}		25 {32}	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
10		-	-	-	-	-	-	5x11	34
22		-	-	5x11	55	5x11	57	6.3x11	65
33		-	-	5x11	66	5x11	75	6.3x11	86
47		-	-	5x11	82	6.3x11	97	6.3x11	100
100		6.3x11	120	6.3x11	125	8x11	162	8x11	175
220		6.3x11	175	8x11	205	10x12	270	10x12	295
		-	-	-	-	-	-	10x15	310
330		8x11	250	10x12	270	10x15	350	10x17	440
		-	-	10x15	300	-	-	-	-
470		10x12	330	10x15	388	10x20	455	13x21	530
1000		10x20	650	13x21	700	13x21	730	-	-
		-	-	-	-	13x26	800	-	-
2200		13x21	850	16x26	1000	16x31	1100	-	-
3300		16x26	970	18x36	1300	-	-	-	-

•Ripple Current (mA, rms) at 85°C 120Hz

μF	W.V. {S.V.}	35 {44}		50 {63}		63 {79}		100 {125}	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.47		-	-	5x11	7	5x11	7	5x11	10
1		-	-	5x11	13	5x11	14	6.3x11	16
2.2		-	-	5x11	20	5x11	21	6.3x11	23
3.3		-	-	5x11	27	6.3x11	28	6.3x11	32
4.7		-	-	5x11	34	6.3x11	34	8x11	44
10		5x11	43	6.3x11	52	6.3x11	57	8x11	71
22		6.3x11	75	8x11	92	8x11	97	10x15	140
33		8x11	105	8x11	109	10x12	140	10x17	190
		-	-	-	-	-	-	10x20	195
47		8x11	120	10x12	150	10x15	180	10x20	220
		-	-	-	-	-	-	13x21	240
100		10x12	210	10x20	265	13x21	320	16x26	425
		10x15	230	-	-	-	-	-	-
220		10x20	400	13x21	475	13x26	510	16x26	520
		-	-	-	-	-	-	16x31	550
330		13x21	495	13x26	560	-	-	-	-
470		13x26	655	-	-	-	-	-	-

•Ripple Current (mA, rms) at 85°C 120Hz



GNP Non-Polarized, 85°C

Case Size

φD x L (mm)

μF \ W.V. {S.V.}	160 {200}		200 {250}		250 {300}	
	Size	Ripple	Size	Ripple	Size	Ripple
0.47	5x11	15	6.3x11	21	6.3x11	26
1	6.3x11	23	8x11	27	8x11	32
2.2	8x11	35	8x11	41	10x12	48
3.3	8x11	42	10x12	46	10x15	57
4.7	10x12	52	10x15	56	10x20	88
10	10x15	89	10x20	95	10x20	130
22	13x21	155	13x21	180	13x26	224
33	13x21	230	13x26	250	16x26	305
47	13x26	250	-	-	-	-

•Ripple Current (mA, rms) at 85°C 120Hz

RADIAL



JKS Ultra Low Impedance, High Ripple



Features

- Super Low Impedance
- Life Time : 2000 ~ 5000 Hours at 105°C

Main Application

- For personal computer Motherboards.
- For CPU drive Power supply circuits

Specifications

Item	Performance Characteristics			
Operating Temperature Range	-40 to +105°C			
Rated Voltage(V)	6.3	10	16	
Capacitance Tolerance	±20(25°C,120Hz)			
Dissipation Factor (tanδ)	0.15	0.14	0.12	
Leakage Current (LC)	I=0.01CV+3(μA), whichever is greater			
Low Temperature (120Hz)	Impedance ratio max.			
	Working	6.3	10	16
	Z (-25°C)/Z(+20°C)	3	3	3
	Z (-40°C)/Z(+20°C)	6	6	4
Load Life	Application of WV at 105°C the capacitor shall meet the following limits. Capacitance change: ≤±25% of the initial value Dissipation Factor: ≤200% of initial specified value Leakage current: ≤initial specified value Life Time: φD8 ≥2000 hours φD10 ≥3000 hours φD13 ≥5000 hours			

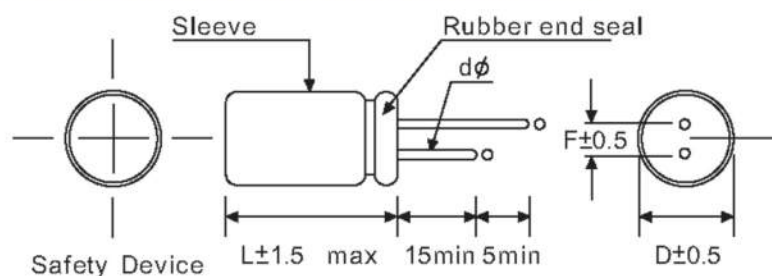
Multiplier for Ripple Current VS, Frequency

Frequency(Hz)	120	1K	10K	100K
Cap (μF)	Multiplier			
470 to 1000	0.50	0.85	0.95	1.00
1200 to 4700	0.55	0.90	0.98	1.00

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	105	85	65
Multiplier	1.0	1.4	1.75

Diagram of Dimensions: (Unit: mm)



Dφ	8	10	13
F	3.5	5.0	5.0
dφ	0.6	0.8	0.8

Case Size

φD x L (mm)

μF	W.V. {S.V.}	6.3 {8}			10 {13}			16 {20}		
		Size	Impedance	Ripple	Size	Impedance	Ripple	Size	Impedance	Ripple
470		8x11	0.040	1000	8x14	0.038	1100	8x14	0.036	1260
560		8x14	0.038	1260	8x20	0.036	1350	10x17	0.030	1450
1000		8x14	0.030	1400	8x20	0.028	1500	10x20	0.020	1650
1200		10x17	0.024	1600	10x20	0.022	1700	10x25	0.018	1850
1500		10x20	0.019	2660	10x25	0.019	2800	10x25	0.015	2880
1800		10x25	0.018	2700	10x25	0.015	2850	10x25	0.013	2900
2200		10x25	0.016	2750	10x25	0.013	2900	10x25	0.013	2950
2700		10x25	0.013	2800	10x25	0.013	2950	13x26	0.013	3000
3300		10x25	0.013	2860	13x26	0.013	3000	13x30	0.013	3200
3900		13x26	0.013	2900	13x30	0.013	3200	13x30	0.013	3300
4700		13x30	0.013	3200	13x30	0.013	3400	13x30	0.013	3600

- Ripple Current(mA,rms)at105°C 100KHz
- Max Impedance {Ω} at 20°C 100KHz



JKY Slim TYPE 105°C



Features

- Load Life: 105°C 2000 hours.
- Suitable for slim application

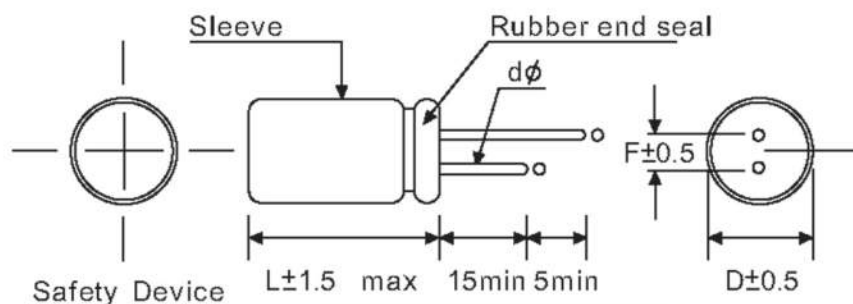
Specifications

Item	Performance Characteristics																	
Operating Temperature Range	-25 to +105°C																	
Rated voltage Range	250 to 450 VDC																	
Capacitance Tolerance	±20%(120Hz, +20°C)																	
Leakage Current (+20°C, max.)	I≤0.03 CV (uA) After 5minutes with rated working voltage applied..																	
Dissipation Factor (tanδ)	<table><tr><td>Working Voltage (VDC)</td><td>250</td><td>350</td><td>400</td><td>420</td><td>450</td></tr><tr><td>D.F.(%)max</td><td>15</td><td>15</td><td>15</td><td>20</td><td>20</td></tr></table>						Working Voltage (VDC)	250	350	400	420	450	D.F.(%)max	15	15	15	20	20
	Working Voltage (VDC)	250	350	400	420	450												
	D.F.(%)max	15	15	15	20	20												
For Capacitance > 1000uF , add 2% per another 1000uF (+20°C, at 120Hz)																		
Low Temperature Characteristics (120Hz)	Impedance ratio max.																	
	<table><tr><td>Working Voltage (VDC)</td><td>250</td><td>350</td><td>400</td><td>420</td><td>450</td></tr><tr><td>Z-25°C/Z+20°C</td><td>3</td><td colspan="4">8</td></tr></table>						Working Voltage (VDC)	250	350	400	420	450	Z-25°C/Z+20°C	3	8			
	Working Voltage (VDC)	250	350	400	420	450												
Z-25°C/Z+20°C	3	8																
For Capacitance Value 1000uF , add 0.5 per another 1000uF for -25°C/+20°C add 1 per another 1000uF for -40°C/+20°C																		
Load Life	Test conditions Duration time : 2000Hrs Ambient temperature:+105°C Applied voltage: Rated DC working voltage After test requirements:at+20°C Capacitance change: ≤±20% of the initial measured value Dissipation Factor: ≤200% of the initial specified value Leakage current: ≤The initial specified value																	

Multiplier for Ripple Current VS. Frequency

Frequency \ HZ		60	120	400	1K	100K
Coefficient	250~350WV	0.8	1.00	1.20	1.30	1.40
	400~450WV	0.8	1.00	1.25	1.40	1.50

Diagram of Dimensions: (Unit: mm)



Dφ	8	10	13
F	3.5	5.0	5.0
dφ	0.5	0.6	



JKY Slim TYPE 105°C

Case Size

φD x L (mm)

μF	W.V. {S.V.}	250 {300}		350 {400}		400 {450}		420 {500}	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
15		-	-	8x30	145	8x30	170	8x30	150
22		8x30	200	8x35	185	8x35	220	8x35	195
27		8x30	220	8x40	220	8x40 10x30	255 255	8x40	230
33		8x30	240	8x40	250	8x45 10x30	280 280	8x50 10x35	300 290
39		8x35	270	10x35	300	8x50 10x35	330 330	10x40 13x30	315 315
47		8x40	330	10x40	380	10x40 13x30	430 430	10x40 13x30	360 360
56		10x35	380	10x45	430	10x50 13x30	480 450	10x50 13x30	440 400
68		10x35	435	13x35	480	10x55 13x35 13x40	550 520 550	13x35	470
82		10x40	500	13x40	550	13x40	580	13x40	550
100		10x45	585	13x45	600	13x45 13x50	620 650	13x50	620
120		13x35	620	-	-	13x55	750	-	-
150		13x40	670	-	-	-	-	-	-

•Ripple Current (mA, rms) at 105°C 120Hz

μF	W.V. {S.V.}	450 {500}	
		Size	Ripple
12		8x30	135
15		8x35	150
22		8x40 10x30	195 195
27		8x45 10x30	230 220
33		10x35 10x40	255 280
39		10x40 10x45 10x50	300 315 330
47		10x50	390
56		13x35 13x40	420 450
68		13x40 13x45	520 550
82		13x45	570

•Ripple Current (mA, rms) at 105°C 120Hz



JLY Slim TYPE 105°C, Long Life



Features

- Load Life: 105°C 5000 hours.
- Suitable for slim application

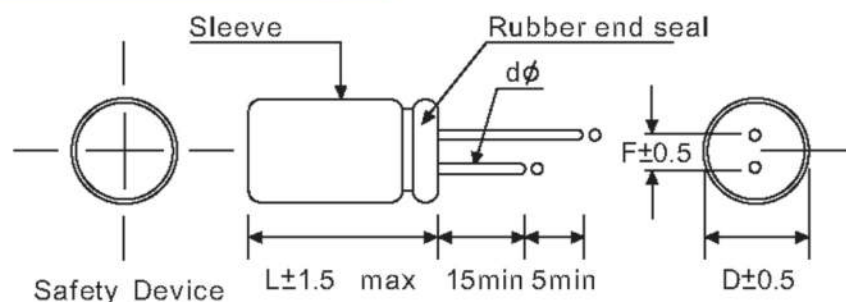
Specifications

Item	Performance Characteristics					
Operating Temperature Range	-25 to +105°C					
Rated voltage Range	250 to 450 VDC					
Capacitance Tolerance	±20%(120Hz, +20°C)					
Leakage Current (+20°C, max.)	I≤0.03 CV (uA) After 5minutes with rated working voltage applied..					
Dissipation Factor (tanδ)						
	Working Voltage (VDC)	250	350	400	420	450
	D.F.(%)max	15	15	15	20	20
For Capacitance > 1000uF , add 2% per another 1000uF (+20°C, at 120Hz)						
Low Temperature Characteristics (120Hz)	Impedance ratio max.					
	Working Voltage (VDC)	250	350	400	420	450
	Z-25°C/Z+20°C	3	8			
For Capacitance Value 1000uF , add 0.5 per another 1000uF for -25°C/+20°C add 1 per another 1000uF for -40°C/+20°C						
Load Life	Test conditions Duration time : 5000Hrs Ambient temperature:+105°C Applied voltage: Rated DC working voltage After test requirements:at+20°C Capacitance change: ≤±20% of the initial measured value Dissipation Factor: ≤200% of the initial specified value Leakage current: ≤The initial specified value					

Multiplier for Ripple Current VS, Frequency

Frequency \ HZ		60	120	400	1K	100K
Coefficient	250~350WV	0.8	1.00	1.20	1.30	1.40
	400~450WV	0.8	1.00	1.25	1.40	1.50

Diagram of Dimensions: (Unit: mm)



Dφ	8	10	13
F	3.5	5.0	5.0
dφ	0.5	0.6	



JLY Slim TYPE 105°C, Long Life

Case Size

φD x L (mm)

μF \ W.V. {S.V.}	250 {300}		350 {400}		400 {450}		420 {500}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
15	-	-	8x30	110	8x30	120	8x30	100
22	8x30	130	8x35	150	8x35	160	8x40	180
27	8x30	150	8x40	165	8x40 10x30	195 195	8x45	200
33	8x35	170	8x45	195	8x45 10x30	250 250	10x35	230
39	8x40	200	10x40	280	8x50 10x40	280 300	10x45 13x30	275 275
47	8x45	220	10x45	330	10x45 13x30	350 330	10x45 13x35	330 360
56	10x35	260	10x50	380	10x50	400	10x55	420
	10x40	300			13x30 13x35	380 420	13x35	410
68	10x40	350	13x35 13x40	425 450	13x35 13x40	440 460	13x40	450
82	10x45	480	13x40	500	13x45	520	13x45	500
100	10x50	550	13x50	520	13x50	580	13x50	600
120	13x40	570	-	-	13x60	680	-	-
150	13x45	620	-	-	-	-	-	-

•Ripple Current (mA, rms) at 105°C 120Hz

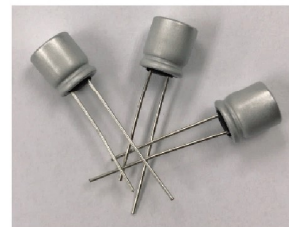
μF \ W.V. {S.V.}	450 {500}	
	Size	Ripple
12	8x30	110
15	8x35	120
22	8x45	160
	10x30	150
27	8x50	190
	10x35	180
33	10x40	220
	10x45	235
	10x50	250
39	10x45	260
	10x50 13x35	290 290
47	10x55	350
	13x35	350
56	13x35	400
	13x40	425
68	13x45	470
	13x50	500
82	13x50	530

•Ripple Current (mA, rms) at 105°C 120Hz

RADIAL

JREP Series

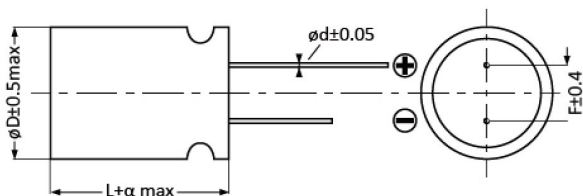
- Super low ESR, high ripple current capability
- Rated voltage: 6.3~16Vdc
- Endurance 3000hrs at 105°C
- Suitable for AC-DC DC-DC converters, voltage regulators and decoupling applications
- RoHS Compliant



Specifications

Category Temperature Range	-55~105°C	Rated Voltage Range	6.3 to 16Vdc
Rated Capacitance Range	330 to 2500 (μF)	Capacitance Tolerance	±20% (M)
Surge Voltage	Rated voltage X 1.15 (at 105°C)	Dissipation Factor	0.1 max. (at 20°C 120Hz)
Leakage Current	Shall not exceed values shown in standard ratings. (at 20°C after 2 mins.)		
Endurance	105°C, 3000hrs, rated voltage applied		
	Appearance	No significant damage	
	Capacitance Change	≤±20% of the initial value	
	DF(tan δ)	≤ 150% of the initial specified value	
	ESR	≤ 150% of the initial specified value	
	Leakage current	≤ The initial specified value	
Damp Heat (Steady State)	60°C, 90 to 95% RH, 1000hrs, no voltage applied		
	Appearance	No significant damage	
	Capacitance Change	≤±20% of the initial value	
	DF(tan δ)	≤ 150% of the initial specified value	
	ESR	≤ 150% of the initial specified value	
	Leakage current	≤ The initial specified value	
Surge Voltage	1,000 cycles and each one includes charge with surge voltage specified at 105°C for 0.5min through a protective resistor (R=1kΩ) and discharge for 5.5min.		
	Appearance	No significant damage	
	Capacitance Change	≤±20% of the initial value	
	DF(tan δ)	≤ 150% of the initial specified value	
	ESR	≤ 150% of the initial specified value	
	Leakage current	≤ The initial specified value	

Dimensions



Size Code	$\phi D \pm 0.5 \text{ max}$	L	α	$\phi d \pm 0.05$	F ± 0.4
0508	5.0	8.0	1.0	0.5	2.0
0608	6.3	8.0	1.0	0.6	2.5
0610	6.3	10.0	1.0	0.6	2.5
0611	6.3	11.0	1.0	0.6	2.5
0812	8.0	11.5	1.5	0.6	3.5
0816	8.0	16.0	1.5	0.6	3.5
1012	10.0	11.5	1.5	0.6	5.0
1016	10.0	16.0	1.5	0.6	5.0
1020	10.0	20.0	1.5	0.6	5.0

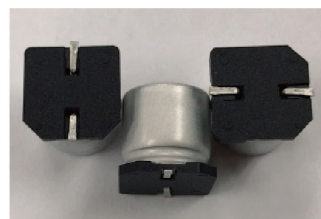
JREP Series

>> Standard Ratings

WV/Vdc (SV)	Cap (μ F)	Size Code	Leakage Current (μ A)	ESR ($m\Omega$ max/20%, 100k to 300kHz)	Rated Ripple Current (mA rms/ 105°C /100kHz)	Part No.
6.3 (7.2)	330	0508	500	8	4,050	JREP331M6R3V0508
	470	0508	592	8	4,050	JREP471M6R3V0508
	470	0608	592	8	4,700	JREP471M6R3V0608
	560	0608	705	8	4,700	JREP561M6R3V0608
	680	0608	857	8	4,700	JREP681M6R3V0608
	850	0608	1,033	8	4,700	JREP821M6R3V0608
	1000	0610	1,260	8	4,700	JREP102M6R3V0610
	1500	0812	1,890	7	6,100	JREP152M6R3V0812
7.5 (8.6)	500	0508	750	12	3,500	JREP501M7R5V0508
	680	0608	1,020	12	4,780	JREP681M7R5V0608
	820	0611	1,230	10	5,200	JREP821M7R5V0611
12 (13.8)	470	0610	1,128	12	3,900	JREP471M12V0610
	560	0610	1,344	12	3,900	JREP561M12V0610
	680	0611	1,632	18	3,900	JREP681M12V0611
	820	0611	1,968	15	4,000	JREP821M12V0611
16 (18.4)	330	0608	1,056	20	2,800	JREP331M16V0618
	470	0611	1,505	16	4,000	JREP471M16V0611
	560	0611	1,792	20	3,500	JREP561M16V0611
	680	0812	2,176	10	5,230	JREP681M16V0812
	820	0812	2,624	10	5,230	JREP821M16V0812
	1000	0816	3,200	10	6,100	JREP102M16V0816
	1000	1012	3,200	12	5,400	JREP102M16V1012
	1500	1016	4,800	10	6,600	JREP102M16V1016
	2200	1020	7,040	8	8,100	JREP222M16V1020
	2500	1020	8,000	8	8,100	JREP252M16V1020

JVEA Series

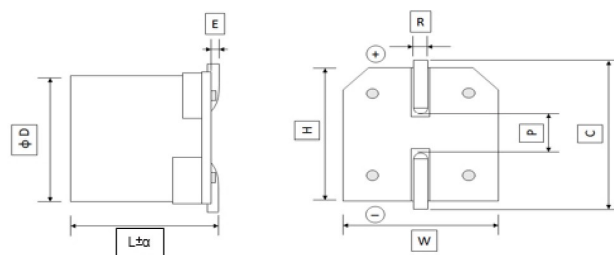
- Standard SMD type
- Rated Voltage:2.5~25Vdc
- Endurance 2000hrs at 105°C
- Suitable for DC-DC converters, voltage regulators and decoupling applications
- RoHS Compliant



Specifications

Category	Temperature Range	-55~+105°C	Rated Voltage Range	2.5 to 25Vdc
	Rated Capacitance Range	22 to 1000 (μF)	Capacitance Tolerance	±20% (M)
	Surge Voltage	Rated voltage X 1.15 (at 105°C)	Dissipation Factor	0.12 max. (at 20°C 120Hz)
	Leakage Current	Shall not exceed values shown in standard ratings. (at 20°C after 2 mins.)		
Endurance	105°C, 2000hrs, rated voltage applied			
	Appearance	No significant damage		
	Capacitance Change	≤±20% of the initial value		
	DF(tan δ)	≤ 150% of the initial specified value		
	ESR	≤ 150% of the initial specified value		
	Leakage current	≤ The initial specified value		
Damp Heat (Steady State)	60°C, 90 to 95% RH, 1000hrs, No voltage applied			
	Appearance	No significant damage		
	Capacitance Change	≤±20% of the initial value		
	DF(tan δ)	≤ 150% of the initial specified value		
	ESR	≤ 150% of the initial specified value		
	Leakage current	≤ The initial specified value		
Surge Voltage	1,000 cycles and each one includes charge with surge voltage specified at 105°C for 0.5min through a protective resistor (R=1kΩ) and discharge for 5.5min.			
	Appearance	No significant damage		
	Capacitance Change	≤±20% of the initial value		
	DF(tan δ)	≤ 150% of the initial specified value		
	ESR	≤ 150% of the initial specified value		
	Leakage current	≤ The initial specified value		

Dimensions



Size	φ D±0.5max (mm)	L (mm)	α (mm)	E (mm)	W±0.2 (mm)	H±0.2 (mm)	C±0.2 (mm)	R (mm)	P±0.3 (mm)
0558	5.0	5.8	0.2	0.00~0.20	5.3	5.3	6.0	0.5~0.8	1.4
0643	6.3	4.3	0.2	0.00~0.20	6.6	6.6	7.3	0.5~0.8	2.1
0658	6.3	5.8	0.2	0.00~0.20	6.6	6.6	7.3	0.5~0.8	2.1
0697	6.3	9.7	0.3	0.00~0.20	6.6	6.6	7.3	0.6~0.9	2.1
0868	8.0	6.8	0.2	0.00~0.20	8.3	8.3	9.0	0.8~1.1	2.9
0897	8.0	9.7	0.3	0.00~0.20	8.3	8.3	9.0	0.8~1.1	2.9
0812	8.0	12.0	0.5	0.00~0.20	8.3	8.3	9.0	0.8~1.1	3.2
1012	10.0	12.0	0.2	0.00~0.20	10.3	10.3	11.0	0.8~1.1	4.6

JVEA Series

>> Standard Ratings

WV/Vdc (SV)	Cap (μ F)	Size Code	Leakage Current (μ A)	ESR ($m\Omega$ max/20%, 100k to300kHz)	Rated Ripple Current (mA _{rms} / 105°C /100kHz)	Part No.
2.5 (2.9)	330	0643	700	17	2,300	JVEA331M2R5V0643
	390	0558	700	10	3,900	JVEA391M2R5V0558
	390	0658	292	10	3,900	JVEA391M2R5V0658
	560	0658	700	10	3,900	JVEA561M2R5V0658
	820	0697	700	10	4,300	JVEA821M2R5V0697
6.3 (7.2)	100	0643	315	19	2,300	JVEA101M6R3V0643
	220	0643	700	17	2,300	JVEA221M6R3V0643
	220	0658	277	15	3,160	JVEA221M6R3V0658
	330	0658	416	17	3,390	JVEA331M6R3V0658
	560	0697	705	10	4,300	JVEA561M6R3V0697
	820	0897	1,033	12	4,700	JVEA821M6R3V0897
	1000	0897	1,260	10	5,440	JVEA102M6R3V0897
16 (18.4)	47	0658	376	25	2,500	JVEA470M16V0658
	100	0558	320	27	3,000	JVEA101M16V0558
	100	0658	320	24	2,490	JVEA101M16V0658
	180	0658	576	22	3,300	JVEA181M16V0658
	270	0868	864	22	3,300	JVEA271M16V0868
	270	0897	864	16	4,400	JVEA271M16V0897
	560	0812	1,792	14	4,950	JVEA561M16V0812
	1000	1012	3,200	12	5,400	JVEA102M16V1012
25 (28.8)	22	0643	275	45	2,350	JVEA220M25V0643
	27	0658	338	40	2,100	JVEA270M25V0658



LAK Axial, General Purpose, 105°C

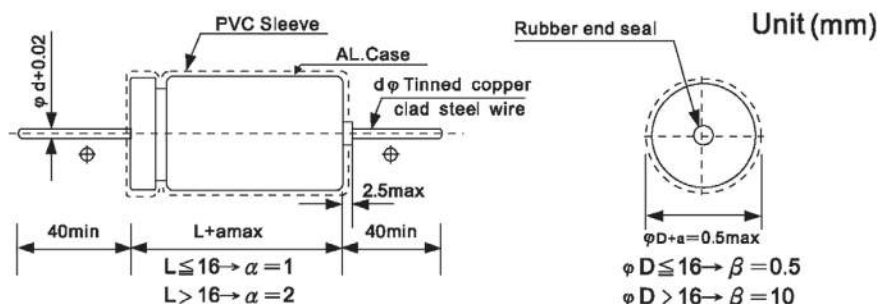
Features

- Used in communication equipments, switching power supply, etc.
- Safety vent construction design

Specifications

Item	Performance Characteristics															
Operating Temperature Range	-40 to +105°C								-25 to +105°C							
Rated voltage Range	10 to 100 VDC								160 to 450 VDC							
Capacitance Tolerance	±20%(120Hz, +20°C)															
Leakage Current(at 20°C)	10V ~100V DC								160V~450V DC							
	I≤0.02CV+3(μA)								I≤0.05CV+4(μA)							
	I: Leakage current(μA) C: Rated Capacitance(μF) V: Working Voltage[V] After 5 minutes applying the DC working voltage															
Surge Voltage(20°C)	W.V.	10	16	25	35	50	60	100	160	160	200	250	350	400	450	
	S.V.	13	20	32	44	63	79	125	200	200	250	300	400	450	500	
Dissipation Factor (120Hz,20 °C)	W.V.	10	16	25	35	50	63	100	160	200	250	350	400	450		
	Tanδ	0.20	0.17	0.15	0.12	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.24	0.24		
	For capacitance exceeding 1000μF,add 0.02 Per increment of 1000μF															
Temperature Characteristics (Tanδ)	W.V.	10	16	25	35	50	63	100	160	200	250	350	400	450		
	Impedance Ratio	-25 °C/+20 °C	4	3	3	2	2	2	2	8	8	8	12	15	16	
		-40 °C/+20 °C	8	6	4	3	3	3	3	6	6	10	-	-	-	
	Impedance ratio of 120Hz															
Load Test	After 1000 hours application of W.V. AT+105 °C The capacitor shall meet the following limits.															
	Capacitance Change								≤±20% of initial value							
	Tanδ								≤±200% of initial specified value							
	Leakage Current								≤±initial specified value							
Shelf Test	After 500 hours application of W.V. AT+105 °C The capacitor shall meet the following limits.															
	Capacitance Change								≤±20% of initial value							
	Tanδ								≤±200% of initial specified value							
	Leakage Current								≤±200% of initial specified value							

Diagram of Dimensions: (Unit: mm)



φD	5	6	8	10	13
dφ	0.6	0.6	0.6	0.6	0.6

φD	16	18	20	22	25
dφ	0.8	0.8	0.8	0.8	0.8



LAK Axial, General Purpose, 105°C

Ripple Current & Frequency Multipliers

Freq.(Hz) Cap.(μF)	50(60)	120	500	1K	10K UP
Under 100	0.70	1.00	1.30	1.40	1.50
100<C≤1000	0.75	1.00	1.20	1.30	1.35
1000 up above	0.80	1.00	1.10	1.12	1.15

Case Size

φD x L (mm)

W.V. μF	10		16		25		35		50	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.47	—	—	—	—	—	—	—	—	6x13	8
1	—	—	—	—	—	—	—	—	6x13	12
2.2	—	—	—	—	—	—	—	—	6x13	18
3.3	—	—	—	—	—	—	—	—	6x13	23
4.7	—	—	—	—	—	—	—	—	6x13	27
10	—	—	—	—	6x13	40	6x13	40	6x13	40
22	—	—	—	—	6x13	48	6x13	59	6x13	62
33	—	—	6x13	58	6x13	65	6x13	69	8x16	88
47	6x13	60	6x13	73	6x13	77	6x13	105	8x16	115
100	8x16	98	6x16	102	8x16	140	8x16	205	8x16	252
220	8x16	170	8x16	220	8x16	260	8x16	305	10x20	320
330	8x16	243	8x16	250	10x21	320	10x21	350	13x22	415
470	8x16	315	10x17	385	10x21	420	13x22	530	13x26	640
1000	10x21	480	13x22	615	13x26	760	13x26	820	16x33	955
2200	13x22	940	13x26	1000	16x28	1050	16x36	1165	18x36	1680
3300	13x26	1150	16x33	1340	16x36	1500	18x36	1800	22x42	2080
4700	16x28	1400	16x36	1580	18x36	1980	22x42	2100		

•Ripple Current (mA, rms) at 105°C 120Hz



LAK Axial, General Purpose, 105°C

Case Size

φD x L (mm)

W.V. μF	63		100		160		200		250	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.47	6x13	8	6x13	10	6x13	10	6x13	10	6x13	10
1	6x13	12	6x13	14	6x13	10	6x16	10	6x16	11
2.2	6x13	20	6x13	22	8x16	16	8x16	16	8x16	21
3.3	6x13	24	6x13	27	8x16	26	10x17	26	10x17	26
4.7	6x13	29	6x13	34	8x16	36	10x17	38	10x17	40
10	6x13	48	8x16	58	10x21	60	10x21	68	10x21	78
22	6x13	81	8x20	100	13x22	82	13x22	92	13x27	92
33	8x16	99	8x20	135	13x22	105	16x28	116	16x33	116
47	8x16	138	10x21	150	16x28	175	16x33	238	16x33	238
100	10x21	280	13x22	300	16x33	410	18x36	460	18x36	460
220	13x22	394	16x28	505	22x42	515	22x42	585	-	-
330	13x26	505	16x33	660	-	-	-	-	-	-
470	16x26	715	18x36	875	-	-	-	-	-	-
1000	16x36	1150	-	-	-	-	-	-	-	-
2200	22x42	1980	-	-	-	-	-	-	-	-

•Ripple Current (mA, rms) at 105°C 120Hz

W.V. μF	350		400		450	
	Size	Ripple	Size	Ripple	Size	Ripple
0.47	6x13	10	6x16	10	6x16	10
1	8x16	11	8x16	13	8x16	13
2.2	10x17	26	10x17	32	10x17	32
3.3	10x17	30	10x21	33	10x21	33
4.7	10x21	49	13x22	52	13x22	52
10	13x22	84	13x24	86	16x28	90
22	16x33	86	16x33	86	16x33	91
33	16x36	116	18x36	135	-	-
47	16x36	238	-	-	-	-

•Ripple Current (mA, rms) at 105°C 120Hz



- Used in communication equipments, switching power supply, etc.
- Safety vent construction design

Item	Performance Characteristics																				
Operating Temperature Range	-40 to +85°C																				
Capacitance Tolerance	±20%(120Hz, +20°C)																				
Leakage Current(at 20°C)	Rated voltage		≤100V				>100V														
	Time		after 2 minutes				after 5 minutes														
	Leakage Current		I=0.02CV or 3(μA) Whichever is greater				CV≤1000 I=0.03CV +15 (μA)					CV > 1000 I=0.02CV +25 (μA)									
	Where, C=rated capacitance in μF. V=rated DC working voltage in V																				
Dissipation Factor [Tanδ120Hz,20 °C]	Rated Voltage		6.3	10	16	25	35	50	63	100	160	200	250	350	400	450					
	Tanδ(max)		0.23	0.20	0.17	0.15	0.12	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.24	0.24					
	When the capacitance exceeds 1000μF, 0.02 shall be added every 1000μF increase																				
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.																				
	Rated Voltage(v)				6.3	10	16	25	35	50	63	100	160	200	250	350	400	450			
	Impedance Ratio	Z (-25°C)	φD<16	6	4	3	3	2	2	2	2	3	6	8	12	14	16				
		/Z(+20°C)	φD≥16	8	6	4	4	3	3	3	3										
		Z (-40°C)	φD<16	10	8	6	6	4	3	3	3	4	5	10	-	-	-				
		/Z(+20°C)	φD≥16	18	16	12	10	8	8	6	6										
Load Life Test	Test Time								2000hrs												
	Capacitance Change								Within ±20% of initial value												
	Dissipation Factor								Less than 200% of specified value												
	Leakage Current								Within specified value												
	*The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2000hrs at 85°C																				
Shelf Life Test	Test Time								1000hrs												
	Capacitance Change								Within ±20% of initial value												
	Dissipation Factor								Less than 200% of specified value												

Technical drawing of a cable joint for a 16mm cable. The side view shows a cable with diameter $\phi d \pm 0.02$ passing through an AL Case, which is covered by a PVC Sleeve. The cable is secured with a $d\phi$ Tinned copper clad steel wire. The joint is sealed with a Rubber end seal. Dimensions include 40min for the sleeve overlap, $L + a_{max}$ for the case length, and 2.5max for the case thickness. The end view shows a circular cross-section with diameter $\phi D \pm 0.5_{max}$ and a central hole of diameter ϕ .

Formulas for the case length L are provided:

- $L \leq 16 \rightarrow \alpha = 1$
- $L > 16 \rightarrow \alpha = 2$

Formulas for the case diameter ϕD are provided:

- $\phi D \leq 16 \rightarrow \beta = 0.5$
- $\phi D > 16 \rightarrow \beta = 1.0$

$D\phi$	5	6	8	10	13
$d\phi$	0.6	0.6	0.6	0.6	0.6

$D\phi$	16	18	20	22	25
$d\phi$	0.8	0.8	0.8	0.8	0.8



LAG Axial, General Purpose, 85°C

Case Size

φD x L (mm)

W.V. {S.V.} μF	6.3 {8}		10 {13}		16 {20}		25 {32}		35 {44}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
10	-	-	-	-	-	-	5x12	40	5x12	55
22	-	-	-	-	5x12	58	5x12	63	6x12	70
33	-	-	5x12	78	5x12	80	5x12	92	6x14	115
47	5x12	87	5x12	94	6x12	100	6x12	112	6x14	138
100	6x12	121	6x12	145	6x14	160	8x13	215	8x16	232
220	6x14	215	8x13	231	8x13	298	8x16	319	10x17	401
330	8x16	305	8x16	327	8x16	365	10x17	454	10x21	514
470	8x16	364	8x16	390	10x21	460	10x21	524	13x22	613
1000	10x17	662	10x17	671	13x24	775	13x22	873	13x27	955
2200	13x22	929	13x22	1051	16x28	1125	16x28	1344	16x33	1421
3300	13x27	1150	13x27	1288	16x33	1454	16x33	1611	18x36	1640
4700	13x27	1354	16x28	1552	18x36	1650	18x36	1881	22x43	2280
6800	16x28	1763	16x33	1930	18x42	2040	18x42	2170	22x43	2470
10000	16x36	2062	16x46	2122	22x43	2503	22x43	2893	25x52	3180
22000	22x43	3097	-	-	-	-	-	-	-	-

•Ripple Current (mA, rms) at 85°C 120Hz

AXIAL



LAG Axial, General Purpose, 85°C

Case Size

φD x L (mm)

W.V. {S.V.} μF	50 {63}		63 {79}		100 {125}		160 {200}		200 {250}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1	5x12	1.5	5x12	3	5x12	3	-	-	-	-
0.22	5x12	3.5	5x12	4.5	5x12	5	-	-	-	-
0.33	5x12	5	5x12	7.5	5x12	8	-	-	-	-
0.47	5x12	6	5x12	9	5x12	9	-	-	-	-
1	5x12	10	5x12	15	5x12	15	6x12	7	6x12	9
2.2	5x12	20	5x12	30	5x12	30	6x14	15	8x13	16
3.3	5x12	30	5x12	36	5x12	41	8x13	21	8x16	26
4.7	5x12	42	5x12	44	6x12	40	8x16	31	10x17	33
10	5x12	50	6x12	55	6x14	72	10x17	60	10x21	66
22	6x12	85	6x14	109	8x16	133	10x21	121	13x22	121
33	6x14	126	8x13	154	10x17	190	13x22	154	13x27	167
47	8x13	174	10x17	214	10x21	237	13x27	198	16x33	214
100	10x17	296	10x21	336	13x22	377	16x33	345	16x36	368
220	10x21	459	13x22	527	16x28	625	18x42	586	22x43	609
330	13x22	613	13x22	675	16x33	793	22x43	632	-	-
470	13x22	731	16x33	780	16x37	942	-	-	-	-
1000	16x33	1111	18x36	1249	18x42	1359	-	-	-	-
2200	18x36	1699	22x43	1744	25x52	2430	-	-	-	-
3300	22x43	2027	25x52	2309	-	-	-	-	-	-
4700	22x43	2347	25x52	2710	-	-	-	-	-	-
6800	22x52	2650	25x52	2710	-	-	-	-	-	-
10000	25x52	2650	-	-	-	-	-	-	-	-

•Ripple Current (mA, rms) at 85°C 120Hz



LAG Axial, General Purpose, 85°C

Case Size

φD x L (mm)

μF	W.V. {S.V.}	250 {300}		350 {400}		400 {450}		450 {500}	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
1		6x14	12	8x16	13	8x16	14	8x16	15
2.2		8x16	17	8x20	19	10x17	21	10x21	23
3.3		8x20	31	8x20	33	10x17	34	10x21	36
4.7		10x17	38	10x21	44	13x22	45	13x22	46
10		10x21	72	13x22	72	13x22	80	13x27	82
22		13x27	126	13x27	132	16x33	137	16x36	143
33		16x28	178	16x33	186	16x36	192	16x40	201
47		16x33	241	16x40	253	18x42	330	18x42	339
100		16x40	391	22x43	402	25x43	424	25x52	448
220		22x43	632	-	-	-	-	-	-

•Ripple Current (mA, rms) at 85°C 120Hz



LBP Bi-Polarized for TV Set



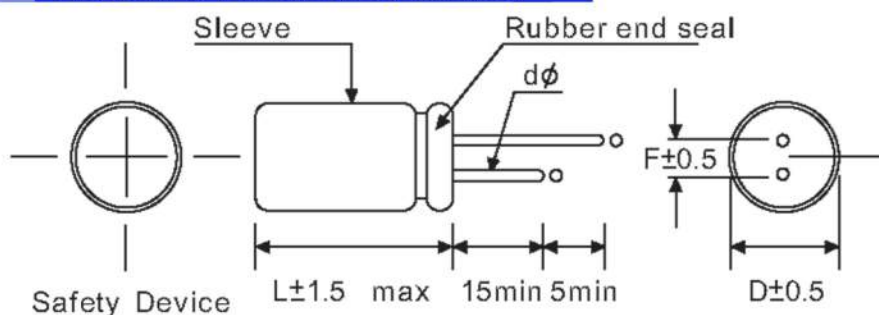
Features

- The LBP series is designed for horizontal deflection current in TV sets where high frequency and high ripple current flows.
- Low dissipation factor at high frequency.

Specifications

Item	Performance Characteristics			
Operating Temperature Range	-40 to +105°C			
Rated voltage Range	25,50,63 VDC			
Capacitance Range	2.2 to 15 μF			
Capacitance Tolerance	±10%(120Hz, +20°C)			
Leakage Current (+20°C, max.)	I = 100(μA) max. After 1 minute with rated working voltage applied.			
Dissipation Factor (tanδ)	Less than 3% (+20°C, at 120Hz, max.)			
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.			
	Working Voltage (VDC)	25	50	63
	Z (-40°C)/Z(+20°C)	4	4	4
Load Life	Test conditions Duration time : 2000Hrs Ambient temperature:+105°C Applied voltage: Rated DC working voltage After test requirements:at+20°C Capacitance change:≤±15% of the initial measured value Dissipation Factor: ≤150% of the initial specified value Leakage current: ≤The initial specified value			
Shelf Life	Test conditions Duration time :1000Hrs Ambient temperature:+105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.			

Diagram of Dimensions: (Unit: mm)



Case Size

μ F	Size	WV	Max Ripple Current (at 15.75K Hz Unit: A P-P)		
	DxL(mm)		105°C	85°C	70°C
2.2	13x26	25V,50V,63V	3.4 A P-P	5.8 A P-P	7.5 A P-P
3.3	16x26	25V,50V,63V	4.1 A P-P	7.0 A P-P	9.1 A P-P
4.7	16x31	25V,50V,63V	4.5 A P-P	7.8 A P-P	10.0 A P-P
6.8	16x36	25V,50V,63V	4.6 A P-P	8.0 A P-P	10.4 A P-P
10	18x36	25V,50V,63V	4.9 A P-P	8.6 A P-P	11.1 A P-P
12	18x41	25V,50V,63V	5.0 A P-P	8.8 A P-P	11.5 A P-P
15	18x41	25V,50V,63V	5.4 A P-P	9.5 A P-P	12.2 A P-P

(Unit: mm) and Maximum Ripple Current (Unit A P-P, 15.75K Hz at 105°C)



LAN Axial, Non-Polarized, 105°C

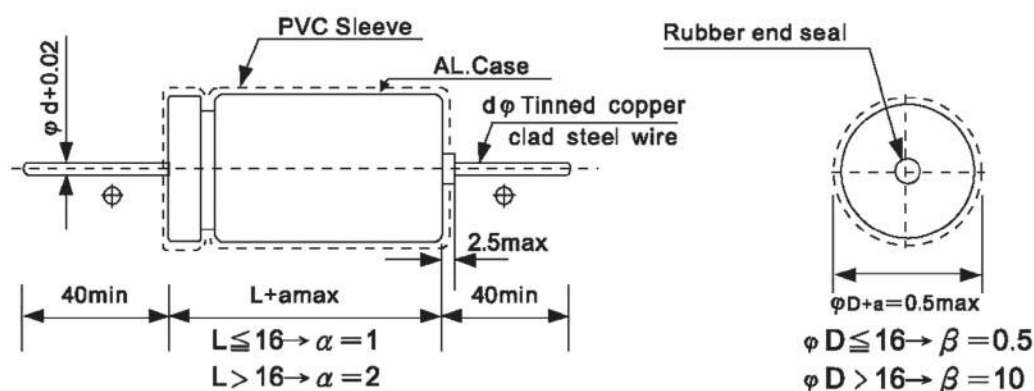
Features

- There are non-polar capacitors designed for circuits with reversing polarity.
- Tolerance of $\pm 10\%$ (k) if required can also be available on request.

Specifications

Item	Performance Characteristics									
voltage Range	10 to 100 VDC									
Capacitance Range	0.47~1000 μF									
Temperature Range	-40~+105°C									
Capacitance Tolerance	±20%(120Hz, +20°C)									
Leakage Current	I=0.03CV+4 (μA) I: Leakage current(μA) C: Rated Capacitance(μF) V: Working Voltage[V] After 5 minutes applying the DC working voltage									
Surge Voltage(20°C)	W.V.	10	16	25	35	50	63	100		
	S.V.	13	20	32	44	63	79	125		
Dissipation Factor (120Hz,20°C)	W.V.	10	16	25	35	50	63	100		
	Tanδ	0.20	0.16	0.16	0.14	0.14	0.12	0.12		
Temperature Characteristics (Tanδ)	W.V.			10	16	25	35	50	63	100
	Impedance Ratio	-25 °C/+20 °C		3	2	2	2	2	2	2
		-40 °C/+20 °C		6	6	4	4	4	4	4
	Impedance ratio of 120Hz									
Load Test	After 1000 hours application of W.V. AT+105 °C The capacitor shall meet the following limits.									
	Capacitance Change					≤±20% of initial value				
	Tanδ					≤±200% of initial specified value				
	Leakage Current					≤±initial specified value				
Shelf Test	After 500 hours application of W.V. AT+105 °C The capacitor shall meet the following limits.									
	Capacitance Change					≤±20% of initial value				
	Tanδ					≤±200% of initial specified value				
	Leakage Current					≤±200% of initial specified value				

Diagram of Dimensions: (Unit: mm)



D ϕ	6	8	10	13	16
d ϕ	0.6	0.6	0.6	0.6	0.8



LAN Axial, Non-Polarized, 105°C

Ripple Current & Frequency Multipliers

Freq.(Hz) Cap.(μF)	50(60)	120	500	1K	10K UP
Under 100	0.70	1.00	1.30	1.40	1.50
100 < C ≤ 1000	0.75	1.00	1.20	1.30	1.35

Case Size

φD x L (mm)

W.V. μF	10		16		25		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
10	→						6x16	55
15	→				6x16	60	6x16	63
22	→		6x16	64	6x16	70	6x16	75
33	6x16	70	6x16	80	6x16	85	8x16	98
47	6x16	87	8x16	95	8x16	105	8x16	130
68	6x16	110	8x16	130	8x16	140	10x21	170
100	8x16	135	8x16	175	10x21	190	10x21	230
150	8x16	180	10x21	230	10x21	250	10x26	290
220	10x21	240	10x21	300	10x26	320	13x26	400
330	10x21	315	10x26	380	13x26	450	13x26	490
470	10x26	400	10x26	480	13x26	560	13x32	640
680	10x26	570	13x26	650	13x32	750	16x33	880
1000	13x26	730	13x26	860	16x33	980	16x38	1150

•Ripple Current (mA, rms) at 105°C 120Hz



LAN Axial, Non-Polarized, 105°C

Case Size

φD x L (mm)

μF \ W.V.	50		63		100	
	Size	Ripple	Size	Ripple	Size	Ripple
0.47	6x16	10	6x16	12	6x16	12
1	6x16	16	6x16	16	6x16	20
2.2	6x16	24	6x16	24	6x16	32
3.3	6x16	29	6x16	35	6x16	47
4.7	6x16	39	6x16	42	8x17	55
6.8	8x17	48	6x16	50	8x17	58
10	8x17	67	8x17	70	10x21	95
15	8x17	70	8x17	86	10x21	98
22	8x17	109	8x20	124	10x24	171
33	10x20	143	10x20	166	13x26	210
47	10x20	181	10x24	219	13x26	271
68	10x20	200	13x26	240	13x26	290
100	10x24	295	13x26	390	13x26	430
150	13x26	350	13x26	445	16x38	550
220	13x31	542	16x33	627	-	-
330	16x33	751	16x33	770	-	-
470	16x42	790	16x42	950	-	-

•Ripple Current (mA, rms) at 105°C 120Hz

AXIAL



LEK Low-ESR, 105°C



Features

- Used in mother board, computer peripheral, etc.
- Safety vent construction design.

Specifications

Item	Performance Characteristics								
Operating Temperature Range	-40 to +105°C								
Rated voltage Range	6.3 to 100 VDC								
Capacitance Range	0.47 to 10000 µF								
Capacitance Tolerance	±20%(120Hz, +20°C)								
Leakage Current (+20°C, max.)	I≤0.01 CV or 3(µA) After 1minute whichever is greater measured with rated working voltage applied.								
Dissipation Factor (tanδ)	Working Voltage (VDC)	6.3	10	16	25	35	50	63	100
	D.F.(%)max	22	19	16	14	12	10	9	8
	For capacitance>1000µF, add 2% per another 1000µF in crease. (+20°C, at 120Hz)								
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.								
	Working Voltage (VDC)	6.3	10	16	25	35	50	63	100
	Z (-25°C)/Z(+20°C)	2	2	2	2	2	2	2	2
	Z (-40°C)/Z(+20°C)	3	3	3	3	3	3	3	3
Load Life	Test conditions Duration time : 2000Hrs Ambient temperature:+105°C Applied voltage: Rated DC working voltage After test requirements at+20°C 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:+105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.								

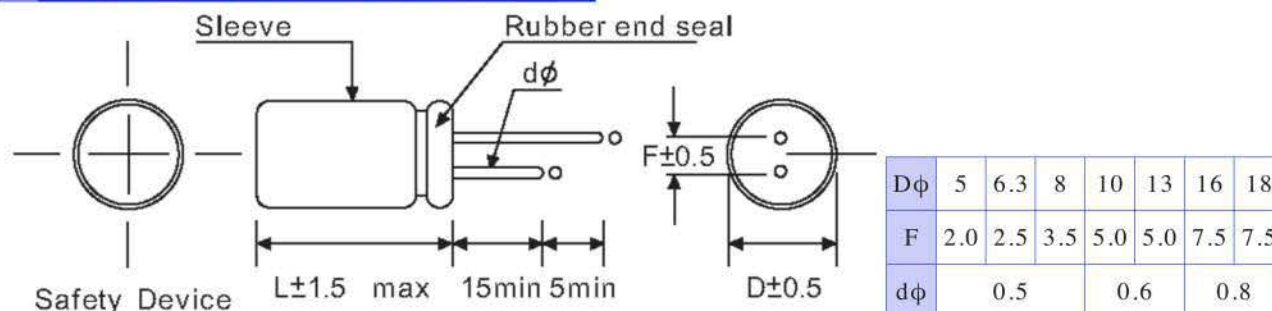
Multiplier for Ripple Current VS, Frequency

CAP(µF)/Hz	50(60)	120	400	1K	10K	50K-100K
CAP ≤ 10	0.47	0.59	0.76	0.85	0.97	1.0
10 < CAP ≤ 100	0.52	0.62	0.80	0.89	0.97	1.0
100 < CAP ≤ 1000	0.58	0.72	0.84	0.90	0.98	1.0
1000 < CAP	0.63	0.78	0.87	0.91	0.98	1.0

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	70	85	95	105
Multiplier	1.8	1.5	1.4	1.3	1.2	1.0

Diagram of Dimensions: (Unit: mm)





LEK Low-ESR, 105°C

Case Size

φD x L (mm)

W.V. {S.V.}	6.3 {8}			10 {13}			16 {20}			25 {32}		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
10							5x11	37	1.30	5x11	56	1.30
22	5x11	56	1.2	5x11	56	1.00	5x11	70	0.95	5x11	120	0.85
33	-	-	-	5x11	58	0.90	5x11	130	0.85	5x11 6x11	150 160	0.80 0.75
47	5x11	88	0.8	5x11	120	0.80	5x11	180	0.70	5x11	210	0.60
56	5x11	100	0.6	5x11	130	0.60	5x11	205	0.55	5x11	245	0.44
68	-	-	-	5x11	145	0.55	5x11	230	0.45	6.3x11	270	0.39
82	-	-	-	5x11	185	0.50	6.3x11	280	0.37	6.3x11	285	0.33
100	5x11	200	0.48	5x11	242	0.46	5x11 6x11 6.3x11	300 360 320	0.36 0.34 0.31	6.3x11	370	0.29
220	6.3x11	310	0.32	6.3x11	350	0.25	6x11 8x11	420 440	0.28 0.20	8x11 8x14 10x15	500 600 700	0.14 0.12 0.095
330	6.3x11	365	0.15	6.3x11 8x11	420 470	0.14 0.12	8x11	560	0.10	8x11 8x14 8x16 10x12	600 625 640 670	0.085 0.080 0.072 0.069
470	6x11 8x11	370 420	0.145 0.12	6.3x11 8x11 8x14 10x12 10x15	450 520 570 1000 1050	0.13 0.10 0.095 0.070 0.068	8x11 8x16 8x20 10x12	600 660 790 700	0.095 0.090 0.083 0.085	8x14 8x20 10x12 10x15	780 880 790 900	0.068 0.068 0.066 0.065
560	8x11	550	0.11	8x11 8x14	640 670	0.092 0.089	10x12	760	0.078	10x17	1010	0.060
680	8x11	630	0.098	8x14	700	0.085	8x14 8x16 10x12	850 870 910	0.076 0.075 0.070	10x17 10x20	1100 1130	0.055 0.054
820	8x14	710	0.085	8x16	840	0.078	10x15	1020	0.062	10x20	1300	0.047
1000	8x11 8x14 8x16 10x12	750 755 760 800	0.095 0.085 0.081 0.076	8x14 8x16 8x20 10x12 10x15	950 960 1000 1015 1020	0.075 0.074 0.070 0.070 0.068	8x16 10x15 10x17 10x20 10x25	1050 1100 1120 1140 1200	0.062 0.058 0.050 0.044 0.043	10x17 10x20 10x25 13x16 13x21	1350 1380 1500 1455 1550	0.0421 0.040 0.040 0.039 0.038
1200	8x16 10x12 10x15	840 870 890	0.075 0.070 0.068	10x15 10x20	1110 1150	0.064 0.060	10x17 10x20 10x25	1200 1230 1250	0.050 0.042 0.041	13x21	1620	0.035
1500	8x16 10x12 10x15 10x17	960 1000 1030 1050	0.062 0.060 0.059 0.058	10x15 10x20	1200 1250	0.068 0.058	10x20 10x25	1300 1420	0.039 0.037	13x26	1730	0.032
1800	10x20	1170	0.050	10x25	1380	0.048	13x21	1610	0.036	13x26	1850	0.031
2200	8x20 10x20 10x25	1200 1320 1360	0.044 0.040 0.040	10x20 10x25 13x21	1480 1490 1570	0.039 0.038 0.038	10x20 10x25 13x16 13x26	1700 1760 1740 1850	0.035 0.032 0.034 0.034	13x21 13x26	1480 2000	0.024 0.030
2700	10x25 13x21	1420 1480	0.038 0.037	10x25 13x21	1610 1700	0.036 0.034	13x26	2050	0.030	16x26	2360	0.026
3300	10x25 13x21	1550 1620	0.035 0.033	13x21 13x26	1850 1890	0.029 0.030	13x21 13x26	2280 2330	0.029 0.028	16x26 16x31	2450 2500	0.022 0.025
4700	13x26	2000	0.028	13x26 16x26	2010 2030	0.027 0.026	16x26 16x31	2510 2550	0.025 0.025	16x31	2780	0.024
6800	16x26	2210	0.025	16x31	2240	0.024	18x36	2680	0.024	18x41	2900	0.024
8200	16x31	2530	0.024	16x36	2580	0.024	18x36	2780	0.024	-	-	-
10000	16x36	2740	0.024	18x36	2770	0.024	18x41	3200	0.024	18x41 22x42	3350 3450	0.024

•Ripple Current(mA,rms)at105°C 100KHz

•Max Impedance {Ω} at 20°C 100KHz



LEK Low-ESR, 105°C

Case Size

φD x L (mm)

μF	W.V. {S.V.}	35 {44}			50 {63}			63 {79}			100 {125}		
		Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
0.47		-	-	-	5x11	18	16.00	-	-	-	-	-	-
1		-	-	-	5x11	25	3.30	5x11	27	3.30	-	-	-
2.2		-	-	-	5x11	33	2.40	5x11	38	2.20	-	-	-
3.3		-	-	-	5x11	45	1.80	5x11	48	2.00	-	-	-
4.7		-	-	-	5x11	58	1.89	5x11	80	1.80	5x11	84	2.00
10		5x11	70	1.30	5x11	100	1.20	5x11	118	1.20	6.3x11 8x11	135 170	1.20 1.15
22		5x11	130	1.00	5x11 6x11	160 180	0.90 0.84	6.3x11	200	0.80	8x11	230	0.85
33		5x11	175	0.82	6.3x11	240	0.74	6.3x11	270	0.70	8x11 8x16 10x12	300 320 330	0.75 0.72 0.70
47		5x11 6.3x11	230 250	0.60 0.53	6x11 8x11	265 280	0.51 0.50	8x11	320	0.50	10x12 10x15	380 395	0.50 0.45
56		6.3x11	270	0.40	8x11	300	0.39	8x11	340	0.39	10x12	400	0.43
68		6.3x11 8x11	300 310	0.35 0.34	8x11	340	0.33	10x12	400	0.34	10x17	440	0.35
82		8x11	340	0.29	8x11	370	0.28	10x15	460	0.27	10x20	470	0.30
100		6x11 8x11	390 400	0.24 0.22	8x11 10x12	440 500	0.26 0.21	10x12 10x17	500 530	0.20	10x25	560	0.21
220		8x11 8x14 8x16 10x12	580 620 650 660	0.10 0.095 0.090 0.085	8x16 10x12 10x17	720 730 820	0.089 0.084 0.082	10x15 10x20 10x25 13x21	750 800 850 820	0.12 0.10 0.08 0.098	13x21 13x26 16x21 16x26	850 900 1050 1320	0.095 0.085 0.082 0.70
330		10x12 10x15 10x17 10x20	880 900 920 920	0.073 0.070 0.065 0.065	10x20 10x25	1000 1070	0.060 0.060	13x21	1260	0.058	16x26	1460	0.060
470		10x15 10x17 10x20	1000 1070 1120	0.065 0.058 0.055	10x20 13x21	1200 1320	0.057 0.050	13x21 13x26 16x21	1500 1650 1670	0.055 0.048 0.046	16x26 16x31 16x36 18x27	1630 1680 1700 1690	0.055 0.050 0.048 0.049
560		10x20 10x25 13x21	1200 1220 1230	0.052 0.048 0.048	13x21	1480	0.047	13x26	1790	0.044	-	-	-
680		10x20 13x21	1300 1350	0.046 0.043	13x21 13x26	1550 1600	0.042 0.039	13x26 16x26	1880 1950	0.045 0.038	-	-	-
820		13x21	1500	0.039	13x26	1780	0.037	16x26	2140	0.032	-	-	-
1000		13x21 13x26	1650 1700	0.037 0.035	13x26 16x26	2000 2020	0.036 0.035	16x31 16x36	2380 2400	0.030 0.028	-	-	-
1200		16x26	1880	0.032	16x31	2130	0.030	16x36	2520	0.025	-	-	-
1500		16x26	2030	0.029	16x36 16x40	2290 2300	0.026 0.025	18x36	2640	0.024	-	-	-
1800		16x31	2190	0.027	16x36	2480	0.024	18x41	2780	0.024	-	-	-
2200		16x31 16x26	2400 2300	0.025 0.026	-	-	-	-	-	-	-	-	-
3300		16x31 18x36	2500 2580	0.024 0.024	22x42	2800	0.024	-	-	-	-	-	-
4700		18x41	2750	0.024	25x44	3200	0.024	-	-	-	-	-	-
5600		18x41	2855	0.024	-	-	-	-	-	-	-	-	-
6800		18x41	3000	0.023	-	-	-	-	-	-	-	-	-

•Ripple Current(mA,rms)at105°C100KHz

•Max Impedance {Ω} at 20°C 100KHz



LGK General Purpose, 85°C



Features

- Wide CV value range.
- Load life 1000~2000hrs 85°C.
- Safety vent construction design.

Specifications

Item	Performance Characteristics														
Operating Temperature Range	-40 to +85°C								-25 to +85°C						
Rated voltage Range	6.3 to 100 VDC								160 to 450 VDC						
Capacitance Range	0.1 to 15000 μF								0.47 to 470 μF						
Capacitance Tolerance	±20%(120Hz, +20°C)														
Leakage Current (+20°C, max.)	I≤0.01 CV or 3(μA) After 1minute whichever is greater measured with rated working voltage applied.								I≤0.03 CV or 3(μA) After 1minute with rated working voltage applied..						
Dissipation Factor (tanδ)	Working Voltage (VDC)	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
	D.F.(%)max	23	20	16	14	12	10	10	10	16	18	18	20	20	20
	For Capacitance > 1000μF , add 2% per another 1000μF (+20°C, at 120Hz)														
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.														
	Working Voltage (VDC)	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
	Z (-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2	3	3	3	5	15	15
	Z (-40°C)/Z(+20°C)	8	6	4	4	3	3	3	3	-	-	-	-	-	-
For Capacitance Value 1000μF , add 0.5 per another 1000μF for -25°C/+20°C add 1 per another 1000μF for -40°C/+20°C															
Load Life	Test conditions Duration time : 2000Hrs Ambient temperature:+85°C Applied voltage: Rated DC working voltage After test requirements at+20°C After test requirements:≤±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°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.														

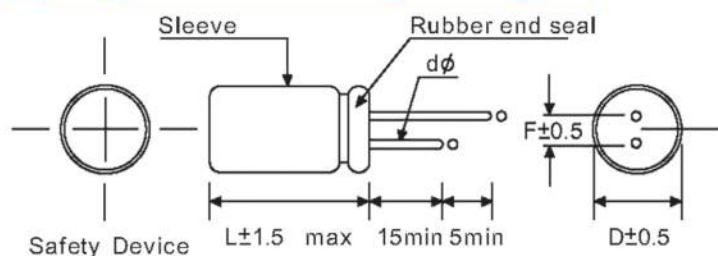
Multiplier for Ripple Current VS, Frequency

CAP(µF)/Hz		50(60)	120	400	1K	10K	100K UP
Multiplier	CAP≤10	0.8	1	1.30	1.45	1.65	1.70
	10<CAP≤100	0.8	1	1.23	1.36	1.48	1.53
	100<CAP≤1000	0.8	1	1.16	1.25	1.35	1.38
	1000<CAP	0.8	1	1.11	1.18	1.25	1.28

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	70	85
Multiplier	1.8	1.50	1.30	1.00

Diagram of Dimensions: (Unit: mm)



Dφ	5	6.3	8	10	13	16	18	22	25
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10	12
dφ	0.5		0.6		0.8		1.0		



LGK General Purpose, 85°C

Case Size

φD x L (mm)

μF	W.V. {S.V.}	6.3 {8}		10 {13}		16 {20}		25 {32}		35 {44}	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
4.7								5x11	30	5x11	40
6.8								5x11	35	5x11	45
10						5x11	50	5x11	55	5x11	60
22				5x11	70	5x11	75	5x11	90	5x11	95
33		5x11	65	5x11	75	5x11	85	5x11	95	5x11	105
47		5x11	80	5x11	95	5x11	115	5x11	125	5x11 6.3x11	130 140
68		5x11	90	5x11	105	5x11	128	6.3x11	145	6.3x11	156
100		5x11	130	5x11	156	5x11 6.3x11	160 180	6.3x11	190	6.3x11 8x11	210 230
220		5x11 6.3x11	200 240	6.3x11	250	6.3x11 8x11	260 300	8x11	320	8x11 10x12	340 370
330		6.3x11	280	6.3x11 8x11	300 330	8x11	340	8x11 10x12	420 440	10x12 10x15	480 490
470		6.3x11 8x11	320 380	6.3x11 8x11	380 400	8x11 10x12	450 470	8x14 10x12	540 580	10x17 10x20	580 640
560		8x11	410	8x11	430	10x12	520	10x15	640	10x17	750
680		8x11	460	10x12	490	10x12	590	10x15	730	10x20	810
820		8x11	510	10x12	550	10x15	640	10x15	825	10x20	930
1000		8x11	580	8x14 10x12	600 630	8x16 10x15 10x17	680 790 810	10x15 10x17 10x20	880 950 1030	10x25 13x21	970 1100
1500		10x15	725	10x17	765	10x20	960	13x21	1200	13x26	1330
2200		10x17 10x20	880 930	10x17 10x20	1000 1100	13x21 13x26	1200 1250	13x21 13x26	1550 1600	13x26 13x31	1650 1700
2700		10x20	958	10x20	1160	13x21	1380	16x26	1640	16x31	1900
3300		10x20 13x21	1050 1250	10x20 13x21	1350 1400	13x21 13x26	1600 1700	16x26 16x31	1750 1950	16x36	2200
4700		10x25 13x21	1100 1700	13x21 13x26	1800 1900	16x26	2100	16x31	2360	18x36	2380
5600		13x26	1780	16x26	1960	16x31	2150	16x36	2430	18x36	2580
6800		16x26	1860	16x26	2020	16x31	2200	18x36	2520	22x42	2790
8200		16x26	1930	16x31	2070	16x36	2280	18x36	2670	22x42	2900
10000		16x26 16x31	2000 2110	16x36 18x36	2150 2290	18x36 18x41	2350 2390	22x42	2870	25x44	3040
15000		16x36 18x36	2350 2420	18x36	2600	22x40	2900	22x42	3150	-	-

•Ripple Current (mA, rms) at 85°C 120Hz



LGK General Purpose, 85°C

Case Size

φD x L (mm)

μF \ W.V. {S.V.}	50 {63}		63 {79}		100 {125}		160 {200}		200 {250}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1	5x11	1.3	5x11	1.3	5x11	1.3	-	-	-	-
0.22	5x11	2.9	5x11	2.9	5x11	2.9	-	-	-	-
0.33	5x11	5	5x11	5	5x11	5	-	-	-	-
0.47	5x11	10	5x11	10	5x11	10	5x11	12	5x11	12
1	5x11	16	5x11	16	5x11	16	5x11	17	6.3x11	17
2.2	5x11	20	5x11	24	5x11	30	6.3x11	33	6.3x11	33
3.3	5x11	35	5x11	35	5x11	38	6.3x11	40	6.3x11	40
4.7	5x11	42	5x11	45	5x11	45	6.3x11 8x11	46 48	8x11	51
6.8	5x11	47	5x11	50	6.3x11	54	8x11	56	10x12	63
10	5x11	65	5x11	70	6.3x11	78	8x11 10x12	80 82	10x12 10x15	84 90
22	5x11	100	5x11 6.3x11	105 115	6.3x11 8x11	120 125	10x15	130	10x20	135
33	5x11 6.3x11	120 125	6.3x11 8x11	130 140	8x11 10x12	170 180	10x20	200	13x21	220
47	6.3x11	150	6.3x11 8x11	170 180	10x12 10x15	190 200	13x21	220	13x21 13x26	270 280
68	8x11	168	8x11	210	10x15	225	13x26	270	16x26	340
100	8x11	250	8x11	300	10x20	390	13x26 16x26	400 450	16x26	570
220	10x12 10x15	410 440	10x17 10x20	490 520	13x26 16x26	580 600	16x36	810	18x36	860
330	10x17 10x20	520 580	13x21	680	16x26	780	18x31	1090	18x36	1200
470	10x20 13x21	730 760	13x26 16x26	880 900	16x26 16x31	1000 1100	18x41	1300	22x42	1360
560	13x21	825	16x26	980	16x36	1175	-	-	-	-
680	13x26	950	16x26	1070	16x36	1275	-	-	-	-
820	13x26	1070	16x26	1190	18x31	1290	-	-	-	-
1000	13x26 16x26	1150 1250	16x26 16x36	1300 1350	18x41	1550	-	-	-	-
1500	16x31	1700	18x31	1800	22x42	1850	-	-	-	-
2200	16x36 18x36	1900 2090	18x36	2200	25x44	2400	-	-	-	-
2700	18x36	2170	22x42	2275	-	-	-	-	-	-
3300	18x36	2280	22x42	2360	-	-	-	-	-	-
4700	22x42	2500	22x41 25x44	2560 2800	-	-	-	-	-	-
5600	25x41	2760	-	-	-	-	-	-	-	-
6800	25x44	3040	-	-	-	-	-	-	-	-
8200	25x44	3140	-	-	-	-	-	-	-	-
10000	25x44	3300	-	-	-	-	-	-	-	-

•Ripple Current (mA, rms) at 85°C 120Hz



LGK General Purpose, 85°C

Case Size

φD x L (mm)

W.V. {S.V.}	250 {300}		350 {400}		400 {450}		450 {500}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.47	5x11	12	6.3x11	15	6.3x11	15	6.3x11	15
1	6.3x11	17	6.3x11	20	8x11	22	8x11	22
2.2	8x11	36	10x12	39	10x12	39	10x12	39
3.3	8x11	43	10x12	50	10x12 10x15	51 53	10x15 10x20	53 55
4.7	10x12	51	10x12 10x15	63 66	10x15	69	10x20	75
6.8	10x12	70	10x15	79	10x15	85	10x20	88
10	10x15	90	10x20	110	13x21	115	13x21 13x26	120 130
22	10x20	160	13x26	180	16x26	195	16x26 16x31	200 220
33	13x21 13x26	230 235	16x26	250	16x26	275	16x36	285
47	13x26	300	16x31	325	16x31	350	16x36	400
68	16x26	360	16x31	395	16x36	415	18x36	430
100	16x31	600	18x36	660	18x36	800	-	-

•Ripple Current (mA, rms) at 85°C 120Hz

RADIAL



LGM 7&9 mmL, General Purpose, 85°C



Features

- Design for space-saving and high density insertion
- Applications: VTR, car radio, car stereos, charger, etc

Specifications

Item	Performance Characteristics							
Operating Temperature Range	-40°C to +85°C							
Rated voltage Range	4 to 50 VDC							
Capacitance Range	0.1 to 470μF							
Capacitance Tolerance	±20%(120Hz, +20°C)							
Leakage Current (+20°C, max.)	I≤0.01 CV or 3(μA) After 1minute whichever is greater measured with rate working voltage applied.							
Dissipation Factor (tanδ)								
	Working Voltage (VDC)	4	6.3	10	16	25	35	50
	D.F.(%)max	35	24	20	16	14	12	10
(+20°C, at 120Hz)								
Low Temperature Characteristics (120Hz)	Impedance ratio max.							
	Working Voltage (V)	4	6.3	10	16	25	35	50
	Z (-25°C)/Z(+20°C)	7	4	3	2	2	2	2
	Z (-40°C)/Z(+20°C)	15	8	6	4	4	4	4
Load Life	Test conditions Duration time : 1000Hrs Ambient temperature:+85°C Applied voltage: Rated DC working voltage After test requirements:±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°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.							

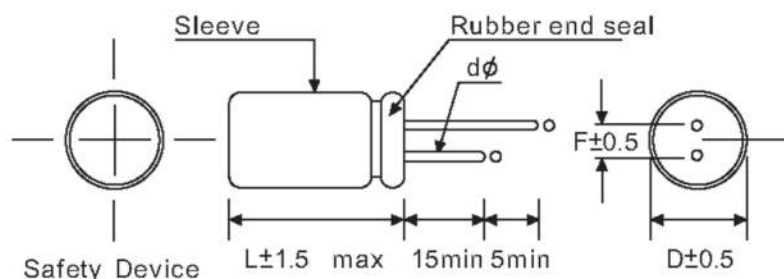
Multiplier for Ripple Current VS, Frequency

CAP(μF)/Hz		50(60)	120	500	1K	10K
Multiplier	0.1~47	0.65	1.0	1.20	1.30	1.50
	56UP	0.8	1.0	1.10	1.15	1.20

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	70	85
Multiplier	1.80	1.50	1.30	1.00

Diagram of Dimensions: (Unit: mm)



Dφ	4	5	6.3	8
F	1.5	2.0	2.5	3.5
dφ	0.45	0.5		



LGM 7&9 mmL, General Purpose, 85°C

Case Size

φD x L (mm)

W.V. {S.V.}	4 {5}		6.3 {8}		10 {13}		16 {20}		25 {32}		35 {44}		50 {63}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1-0.47	→												4x7	1.0~5.0
1	→												4x7	10
2.2	→												4x7	19
3.3	→												4x7	24
4.7	→												4x7	29
10	→								4x7	30	4x7 5x7	28 30	5x7	32
22	→				4x7	35	4x7	38	4x7 5x7	45 50	6x7	47	6x7	59
33	→		4x7	40	4x7	42	5x7	45	5x7	52	6x7	65	8x7	75
47	4x7	35	4x7	42	4x7	47	5x7	60	6x7	68	6x7	80	8x7	88
68	5x7	42	5x7	50	5x7	60	6x7	72	6x7	75	8x7	85	8x9	92
100	5x7	61	5x7	65	5x7	80	6x7	92	6x7 8x7	95 115	8x7	120	-	-
220	5x7	95	5x7	108	6x7	125	6x7 8x7	185 200	8x9	230	-	-	-	-
330	6x7	154	6x7	160	8x7	170	8x7	220	-	-	-	-	-	-
470	8x7	220	8x7	220	8x7	240	8x9	280	-	-	-	-	-	-

•Ripple Current (mA, rms) at 85°C 120Hz



LGP Snap-In, General Purpose, 85°C



Features

- Has a snap-in terminal which can solder to PCB directly and need not fixture to save processing time
- Suitable for electronic equipment with medium-high voltage circuits
- Printed circuit board terminal snap-in type and lug terminal type available

Specifications

Item	Performance Characteristics						
Operating Temperature Range	-40 to +85°C				-25 to +85°C		
Rated voltage Range	10 to 100 VDC				160 to 450 VDC		
Capacitance Range	1000 to 68000 μF				47 to 2700 μF		
Capacitance Tolerance	±20%(120Hz, +20°C)						
Leakage Current (+20°C, max.)	I=0.02 CV after 5 minutes with rated working voltage applied.						
Dissipation Factor (Tanδ at 120Hz, 20°C)	Less than the value under table (%)						
	μF \ W .V.	10~16	25~35	50~ 63	80~100	160~250	315~ 500
	47 ~ 390	-	-	-	-	15	20
	470 ~ 3900	25	20	20	20	15	20
	4700 ~ 8200	35	30	30	25	-	-
	10000 ~ 22000	40	35	30	-	-	-
	27000 ~ 47000	45	40	35	-	-	-
	56000 ~ 68000	50	45	-	-	-	-
Low Temperature Characteristics (at 120Hz)	Impedance ratio max -25°C\+20°C : 3 -40°C\+20°C : 12						
Load Life Test	Test conditions Duration time :2000Hrs Ambient temperature:+85°C Applied voltage: Rated DC working voltage After test requirements at+20°C 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	Test conditions Duration time :1000Hrs Ambient temperature:+85°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.						
Standards	Satisfies Characteristic W of JIS C5141						

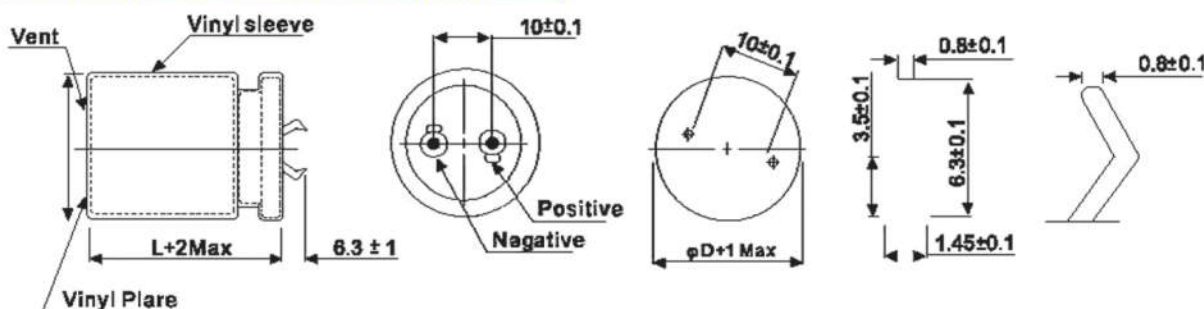
Multiplier for Ripple Current VS, Frequency

CAP(μ F)/Hz	50(60)	120	1K	10K	50-100K
Multiplier					
10<CAP $\leq$ 100	0.8	1	1.36	1.48	1.53
100<CAP $\leq$ 1000	0.8	1	1.25	1.35	1.38
1000<CAP	0.8	1	1.17	1.25	1.28

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	70	85
Multiplier	1.55	1.30	1.20	1.00

Diagram of Dimensions: (Unit: mm)





LGP Snap-In, General Purpose, 85°C

Case Size

φD x L (mm)

W.V. {S.V.}	10{13}								16{20}							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
8200	22x25	2.85	-	-	-	-	-	-	22x25	3.15	-	-	-	-	-	-
10000	22x30	3.08	25x25	3.08	-	-	-	-	22x30	3.62	25x25	3.62	-	-	-	-
12000	22x30	3.25	25x25	3.25	-	-	-	-	22x30	4.30	25x25	4.30	-	-	-	-
15000	22x35	3.85	25x30	3.85	-	-	-	-	22x35	4.93	25x30	4.93	-	-	-	-
18000	22x40	4.10	25x30	4.10	-	-	-	-	22x40	5.20	25x30	5.20	-	-	-	-
22000	22x45	4.35	25x35	4.35	30x30	4.35	-	-	22x45	5.70	25x35	5.70	30x30	5.70	-	-
27000	-	-	25x45	4.87	30x35	4.87	-	-	-	-	25x45	6.30	30x35	6.30	-	-
33000	-	-	25x50	5.18	30x40	5.18	35x30	5.18	-	-	25x50	6.84	30x40	6.84	35x30	6.84
39000	-	-	-	-	30x45	5.70	35x35	5.70	-	-	-	-	30x45	6.90	35x35	6.90
47000	-	-	-	-	30x50	6.10	35x40	6.10	-	-	-	-	30x50	7.42	35x40	7.42
56000	-	-	-	-	-	-	35x45	7.00	-	-	-	-	30x55	8.00	35x50	8.00
68000	-	-	-	-	-	-	35x50	7.70	-	-	-	-	-	-	35x50	9.30

•Ripple Current(A,rms)at 85°C 120Hz

W.V. {S.V.}	25{32}								35{44}							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
3900	-	-	-	-	-	-	-	-	22x30	2.64	-	-	-	-	-	-
4700	22x25	2.64	-	-	-	-	-	-	22x30	2.68	25x25	2.68	-	-	-	-
5600	22x30	2.78	-	-	-	-	-	-	22x35	2.84	25x30	2.84	-	-	-	-
6800	22x30	2.93	25x25	2.93	-	-	-	-	22x35	3.06	25x30	3.06	-	-	-	-
8200	22x30	3.05	25x25	3.05	-	-	-	-	22x40	3.32	25x35	3.32	-	-	-	-
10000	22x35	3.43	25x30	3.43	30x25	3.43	-	-	22x45	3.60	25x40	3.60	30x30	3.60	-	-
12000	22x40	3.84	25x35	3.84	30x30	3.84	-	-	-	-	25x45	4.08	30x35	4.08	35x30	4.08
15000	22x50	4.39	25x40	4.39	30x30	4.39	-	-	-	-	25x50	4.25	30x40	4.25	35x30	4.25
18000	-	-	25x45	4.80	30x35	4.80	-	-	-	-	-	-	30x45	4.70	35x35	4.70
22000	-	-	25x50	5.40	30x40	5.40	-	-	-	-	-	-	30x50	5.45	35x40	5.45
27000	-	-	-	-	30x45	5.97	35x35	5.97	-	-	-	-	-	-	35x45	5.78
33000	-	-	-	-	30x50	6.24	35x40	6.24	-	-	-	-	-	-	35x50	6.36
39000	-	-	-	-	-	-	35x45	7.10	-	-	-	-	-	-	-	-
47000	-	-	-	-	-	-	35x50	7.60	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 85°C 120Hz

W.V. {S.V.}	50{63}								63{79}							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
2200	22x25	2.04	-	-	-	-	-	-	22x30	2.52	25x25	2.52	-	-	-	-
2700	22x30	2.30	-	-	-	-	-	-	22x35	2.70	25x30	2.70	-	-	-	-
3300	22x30	2.64	25x25	2.64	-	-	-	-	22x40	2.90	25x30	2.90	30x25	2.90	-	-
3900	22x30	2.70	25x25	2.70	-	-	-	-	22x45	3.05	25x35	3.05	30x30	3.05	-	-
4700	22x35	2.88	25x30	2.88	30x25	2.88	-	-	22x50	3.28	25x40	3.28	30x35	3.28	35x25	3.28
5600	22x40	3.06	25x35	3.06	30x30	3.06	-	-	-	-	25x45	3.86	30x35	3.86	35x30	3.86
6800	22x50	3.35	25x40	3.35	30x30	3.35	-	-	-	-	25x50	4.32	30x40	4.32	35x30	4.32
8200	-	-	25x45	3.70	30x35	3.70	-	-	-	-	-	-	30x45	4.44	35x35	4.44
10000	-	-	25x50	4.20	30x40	4.20	35x30	4.20	-	-	-	-	-	-	35x45	4.90
12000	-	-	-	-	30x45	4.60	35x35	4.60	-	-	-	-	-	-	35x50	5.40
15000	-	-	-	-	30x50	5.15	35x40	5.15	-	-	-	-	-	-	35x60	5.80
18000	-	-	-	-	-	-	35x45	5.31	-	-	-	-	-	-	-	-
22000	-	-	-	-	-	-	35x50	5.85	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 85°C 120Hz



LGP Snap-In, General Purpose, 85°C

φD x L (mm)

W.V. {S.V.}	80{100}								100{125}							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
1000	22x25	1.62	-	-	-	-	-	-	22x30	1.90	25x25	1.90	-	-	-	-
1200	22x30	1.70	-	-	-	-	-	-	22x35	2.10	25x30	2.10	-	-	-	-
1500	22x30	1.90	25x25	1.90	-	-	-	-	22x40	2.46	25x35	2.46	30x30	2.46	-	-
1800	22x35	2.15	25x30	2.15	-	-	-	-	22x45	2.78	25x40	2.78	30x30	2.78	-	-
2200	22x40	2.52	25x30	2.52	30x25	2.52	-	-	22x50	3.00	25x40	3.00	30x30	3.00	-	-
2700	22x45	2.76	25x35	2.76	30x30	2.76	-	-	-	-	25x45	3.40	30x35	3.40	-	-
3300	22x50	3.15	25x40	3.15	30x30	3.15	-	-	-	-	25x50	3.85	30x40	3.85	-	-
3900	-	-	25x45	3.40	30x35	3.40	-	-	-	-	-	-	30x45	4.30	35x35	4.30
4700	-	-	25x50	3.80	30x40	3.80	-	-	-	-	-	-	30x50	4.50	35x40	4.50
5600	-	-	-	-	30x45	4.25	35x35	4.25	-	-	-	-	-	-	35x45	4.80
6800	-	-	-	-	30x50	4.70	35x40	4.70	-	-	-	-	-	-	35x50	5.30
8200	-	-	-	-	-	-	35x50	5.20	-	-	-	-	-	-	35x60	5.80
10000	-	-	-	-	-	-	35x60	5.70	-	-	-	-	-	-	35x62	6.30

•Ripple Current(A,rms)at 85°C 120Hz

W.V. {S.V.}	160{200}								200{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
220	22x25	1.10	-	-	-	-	-	-	22x25	1.20	-	-	-	-	-	-
270	22x25	1.23	-	-	-	-	-	-	22x25	1.37	-	-	-	-	-	-
330	22x25	1.44	-	-	-	-	-	-	22x30	1.56	25x25	1.56	-	-	-	-
390	22x30	1.66	25x25	1.66	-	-	-	-	22x30	1.68	25x25	1.68	-	-	-	-
470	22x35	1.76	25x25	1.76	-	-	-	-	22x35	1.85	25x30	1.85	30x25	1.85	-	-
560	22x35	2.03	25x30	2.03	30x25	2.03	-	-	22x40	2.28	25x35	2.28	30x25	2.28	-	-
680	22x40	2.36	25x35	2.36	30x25	2.36	-	-	22x45	2.65	25x40	2.65	30x30	2.65	-	-
820	22x45	2.75	25x40	2.75	30x30	2.75	-	-	-	-	25x45	2.92	30x35	2.92	35x25	2.92
1000	-	-	25x45	3.00	30x35	3.00	35x30	3.00	-	-	25x50	3.25	30x40	3.25	35x30	3.25
1200	-	-	25x50	3.25	30x40	3.25	35x30	3.25	-	-	-	-	30x45	3.50	35x35	3.50
1500	-	-	-	-	30x45	3.70	35x35	3.70	-	-	-	-	30x50	3.85	35x45	3.85
1800	-	-	-	-	30x50	4.20	35x40	4.20	-	-	-	-	-	-	35x45	4.35
2200	-	-	-	-	-	-	35x45	4.65	-	-	-	-	-	-	35x50	4.90
2700	-	-	-	-	-	-	35x50	4.76	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 85°C 120Hz

SNAP-IN



LGP Snap-In, General Purpose, 85°C

φD x L (mm)

W.V. {S.V.}	250{300}								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
100	-	-	-	-	-	-	-	-	22x25	0.76	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	22x30	0.89	25x25	0.89	-	-	-	-
150	22x25	0.90	-	-	-	-	-	-	22x35	1.03	25x30	1.03	30x25	1.03-	-	-
180	22x25	1.07	-	-	-	-	-	-	22x40	1.15	25x35	1.15	30x25	-1.15	-	-
220	22x30	1.22	25x25	1.22-	-	-	-	-	22x45	1.40	25x40	1.40	30x30	1.40	35x25	1.40
270	22x30	1.50	25x25	1.50	-	-	-	-	-	-	25x45	1.63	30x35	1.63	35x25	1.63
330	22x35	1.75	25x30	1.75	30x25	1.75-	-	-	-	-	25x50	1.88	30x40	1.88	35x35	1.88
390	22x40	1.90	25x35	1.90	30x25	1.90	-	-	-	-	-	-	30x45	2.05	35x35	2.05
470	22x45	2.04	25x40	2.04	30x30	2.04	-	-	-	-	-	-	30x50	2.30	35x40	2.30
560	-	-	25x45	2.35	30x35	2.35	35x30	2.35	-	-	-	-	-	-	35x45	2.80
680	-	-	25x50	2.80	30x40	2.80	35x35	2.80	-	-	-	-	-	-	35x50	2.95
820	-	-	-	-	30x45	3.20	35x40	3.20	-	-	-	-	-	-	-	-
1000	-	-	-	-	30x50	3.50	35x45	3.50	-	-	-	-	-	-	-	-
1200	-	-	-	-	-	-	35x50	3.80	-	-	-	-	-	-	-	-
1500	-	-	-	-	-	-	35x55	4.00	-	-	-	-	-	-	-	-
1800	-	-	-	-	-	-	35x60	4.50	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 85°C 120Hz

W.V. {S.V.}	400{450}										450{500}									
	22		25		30		35		40		22		25		30		35		40	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
47	-	-	-	-	-	-	-	-	-	-	22x25	0.50	-	-	-	-	-	-	-	-
68	22x25	0.60	-	-	-	-	-	-	-	-	22x30	0.65	-	-	-	-	-	-	-	-
82	22x25	0.83	-	-	-	-	-	-	-	-	22x30	0.82	25x25	0.82	-	-	-	-	-	-
100	22x30	0.92	25x25	0.92	-	-	-	-	-	-	22x35	0.95	25x30	0.95	-	-	-	-	-	-
120	22x30	1.02	25x25	1.02	-	-	-	-	-	-	22x40	1.05	25x35	1.05	-	-	-	-	-	-
150	22x35	1.16	25x30	1.16	30x25	1.16	-	-	-	-	22x50	1.20	25x40	1.20	30x30	1.20	-	-	-	-
180	22x40	1.30	25x35	1.30	30x30	1.30	-	-	-	-	22x50	1.35	25x45	1.35	30x35	1.35	-	-	-	-
220	22x50	1.48	25x40	1.48	30x35	1.48	-	-	-	-	-	-	25x50	1.55	30x40	1.55	35x35	1.55	-	-
270	-	-	25x45	1.68	30x40	1.68	35x30	1.68	-	-	-	-	-	-	30x45	1.80	35x35	1.80	-	-
330	-	-	25x50	1.90	30x45	1.90	35x35	1.90	-	-	-	-	-	-	30x45	2.00	35x35	2.00	-	-
390	-	-	-	-	30x50	2.10	35x40	2.10	-	-	-	-	-	-	-	-	35x40	2.25	40x35	2.25
470	-	-	-	-	-	-	35x45	2.38	40x35	2.38	-	-	-	-	-	-	35x45	2.53	40x40	2.53
560	-	-	-	-	-	-	35x50	2.85	40x45	2.85	-	-	-	-	-	-	-	-	40x50	2.90
680	-	-	-	-	-	-	35x55	3.05	40x50	3.05	-	-	-	-	-	-	-	-	-	-
820	-	-	-	-	-	-	35x60	3.20	40x55	3.20	-	-	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 85°C 120Hz



LGS 5mmL, General Purpose, 85°C



Features

- 5.0+1 mm max height
- Load life 85°C, 1000hours assured

Specifications

Item	Performance Characteristics
Operating Temperature Range	-40 to +85°C
Rated voltage Range	4 to 50 VDC
Capacitance Range	0.1 to 330 μ F
Capacitance Tolerance	$\pm 20\%$ (120Hz, +20°C)
Leakage Current (+20°C, max.)	$I \leq 0.01 CV$ or $3(\mu A)$ After 2minutes, whichever is greater measured with rated working voltage applied.
Dissipation Factor ($\tan \delta$)	Working Voltage (VDC)
	D.F.(%)max
Low Temperature Characteristics (120Hz)	Impedance ratio max.
	Working Voltage (VDC)
	Z (-25°C)/Z(+20°C)
	Z (-40°C)/Z(+20°C)
Load Life	Test conditions Duration time : 1000Hrs Ambient temperature:+85°C Applied voltage: Rated DC working voltage After test requirements: $\pm 30\%$ of the initial measured value Dissipation Factor: $\leq 200\%$ of the initial specified value Leakage current: $\leq$ The initial specified value
Shelf Life	Test conditions Duration time :1000Hrs Ambient temperature:+85°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.

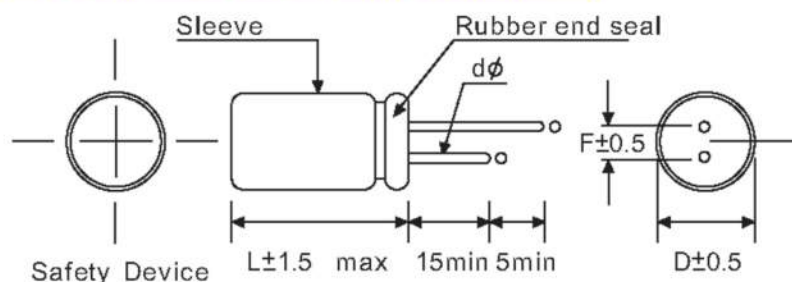
Multiplier for Ripple Current VS, Frequency

CAP(μF)/Hz		50(60)	120	1K	10K
Multiplier	0.1~47	0.8	1.0	1.30	1.50
	56 UP	0.8	1.0	1.15	1.20

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	70	85
Multiplier	1.8	1.5	1.3	1.0

Diagram of Dimensions: (Unit: mm)



D ϕ	4	5	6.3	8
F	1.5 $\pm$ 0.5	2.0 $\pm$ 0.5	2.5 $\pm$ 0.5	3.5 $\pm$ 0.5
d ϕ	0.45			



LGS 5mmL, General Purpose, 85°C

Case Size

φD x L (mm)

W.V. {S.V.}	4 {5}		6.3 {8}		10 {13}		16 {20}		25 {32}		35 {44}		50 {63}	
μF	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1													4x5	1.0
0.22													4x5	2.6
0.33													4x5	3.2
0.47													4x5	3.8
1													4x5	6.0
2.2													4x5	9
3.3													4x5	14
4.7							4x5	20	4x5	20	4x5	20	4x5	20
10							4x5	20	4x5	27	5x5	29	6x5	30
22							4x5	33	5x5	44	6x5	46	6x5	48
33	4x5	28	4x5	33	4x5	39	5x5	42	6x5	48	6x5	52	8x5	60
47	4x5	33	4x5	39	5x5	42	5x5	58	6x5	62	8x5	65	-	-
68	4x5	43	5x5	53	6x5	56	6x5	64	8x5	85	8x5	88	-	-
100	5x5	52	5x5	65	6x5	76	6x5	86	8x5	108	-	-	-	-
220	6x5	78	6x5	85	6x5	92	8x5	125	-	-	-	-	-	-
330	8x5	130	8x5	135	-	-	-	-	-	-	-	-	-	-

•Ripple Current (mA, rms) at 85°C 120Hz

RADIAL



LHP Snap-In, Low ESR, 105°C



Features

- Highly reliable capacitors that withstand low ESR & long life.
- Two or three dimensions with same ratings
- Best for switching power supply.

Specifications

Item	Performance Characteristics											
Operating Temperature Range	-40 to +105°C						-25 to +105°C					
Rated voltage Range	10 to 100 VDC						160 to 450 VDC					
Capacitance Range	560 to 47000 μF						56 to 1500 μF					
Capacitance Tolerance	±20%(120Hz, +20°C)											
Leakage Current (+20°C, max.)	I≤0.02 CV after 5 minutes with rated working voltage applied..											
Dissipation Factor (Tanδ at 120Hz, 20°C)	Less than the value under table (%)											
	Rated Voltage(v)	10	16	25	35	50	63	80	100	160~250	350~400	
	D.F.(%)max	55	40	30	25	20	15	15	15	15	20	
Low Temperature Characteristics (at 120Hz)	Impedance ratio max											
	Rated Voltage(v)	10~16		25		35		50~63		80~100		160~400
	Z (-25°C)/Z(+20°C)	4		3		3		2		2		4
	Z (-40°C)/Z(+20°C)	15		10		8		6		5		-
Load Life Test	Test conditions Duration time :5000Hrs Ambient temperature:+105°C Applied voltage: Rated DC working voltage After test requirements at+20°C Capacitance change: ±≤25% of the initial measured value Dissipation Factor: ≤250% of the initial specified value Leakage current: ≤The initial specified value											
Shelf Life Test	Test conditions Duration time :1000Hrs Ambient temperature:+105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.											
Standards	Satisfies Characteristic W of JIS C5141											

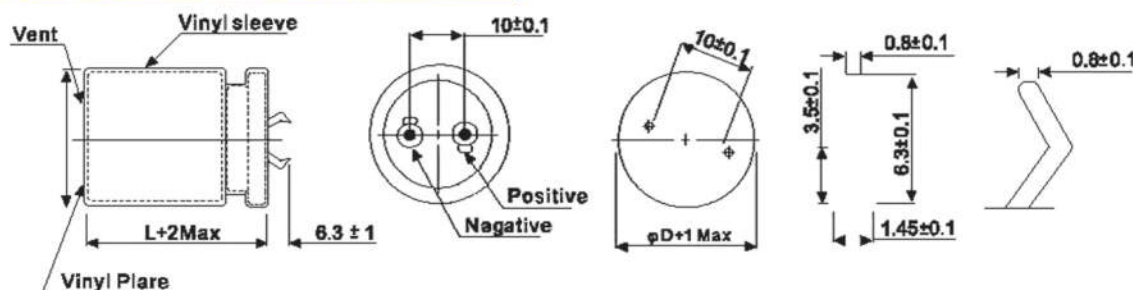
Multiplier for Ripple Current VS, Frequency

Frequency (Hz)	50	120	300	1K	10K	50K
10 ~ 50 VDC	0.95	1.00	1.03	1.05	1.08	1.08
63 ~ 100 VDC	0.93	1.00	1.07	1.13	1.19	1.20
160 ~ 250 VDC	0.81	1.00	1.17	1.32	1.45	1.50
350 ~ 400VDC	0.77	1.00	1.16	1.30	1.41	1.43

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	85	95	105
Multiplier	2.10	1.90	1.40	1.25	1.00

Diagram of Dimensions: (Unit: mm)





LHP Snap-In, Low ESR, 105°C

Case Size

φD x L (mm)

μF	W.V. {S.V.}	10{13}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
5600		22x25	1.10	126	-	-	-	-	-	-	-	-	-
6800		22x25	1.30	115	25x25	1.30	105	-	-	-	-	-	-
8200		22x25	1.56	110	25x25	1.56	95	-	-	-	-	-	-
10000		22x30	1.60	98	25x25	1.60	95	30x25	1.60	85	-	-	-
12000		22x35	1.80	82	25x30	1.80	78	30x25	1.80	78	-	-	-
15000		22x35	2.10	82	25x30	2.10	75	30x25	2.10	75	-	-	-
18000		22x35	2.20	82	25x30	2.20	68	30x30	2.20	65	-	-	-
22000		22x40	2.75	68	25x35	2.75	62	30x30	2.75	60	35x25	2.75	60
27000		-	-	-	25x45	3.05	49	30x40	3.05	48	35x30	3.05	47
33000		-	-	-	25x50	3.40	41	30x40	3.40	37	35x35	3.40	37
39000		-	-	-	-	-	-	30x50	3.60	32	35x40	3.60	31
47000		-	-	-	-	-	-	30x50	4.60	28	35x50	4.60	25

μF	W.V. {S.V.}	16{20}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
5600		22x25	1.40	126	-	-	-	-	-	-	-	-	-
6800		22x30	1.60	98	25x25	1.60	88	-	-	-	-	-	-
8200		22x35	1.80	82	25x30	1.80	75	-	-	-	-	-	-
10000		22x40	2.10	75	25x30	2.10	75	30x25	2.10	75	-	-	-
12000		22x40	2.40	68	25x35	2.40	68	30x25	2.40	68	-	-	-
15000		22x50	2.70	53	25x40	2.70	52	30x30	2.70	48	-	-	-
18000		-	-	-	25x45	3.05	46	30x35	3.05	45	35x30	3.05	45
22000		-	-	-	25x50	3.40	41	30x40	3.40	40	35x35	3.40	37
27000		-	-	-	-	-	-	30x50	4.02	32	35x40	4.02	31
33000		-	-	-	-	-	-	30x50	4.32	32	35x40	4.32	31
39000		-	-	-	-	-	-	-	-	-	35x50	4.95	25

μF	W.V. {S.V.}	25{32}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
3900		22x25	1.30	126	-	-	-	-	-	-	-	-	-
4700		22x30	1.50	98	25x25	1.50	88	-	-	-	-	-	-
5600		22x35	1.60	82	25x25	1.60	75	-	-	-	-	-	-
6800		22x40	1.87	68	25x30	1.87	68	30x25	1.87	75	-	-	-
8200		22x45	2.20	62	25x35	2.20	62	30x30	2.20	60	35x25	2.20	60
10000		22x50	2.35	52	25x40	2.35	52	30x35	2.35	52	35x30	2.35	52
12000		-	-	-	25x50	2.70	48	30x35	2.70	47	35x30	2.70	47
15000		-	-	-	-	-	-	30x40	3.15	38	35x35	3.15	37
18000		-	-	-	-	-	-	30x50	3.60	32	35x40	3.60	31
22000		-	-	-	-	-	-	-	-	-	35x45	3.90	29
27000		-	-	-	-	-	-	-	-	-	35x50	4.60	25

μF	W.V. {S.V.}	35{44}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
2200		22x25	1.10	126	-	-	-	-	-	-	-	-	-
2700		22x25	1.29	126	-	-	-	-	-	-	-	-	-
3300		22x30	1.40	98	25x25	1.40	88	-	-	-	-	-	-
3900		22x35	1.55	82	25x30	1.55	75	-	-	-	-	-	-
4700		22x40	1.75	68	25x30	1.75	68	30x25	1.75	68	-	-	-
5600		22x45	1.95	62	25x35	1.95	62	30x30	1.95	62	35x25	1.95	62
6800		22x50	2.20	53	25x40	2.20	52	30x35	2.20	52	35x30	2.20	52
8200		-	-	-	25x50	2.50	48	30x35	2.50	47	35x30	2.50	47
10000		-	-	-	-	-	-	30x40	2.80	38	35x35	2.80	37
12000		-	-	-	-	-	-	30x50	3.30	32	35x40	3.30	31
15000		-	-	-	-	-	-	-	-	-	35x50	4.25	25

- Ripple Current(A,rms)at105°C 120Hz
- Max Impedance {Z,mΩ} at 20°C 30KHz



LHP Snap-In, Low ESR, 105°C

φD x L (mm)

μF	W.V. {S.V.}	50{63}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
1500		22x25	1.00	126	-	-	-	-	-	-	-	-	-
1800		22x30	1.10	98	25x25	1.10	88	-	-	-	-	-	-
2200		22x35	1.30	82	25x25	1.30	82	-	-	-	-	-	-
2700		22x40	1.45	68	25x30	1.45	68	30x25	1.45	68	-	-	-
3300		22x40	1.70	62	25x35	1.70	62	30x30	1.70	62	-	-	-
3900		22x50	1.90	53	25x40	1.90	52	30x35	1.90	50	-	-	-
4700		-	-	-	25x40	2.10	50	30x35	2.10	49	35x30	2.10	47
5600		-	-	-	25x50	2.36	41	30x40	2.36	38	35x35	2.36	37
6800		-	-	-	-	-	-	30x50	2.70	32	35x40	2.70	31
8200		-	-	-	-	-	-	30x50	3.16	29	35x40	3.16	28
10000		-	-	-	-	-	-	-	-	-	35x50	3.50	25

μF	W.V. {S.V.}	63{79}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
1000		22x25	1.00	126	-	-	-	-	-	-	-	-	-
1200		22x25	1.15	126	25x25	1.15	88	-	-	-	-	-	-
1500		22x35	1.30	82	25x30	1.30	75	-	-	-	-	-	-
1800		22x40	1.45	75	25x30	1.45	73	30x25	1.45	73	-	-	-
2200		22x45	1.65	62	25x35	1.65	62	30x30	1.65	62	35x25	1.65	62
2700		22x50	1.90	53	25x40	1.90	52	30x35	1.90	52	35x30	1.90	52
3300		-	-	-	25x50	2.15	47	30x35	2.15	47	35x30	2.15	47
3900		-	-	-	-	-	-	30x40	2.40	38	35x35	2.40	37
4700		-	-	-	-	-	-	30x50	2.70	32	35x40	2.70	31
5600		-	-	-	-	-	-	30x50	3.10	32	35x40	3.10	31
6800		-	-	-	-	-	-	-	-	-	35x50	3.50	25

μF	W.V. {S.V.}	100{125}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
560		22x30	0.95	118	25x25	0.95	115	-	-	-	-	-	-
680		22x35	1.10	98	25x30	1.10	80	-	-	-	-	-	-
820		22x40	1.25	85	25x30	1.25	80	30x25	1.25	80	-	-	-
1000		22x45	1.40	75	25x35	1.40	70	30x30	1.40	68	35x25	1.40	68
1200		22x50	1.60	66	25x40	1.60	62	30x35	1.60	62	35x30	1.60	62
1500		-	-	-	25x50	1.85	49	30x40	1.85	48	35x30	1.85	48
1800		-	-	-	-	-	-	30x45	2.05	43	35x35	2.05	42
2200		-	-	-	-	-	-	30x50	2.40	28	35x40	2.40	28
2700		-	-	-	-	-	-	-	-	-	35x50	2.80	22

μF	W.V. {S.V.}	160{200}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
270		22x30	0.60	565	-	-	-	-	-	-	-	-	-
330		22x35	0.80	530	25x25	0.80	525	-	-	-	-	-	-
390		22x35	0.85	455	25x30	0.85	415	-	-	-	-	-	-
470		22x45	1.10	380	25x35	1.10	365	30x30	1.10	345	-	-	-
560		22x45	1.16	380	25x35	1.16	330	30x30	1.16	315	-	-	-
680		-	-	-	25x45	1.30	315	30x35	1.30	315	-	-	-
820		-	-	-	25x45	1.43	280	30x40	1.43	280	35x30	1.43	255
1000		-	-	-	-	-	-	30x45	1.69	262	35x35	1.69	240
1200		-	-	-	-	-	-	-	-	-	35x45	1.95	205
1500		-	-	-	-	-	-	-	-	-	35x50	2.40	158

- Ripple Current(A_{rms})at105°C 120Hz
- Max Impedance {Z_{mΩ}} at 20°C 30KHz



LHP Snap-In, Low ESR, 105°C

φD x L (mm)

μF	W.V. {S.V.}	200{250}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
180		22x25	0.57	645	-	-	-	-	-	-	-	-	-
220		22x30	0.65	565	-	-	-	-	-	-	-	-	-
270		22x35	0.78	455	25x25	0.78	525	-	-	-	-	-	-
330		22x40	0.90	435	25x30	0.90	415	-	-	-	-	-	-
390		22x40	0.98	405	25x35	0.98	405	30x25	0.98	405	-	-	-
470		22x40	1.15	385	25x35	1.15	385	30x25	1.15	385	-	-	-
560		22x45	1.30	365	25x35	1.30	365	30x25	1.30	365	-	-	-
680		22x50	1.45	315	25x40	1.45	315	30x30	1.45	315	35x30	1.45	310
820		-	-	-	25x40	1.60	300	30x35	1.60	300	35x35	1.60	285
1000		-	-	-	25x50	1.90	270	30x45	1.90	265	35x35	1.90	255
1200		-	-	-	-	-	-	30x50	2.10	180	35x40	2.10	175

μF	W.V. {S.V.}	250{300}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
150		22x25	0.52	645	-	-	-	-	-	-	-	-	-
180		22x30	0.64	565	25x25	0.64	525	-	-	-	-	-	-
220		22x35	0.75	455	25x30	0.75	430	-	-	-	-	-	-
270		22x40	0.85	420	25x30	0.85	415	30x25	0.85	405	-	-	-
330		22x45	1.00	380	25x35	1.00	365	30x30	1.00	345	35x25	1.00	345
390		22x50	1.10	315	25x40	1.10	315	30x35	1.10	315	-	-	-
470		-	-	-	25x50	1.20	280	30x35	1.20	280	35x30	1.20	255
560		-	-	-	-	-	-	30x40	1.35	262	35x35	1.35	240
680		-	-	-	-	-	-	30x50	1.55	230	35x40	1.55	210
820		-	-	-	-	-	-	30x50	1.70	173	-	-	-
1000		-	-	-	-	-	-	-	-	-	35x50	2.00	145

μF	W.V. {S.V.}	350{400}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
68		22x25	0.34	795	-	-	-	-	-	-	-	-	-
82		22x30	0.40	705	-	-	-	-	-	-	-	-	-
100		22x35	0.50	655	25x25	0.50	655	-	-	-	-	-	-
120		22x40	0.56	530	25x30	0.56	525	30x25	0.56	495	-	-	-
150		22x45	0.63	460	25x35	0.63	435	30x30	0.63	395	-	-	-
180		22x50	0.70	385	25x40	0.70	375	30x30	0.70	365	-	-	-
220		-	-	-	25x50	0.82	325	30x35	0.82	325	35x30	0.82	310
270		-	-	-	-	-	-	30x40	0.90	285	35x35	0.90	250
330		-	-	-	-	-	-	30x50	1.10	230	35x40	1.10	225
390		-	-	-	-	-	-	-	-	-	35x45	1.20	210
470		-	-	-	-	-	-	-	-	-	35x50	1.30	175

μF	W.V. {S.V.}	400{450}											
		22φ			25φ			30φ			35φ		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
56		22x25	0.32	795	-	-	-	-	-	-	-	-	-
68		22x30	0.40	705	25x25	0.40	656	-	-	-	-	-	-
82		22x35	0.45	565	25x30	0.45	525	-	-	-	-	-	-
100		22x40	0.50	530	25x30	0.50	525	30x25	0.50	495	-	-	-
120		22x40	0.55	460	25x35	0.55	435	30x30	0.55	395	-	-	-
150		22x50	0.65	385	25x40	0.65	385	30x35	0.65	385	-	-	-
180		-	-	-	25x45	0.75	350	30x35	0.75	325	35x30	0.75	310
220		-	-	-	25x50	0.85	305	30x40	0.85	295	35x35	0.85	260
270		-	-	-	-	-	-	30x50	1.05	230	35x40	1.05	225
330		-	-	-	-	-	-	-	-	-	35x45	1.10	210
390		-	-	-	-	-	-	-	-	-	35x50	1.20	175

- Ripple Current(A,rms)at105°C 120Hz
- Max Impedance {Z,mΩ} at 20°C 30KHz



LKP Snap-In, General Purpose, 105°C



Features

- Highly reliable capacitors that with high ripple current
- Two or three dimensions with the same ratings.
- Terminal spacing at 10 mm for printed circuit board plug in.
- Aluminum case designed explosion-proof vent.
- Best for switching power supply

Specifications

Item	Performance Characteristics													
Operating Temperature Range	-40 to +105°C								-25 to +105°C					
Rated voltage Range	10 to 100 VDC								160 to 450 VDC					
Capacitance Range	330 to 68000 μF								47 to 2200 μF					
Capacitance Tolerance	±20%(120Hz, +20°C)													
Leakage Current (+20°C, max.)	I≤0.02 CV after 5 minutes with rated working voltage applied..													
Dissipation Factor (Tanδ at 120Hz, 20°C)	Less than the value under table (%) (+20°C, at 120Hz)													
	μF \ W .V.		10~16		25~35		50~ 63		80~100		160~250		315~ 500	
	47 ~ 390		-		-		-		-		15		20	
	470 ~ 3900		25		20		20		20		15		20	
	4700 ~ 8200		35		30		30		25		-		-	
	10000 ~ 22000		40		35		30		-		-		-	
	27000 ~ 47000		45		40		35		-		-		-	
56000 ~ 68000		50		45		-		-		-		-		
Low Temperature Characteristics (at 120Hz)	Impedance ratio max													
	Rated Voltage(v)	10	16	25	35	50	63	100	160	200	250	350	400	450
	Z (-25°C)/Z(+20°C)	5	5	5	4	4	4	4	4	4	4	4	8	8
	Z (-40°C)/Z(+20°C)	15	15	15	12	12	12	12	-	-	-	-	-	-
Load Life Test	Test conditions Duration time :2000Hrs Ambient temperature:+105°C Applied voltage: Rated DC working voltage After test requirements at+20°C 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	Test conditions Duration time :1000Hrs Ambient temperature:+105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.													

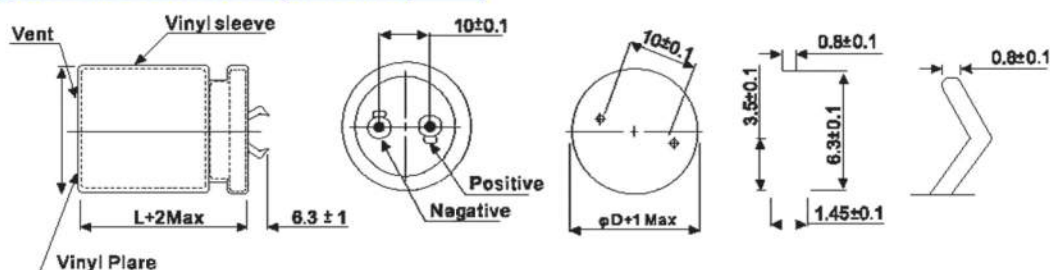
Multiplier for Ripple Current VS, Frequency

CAP(μ F)/Hz	50(60)	120	400	1K	10K	50-100K
Multiplier						
10<CAP $\leq$ 100	0.8	1.0	1.23	1.36	1.48	1.53
100<CAP $\leq$ 1000	0.8	1.0	1.16	1.25	1.35	1.38
1000<CAP	0.8	1.0	1.11	1.17	1.25	1.28

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	85	95	105
Multiplier	3.10	1.90	1.40	1.25	1.00

Diagram of Dimensions: (Unit: mm)





LKP Snap-In, General Purpose, 105°C

Case Size

φD x L (mm)

W.V. {S.V.}	10{13}								16{20}							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
3300	-	-	-	-	-	-	-	-	22x25	1.17	-	-	-	-	-	-
4700	22x25	1.24	-	-	-	-	-	-	22x30	1.53	25x25	1.53	-	-	-	-
6800	22x25	1.56	25x25	1.56	-	-	-	-	22x30	2.02	25x25	2.02	30x25	2.02	-	-
8200	22x25	2.04	-	-	-	-	-	-	22x30	2.20	-	-	-	-	-	-
10000	22x30	2.20	25x25	2.20	30x25	2.20	-	-	22x35	2.79	25x30	2.79	30x25	2.79	-	-
12000	22x35	2.34	-	-	-	-	-	-	22x35	3.05	25x30	3.05	30x25	3.05	-	-
15000	22x35	2.76	25x30	2.76	30x25	2.76	-	-	22x50	3.24	25x40	3.24	30x35	3.24	35x30	3.24
18000	22x35	2.94	25x30	2.94	-	-	-	-	22x50	3.51	25x45	3.51	30x35	3.51	35x30	3.51
22000	22x40	3.12	25x35	3.12	30x30	3.12	35x25	3.12	-	-	25x50	3.80	30x40	3.80	35x30	3.80
27000	22x45	3.48	25x35	3.48	30x30	3.48	35x25	3.48	-	-	25x50	4.20	30x45	4.20	35x35	4.20
33000	-	-	25x45	3.72	30x35	3.72	35x30	3.72	-	-	-	-	30x45	4.40	35x35	4.40
39000	-	-	25x50	4.10	30x40	4.10	35x30	4.10	-	-	-	-	30x50	5.10	35x40	5.10
47000	-	-	-	-	30x45	4.38	35x35	4.38	-	-	-	-	-	-	35x45	5.70
56000	-	-	-	-	30x50	5.00	35x40	5.00	-	-	-	-	-	-	35x50	6.30
68000	-	-	-	-	-	-	35x50	5.50	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 105°C 120Hz

W.V. {S.V.}	25{32}								35{44}							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
1500	-	-	-	-	-	-	-	-	22x25	1.00	-	-	-	-	-	-
2200	22x25	1.03	-	-	-	-	-	-	22x30	1.35	25x25	1.35	-	-	-	-
3300	22x25	1.48	25x25	1.48	-	-	-	-	22x30	1.84	25x25	1.84	30x25	1.84	-	-
3900	22x25	1.65	-	-	-	-	-	-	22x30	2.10	-	-	-	-	-	-
4700	22x30	1.92	25x25	1.92	30x25	1.92	-	-	22x35	2.30	25x30	2.30	30x25	2.30	-	-
5600	22x30	2.25	-	-	-	-	-	-	22x35	2.50	25x30	2.50	30x25	2.50	-	-
6800	22x30	2.40	25x25	2.40	30x25	2.40	-	-	22x40	2.70	25x35	2.70	30x30	2.70	35x25	2.70
8200	22x35	2.80	25x30	2.80	30x25	2.80	-	-	22x50	3.00	25x40	3.00	30x30	3.00	35x25	3.00
10000	22x40	3.10	25x35	3.10	30x30	3.10	35x25	3.10	-	-	25x45	3.30	30x35	3.30	35x30	3.30
12000	22x45	3.40	25x40	3.40	30x30	3.40	35x25	3.40	-	-	25x50	3.60	30x40	3.60	35x30	3.60
15000	-	-	25x45	3.80	30x35	3.80	35x30	3.80	-	-	-	-	30x45	3.90	35x35	3.90
18000	-	-	25x50	4.10	30x40	4.10	35x30	4.10	-	-	-	-	-	-	35x40	4.50
22000	-	-	-	-	30x45	4.50	35x35	4.50	-	-	-	-	-	-	35x50	5.10
27000	-	-	-	-	-	-	35x45	5.00	-	-	-	-	-	-	-	-
33000	-	-	-	-	-	-	35x50	5.70	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 105°C 120Hz



LKP Snap-In, General Purpose, 105°C

φD x L (mm)

W.V. {S.V.}	50{63}								63{79}							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
680	-	-	-	-	-	-	-	-	22x25	0.90	-	-	-	-	-	-
1000	22x25	0.84	-	-	-	-	-	-	22x25	1.20	25x25	1.20	-	-	-	-
1200	22x25	0.94	-	-	-	-	-	-	22x25	1.40	-	-	-	-	-	-
1500	22x30	1.10	25x25	1.10	-	-	-	-	22x30	1.50	25x25	1.50	30x25	1.50	-	-
1800	22x30	1.54	-	-	-	-	-	-	22x30	1.70	25x25	1.70	-	-	-	-
2200	22x30	1.65	25x25	1.65	30x25	1.65	-	-	22x35	1.80	25x30	1.80	30x25	1.80	-	-
2700	22x35	1.80	25x30	1.80	-	-	-	-	22x40	2.07	25x35	2.07	30x25	2.07	-	-
3300	22x35	2.10	25x30	2.10	30x25	2.10	-	-	22x50	2.48	25x40	2.48	30x30	2.48	35x25	2.48
3900	22x40	2.30	25x35	2.30	30x30	2.30	-	-	-	-	25x45	2.70	30x35	2.70	35x30	2.70
4700	22x45	2.60	25x40	2.60	30x30	2.60	35x25	2.60	-	-	25x50	3.00	30x40	3.00	35x30	3.00
5600	22x50	2.90	25x45	2.90	30x35	2.90	35x30	2.90	-	-	-	-	30x45	3.30	35x35	3.30
6800	-	-	25x50	3.20	30x40	3.20	35x30	3.20	-	-	-	-	30x50	3.60	35x40	3.60
8200	-	-	-	-	30x45	3.58	35x35	3.58	-	-	-	-	-	-	35x45	4.00
10000	-	-	-	-	-	-	35x40	4.00	-	-	-	-	-	-	35x50	4.50
12000	-	-	-	-	-	-	35x45	4.50	-	-	-	-	-	-	-	-
15000	-	-	-	-	-	-	35x50	4.80	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 105°C 120Hz

W.V. {S.V.}	80{100}								100{125}							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
330	-	-	-	-	-	-	-	-	22x25	0.70	-	-	-	-	-	-
470	22x25	0.70	-	-	-	-	-	-	22x30	0.90	25x25	0.90	-	-	-	-
560	22x30	0.80	-	-	-	-	-	-	22x30	1.10	25x25	1.10	-	-	-	-
680	22x30	0.90	25x25	0.90	-	-	-	-	22x30	1.20	25x25	1.20	30x25	1.20	-	-
820	22x30	1.20	25x30	1.20	-	-	-	-	22x30	1.40	25x25	1.40	30x25	1.40	-	-
1000	22x35	1.30	25x30	1.30	30x25	1.30	-	-	22x35	1.65	25x30	1.65	30x25	1.65	-	-
1200	22x35	1.46	25x30	1.46	30x30	1.46	-	-	22x40	1.80	25x35	1.80	30x30	1.80	-	-
1500	22x40	1.74	25x35	1.74	30x30	1.74	-	-	22x45	2.10	25x40	2.10	30x30	2.10	35x25	2.10
1800	22x45	1.80	25x40	1.80	30x30	1.80	-	-	-	-	25x40	2.30	30x35	2.30	35x30	2.30
2200	22x50	2.10	25x45	2.10	30x35	2.10	35x30	2.10	-	-	25x50	2.60	30x40	2.60	35x30	2.60
3300	-	-	25x55	2.60	30x50	2.60	35x40	2.60	-	-	-	-	30x55	3.20	35x45	3.20
4700	-	-	-	-	30x50	3.30	35x40	3.30	-	-	-	-	-	-	35x50	3.90
5600	-	-	-	-	-	-	35x45	3.90	-	-	-	-	-	-	-	-
6800	-	-	-	-	-	-	35x50	4.10	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 105°C 120Hz

SNAP-IN



LKP Snap-In, General Purpose, 105°C

φD x L (mm)

W.V. {S.V.}	160{200}								200{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
100	-	-	-	-	-	-	-	-	22x25	0.38	-	-	-	-	-	-
150	22x25	0.48	-	-	-	-	-	-	22x30	0.54	25x25	0.54	-	-	-	-
220	22x25	0.65	-	-	-	-	-	-	22x30	0.85	25x25	0.85	30x25	0.85	-	-
330	22x30	0.98	25x25	0.98	30x25	0.98	-	-	22x35	1.21	25x30	1.21	30x25	1.21	-	-
470	22x35	1.21	25x30	1.21	-	-	-	-	22x40	1.40	25x40	1.40	30x30	1.40	35x25	1.40
560	22x40	1.40	25x35	1.40	30x30	1.40	-	-	22x50	1.50	25x40	1.50	30x35	1.50	-	-
680	22x45	1.60	25x40	1.60	30x35	1.60	35x30	1.60	22x55	1.70	25x50	1.70	30x35	1.70	-	-
820	-	-	25x45	1.85	30x35	1.85	35x30	1.85	-	-	25x55	2.00	30x40	2.00	35x35	2.00
1000	-	-	25x50	2.00	30x40	2.00	35x35	2.00	-	-	-	-	30x50	2.20	35x40	2.20
1200	-	-	25x55	2.20	30x45	2.20	35x35	2.20	-	-	-	-	30x50	2.40	35x40	2.40
1500	-	-	-	-	30x50	2.40	35x40	2.40	-	-	-	-	-	-	35x50	2.60
1800	-	-	-	-	30x50	2.60	35x40	2.60	-	-	-	-	-	-	35x50	2.90
2200	-	-	-	-	-	-	35x50	2.90	-	-	-	-	-	-	35x52	3.2

•Ripple Current(A,rms)at 105°C 120Hz

W.V. {S.V.}	250{300}								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
82	-	-	-	-	-	-	-	-	22x25	0.60	-	-	-	-	-	-
100	22x25	0.44	-	-	-	-	-	-	22x30	0.70	25x25	0.70	-	-	-	-
150	22x25	0.70	25x25	0.70	30x25	0.70	-	-	22x40	0.85	25x35	0.85	30x25	0.85	-	-
220	22x35	1.00	25x30	1.00	30x25	1.00	-	-	22x50	1.15	25x45	1.15	30x35	1.15	35x25	1.15
330	22x40	1.28	25x35	1.28	30x30	1.28	35x25	1.28	-	-	-	-	30x45	1.45	35x35	1.45
470	-	-	25x45	1.76	30x35	1.76	35x30	1.76	-	-	-	-	-	-	35x45	1.85
560	-	-	25x50	1.80	30x40	1.80	35x30	1.80	-	-	-	-	-	-	35x50	2.00
680	-	-	-	-	30x45	2.10	35x35	2.10	-	-	-	-	-	-	-	-
820	-	-	-	-	30x50	2.30	35x40	2.30	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	35x45	2.50	-	-	-	-	-	-	-	-
1200	-	-	-	-	-	-	35x50	2.80	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 105°C 120Hz

W.V. {S.V.}	400{450}								450{500}							
	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	22x25	0.40	-	-	-	-	-	-	22x30	0.45	25x25	0.45	-	-	-	-
56	22x30	0.50	25x25	0.50	-	-	-	-	22x30	0.55	25x25	0.55	-	-	-	-
68	22x30	0.56	25x25	0.56	30x25	0.56	-	-	22x35	0.60	25x30	0.60	30x25	0.60	-	-
82	22x35	0.65	25x25	0.65	30x25	0.65	-	-	22x35	0.72	25x30	0.72	30x25	0.72	-	-
100	22x35	0.75	25x30	0.75	30x25	0.75	-	-	22x40	0.85	25x30	0.85	30x30	0.85	-	-
150	22x45	0.90	25x35	0.90	30x30	0.90	-	-	22x50	1.10	25x40	1.10	30x35	1.10	-	-
220	-	-	25x45	1.21	30x40	1.21	35x30	1.21	-	-	-	-	30x45	1.35	35x35	1.35
330	-	-	-	-	30x50	1.50	35x40	1.50	-	-	-	-	-	-	35x45	1.64
470	-	-	-	-	-	-	35x45	1.90	-	-	-	-	-	-	35x55	2.10
560	-	-	-	-	-	-	35x50	2.13	-	-	-	-	-	-	35x60	2.30
680	-	-	-	-	-	-	35x55	2.37	-	-	-	-	-	-	-	-
820	-	-	-	-	-	-	35x60	2.60	-	-	-	-	-	-	-	-

•Ripple Current(A,rms)at 105°C 120Hz



LLB Long Life for Ballast



Features

- Used in electronic ballast, switching power supply,
- Industrial measuring instruments, automotive applications ,etc
- Load life 5000Hrs at 105°C
- Safety vent construction design

Specifications

Item	Performance Characteristics						
Operating Temperature Range	-25 to +105°C						
Rated voltage Range	160 to 450 VDC						
Capacitance Range	10 to 220 μF						
Capacitance Tolerance	±20%(120Hz, +20°C)						
Leakage Current (+20°C, max.)	1≤0.04 CV +100 (μA) After 1 minute with rated working voltage applied.						
Dissipation Factor (tanδ) (+20°C, at 120Hz)	Working Voltage (VDC)	160	200	250	350	400	450
	D.F.(%)max	15	15	15	20	20	22
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.						
	Working Voltage (VDC)	160	200	250	350	400	450
	Z (-25°C)/Z(+20°C)	3	3	3	6	6	6
Load Life	Test conditions Duration time :5000Hrs Ambient temperature:+105°C Applied voltage: Rated DC working voltage After test requirements at+20°C 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:+105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.						

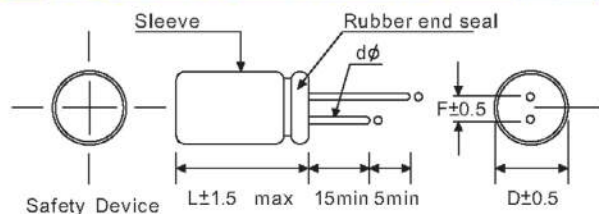
Multiplier for Ripple Current VS, Frequency

Frequency (Hz)	120	1K	10K	10K≤
Multiplier	1.0	1.5	1.7	1.9

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	65	85	105
Multiplier	2.0	1.65	1.0

Diagram of Dimensions: (Unit: mm)



Dφ	10	13	16	18	22
F	5.0	5.0	7.5	7.5	10
dφ	0.6		0.8		

Case Size

W.V. {S.V.}	160 {200}		200 {250}		250 {300}		350 {400}		400 {450}		450 {500}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
μF												
10	10X15	115	10X20	210	10X20	200	13X21	180	13X21	180	13X26	130
22	10X20	195	10X20	255	13X21	350	13X21	250	13X26	320	16X26	170
33	13X21	250	13X21	350	13X26	400	16X21	320	16X26	350	16X31	215
47	13X21	300	13X21	490	13X26	500	16X31	440	16X31	450	-	-
68	13X26	390	13X26	530	16X26	600	16X36	450	-	-	-	-
100	16X26	560	16X26	810	18X31	660	-	-	-	-	-	-
220	16X31	730	18X31	970	22X42	750	-	-	-	-	-	-

Ripple Current (mA, rms) at 105°C 120Hz



- Extremely low and stable leakage current characteristics
- Close capacitance tolerance $\pm 20\%$ ($\pm 10\%$ on requested)

Item	Performance Characteristics						
Operating Temperature Range	-40 to +105°C						
Rated voltage Range	10 to 63 VDC						
Capacitance Range	0.1 to 1000 μ F						
Capacitance Tolerance	$\pm 20\%$ (120Hz, +20°C)						
Leakage Current (+20°C, max.)	I $\leq$ 0.002 CV or 0.4(μ A) After 2minutes, whichever is greater measured with rated working voltage applied.						
Dissipation Factor (tan δ)	Working Voltage (VDC)	10	16	25	35	50	63
	D.F.(%)max	20	16	14	12	10	10
	(+20°C, at 120Hz)						
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.						
	Working Voltage (VDC)	10	16	25	35	50	63
	Z (-25°C)/Z(+20°C)	6	4	3	3	2	2
Load Life	Test conditions Duration time : 5 $\emptyset$ ~6 $\emptyset$ 1000Hrs D $\geq$ 8 $\emptyset$ 2000Hrs Ambient temperature:+105°C Applied voltage: Rated DC working voltage After test requirements at +20°C Capacitance change: $\leq 20\%$ of the initial measured value Dissipation Factor: $\leq 150\%$ of the initial specified value Leakage current: $\leq$ The initial specified value						
Shelf Life	Test conditions Duration time :1000Hrs Ambient temperature:+105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.						

CAP(μF) \ Hz		50(60)	120	1K	10K	50K~100K
Multiplier	CAP≤10	0.8	1	1.30	1.65	1.70
	10<CAP≤100	0.8	1	1.23	1.48	1.53
	100<CAP≤1000	0.8	1	1.16	1.35	1.38

Temperature (°C)	45	60	70	85	95	105
Multiplier	1.50	1.45	1.30	1.25	1.15	1.00

Technical drawing of a safety device showing front, side, and detail views with dimensions and labels.

- Front View (Left):** A circular cross-section with a central crosshair.
- Side View (Middle):** A longitudinal section showing the internal components. Labels include:
 - Sleeve:** Points to the main cylindrical body.
 - Rubber end seal:** Points to the seal at the right end of the sleeve.
 - dφ:** Dimension line for the diameter of the sleeve.
 - Dimensions:**
 - $L \pm 1.5$ max: Length of the sleeve.
 - 15min 5min: Minimum and maximum lengths of the internal pins.
- Detail View (Right):** A circular cross-section of the end of the sleeve, showing two small holes. Labels include:
 - F±0.5:** Dimension line for the distance between the two holes.
 - D±0.5:** Dimension line for the outer diameter of the end view.

D ϕ	5	6.3	8	10	13
F	2.0	2.5	3.5	5.0	5.0
d ϕ	0.5			0.6	

LLK Low Leakage Current, 105°C

Case Size

φD x L (mm)

W.V. {S.V.}	10 {13}		16 {20}		25 {32}		35 {44}		50 {63}		63 {79}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1	→								5x11	1.0	5x11	1.3
0.22	→								5x11	2.3	5x11	2.9
0.33	→								5x11	4.0	5x11	4.2
0.47	→								5x11	8.0	5x11	8.0
1	→								5x11	10	5x11	10
2.2	→								5x11	20	5x11	20
3.3	→								5x11	28	5x11	30
4.7	→								5x11	33	5x11	38
10	→				5x11	42	5x11	46	5x11	51	6.3x11	55
22	→		5x11	60	5x11	63	5x11	68	6.3x11	75	6.3x11	91
33	5x11	66	5x11	70	5x11	76	5x11	83	6.3x11	99	8x11	110
47	5x11	77	6.3x11	109	6.3x11	116	6.3x11	121	6.3x11	138	8x11	149
100	5x11	116	5x11 6.3x11	125 138	6.3x11	149	8x11	187	10x12	198	10x20	248
220	6.3x11	193	8x11	237	8x11 10x12	247 253	10x12	330	10x20	380	13x21	440
330	8x11	270	8x11	286	10x12	369	10x20	440	13x21	506	13x26	594
470	8x11	319	8x11 10x12	350 407	10x20	484	13x21	572	13x26	671	-	-
1000	10x15	605	10x20	704	13x21	847	13x26	1012	-	-	-	-

•Ripple Current (mA, rms) at 105°C 120Hz

RADIAL



LLM 7mmL, Low Leakage Current, 105°C

Features

- Low leakage current, height 7 mm



Specifications

Item	Performance Characteristics
Operating Temperature Range	-40 to +105°C
Rated voltage Range	6.3 to 50 VDC
Capacitance Range	0.1 to 220 µF
Capacitance Tolerance	±20%(120Hz, +20°C)
Leakage Current (+20°C, max.)	$I \leq 0.02 CV$ or $0.4(\mu A)$ After 2minutes, whichever is greater measured with rated working voltage applied.
Dissipation Factor (tanδ)	Working Voltage (VDC)
	D.F.(%)max
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.
	Working Voltage (VDC)
	Z (-25°C)/Z(+20°C)
	Z (-40°C)/Z(+20°C)
Load Life	Test conditions Duration time :1000Hrs Ambient temperature:+105°C Applied voltage: Rated DC working voltage After test requirements at+20°C Capacitance change: ±≤20% of the initial measured value Dissipation Factor: ≤200% of the initial specified value Leakage current: ≤The initial specified value
	Test conditions Duration time :1000Hrs Ambient temperature:+105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.

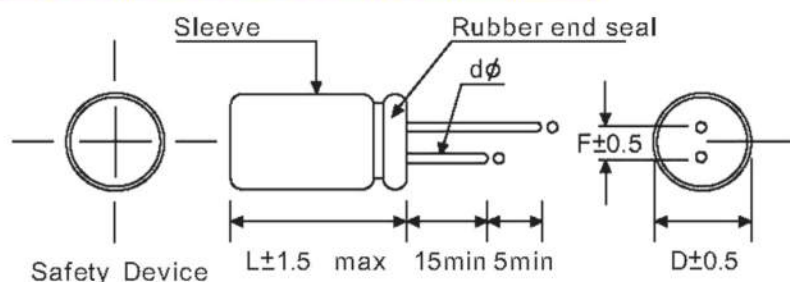
Multiplier for Ripple Current VS, Frequency

CAP(μF)/Hz		50(60)	120	400	1K	10K UP
Multiplier	0.1~47	0.70	1.00	1.20	1.30	1.45
	56 UP	0.8	1.00	1.10	1.15	1.20

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	65	85	105
Multiplier	2.0	1.6	1.0

Diagram of Dimensions: (Unit: mm)



Dφ	4	5	6.3	8
F	1.5	2.0	2.5	3.5
dφ	0.45		0.5	



LLM 7mmL, Low Leakage Current, 105°C

Case Size

φD x L (mm)

W.V. {S.V.} μF	6.3 {8}		10 {13}		16 {20}		25 {32}		35 {44}		50 {63}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1											4x7	1.0
0.22											4x7	2.0
0.33											4x7	3.0
0.47											4x7	5.0
1											4x7	10
2.2											4x7	16
3.3											4x7	21
4.7									4x7	21	5x7	25
10					4x7	25	5x7	30	5x7	33	6.3x7	40
22	4x7	31	5x7	35	5x7	40	6.3x7	48	6.3x7	52	8x7	58
33	5x7	40	5x7	44	5x7	53	6.3x7	59	8x7	65	-	-
47	5x7	48	6.3x7	55	6.3x7	60	8x7	73	-	-	-	-
100	6.3x7	70	8x7	90	8x7	95	-	-	-	-	-	-
220	8x7	110	-	-	-	-	-	-	-	-	-	-

•Ripple Current (mA, rms) at 105°C 120Hz



LLS 5mmL, Low Leakage Current, 105°C



Features

- 105°C, 1000 hours assured, 5mm height with low leakage current
- Use in very compact high temperature industrial equipment

Specifications

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C							
Rated voltage Range	6.3 to 50 VDC							
Capacitance Range	0.1 to 100 μF							
Capacitance Tolerance	±20%(120Hz, +20°C)							
Leakage Current (+20°C)	I≤0.002 CV or 0.4 (μA) whichever is greater (After 2 minutes) Where, C=rated capacitance in μF. V= rated DC working voltage in V.							
Dissipation Factor (tanδ at 120Hz, 20°C)	Rated Voltage	6.3	10	16	25	35	50	
	tan δ max	0.27	0.23	0.19	0.15	0.13	0.11	
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.							
	Rated Voltage (VDC)		6.3	10	16	25	35	50
	Impedance ratio	Z (-25°C)/Z(+20°C)	4	3	3	2	2	2
		Z (-40°C)/Z(+20°C)	10	6	6	4	4	4
Load Life	Test Time		1000 Hrs					
	Capacitance change	6.3V	Within ± 30% of initial value					
		10~50V	Within ± 25% of initial value					
	Dissipation Factor		Less than 200% of specified value					
	Leakage Current		Within specified value					
The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 1000 hrs at 105°C								
Shelf Life	Test Time		1000 Hrs					
	Capacitance change	6.3V	Within ± 30% of initial value					
		10~50V	Within ± 25% of initial value					
	Dissipation Factor		Less than 200% of specified value					
	Leakage Current		Within specified value					
*The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for hrs at 105°C without voltage applied.								
Standards	Satisfies Characteristic W of JIS C 5141							

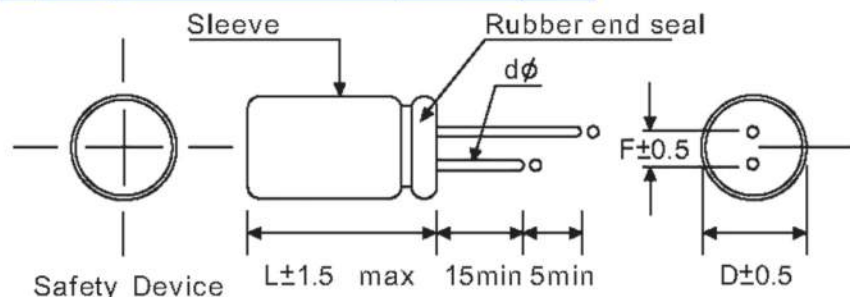
Multiplier for Ripple Current VS, Frequency

CAP(μF)/Hz		50(60)	120	1K	10K UP
Multiplier	Under~47	0.8	1.00	1.30	1.50
	100	0.8	1.00	1.15	1.20

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	40	65	85	105
Multiplier	2.0	1.90	1.40	1.0

Diagram of Dimensions: (Unit: mm)





LLS 5mmL, Low Leakage Current, 105°C

Case Size

φD x L (mm)

W.V. {S.V.}	6.3 {8}		10 {13}		16 {20}		25 {32}		35 {44}		50 {63}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1											4x5	1
0.22											4x5	2
0.33											4x5	3
0.47											4x5	3.8
1											4x5	6.9
2.2											4x5	10
3.3											4x5	13
4.7							4x5	14	4x5	16	5x5	19
10					4x5	19	5x5	23	5x5	24	6.3x5	32
22			4x5	22	5x5	28	6.3x5	38	6.3x5	42	-	-
33	5x5	27	5x5	28	6.3x5	41	6.3x5	46	-	-	-	-
47	5x5	32	5x5	34	6.3x5	50	-	-	-	-	-	-
100	6.3x5	54	6.3x5	60	-	-	-	-	-	-	-	-

•Ripple Current (mA, rms) at 105°C 120Hz



LMK 7&9 mmL, General Purpose, 105°C



Features

- Design for space-saving and high density insertion
- Applications: VTR, car radio, car stereos, charger, etc

Specifications

Item	Performance Characteristics
Operating Temperature Range	-40 to +105°C
Rated voltage Range	4 to 50 VDC
Capacitance Range	0.1 to 470 μF
Capacitance Tolerance	±20%(120Hz, +20°C)
Leakage Current (+20°C, max.)	I ≤ 0.01 CV or 3(μA) After 1minute whichever is greater measured with rated working voltage applied.
Dissipation Factor (tanδ)	Working Voltage (VDC)
	4 6.3 10 16 25 35 50
	D.F.(%)max 35 24 20 16 14 12 10 (+20°C, at 120Hz)
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.
	Working Voltage (VDC)
	4 6.3 10 16 25 35 50
	Z (-25°C)/Z(+20°C) 7 4 3 2 2 2 2 Z (-40°C)/Z(+20°C) 15 8 6 4 4 4 4
Load Life	Test conditions Duration time : 1000Hrs Ambient temperature: +105°C Applied voltage: Rated DC working voltage After test requirements: ±25% 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: +105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.

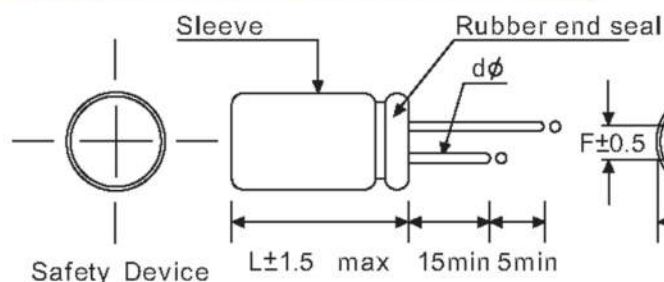
Multiplier for Ripple Current VS, Frequency

CAP(μF)/Hz		50(60)	120	500	1K	10K
Multiplier	0.1~47	0.65	1.0	1.20	1.30	1.5
	56 UP	0.8	1.0	1.10	1.15	1.20

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	70	85	105
Multiplier	2.10	1.90	1.65	1.40	1.00

Diagram of Dimensions: (Unit: mm)



Dφ	4	5	6.3	8
F	1.5	2.0	2.5	3.5
dφ	0.45	0.5		



LMK 7&9 mmL, General Purpose, 105°C

Case Size

φD x L (mm)

W.V. {S.V.} μF	4 {5}		6.3 {8}		10 {13}		16 {20}		25 {32}		35 {44}		50 {63}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1-0.47	→												4x7	1.0~5.0
1	→												4x7 5x7	10 15
2.2	→												4x7	19
3.3	→												4x7	24
4.7	→												4x7	29
10	→								4x7	30	4x7 5x7	28 30	5x7	32
22	→			4x7	35	4x7	37	4x7 5x7	40 45	6x7	47	6x7	50	
33	→		4x7	32	4x7 5x7	40 41	4x7 5x7	41 42	5x7	47	6x7	52	8x7	75
47	4x7	35	4x7 5x7	40 50	4x7	48	5x7	60	6x7	65	6x7	70	8x7	85
68	5x7	55	5x7	55	5x7	60	6x7	72	6x7	75	8x7	84	8x9	97
100	5x7	58	4x7 5x7 6x7	45 65 75	5x7	80	6x7	92	6x7 8x7	100 125	8x7	150	-	-
220	5x7	80	5x7 6x7	80 90	6x7	105	6x7 8x7	125 145	8x7 8x9	150 155	-	-	-	-
330	6x7	130	6x7	130	8x7	160	8x7	175	-	-	-	-	-	-
470	8x7	180	8x7	180	8x7	192	8x9	245	-	-	-	-	-	-

•Ripple Current(mA,rms) at 105°C 120Hz



LNM 7mmL, Non-polar, 105°C



Features

- Non-polarized with 7 mm height for crossover networks of high-pitched, mean and low pitched sounds in high-fidelity sound systems.
- The series offers excellent frequency characteristics and minimal.

Specifications

Item	Performance Characteristics					
Operating Temperature Range	-40 to +105°C					
Rated voltage Range	6.3 to 50 VDC					
Capacitance Range	0.1 to 220 μF					
Capacitance Tolerance	±20%(120Hz, +20°C)					
Leakage Current (+20°C, max.)	I ≤ 0.05 CV or 10(μA) After 2minutes whichever is greater measured with rate working voltage applied.					
Dissipation Factor (tanδ)	Working Voltage (VDC)	6.3	10	16	25	35
	D.F.(%)max	25	25	20	18	15
	(+20°C, at 120Hz)					
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.					
	Working Voltage (VDC)	6.3	10	16	25	35
	Z (-25°C)/Z(+20°C)	4	3	2	2	2
	Z (-40°C)/Z(+20°C)	12	8	6	4	4
Load Life	Test conditions Duration time :1000Hrs Ambient temperature:+105 °C Applied voltage: Rated DC working voltage to each polarity for 500Hrs After test requirements at +20 °C 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 :1000 Hrs Ambient temperature:+105°C Applied voltage: None After test requirements at +20 °C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.					

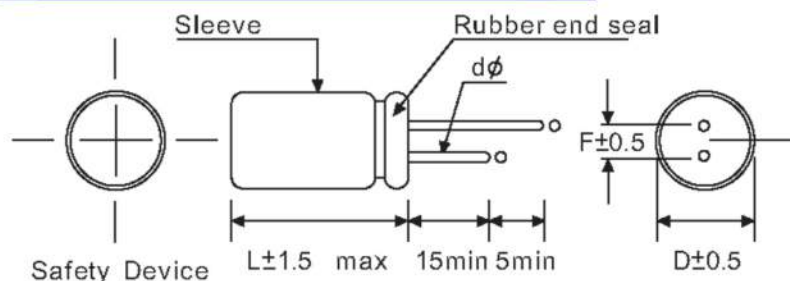
Multiplier for Ripple Current VS, Frequency

CAP(μF)/Hz		50 (60)	120	400	1K	10K	50K- 100K
Multiplier	CAP≤10	0.8	1.0	1.30	1.45	1.65	1.70
	10<CAP≤100	0.8	1.0	1.23	1.36	1.48	1.53
	100<CAP	0.8	1.0	1.16	1.25	1.35	1.38

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	40	65	85	105
Multiplier	2.0	2.0	1.6	1.0

Diagram of Dimensions: (Unit: mm)



Dφ	4	5	6.3	8
F	1.5±0.5	2.0±0.5	2.5±0.5	3.5±0.5
dφ	0.45	0.5		



LNM 7mmL, Non-polar, 105°C

Case Size

φD x L (mm)

W.V. {S.V.}	6.3 {8}		10 {13}		16 {20}		25 {32}		35 {44}		50 {63}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1											4x7	1.0
0.22											4x7	2.0
0.33											4x7	3.5
0.47											4x7	5.0
1											4x7	10
2.2									4x7	14	4x7	14
3.3							4x7	14	5x7	16	5x7	20
4.7					4x7	18	5x7	21	6.3x7	22	6.3x7	27
10	4x7	24	4x7	24	5x7	30	6.3x7	35	6.3x7	37	8x7	44
22	5x7	30	5x7	40	6.3x7	51	6.3x7	53	8x7	58	8x7	60
33	5x7	40	6.3x7	55	6.3x7	63	8x7	68	8x7	70	-	-
47	6.3x7	56	6.3x7	63	6.3x7	72	8x7	82	-	-	-	-
100	8x7	85	8x7	90	8x7	95	-	-	-	-	-	-
220	8x7	120	-	-	-	-	-	-	-	-	-	-

•Ripple Current (mA, rms) at 105°C 120Hz

RADIAL



- LNP Series for crossover networks of high-pitched, mean and low-pitched sounds in high-fidelity sound systems.
- The series offers excellent frequency characteristics and minimal capacitance deviation with frequency.

Item	Performance Characteristics																																												
Operating Temperature Range	-40 to +105°C						-25 to +105°C																																						
Rated voltage Range	10 to 100 VDC						160 to 250 VDC																																						
Capacitance Range	0.47 to 1000 µF																																												
Capacitance Tolerance	±20%(120Hz, +20°C)																																												
Leakage Current (+20°C, max.)	I≤0.03 CV or 3(µA) After 1minute with rated working voltage applied..																																												
Dissipation Factor (tanδ)	<table border="1"> <thead> <tr> <th>Working Voltage (VDC)</th><th>10</th><th>16</th><th>25</th><th>35</th><th>50</th><th>63</th><th>100</th><th>160</th><th>200</th><th>250</th></tr> </thead> <tbody> <tr> <td>D.F.(%)max</td><td>25</td><td>20</td><td>16</td><td>15</td><td>14</td><td>10</td><td>10</td><td>20</td><td>20</td><td>20</td></tr> </tbody> </table> (+20°C, at 120Hz)												Working Voltage (VDC)	10	16	25	35	50	63	100	160	200	250	D.F.(%)max	25	20	16	15	14	10	10	20	20	20											
Working Voltage (VDC)	10	16	25	35	50	63	100	160	200	250																																			
D.F.(%)max	25	20	16	15	14	10	10	20	20	20																																			
Low Temperature Characteristics (at 120Hz)	Impedance ratio max. <table border="1"> <thead> <tr> <th>Working Voltage (VDC)</th><th>10</th><th>16</th><th>25</th><th>35</th><th>50</th><th>63</th><th>100</th><th>160</th><th>200</th><th>250</th></tr> </thead> <tbody> <tr> <td>Z (-25°C)/Z(+20°C)</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>3</td></tr> <tr> <td>Z (-40°C)/Z(+20°C)</td><td>6</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td><td>3</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table> For Capacitance Value 1000µF , add 0.5 per another 1000µF for -25°C/+20°C For Capacitance Value 1000µF , add 1 per another 1000µF for -40°C/+20°C												Working Voltage (VDC)	10	16	25	35	50	63	100	160	200	250	Z (-25°C)/Z(+20°C)	3	2	2	2	2	2	2	2	2	3	Z (-40°C)/Z(+20°C)	6	6	4	4	3	3	3	-	-	-
Working Voltage (VDC)	10	16	25	35	50	63	100	160	200	250																																			
Z (-25°C)/Z(+20°C)	3	2	2	2	2	2	2	2	2	3																																			
Z (-40°C)/Z(+20°C)	6	6	4	4	3	3	3	-	-	-																																			
Load Life	Test conditions Duration time : 5φ~6φ 1000Hrs D≥8φ 2000Hrs Ambient temperature:+105°C Applied voltage: Rated DC working voltage After test requirements: at +20% Dissipation Factor: ≤150% of the initial specified value Leakage current: ≤The initial specified value																																												
Shelf Life	Test conditions Duration time :1000Hrs Ambient temperature:+105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.																																												

CAP(μF)/Hz		50(60)	120	400	1K	10K	50K-100K
Multiplier	CAP≤10	0.8	1.0	1.30	1.45	1.65	1.70
	10<CAP≤100	0.8	1.0	1.23	1.36	1.48	1.53
	100<CAP≤1000	0.8	1.0	1.16	1.25	1.35	1.38

Temperature (°C)	45	60	70	85	95	105
Multiplier	2.10	1.90	1.65	1.40	1.25	1.00

Technical drawing of a Safety Device showing front, side, and detail views with dimensions.

- Front View (Left):** A circular cross-section with a central crosshair.
- Side View (Middle):** A rectangular component with a "Sleeve" at the left end and a "Rubber end seal" at the right end. The main body length is $L \pm 1.5$ max. The rubber seal has a diameter of $d\phi$ and a thickness of 15min. The distance from the seal to the end of the device is 5min.
- Detail View (Right):** A circular cross-section showing two small holes. The distance between the holes is $F \pm 0.5$. The overall diameter is $D \pm 0.5$.

D ϕ	5	6.3	8	10	13	16
F	2.0	2.5	3.5	5.0	5.0	7.5
d ϕ	0.5	0.5	0.5	0.6	0.6	0.8



LNP Non-Polarized, 105°C

Case Size

φD x L (mm)

μF	W.V. {S.V.}	10 {13}		16 {20}		25 {32}		35 {44}	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
10		-	-	-	-	5x11	34	5x11	38
22		-	-	5x11	53	6.3x11	55	6.3x11	65
33		5x11	59	6.3x11	62	6.3x11	72	8x11	75
47		5x11	65	6.3x11	85	6.3x11	96	8x11	107
100		6.3x11	110	6.3x11 8x11	140 146	8x11	152	10x12	198
220		8x11	185	10x12	235	10x12	260	10x20	350
330		10x12	295	10x12	320	10x17	380	13x21	430
470		10x12	350	10x15	415	13x21	460	13x26	560
1000		10x20	610	13x21	712	-	-	-	-

Ripple Current (mA, rms) at 105°C 120Hz

μF	W.V. {S.V.}	50 {63}		63 {79}		100 {125}		160 {200}	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.47		5x11	5	5x11	5	5x11	10	5x11	12
1		5x11	10	5x11	14	5x11	15	6.3x11	18
2.2		5x11	17	5x11	18	5x11	20	8x11	28
3.3		5x11	23	6.3x11	25	6.3x11	28	8x11	37
4.7		5x11	28	5x11 6.3x11	29 30	6.3x11 8x11	33 36	10x12	45
10		6.3x11 8x11	50 55	6.3x11	52	8x11	60	10x15	79
22		6.3x11 8x11	65 85	8x11	88	10x15	120	13x21	140
33		8x11	89	8x11 10x12	95 115	13x21	175	13x21	200
47		10x12	123	10x15	155	13x21	187	13x26	215
100		10x20	225	13x21	275	13x26	365	-	-
220		13x26	410	13x26	490	-	-	-	-
330		16x26	550	-	-	-	-	-	-

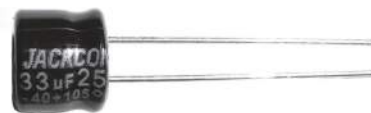
•Ripple Current (mA, rms) at 105°C 120Hz

μF	W.V. {S.V.}	200 {250}		250 {300}	
		Size	Ripple	Size	Ripple
0.47		6.3x11	17	6.3x11	20
1		8x11	21	8x11	25
2.2		8x11	32	10x12	39
3.3		10x12	40	10x15	43
4.7		10x15	52	10x20	65
10		10x20	86	10x20	109
22		13x21	160	13x26	189
33		13x21	213	16x26	250
47		13x26	238	-	-

•Ripple Current (mA, rms) at 105°C 120Hz



LNS 5mmL, Non-Polarized, 105°C



Features

- Non-polarized with 5 mm for crossover networks of high-pitched, mean and low pitched sounds in high-fidelity sound systems.
- The series offers excellent frequency characteristics and minimal.
- Capacitance deviation with frequency.

Specifications

Item	Performance Characteristics
Operating Temperature Range	-40 to +105°C
Rated voltage Range	6.3 to 50 VDC
Capacitance Range	0.1 to 47 µF
Capacitance Tolerance	±20%(120Hz, +20°C)
Leakage Current (+20°C, max.)	$I \leq 0.05 CV$ or $10(\mu A)$ After 2minutes, whichever is greater measured with rated working voltage applied.
Dissipation Factor (tanδ)	Working Voltage (VDC)
	6.3 10 16 25 35 50
	D.F.(%)max 25 25 20 18 15 15 (+20°C, at 120Hz)
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.
	Working Voltage (VDC)
	6.3 10 16 25 35 50
	Z (-25°C)/Z(+20°C) 4 3 2 2 2 2 Z (-40°C)/Z(+20°C) 12 8 6 4 4 4
Load Life	Test conditions Duration time :1000Hrs Ambient temperature:+105 °C Applied voltage: Rated DC working voltage to each polarity for 500Hrs After test requirements at +20 °C Capacitance change: $\leq \pm 20\%$ of the initial measured value Dissipation factor: $\leq 200\%$ of the initial specified value Leakage current: $\leq$ The initial specified value
Shelf Life	Test conditions Duration time :1000 Hrs Ambient temperature:+105°C Applied voltage: None After test requirements at +20 °C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.

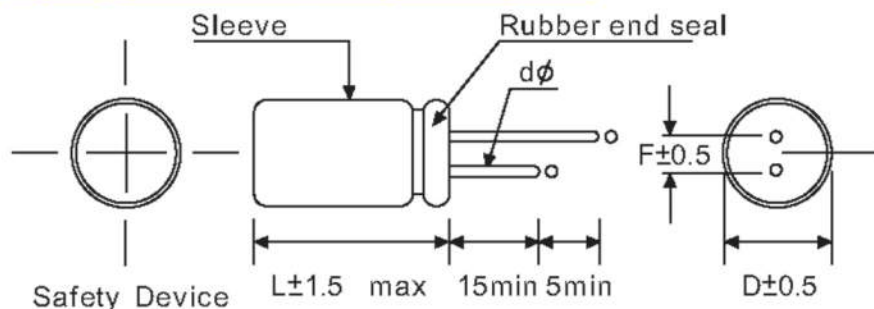
Multiplier for Ripple Current VS, Frequency

CAP(µF) \ Hz	50(60)	120	1K	10K≤
Multiplier	0.8	1.00	1.30	1.45

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	40	65	85	105
Multiplier	2.0	1.6	1.25	1.00

Diagram of Dimensions: (Unit: mm)



Dφ	4	5	6.3
F	1.5±0.5	2.0±0.5	2.5±0.5
dφ	0.45		



LNS 5mmL, Non-Polarized, 105°C

Case Size

φD x L (mm)

W.V. {S.V.}	6.3 {8}		10 {13}		16 {20}		25 {32}		35 {44}		50 {63}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1											4x5	1.0
0.22											4x5	2.0
0.33											4x5	2.8
0.47											4x5	4.0
1											4x5	8.0
2.2									4x5	8	5x5	10
3.3					4x5	10	5x5	13	5x5	14	5x5	15
4.7					4x5	12	5x5	15	5x5	16	6.3x5	18
10	4x5	15	4x5	17	5x5	23	6.3x5	25	6.3x5	28	-	-
22	5x5	27	6.3x5	3	6.3x5	35	-	-	-	-	-	-
33	6.3x5	35	6.3x5	40	6.3x5	47	-	-	-	-	-	-
47	6.3x5	43	-	-	-	-	-	-	-	-	-	-

•Ripple Current (mA, rms) at 105°C 120Hz



LPS Low-Impedance & Long Life



Features

- Used in communication equipments, switching power supply, Industrial measuring instruments, etc.
- Load life 3000~10000hrs at 105°C
- Safety vent construction design

Specifications

Item	Performance Characteristics	
Operating Temperature Range	-40 to +105°C	-25 to +105°C
Rated voltage Range	6.3 to 100 VDC	160 to 450 VDC
Capacitance Range	22 to 15000 µF	1 to 330 µF
Capacitance Tolerance	±20% (120Hz, +20°C)	
Leakage Current (+20°C, max.)	I ≤ 0.01 CV or 2(µA) After 2minute whichever is greater measured with rated working voltage applied.	
	I ≤ 0.03 CV or 3(µA) After 2minute with rated working voltage applied..	
Dissipation Factor (tanδ)	Working Voltage (VDC)	6.3 10 16 25 35 50 63 100 160 200 250 350 400 450
	D.F.(%)max	22 19 16 14 12 10 9 8 12 12 12 15 15 17
	For Capacitance > 1000µF, add 2% per another 1000µF (+20°C, at 120Hz)	
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.	
	Working Voltage (VDC)	6.3 10 16 25 35 50 63 100 160 200 250 350 400 450
	Z (-25°C)/Z(+20°C)	4 3 3 3 3 3 2 2 3 3 3 5 5 6
	Z (-40°C)/Z(+20°C)	8 6 4 3 3 3 3 3 - - - - -
	For Capacitance Value 1000µF, add 0.5 per another 1000µF for -25°C/+20°C	
	For Capacitance Value 1000µF, add 1 per another 1000µF for -40°C/+20°C	
Load Life	Standard	
	Dφ	Life hours
	≤ 8φ	3000 ~ 10000
	≥ 10φ	5000 ~ 10000
	Test conditions Duration time : as above Ambient temperature: +105°C Applied voltage: Rated DC working voltage After test requirements: at +20°C Capacitance change: ≤ ±25% 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: +105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.	

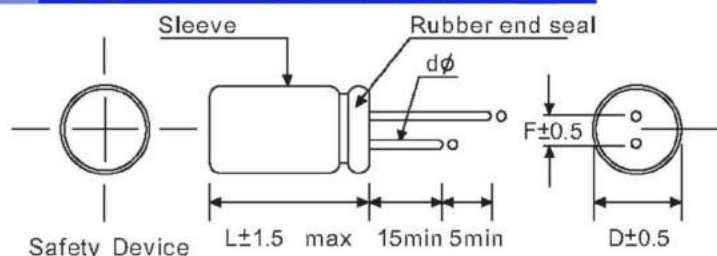
Multiplier for Ripple Current VS, Frequency

CAP(µF)/Hz	50(60)	120	400	1K	10K	10K~
Multiplier	CAP ≤ 10	0.47	0.59	0.76	0.85	0.97
	10 < CAP ≤ 100	0.52	0.62	0.80	0.89	0.97
	100 < CAP ≤ 10	0.58	0.72	0.84	0.90	0.98
	1000 < CAP	0.63	0.78	0.87	0.91	0.98

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	70	85	105
Multiplier	2.10	1.90	1.65	1.40	1.00

Diagram of Dimensions: (Unit: mm)



Dφ	5	6.3	8	10	13	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
dφ	0.5			0.6		0.8	



LPS Low-Impedance & Long Life

Case Size

φD x L (mm)

W.V. {S.V.}	6.3 {8}			10 {13}			16 {20}		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
68	6x11	150	0.60	-	-	-	-	-	-
100	-	-	-	5x11	250	0.50	6x11	380	0.32
220	-	-	-	6x11	350	0.39	6x11 8x11	400 450	0.30 0.25
270	-	-	-	8x11	390	0.30	8x11	470	0.21
330	8x11	390	0.42	8x11	460	0.27	8x11	590	0.156
470	6x11	380	0.14	8x11	550	0.25	8x11	680	0.145
	8x11	450	0.25	8x14	600	0.23	8x14 10x12	700 750	0.140 0.124
560	8x11	490	0.23	10x12	635	0.16	10x12	785	0.105
680	8x11	520	0.21	10x12	765	0.11	10x12 10x15	915 940	0.10 0.092
820	8x16	620	0.19	10x15	890	0.10	10x17	1140	0.078
1000	8x16	840	0.12	8x20	950	0.095	10x14	1150	0.075
	10x12	750	0.17	10x12	850	0.10	10x16	1170	0.070
				10x15	1040	0.076	10x20	1200	0.065
1200	10x15	762	0.16	10x17	1100	0.067	10x25	1340	0.061
1500	10x17	830	0.14	10x20	1260	0.062	13x21	1520	0.056
1800	10x20	940	0.11	10x25	1430	0.058	13x21	1600	0.047
2200	10x25	1470	0.095	10x25 13x21	1600 1650	0.050 0.041	13x26	1900	0.038
2700	10x25	1480	0.079	13x21	1655	0.035	13x26	2100	0.033
3300	13x21	1650	0.060	13x26	1700	0.031	16x26	2410	0.030
4700	13x30	2100	0.036	16x26	2100	0.030	16x31	2680	0.026
5600	13x30	2240	0.034	16x26	2290	0.028	16x36	2760	0.025
6800	16x26	2400	0.032	16x31	2650	0.026	18x36	2900	0.024
8200	16x31	2650	0.027	16x36	2770	0.026	18x36	3050	0.024
10000	16x36	2700	0.024	18x36	2850	0.024	18x41	3550	0.024
15000	18x36	2950	0.023	-	-	-	-	-	-

•Ripple Current(mA,rms)at 105°C 100KHz

•Max Impedance {Ω} at 20°C 100KHz

RADIAL



LPS Low-Impedance & Long Life

Case Size

φD x L (mm)

W.V. {S.V.}	25 {32}			35 {44}			50 {63}		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
0.47	-	-	-	-	-	-	5x11	16	13
2.2	-	-	-	-	-	-	5x11	33	2.2
4.7	-	-	-	-	-	-	5x11	60	2.7
10	-	-	-	-	-	-	5x11	100	1.8
22	-	-	-	-	-	-	6x11	110	1.7
47	-	-	-	-	-	-	6x11	210	0.9
100	6x11	300	0.38	6x11	390	0.30	8x11	465	0.22
	8x11	330	0.37	8x11	450	0.25	10x12	480	0.17
120				8x11	460	0.220	10x12	500	0.156
150	8x11	390	0.31	8x11	510	0.191	10x12	560	0.132
180	8x11	430	0.25	10x12	630	0.172	10x15	660	0.114
220	6x11	510	0.20	10x12	750	0.114	10x17	780	0.096
	8x11	550	0.15						
270	10x12	720	0.125	10x15	910	0.095	10x20	960	0.078
330	8x11	710	0.13	10x17	1050	0.079	10x25	1150	0.065
	8x16	820	0.12						
	10x12	730	0.114						
470	8x14	900	0.090	10x15	1100	0.070	13x21	1400	0.055
	8x20	1000	0.080						
	10x12	910	0.088						
	10x15	1010	0.076						
560	10x17	1050	0.072	10x25	1300	0.061	13x21	1560	0.050
680	10x20	1220	0.065	13x21	1570	0.056	13x26	1830	0.044
820	10x25	1410	0.052	13x21	1700	0.048	13x30	1790	0.036
1000	10x30	1600	0.045	13x26	1900	0.042	16x26	2100	0.036
	13x16	1580	0.050						
	13x21	1650	0.045						
1200	13x21	1720	0.041	13x30	2130	0.038	16x31	2300	0.036
1500	13x26	1940	0.038	16x26	2270	0.036	16x36	2430	0.034
1800	13x26	2050	0.036	16x31	2350	0.035	16x36	2600	0.034
2200	16x16	2060	0.050	16x26	2500	0.035	18x36	2680	0.032
	16x26	2100	0.035						
	13x21	2070	0.036						
2700	16x26	2340	0.031	16x36	2780	0.029	18x41	2780	0.027
3300	16x21	2400	0.031	18x36	2900	0.026	18x41	2980	0.025
	16x31	2580	0.026						
4700	16x36	2960	0.024	18x41	3000	0.024	-	-	-
5600	18x36	3100	0.024	-	-	-	-	-	-
6800	18x41	3550	0.024	-	-	-	-	-	-

•Ripple Current(mA,rms)at 105°C 100KHz

•Max Impedance {Ω} at 20°C 100KHz



LPS Low-Impedance & Long Life

Case Size

φD x L (mm)

W.V. {S.V.}	63 {79}			100 {125}			160 {200}		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
3.3	-	-	-	-	-	-	8x11	70	4.31
4.7	-	-	-	-	-	-	8x11	72	4.16
5.6	-	-	-	-	-	-	10x12	91	3.61
6.8	-	-	-	-	-	-	10x15	110	3.12
10	-	-	-	6x11	135	1.20	10x17	120	2.69
22	-	-	-	8x11	220	0.85	10x20	205	1.30
33	8x11	270	0.61	10x12	320	0.69	13x21	260	1.10
47	8x11	300	0.56	10x12 10x16	370 420	0.58 0.50	13x21	320	0.91
56	8x11	330	0.38	10x12	400	0.43	13x21	340	0.67
68	10x12	420	0.21	10x17	470	0.35	13x26	410	0.56
100	10x12 10x15	500 530	0.17 0.14	10x25 13x16 13x21	560 540 560	0.30 0.29 0.29	16x26	500	0.47
120	10x17	550	0.125	10x25	660	0.22	16x26	520	0.35
150	10x17	600	0.111	13x21	780	0.174	16x31	660	0.26
180	10x20	720	0.096	13x21	820	0.142	16x36	760	0.22
220	10x25 13x21	810 900	0.080 0.075	13x26 16x26	880 970	0.13 0.11	16x36	820	0.19
270	13x21	1060	0.065	13x30	1120	0.11	18x36	890	0.18
330	13x21	1250	0.055	16x26	1440	0.10	18x41	1000	0.16
470	13x26 13x30	1620 1650	0.053 0.050	16x31	1650	0.09	-	-	-
560	13x26	1680	0.049	16x36 18x35	1720 1750	0.085 0.083	-	-	-
680	13x30 16x25	1950 2000	0.043 0.040	18x36	1790	0.080	-	-	-
820	16x26	2150	0.038	18x32 18x36	1770 1840	0.075 0.071	-	-	-
1000	16x31 16x36	2350 2400	0.034 0.033	18x41	1930	0.066	-	-	-
1200	16x36	2550	0.032	-	-	-	-	-	-
1500	18x36	2710	0.031	-	-	-	-	-	-
1800	18x41	3000	0.027	-	-	-	-	-	-

•Ripple Current(mA,rms)at 105°C 100KHz

•Max Impedance {Ω} at 20°C 100KHz

RADIAL



LPS Low-Impedance & Long Life

Case Size

φD x L (mm)

W.V. {S.V.}	200 {250}			250 {300}			350 {400}		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
1	-	-	-	-	-	-	8x11	58	6.35
2.2	-	-	-	8x11	72	4.12	10x12	86	4.02
3.3	8x11	71	4.25	8x11	75	3.85	10x15	100	3.52
4.7	10x12	85	4.12	10x12	100	2.95	10x20	110	2.77
5.6	10x12	92	3.55	10x12	115	2.71	10x20	124	2.58
6.8	10x15	115	2.71	10x15	140	1.86	10x25	150	1.65
10	10x15	132	2.02	10x15	160	1.4	10x25	180	1.35
22	10x20	205	1.20	10x20	210	1.3	13x21	220	1.22
33	13x21	260	0.62	13x21	260	0.9	13x26	290	0.86
47	13x26	380	0.51	13x26	405	0.45	16x31	430	0.62
56	13x26	400	0.45	13x26	420	0.42	16x36	460	0.60
68	16x26	450	0.35	16x26	490	0.38	16x36	475	0.56
100	16x26	580	0.19	16x31	675	0.25	18x36	513	0.55
	16x31	600	0.17						
120	16x31	640	0.17	16x36	730	0.24	18x41	560	0.52
150	16x36	670	0.16	18x31	750	0.23	-	-	-
180	18x31	770	0.15	18x36	830	0.21	-	-	-
220	18x41	860	0.14	18x41	910	0.20	-	-	-

•Ripple Current(mA,rms)at 105°C 100KHz

•Max Impedance {Ω} at 20°C 100KHz

W.V. {S.V.}	400 {450}			450 {500}		
	Size	Ripple	Impedance	Size	Ripple	Impedance
1	8x11	36	16.5	10x12	36	17.35
2.2	10x12	65	9.58	10x15	60	10.25
3.3	10x15	86	5.01	10x20	80	5.65
4.7	8x16	95	4.95	10x20	105	5.5
	10x20	120	4.82	10x25	115	5.01
5.6	10x25	130	4.81	13x21	125	4.92
6.8	10x25	160	3.55	13x21	145	4.05
	13x21	170	3.40			
10	10x20	190	3.75	13x21	150	3.90
	13x21	200	3.32	13x26	165	3.78
22	13x21	290	3.0	13x26	255	2.8
	13x26	305	2.65			
	16x20	305	2.65			
33	16x26	335	1.21	16x26	330	2.2
47	16x31	560	0.92	16x36	550	1.02
56	16x36	600	0.85	18x31	580	0.95
68	18x31	750	0.75	18x36	700	0.78
100	16x36	800	0.60	18x36	800	0.70
	18x36	850	0.65	22x30	810	0.65
	18x41	900	0.52	22x42	850	0.55

•Ripple Current(mA,rms)at 105°C 100KHz

•Max Impedance {Ω} at 20°C 100KHz



LSE 105°C LOW ESR (Design for M/B)



Features

- 105°C, 2000~4000hours assured
- Low ESR, suitable for computer main board
- Small size with large permissible ripple current

Specifications

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C							
Capacitance Tolerance	±20% (at 120Hz, 20°C)							
Leakage Current (at 20°C)	I≤0.01 CV or 3 (μA) whichever is greater (After 2 minutes) Where, C = rated capacitance in μF, V=rated DC working voltage in V.							
Dissipation Factor [Tanδ120Hz,20 °C]	Rated Voltage	6.3	10	16	25	35	50	
	Tanδ(max)	0.22	0.19	0.16	0.14	0.12	0.10	
When the capacitance exceeds 1000 μF, 0.02 shall be added every 1000μF increase.								
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.							
	Rated Voltage(v)		6.3	10	16	25	35	50
	Impedance Ratio	Z (-25°C)/Z(+20°C)	3	2	2	2	2	2
Z (-40°C)/Z(+20°C)		3	3	3	3	3	3	
Load Life Test	Test Time			2000 hrs for ϕD=8mm 3000 hrs for 10ϕx13~16L mm 4000 hrs for 10ϕx20L & ϕD≥13mm				
	Capacitance Change			Within ±25% of initial value				
	Dissipation Factor			Less than 200% of specified value				
	Leakage Current			Within specified value				
Shelf Life Test	Test Time			1000hrs				
	Capacitance Change			Within ±25% of initial value				
	Dissipation Factor			Less than 200% of specified value				
	Leakage Current			Within specified value				
The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2000 /4000 hrs at 105°C. without voltage applied.								
Standards	Satisfies Characteristic W of JIS C 5141							

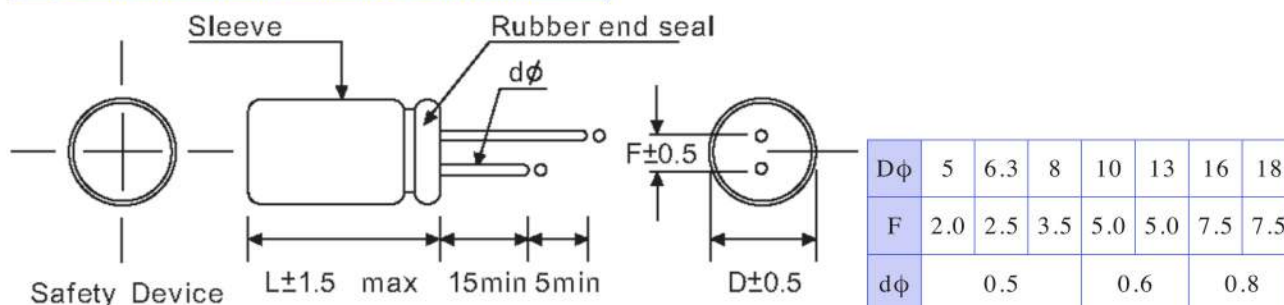
Multiplier for Ripple Current VS, Frequency

CAP(µF)/Hz		50(60)	120	1K	10K	100K
Multiplier	Under 33	0.45	0.55	0.75	0.90	1.0
	39 to 330	0.60	0.70	0.85	0.95	1.0
	470 to 1000	0.65	0.75	0.90	0.98	1.0
	1200 up above	0.75	0.80	0.95	1.0	1.0

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	45	60	70	85	105
Multiplier	3.10	1.90	1.65	1.40	1.0

Diagram of Dimensions: (Unit: mm)





LSE 105°C LOW ESR (Design for M/B)

Case Size

φD x L (mm)

φDxL	VDC	6.3V			φDxL	VDC	10V		
		μF	Impedance (Ω.Max/100KHz)	Ripple Current (mA/rms.105°C)			μF	Impedance (Ω.Max/100KHz)	Ripple Current (mA/rms.105°C)
			20°C	100KHz				20°C	100KHz
8x11		390	0.200	415	8x11		330	0.200	415
8x16		560	0.160	495	8x16		470	0.160	495
8x20		820	0.110	640	8x20		680	0.110	640
10x12		470	0.120	450	10x12		390	0.120	450
10x17		680	0.084	600	10x17		680	0.085	680
10x20		1200	0.062	1040	10x20		1000	0.062	1040
10x25		1500	0.052	1260	10x25		1200	0.052	1260
13x21		2200	0.046	1340	13x21		1800	0.046	1340
13x26		2700	0.034	1690	13x26		2200	0.034	1690
13x30		3900	0.030	1950	13x30		2700	0.030	1950
13x35		4700	0.027	2200	13x35		3300	0.027	2200
13x40		5600	0.024	2390	13x40		3900	0.024	2390
16x26		5600	0.028	2070	16x26		3900	0.028	2070
16x31		6800	0.025	2350	16x31		5600	0.025	2350
-		-	-	-	16x36		6800	0.022	2550

•Ripple Current(mA,rms)at105°C 100KHz

•Max Impedance {Ω} at 20°C 100KHz

φDxL	VDC	16V			φDxL	VDC	25V		
		μF	Impedance (Ω.Max/100KHz)	Ripple Current (mA/rms.105°C)			μF	Impedance (Ω.Max/100KHz)	Ripple Current (mA/rms.105°C)
			20°C	100KHz				20°C	100KHz
8x11		270	0.200	415	8x11		150	0.200	415
8x16		330	0.160	495	8x16		220	0.160	495
8x20		470	0.110	610	8x20		330	0.110	550
10x12		270	0.120	430	10x12		180	0.120	430
10x17		470	0.084	700	10x17		330	0.084	700
10x20		680	0.062	940	10x20		470	0.062	900
10x25		820	0.052	1100	10x25		560	0.052	1100
13x21		1200	0.046	1340	13x21		820	0.046	1200
13x26		1500	0.034	1520	13x26		1000	0.034	1520
13x30		2200	0.030	1950	13x30		1500	0.030	1950
13x35		2700	0.027	2200	13x35		1800	0.027	2200
13x40		3300	0.024	2390	13x40		2200	0.024	2390
16x26		2700	0.028	2070	16x26		1800	0.028	2070
16x31		3900	0.025	2350	16x31		2700	0.025	2350
16x36		4700	0.022	2550	16x36		3300	0.022	2550
16x41		5600	0.021	2850	16x41		3900	0.021	2900
18x36		6800	0.018	3000	18x36		3900	0.018	2660
-		-	-	-	18x41		4700	0.017	3010

•Ripple Current(mA,rms)at105°C 100KHz

•Max Impedance {Ω} at 20°C 100KHz



LSE 105°C LOW ESR (Design for M/B)

Case Size

φD x L (mm)

φDxL	VDC	35V		φDxL	VDC	50V	
		μF	Impedance (Ω.Max/100KHz)			μF	Impedance (Ω.Max/100KHz)
			20°C				20°C
			100KHz				100KHz
8x11	120		0.200	8x11	68		0.290
8x16	180		0.160	8x16	82		0.250
8x20	220		0.110	8x20	120		0.180
10x12	120		0.120	10x12	82		0.160
10x17	220		0.084	10x17	120		0.120
10x20	330		0.062	10x20	180		0.088
10x25	390		0.052	10x25	220		0.068
13x21	560		0.046	13x21	330		0.059
13x26	680		0.034	13x26	470		0.045
13x30	1000		0.034	13x30	560		0.039
13x35	1200		0.027	13x35	680		0.033
13x40	1500		0.024	13x40	820		0.029
16x26	1200		0.028	16x26	820		0.033
16x31	1800		0.025	16x31	1000		0.029
16x36	2200		0.022	16x36	1200		0.025
16x41	2700		0.018	16x41	1500		0.021
18x36	2700		0.021	18x36	1800		0.023
18x40	3300		0.010	18x41	2200		0.020

•Ripple Current(mA,rms)at105°C 100KHz

•Max Impedance {Ω} at 20°C 100KHz

RADIAL



LSM 5mmL, General Purpose, 105°C



Features

- 5.0+1 mm max height
- Load life 105°C, 1000hours assured

Specifications

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C							
Rated voltage Range	4 to 50 VDC							
Capacitance Range	0.1 to 220 μ F							
Capacitance Tolerance	$\pm 20\%$ (120Hz, +20°C)							
Leakage Current (+20°C, max.)	$I \leq 0.01 CV$ or $3(\mu A)$ After 2minutes, whichever is greater measured with rated working voltage applied.							
Dissipation Factor (tan δ)	Working Voltage (VDC)	4	6.3	10	16	25	35	50
	D.F.(%)max	35	28	24	20	16	14	12
	(+20°C, at 120Hz)							
Low Temperature Characteristics (at 120Hz)	Impedance ratio max.							
	Working Voltage (VDC)	4	6.3	10	16	25	35	50
	Z (-25°C)/Z(+20°C)	7	4	3	2	2	2	2
	Z (-40°C)/Z(+20°C)	15	8	6	4	4	4	4
Load Life	Test conditions Duration time : 1000Hrs Ambient temperature: +105°C Applied voltage: Rated DC working voltage After test requirements: $\leq \pm 30\%$ of the initial measured value Dissipation Factor: $\leq 200\%$ of the initial specified value Leakage current: $\leq$ The initial specified value							
Shelf Life	Test conditions Duration time : 1000Hrs Ambient temperature: +105°C Applied voltage: None After test requirements at +20°C: Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.							

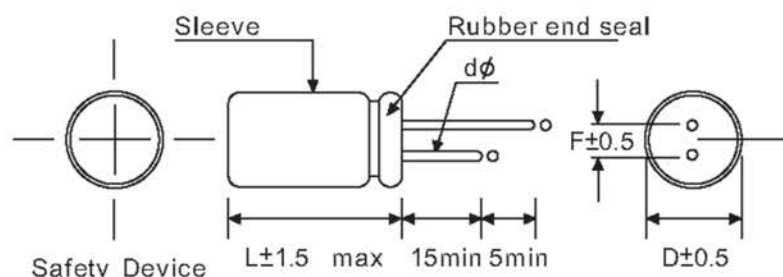
Multiplier for Ripple Current VS, Frequency

CAP(μF)/Hz		50(60)	120	1K	10K
Multiplier	0.1~47	0.8	1.0	1.30	1.50
	56 UP	0.8	1.0	1.15	1.20

Multiplier for Ripple Current VS, Temperature

Temperature (°C)	40	65	85	105
Multiplier	2.0	1.6	1.25	1.00

Diagram of Dimensions: (Unit: mm)



Dφ	4	5	6.3	8
F	1.5±0.5	2.0±0.5	2.5±0.5	3.5±0.5
dφ	0.45			



LSM 5mmL, General Purpose, 105°C

Case Size

φD x L (mm)

W.V. {S.V.}	4 {5}		6.3 {8}		10 {13}		16 {20}		25 {32}		35 {44}		50 {63}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1													4x5	1.0
0.22													4x5	2.0
0.33													4x5	2.8
0.47													4x5	4.0
1													4x5	8.0
2.2													4x5	10
3.3													4x5	17
4.7							4x5	15	4x5	18	4x5	20	4x5	20
10							4x5	20	4x5	25	5x5	29	6x5	30
22							4x5 5x5	30 35	5x5	40	6x5	46	6x5	54
33	4x5	26	4x5	30	4x5	35	5x5	40	6x5	50	6x5	60	8x5	68
47	4x5	35	4x5	38	4x5 5x5	44 46	5x5 6x5	50 58	6x5	62	8x5	72	-	-
68	4x5	49	5x5	5	5x5 6x5	58 60	6x5	72	8x5	75	-	-	-	-
100	5x5	58	5x5	60	6x5	76	6x5	86	8x5	92	-	-	-	-
220	6x5	74	6x5	90	6x5	90	8x5	92	-	-	-	-	-	-

•Ripple Current (mA, rms) at 105°C 120Hz

RADIAL



LUK High Temperature, 125°C



Features

- The series has guaranteed operating life of 1000~2000hours at 125°C widest operating Temperature range, -40 to +125°C
- Applications: High reliability equipment, filtering circuit of switching power supply, and Industrial control equipment.

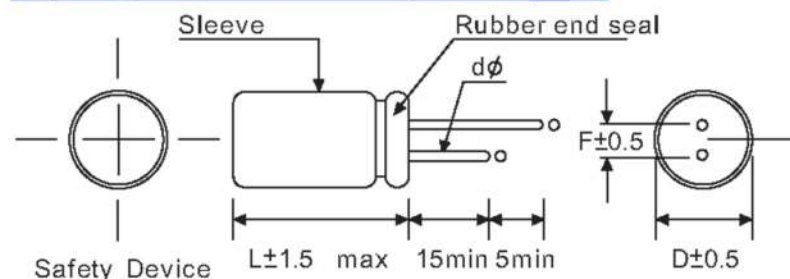
Specifications

Item	Performance Characteristics																																									
Operating Temperature Range	-40 to +125°C						-25 to +125°C																																			
Rated voltage Range	10 to 100 VDC						160 to 350 VDC																																			
Capacitance Range	0.47 to 1000 μF						1 to 100 μF																																			
Capacitance Tolerance	±20%(120Hz, +20°C)																																									
Leakage Current (+20°C, max.)	I≤0.01 CV or 3(μA) After 1minute whichever is greater measured with rated working voltage applied.						I≤0.02 CV After 1minute whichever is greater measured with rated working voltage applied.																																			
Dissipation Factor (tanδ)	<table><tr><td>Working Voltage (VDC)</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td><td>160</td><td>200</td><td>250</td><td>350</td></tr><tr><td>D.F.(%)max</td><td>18</td><td>15</td><td>13</td><td>12</td><td>10</td><td>8</td><td>7</td><td>7</td><td>8</td><td>10</td><td>12</td></tr></table>												Working Voltage (VDC)	10	16	25	35	50	63	100	160	200	250	350	D.F.(%)max	18	15	13	12	10	8	7	7	8	10	12						
	Working Voltage (VDC)	10	16	25	35	50	63	100	160	200	250	350																														
	D.F.(%)max	18	15	13	12	10	8	7	7	8	10	12																														
For Capacitance > 1000μF , add 2% per another 1000μF (+20°C, at 120Hz)																																										
Low Temperature Characteristics (120Hz)	Impedance ratio max.																																									
	<table><tr><td>Working Voltage</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td><td>160~250</td><td>350~450</td></tr><tr><td>Z (-25°C)/Z(+20°C)</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>3</td><td>6</td></tr><tr><td>Z (-40°C)/Z(+20°C)</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>-</td><td>-</td></tr></table>												Working Voltage	10	16	25	35	50	63	100	160~250	350~450	Z (-25°C)/Z(+20°C)	3	2	2	2	2	2	2	3	6	Z (-40°C)/Z(+20°C)	4	4	4	4	4	4	4	-	-
	Working Voltage	10	16	25	35	50	63	100	160~250	350~450																																
Z (-25°C)/Z(+20°C)	3	2	2	2	2	2	2	3	6																																	
Z (-40°C)/Z(+20°C)	4	4	4	4	4	4	4	-	-																																	
For Capacitance Value 1000μF , add 0.5 per another 1000μF for -25°C/+20°C add 1 per another 1000μF for -40°C/+20°C																																										
Load Life	Test conditions Duration time : 1000~2000Hrs Ambient temperature:+125°C Applied voltage: Rated DC working voltage After test requirements:at+20°C After test requirements:≤±20% of the initial measured value Dissipation Factor: ≤300% of the initial specified value Leakage current: ≤The initial specified value																																									
Shelf Life	Test conditions Duration time :1000Hrs Ambient temperature:+125°C Applied voltage: None After test requirements at +20°C: 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)/Hz		50(60)	120	400	1K	10K	50-100K
Multiplier	CAP≤10	0.8	1.0	1.30	1.45	1.65	1.70
	10<CAP≤100	0.8	1.0	1.23	1.36	1.48	1.53
	100<CAP≤1000	0.8	1.0	1.16	1.25	1.35	1.38
	1000<CAP	0.8	1.0	1.11	1.17	1.25	1.28

Diagram of Dimensions: (Unit: mm)





LUK High Temperature, 125°C

Case Size

φD x L (mm)

W.V. {S.V.}	10 {13}		16 {20}		25 {32}		35 {44}		50 {63}		63 {79}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
4.7	-	-	-	-	-	-	-	-	-	-	6.3x11	38
10	-	-	-	-	-	-	-	-	6.3x11	48	8x11	55
22	-	-	-	-	6.3x11	70	6.3x11	82	6.3x11 8x11	75 88	8x11	93
33	-	-	6.3x11	91	6.3x11	100	8x11	108	8x11	122	8x11 10x12	110 132
47	5x11	92	6.3x11	110	6.3x11 8x11	110 130	8x11 10x12	130 158	8x11 10x12	140 164	10x12 10x15	150 172
100	6.3x11	145	6.3x11 8x11	175 206	8x11 10x12	210 250	10x12 10x15	230 262	10x15 10x20	250 277	10x15 10x20	260 295
220	8x11	330	8x11 10x12	340 400	10x12 10x15	420 470	10x15 10x20	480 540	10x25 13x21	560 587	13x21 13x26	540 595
330	8x11 10x12	340 410	10x12 10x15	470 525	10x15 10x20	570 631	10x25 13x21	680 718	13x21 13x26	810 900	13x26 16x26	880 1000
470	10x12 10x15	505 525	10x15 10x20	650 720	10x25 13x21	770 810	13x21 13x26	810 900	13x26 16x26	900 1000	-	-
1000	10x15 10x20	870 960	10x25 13x21	950 1000	13x26 16x26	970 1100	16x26 16x31	1080 1200	-	-	-	-

•Ripple Current (mA, rms) at 125°C 120Hz

W.V. {S.V.}	100 {125}		160 {200}		200 {250}		250 {300}		350 {400}	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.47	6.3x11	14	-	-	-	-	-	-	-	-
1	6.3x11	24	6.3x11	30	6.3x11	36	6.3x11	41	8x11	45
2.2	6.3x11	31	6.3x11	37	6.3x11	43	6.3x11 8x11	42 50	8x11 10x12	47 55
3.3	6.3x11	36	6.3x11 8x11	37 41	8x11	48	8x11 10x12	50 53	10x12 10x15	55 60
4.7	6.3x11 8x11	38 45	8x11	52	8x11 10x12	50 60	10x12 10x15	60 68	10x15 10x20	68 75
10	8x11 10x12	60 70	8x11 10x12	70 82	10x12 10x15	80 88	10x15 10x20	83 92	10x25 13x21	105 110
22	10x12 10x15	90 100	10x15 10x20	115 128	10x25 13x21	125 135	13x21 13x26	145 160	13x26 16x26	160 180
33	10x15 10x20	140 158	10x25 13x21	155 164	13x21 13x26	155 172	13x26 16x26	164 185	16x26 16x31	180 200
47	10x25 13x21	175 185	13x21 13x26	180 200	13x26 16x26	190 215	16x26 16x31	205 230	16x31 16x36	230 245
100	13x26 16x26	270 310	13x26 16x26	320 365	16x26 16x31	360 400	-	-	-	-

•Ripple Current (mA, rms) at 125°C 120Hz



SNP Chip, Non-Polarized, 85°C

Features

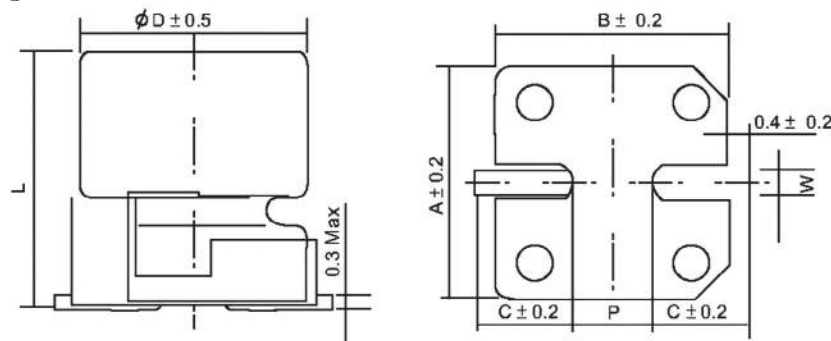
- 85°C,2000 hours assured
- Vertical chip type miniaturized
- Bipolar capacitors for 5.4mm high capacitors

Specifications

Item	Performance Characteristics							
Operating Temperature Range	-40°C to +85°C							
Capacitance Tolerance	±20% (at 120Hz, 20°C)							
Leakage Current (at 20°C)	I=0.05 CV or 10 (μA) whichever is greater (after 2 minutes) Where, C=rated capacitance in μF. V=rated DC working voltage in V.							
Dissipation Factor (Tan δ at 120Hz, 20°C)	Shown in the table of standard rating							
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.							
	Rated Voltage(V)		6.3	10	16	25	35	50
	Impedance Ratio	Z (-25°C)/Z(+20°C)	4	3	2	2	2	2
Z (-40°C)/Z(+20°C)		8	6	4	4	3	3	
Load Life Test	Test Time		1000 Hrs					
	Capacitance Change		Within ±25% of initial value					
	Dissipation Factor		Less than 200% of specified value					
	Leakage Current		Within specified value					
	*The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied with rated ripple current for 2000 hrs at 85°C .							
Shelf Life Test	Without voltage. Test time: 1000 hrs; other items are the same as those for the load life test.							
Standards	JIS C 5101-1,-18							

Diagram of Dimensions: (Unit: mm)

Fig 1



ϕD	L	A	B	C	W	$P \pm 0.2$	Fig No.
4	5.4 ± 0.3	4.3	4.3	2.0	0.5~0.8	1.0	1
5	5.4 ± 0.3	5.3	5.3	2.3	0.5~0.8	1.5	1
6.3	5.4 ± 0.3	6.6	6.6	2.7	0.5~0.8	2.0	1



SMD



SNP Chip, Non-Polarized, 85°C

SMD

Multiplier For Ripple Current VS. Frequency

V.DC(V)	Freq.(Hz)	50(60)	120	1K	10K UP
Under 16		0.8	1.0	1.15	1.25
25~35		0.8	1.0	1.25	1.40
50		0.8	1.0	1.35	1.50

Case Size

WV	Cap (μF)	Size (mm) φDxL	Tol (%)	DF (%) (max) 120Hz, 20°C	R.C. (mA, rms) (max) 120Hz, 85°C
6.3	22	5x5.4	±20	0.35	27
	33	6.3x5.4	±20	0.35	41
	47	6.3x5.4	±20	0.35	49
10	10	4x5.4	±20	0.30	18
	22	6.3x5.4	±20	0.30	36
	33	6.3x5.4	±20	0.30	45
16	4.7	4x5.4	±20	0.25	14
	10	5x5.4	±20	0.25	23
	22	6.3x5.4	±20	0.25	39
	33	6.3x5.4	±20	0.25	48
25	3.3	4x5.4	±20	0.25	13
	4.7	5x5.4	±20	0.25	16
	10	6.3x5.4	±20	0.25	27
35	2.2	4x5.4	±20	0.25	10
	3.3	5x5.4	±20	0.25	14
	4.7	5x5.4	±20	0.25	17
	10	6.3x5.4	±20	0.25	28
50	0.1	4x5.4	±20	0.25	2
	0.22	4x5.4	±20	0.25	3
	0.33	4x5.4	±20	0.25	4
	0.47	4x5.4	±20	0.25	4.9
	1	4x5.4	±20	0.25	7
	2.2	5x5.4	±20	0.25	12
	3.3	5x5.4	±20	0.25	14
	4.7	6.3x5.4	±20	0.25	19

Electric Double Layer Capacitor

SPL Series - Lead Terminal

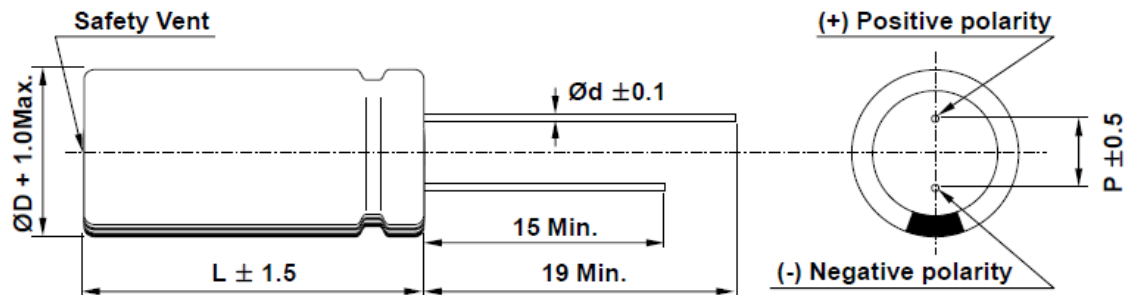
1. Features

- High power density (Low ESR)
- Over 500,000 cycle life (semi-permanent)
- Short-term Peak Power assist applications
- RoHS Compliant

2. Specifications

Item	Performance Characteristics	
Operating Temperature	-40 ~ +65°C	
Rated Voltage Range	2.7V / 3.0V	
Capacitance Tolerance	-10 ~ +30%	
High Temperature Load Life	After 1,000 hours at V_R loaded under +65°C, capacitors meet the following criteria.	
	Capacitance change	≤ 30% of initial value
	ESR	≤ 2 times of specified value
	85°C Higher Temperature	Max. 2.3V / 2.4V
Cycle Life Characteristics	Cycle	Over 500,000
	ΔC	≤ 30% of initial value
	ESR	≤ 2 times of specified value
	Method	Cycle of Charge/discharge from V_R to $1/2V_R$
Shelf Life	2 Years	
	No Electrical Charge, Temperature below 70°C	
	(ΔC : ≤ 10% of the initial value / ΔESR : ≤ 50% of specified value)	

3. Outline and Dimension



Unit : mm

ϕD	8	10, 13	16, 18
ϕd	0.6		0.8
P	3.5	5.0	7.5

Electric Double Layer Capacitor

SPL Series - Lead Terminal

4. Part Number Coding Rule

SPL	10F	2.7V	611	TB5	□□
Series	Capacitance	Rated voltage	Size	Packaging	Reserved
EDLC, Lead Terminal	Capacitance	Voltage	Size	Style	
	Code	Code	Code	Code	
	1F	2.7V	8 x 13	Lead Cut (length mm)	C(L)
	1.5F	3.0V	8 x 20	Tape/Ammo (pitch mm)	TB(P)
	5F		10 x 20		
	10F		10x 25		
	25F		13 x 25		
	50F		16 x 25		
	60F		18x 40		

5. Standard Ratings

Rated voltage (V)	Rated Capacitance (F)	ESR (mΩ)		Max Current (A)	Leakage Current (mA, 72hr)	Size (mm)
		AC(1kHz)	DC			D x L
2.7	1	130	195	1.0	0.002	8 x 13
	1.5	80	120	1.5	0.003	8 x 20
	3.3	55	95	3.0	0.007	8 x 20
	5	35	60	5.0	0.010	8 x 25
	5	55	85	4.5	0.010	10 x 20
	7	30	50	6.5	0.014	8 x 30
	7	55	95	5.5	0.014	10 x 20
	7	25	40	7.0	0.014	10 x 25
	10	30	45	9.0	0.020	10 x 25
	10	25	35	10.0	0.020	10 x 30
	10	35	55	8.5	0.020	13 x 20
	15	25	40	12.5	0.030	13 x 25
	18	25	40	14.0	0.036	13 x 25
	25	17	26	20.0	0.050	16 x 25
	50	11	17	36.5	0.100	18 x 40
	60	11	17	40.0	0.120	18 x 40

Electric Double Layer Capacitor

SPL Series - Lead Terminal

Rated voltage (V)	Rated Capacitance (F)	ESR (mΩ)		Max Current (A)	Leakage Current (mA, 72hr)	Size (mm) D x L
		AC(1kHz)	DC			
3.0	1	145	220	1.0	0.003	8 x 13
	1.5	95	140	1.5	0.005	8 x 20
	3.3	70	105	3.5	0.010	8 x 20
	5	40	70	5.5	0.015	8 x 25
	5	65	100	5.0	0.015	10 x 20
	7	65	110	5.5	0.021	10 x 20
	10	35	60	9.0	0.030	10 x 25
	10	25	40	10.0	0.030	10 x 30
	15	30	45	13.0	0.045	13 x 25
	25	20	30	21.0	0.075	16 x 25
	50	12.5	19	38.0	0.150	18 x 40
	60	12.5	19	42.0	0.180	18 x 40

* Max. Current : 1 sec discharge to $1/2V_R$

* Please contact us if the rating data of request item did not show in above.

Electric Double Layer Capacitor

SPS Series – Snap-in Terminal

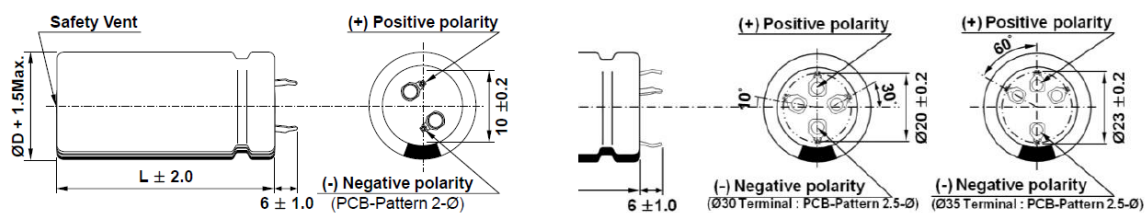
1. Features

- High power density (Low ESR)
- Over 500,000 cycle life (semi-permanent)
- Short-term Peak Power assist applications
- RoHS Compliant

2. Specifications

Item	Performance Characteristics	
Operating Temperature	-40 ~ +65°C	
Rated Voltage Range	2.7V / 3.0V	
Capacitance Tolerance	-10 ~ +30%	
High Temperature Load Life	After 1,000 hours at V_R loaded under +65°C, capacitors meet the following criteria.	
	Capacitance change	≤ 30% of initial value
	ESR	≤ 2 times of specified value
	85°C Higher Temperature	Max. 2.3V / 2.4V
Cycle Life Characteristics	Cycle	Over 500,000
	ΔC	≤ 30% of initial value
	ESR	≤ 2 times of specified value
	Method	Cycle of Charge/discharge from V_R to $1/2V_R$
Shelf Life	2 Years	
	No Electrical Charge, Temperature below 70°C	
	$(\Delta C : \leq 30\% \text{ of the initial value} / \Delta ESR : \leq 50\% \text{ of specified value})$	

3. Outline and Dimension



Electric Double Layer Capacitor

SPS Series – Snap-in Terminal

4. Part Number Coding Rule

SPS	100F		2.7V		2245		□□
Series	Capacitance		Rated voltage		Size		Reserved
EDLC, Snap-in	Capacitance	Code	Voltage	Code	Size	Code	
	100F	100F	2.7V	2.7V	22 x 45	2245	
	220F	220F	3.0V	3V	25 x 70	2570	
	360F	360F			35 x 62	3562	
	400F	400F			35 x 72	3572	
	500F	500F			35 x 82	3582	

5. Standard Ratings

Rated voltage (V)	Rated Capacitance (F)	ESR (mΩ)		Max Current (A)	Leakage Current (mA, 72hr)	Size (mm)
		AC(1kHz)	DC			D x L
2.7	100	6.0	10.0	65	0.20	22 x 45
	220	4.5	7.0	115	0.44	25 x 70
	360	3.0	4.5	185	0.72	35 x 62
	400	3.0	4.5	190	0.80	35 x 72
	500	3.0	4.5	205	1.00	35 x 82
3.0	100	6.0	10	75	0.30	22 x 45
	360	3.0	4.5	200	1.08	35 x 62
	400	3.0	4.5	210	1.20	35 x 72
	500	3.0	4.5	230	1.50	35 x 82

* Max. Current : 1 sec discharge to 1/2V_R

* Please contact us if the rating data of request item did not show in above.



STG Chip, General Purpose, 85°C

SMD

Features

- 85°C 2000 hours assured.
- Lead free reflow soldering is available.

Specifications

Item	Performance Characteristics															
Operating Temperature Range	-40°C to +85°C															
Capacitance Tolerance	±20% (at 120Hz, 20°C)															
Surge Voltage(V)(20°C)	WV	4	6.3	10	16	25	35	50	63	100	160	200	250	400	450	
	SV	5	8	13	20	32	44	63	79	125	200	250	300	450	500	
Leakage Current (at 20°C)	4~100V	4~10φ		I=0.01CV or 3 μA, whichever is greater, after 2 minutes at +20°C												
		12.5~16φ		I=0.03CV or 4 μA, whichever is greater, after 1 minutes at +20°C												
	160~450V	12.5~16φ		I=0.04cv +100 μA after 1 minutes at +20°C												
	Where I=leakage current, C=rated capacitance in μF, V=rated DC working voltage in V															
Dissipation Factor (Tan δ at 120Hz, 20°C)	Shown in the table of standard rating															
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.															
	Rated Voltage(V)					4	6.3	10	16	25	35	50	63	100	160~250	400~450
	Impedance Ratio	Z (-25°C)	4~10φ		7	4	3	2	2	2	2	2	3	-	-	
		/Z(+20°C)	12.5~16φ		-	5	4	3	2	2	2	2	2	3	6	
		Z (-40°C)	φD≤10		15	12	8	6	4	3	3	3	4	-	-	
		/Z(+20°C)	φD≥10		-	10	8	6	4	3	3	3	3	6	10	
Load Life Test	Test Time		2000 Hrs													
	Case code		4~6.3φ						8~16φ							
	Capacitance Change		Within ±25% of initial value						Within ±20% of initial value							
	Dissipation Factor		Less than 200% of specified value						Less than 200% of specified value							
	Leakage Current		Within specified value						Within specified value							
	*The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied with rated ripple current for 2000 hours at 85°C															
Shelf Life Test	Without Voltage Test time:1000 hrs; other items are the same as those for the load life test.															

Diagram of Dimensions: (Unit: mm)

Fig 1

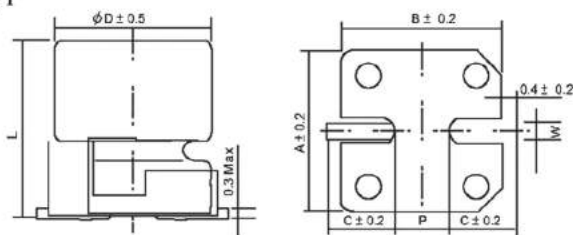
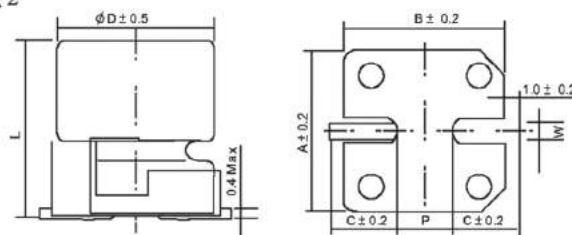


Fig 2



φD	L	A	B	C	W	P	Fig No.
4	5.4 ±0.3	4.3	4.3	2.0	0.5~0.8	1.0	1
5	5.4 ±0.3	5.3	5.3	2.3	0.5~0.8	1.5	1
6.3	5.4 ±0.3	6.6	6.6	2.7	0.5~0.8	2.0	1
6.3	7.7 ±0.3	6.6	6.6	2.7	0.5~0.8	2.0	1
8	6.2 ±0.5	8.3	8.3	3.4	0.5~0.8	2.2	1
8	10.2 ±0.5	8.3	8.3	3.4	0.7~1.1	3.1	1
10	10.2 ±0.5	10.4	10.4	3.3	0.7~1.1	4.6	1
12.5	13.5 ±0.5	12.8	12.8	4.9	1.1~1.4	4.6	2
12.5	16 ±0.5	12.8	12.8	4.9	1.1~1.4	4.6	2
16	16.5 ±0.5	16.3	16.3	5.8	1.8~2.2	6.0	2



STG Chip, General Purpose, 85°C

Multiplier For Ripple Current VS. Frequency

CAP		Freq.(Hz)	50(60)	120	500	1K	10K UP
Multiplier		0.1~47μF	0.8	1.0	1.20	1.30	1.50
		68~1000μF	0.8	1.0	1.10	1.15	1.20

Case Size

WV	Cap (μF)	Size (mm) φDxL	Tol (%)	DF (%) (max) 120Hz, 20°C	R.C. (mA, rms) (max) 120Hz, 85°C
4	22	4x5.4	±20	0.35	19
	33	4x5.4	±20	0.35	26
	47	4x5.4	±20	0.35	34
	100	5x5.4	±20	0.35	61
	220	6.3x5.4	±20	0.35	82
6.3	22	4x5.4	±20	0.35	20
	33	4x5.4	±20	0.35	28
		5x5.4	±20	0.35	33
	47	4x5.4	±20	0.35	36
		5x5.4	±20	0.35	46
	100	5x5.4	±20	0.35	65
		6.3x5.4	±20	0.35	71
	220	6.3x5.4	±20	0.35	110
		6.3x7.7	±20	0.35	130
	330	8x6.2	±20	0.35	230
		6.3x7.7	±20	0.35	270
	470	8x6.2	±20	0.35	300
10	22	4x5.4	±20	0.30	28
		4x5.4	±20	0.30	29
	33	5x5.4	±20	0.30	43
		4x5.4	±20	0.30	43
	47	5x5.4	±20	0.30	70
		6.3x5.4	±20	0.26	76
	100	8x6.2	±20	0.26	173
		6.3x7.7	±20	0.26	250
	220	8x6.2	±20	0.26	320
		8x10.2	±20	0.26	390
	470	10x10.2	±20	0.26	400
16	4.7	4x5.4	±20	0.24	20
		4x5.4	±20	0.24	22
	10	4x5.4	±20	0.24	31
		5x5.4	±20	0.24	39
	22	5x5.4	±20	0.24	45
		6.3x5.4	±20	0.24	63
	33	5x5.4	±20	0.24	58
		6.3x5.4	±20	0.24	70
	47	6.3x5.4	±20	0.24	80
		8x6.2	±20	0.24	90
	100	6.3x7.7	±20	0.24	180
		8x10.2	±20	0.24	220
	220	8x10.2	±20	0.24	320
		10x10.2	±20	0.24	340
	330	8x10.2	±20	0.24	400
		10x10.2	±20	0.24	420

SMD



STG Chip, General Purpose, 85°C

SMD

WV	Cap (μF)	Size (mm) φDxL	Tol (%)	DF (%) (max) 120Hz, 20°C	R.C. (mA, rms) (max) 120Hz, 85°C
25	4.7	4x5.4	±20	0.16	22
	10	4x5.4	±20	0.16	22
		5x5.4	±20	0.16	28
	22	5x5.4	±20	0.16	35
		6.3x5.4	±20	0.16	55
	33	5x5.4	±20	0.16	42
		6.3x5.4	±20	0.16	65
	47	6.3x5.4	±20	0.16	70
		8x6.2	±20	0.16	89
	100	6.3x7.7	±20	0.16	120
		8x6.2	±20	0.16	135
		8x10.2	±20	0.16	170
	220	8x10.2	±20	0.16	230
		10x10.2	±20	0.16	310
35	330	8x10.2	±20	0.16	320
	330	10x10.2	±20	0.16	360
	470	10x10.2	±20	0.16	450
	2.2	4x5.4	±20	0.14	8
	3.3	4x5.4	±20	0.14	10
	4.7	4x5.4	±20	0.14	22
	10	4x5.4	±20	0.14	22
		5x5.4	±20	0.14	30
	22	6.3x5.4	±20	0.14	60
	33	6.3x5.4	±20	0.14	60
		8x6.2	±20	0.14	70
	47	6.3x7.7	±20	0.14	90
		8x6.2	±20	0.14	103
	100	6.3x7.7	±20	0.14	132
		8x10.2	±20	0.14	170
		10x10.2	±20	0.14	190
50	220	8x10.2	±20	0.14	340
	220	10x10.2	±20	0.14	410
	0.1	4x5.4	±20	0.12	1
	0.22	4x5.4	±20	0.12	2
	0.33	4x5.4	±20	0.12	3
	0.47	4x5.4	±20	0.12	5
	1	4x5.4	±20	0.12	10
	2.2	4x5.4	±20	0.12	14
	3.3	4x5.4	±20	0.12	16
	4.7	4x5.4	±20	0.12	18
		5x5.4	±20	0.12	23
	10	5x5.4	±20	0.12	27
		6.3x5.4	±20	0.12	35
	22	6.3x5.4	±20	0.12	50
		6.3x7.7	±20	0.12	60
		8x6.2	±20	0.12	65
	33	6.3x7.7	±20	0.12	65
		8x6.2	±20	0.12	70
		8x10.2	±20	0.12	80
	47	6.3x7.7	±20	0.12	105
		8x6.2	±20	0.12	110
		8x10.2	±20	0.12	120
		10x10.2	±20	0.12	130
	100	8x10.2	±20	0.12	220
		10x10.2	±20	0.12	240
	220	10x10.2	±20	0.12	450



STG Chip, General Purpose, 85°C

WV	Cap (μF)	Size (mm) φDxL	Tol (%)	DF (%) (max) 120Hz, 20°C	R.C. (mA, rms) (max) 120Hz, 85°C
63	0.1	4x5.4	±20	0.12	1.3
	0.22	4x5.4	±20	0.12	3
	0.33	4x5.4	±20	0.12	4
	0.47	4x5.4	±20	0.12	5
	1	4x5.4	±20	0.12	8
	2.2	4x5.4	±20	0.12	12
	3.3	4x5.4	±20	0.12	17
	4.7	5x5.4	±20	0.12	20
		6.3x5.4	±20	0.12	27
	10	6.3x5.4	±20	0.12	38
		8x6.2	±20	0.12	56
	22	6.3x7.7	±20	0.12	60
		8x10.2	±20	0.12	65
	33	6.3x7.7	±20	0.12	70
		8x10.2	±20	0.12	100
	47	8x10.2	±20	0.12	145
	68	10x10.2	±20	0.12	190
	100	10x10.2	±20	0.12	260
		12.5x13.5	±20	0.14	300
100	220	12.5x13.5	±20	0.14	500
	330	12.5x16	±20	0.14	680
	470	16x16.5	±20	0.14	850
	3.3	8x10.2	±20	0.12	30
	4.7	8x10.2	±20	0.12	50
	10	8x10.2	±20	0.12	55
	22	8x10.2	±20	0.12	90
		10x10.2	±20	0.12	90
	33	10x10.2	±20	0.12	120
160	47	10x10.2	±20	0.12	200
	68	12.5x13.5	±20	0.12	280
	100	12.5x13.5	±20	0.12	380
200	220	16x16.5	±20	0.12	500
	33	12.5x13.5	±20	0.20	240
	47	12.5x16	±20	0.20	300
	68	16x16.5	±20	0.20	400
250	22	12.5x13.5	±20	0.20	220
	33	12.5x16	±20	0.20	300
	47	16x16.5	±20	0.20	320
	68	16x16.5	±20	0.20	340
400	10	12.5x13.5	±20	0.20	105
	22	12.5x13.5	±20	0.20	150
	33	12.5x16	±20	0.20	240
	47	16x16.5	±20	0.20	330
450	4.7	12.5x13.5	±20	0.25	90
	10	12.5x13.5	±20	0.25	110
	22	16x16.5	±20	0.25	120
	33	16x16.5	±20	0.25	140
450	4.7	12.5x13.5	±20	0.25	120
	10	12.5x16	±20	0.25	130
	22	16x16.5	±20	0.25	140

SMD



STK Chip, General Purpose, 105°C



Features

- 105°C 1000~2000 hours assured.
- Lead free reflow soldering is available.

Specifications

Item	Performance Characteristics														
Operating Temperature Range	-40°C to +105°C														
Capacitance Tolerance	±20% (at 120Hz, 20°C)														
Surge Voltage(V)(20°C)	WV	4	6.3	10	16	25	35	50	63	100	160	200	250	400	450
	SV	5	8	13	20	32	44	63	79	125	200	250	300	450	500
Leakage Current (at 20°C)	4~100V	4~10φ		I=0.01CV or 3μA, whichever is greater, after 2 minutes at +20°C											
		12.5~16φ		I=0.03CV or 4μA, whichever is greater, after 1 minutes at +20°C											
	160~450V	12.5~16φ		I=0.04cv +100μA after 1 minutes at +20°C											
	Where I=leakage current, C=rated capacitance inμF, V=rated DC working voltage in V														
Dissipation Factor (Tan δ at 120Hz, 20°C)	Shown in the table of standard rating														
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.														
	Rated Voltage(V)				4	6.3	10	16	25	35	50	63	100	160~250	400~450
	Impedance Ratio	Z (-25°C) /Z(+20°C)	4~10φ	7	4	3	2	2	2	2	2	3	-	-	
			12.5~16φ	-	5	4	3	2	2	2	2	3	6		
		Z (-40°C) /Z(+20°C)	4~10φ	15	12	8	6	4	3	3	3	4	-	-	
			12.5~16φ	-	10	8	6	4	3	3	3	3	6	10	
Load Life Test	Test Time		1000~2000 Hrs												
	Case code		4~6.3φ						8~16φ						
	Capacitance Change		Within ±25% of initial value						Within ±20% of initial value						
	Dissipation Factor		Less than 200% of specified value						Less than 200% of specified value						
	Leakage Current		Within specified value						Within specified value						
	*The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied with rated ripple current for 2000 hours at 105°C														
Shelf Life Test	Without Voltage Test time:1000 hrs; other items are the same as those for the load life test.														

Diagram of Dimensions: (Unit: mm)

Fig 1

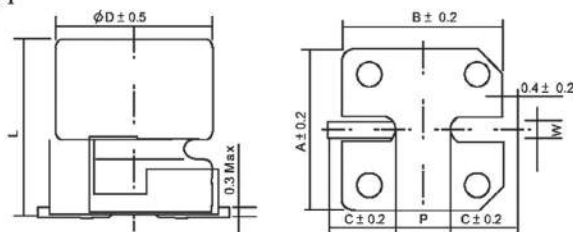
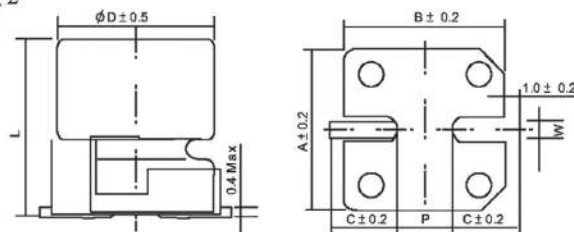


Fig 2



φD	L	A	B	C	W	P	Fig No.
4	5.4 ±0.3	4.3	4.3	2.0	0.5~0.8	1.0	1
5	5.4 ±0.3	5.3	5.3	2.3	0.5~0.8	1.5	1
6.3	5.4 ±0.3	6.6	6.6	2.7	0.5~0.8	2.0	1
6.3	7.7 ±0.3	6.6	6.6	2.7	0.5~0.8	2.0	1
8	6.2 ±0.5	8.3	8.3	3.4	0.5~0.8	2.2	1
8	10.2 ±0.5	8.3	8.3	3.4	0.7~1.1	3.1	1
10	10.2 ±0.5	10.4	10.4	3.3	0.7~1.1	4.6	1
12.5	13.5 ±0.5	12.8	12.8	4.9	1.1~1.4	4.6	2
12.5	16 ±0.5	12.8	12.8	4.9	1.1~1.4	4.6	2
16	16.5 ±0.5	16.3	16.3	5.8	1.8~2.2	6.0	2



STK Chip, General Purpose, 105°C

Multiplier For Ripple Current VS. Frequency

CAP \ Freq.(Hz)	50(60)	120	500	1K	10K UP
0.1~47µF	0.8	1.0	1.20	1.30	1.50
68µF UP	0.8	1.0	1.10	1.15	1.20

Case Size

WV	Cap (µF)	Size (mm) φDxL	Tol (%)	DF (%) (max) 120Hz, 20°C	R.C. (mA, rms) (max) 120Hz, 105°C
4	22	4x5.4	±20	0.35	20
	33	4x5.4	±20	0.35	26
	47	4x5.4	±20	0.35	34
	100	5x5.4	±20	0.35	61
	220	6.3x5.4	±20	0.35	68
6.3	22	4x5.4	±20	0.35	29
	33	4x5.4	±20	0.35	43
	47	5x5.4	±20	0.35	46
	100	6.3x5.4	±20	0.35	71
	220	6.3x7.7	±20	0.35	120
		8x6.2	±20	0.35	130
	330	8x10.2	±20	0.35	230
	470	8x10.2	±20	0.35	250
		10x10.2	±20	0.35	260
	1000	10x10.2	±20	0.35	380
	2200	12.5x13.5	±20	0.40	680
	3300	12.5x16	±20	0.40	850
10	4700	16x16.5	±20	0.40	1000
	6800	16x16.5	±20	0.40	1000
	22	4x5.4	±20	0.30	25
	33	4x5.4	±20	0.30	40
	47	6.3x5.4	±20	0.30	50
	100	6.3x5.4	±20	0.30	70
		8x6.2	±20	0.30	75
	220	6.3x7.7	±20	0.30	120
		8x10.2	±20	0.26	125
	330	8x10.2	±20	0.26	230
		10x10.2	±20	0.26	240
	470	8x10.2	±20	0.26	260
		10x10.2	±20	0.26	300
	1000	10x10.2	±20	0.26	390
16	2200	12.5x16	±20	0.38	750
	3300	16x16.5	±20	0.38	1000
	4700	16x16.5	±20	0.38	1000
	10	4x5.4	±20	0.22	17
	22	5x5.4	±20	0.22	30
	33	6.3x5.4	±20	0.22	45
	47	6.3x5.4	±20	0.22	48
	100	6.3x5.4	±20	0.22	69
		6.3x7.7	±20	0.22	74
		8x6.2	±20	0.22	80
		8x10.2	±20	0.22	85
	220	6.3x7.7	±20	0.22	170
		10x10.2	±20	0.22	210
	330	8x10.2	±20	0.22	240
		10x10.2	±20	0.22	245
	470	8x10.2	±20	0.22	280
		10x10.2	±20	0.22	320
	1000	12.5x13.5	±20	0.34	550
	2200	16x16.5	±20	0.34	950
	3300	16x16.5	±20	0.34	950



STK Chip, General Purpose, 105°C

SMD

WV	Cap (μF)	Size (mm) φDxL	Tol (%)	DF (%) (max) 120Hz, 20°C	R.C. (mA, rms) (max) 120Hz, 105°C
25	4.7	4x5.4	±20	0.16	13
	10	5x5.4	±20	0.16	23
	22	6.3x5.4	±20	0.16	38
	33	6.3x5.4	±20	0.16	50
	47	6.3x5.4	±20	0.16	60
		6.3x7.7	±20	0.16	65
		8x6.2	±20	0.16	67
	100	6.3x7.7	±20	0.16	100
		8x10.2	±20	0.16	105
	220	8x10.2	±20	0.16	230
		10x10.2	±20	0.16	273
	330	10x10.2	±20	0.16	340
	470	10x10.2	±20	0.16	470
	1000	12.5x16	±20	0.26	550
	2200	16x16.5	±20	0.26	820
35	4.7	4x5.4	±20	0.14	16
	10	5x5.4	±20	0.14	27
	22	6.3x5.4	±20	0.14	44
	33	6.3x5.4	±20	0.14	54
		6.3x7.7	±20	0.14	57
		8x6.2	±20	0.14	60
	47	8x10.2	±20	0.14	80
		10x10.2	±20	0.14	88
	100	8x10.2	±20	0.14	140
		10x10.2	±20	0.14	190
	220	10x10.2	±20	0.14	360
	330	10x10.2	±20	0.14	450
	470	12.5x13.5	±20	0.22	520
	1000	16x16.5	±20	0.22	750
50	0.1	4x5.4	±20	0.12	1
	0.22	4x5.4	±20	0.12	2
	0.33	4x5.4	±20	0.12	3
	0.47	4x5.4	±20	0.12	5
	1	4x5.4	±20	0.12	10
	2.2	4x5.4	±20	0.12	16
	3.3	4x5.4	±20	0.12	16
	4.7	5x5.4	±20	0.12	20
	10	6.3x5.4	±20	0.12	32
	22	6.3x5.4	±20	0.12	40
		6.3x7.7	±20	0.12	47
		8x6.2	±20	0.12	52
		6.3x7.7	±20	0.12	65
	33	8x10.2	±20	0.12	70
		8x10.2	±20	0.12	80
	47	10x10.2	±20	0.12	100
		8x10.2	±20	0.12	210
	100	10x10.2	±20	0.12	230
		10x10.2	±20	0.14	375
	220	10x10.2	±20	0.14	500
	330	12.5x13.5	±20	0.14	550
	470	12.5x16	±20	0.14	550



STK Chip, General Purpose, 105°C

WV	Cap (μF)	Size (mm) φDxL	Tol (%)	DF (%) (max) 120Hz, 20°C	R.C. (mA, rms) (max) 120Hz, 105°C
63	0.47	4x5.4	±20	0.12	5
	1	4x5.4	±20	0.12	8
	2.2	4x5.4	±20	0.12	12
	3.3	4x5.4	±20	0.12	17
	4.7	6.3x5.4	±20	0.12	22
	10	6.3x5.4	±20	0.12	32
	22	6.3x7.7	±20	0.12	58
		8x10.2	±20	0.12	60
	33	8x10.2	±20	0.12	100
		10x10.2	±20	0.12	130
	47	8x10.2	±20	0.12	140
		10x10.2	±20	0.12	170
	100	10x10.2	±20	0.12	310
	220	12.5x13.5	±20	0.14	470
100	330	16x16.5	±20	0.14	700
	470	16x16.5	±20	0.14	700
	10	8x10.2	±20	0.12	55
	22	8x10.2	±20	0.12	90
		10x10.2	±20	0.12	100
	33	10x10.2	±20	0.12	150
160	47	12.5x13.5	±20	0.14	250
	100	12.5x13.5	±20	0.14	380
	220	16x16.5	±20	0.14	450
	33	12.5x13.5	±20	0.20	95
	47	12.5x16	±20	0.20	110
	100	16x16.5	±20	0.20	190
200	10	12.5x13.5	±20	0.20	80
	22	12.5x13.5	±20	0.20	90
	33	12.5x16	±20	0.20	110
	47	16x16.5	±20	0.20	220
250	3.3	12.5x13.5	±20	0.20	65
	4.7	12.5x13.5	±20	0.20	68
	10	12.5x13.5	±20	0.20	72
	22	12.5x13.5	±20	0.20	90
	33	16x16.5	±20	0.20	150
	47	16x16.5	±20	0.20	180
400	4.7	12.5x13.5	±20	0.25	50
	10	12.5x13.5	±20	0.25	65
	22	16x16.5	±20	0.25	85
450	3.3	12.5x13.5	±20	0.25	40
	4.7	12.5x13.5	±20	0.25	50
	10	12.5x16	±20	0.25	55
	22	16x16.5	±20	0.25	85

SMD

Features

- Load Life : 105 °C 1000~2000 hours.
- For high density mounting.
- Low impedance at 100kHz.

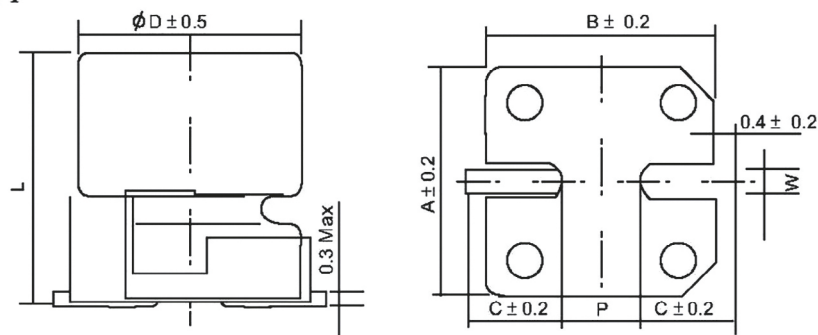
Specifications



Item	Performance Characteristics								
Operating Temperature Range	-40℃ to +105℃								
Rated Working Voltage	6.3~50VDC								
Capacitance Tolerance	±20%(at 120Hz, 20℃)								
Surge Voltage(V)(20℃)	WV	6.3	10	16	25	35	50		
	SV	8	13	20	32	44	63		
Leakage Current (at 20℃)	I=0.01CV or 3(μA) whichever is greater (after 2 minutes) Where , C=rated capacitance in μF. V=rated DC working voltage in V								
Dissipation Factor (Tan δ at120Hz,20 ℃)	Rated Voltage (V)		6.3	10	16	25	35	50	
	Tan δ (max)	φ4~φ6.3	0.24	0.20	0.16	0.14	0.12	0.12	
		φ 8~φ10	0.28	0.24	0.20	0.16	0.14	0.14	
	Add 0.02 per 1000 μF for more than 1000 μF								
Low Temperature Characteristics (at 120Hz)	Impedance ratio at 120Hz								
	Rated Voltage (V)			6.3	10	16	25	35	50
	Impedance Ratio	Z(-25 ℃)/Z(+20℃)		3	2	2	2	2	2
		Z(-40 ℃)/Z(+20℃)		5	4	4	3	3	3
Load Life Test	*After hours (φD≤6.3mm 1000 hours, φD≥8mm 2000 hours) application of WV at +105℃ the capacitor shall meet the following limits.								
	Capacitance Change		≤ ±25% of initial value						
	Dissipation Factor		Less than 200% of specified value						
	Leakage Current		With specified value						
Shelf Life Test	Without Voltage Test time:1000 hrs; other items are the same as those for the load life test.								
Standards	Satisfies Characteristic W of JIS C5141								

Diagram of Dimensions: (Unit: mm)

Fig 1



φD	L	A	B	C	W	P	Fig No.
4	5.4±0.3	4.3	4.3	2.0	0.5~0.8	1.0	1
5	5.4±0.3	5.3	5.3	2.3	0.5~0.8	1.5	1
6.3	5.4±0.3	6.6	6.6	2.7	0.5~0.8	2.0	1
6.3	7.7±0.3	6.6	6.6	2.7	0.5~0.8	2.0	1
8	10.2±0.3	8.3	8.3	3.4	0.7~1.1	3.1	1
10	10.2±0.3	10.3	10.3	3.5	0.7~1.1	4.6	1

Multiplier For Ripple Current VS, Frequency

V.DC(V)	Freq.(Hz)	50(60)	120	1K	10K	100K
6.3~50		0.55	0.65	0.80	0.90	1.00

Case Size

W.V.	Cap (μF)	Size (mm) ϕDxL	Imp. (Ω) 100KHz, 20°C	R.C. (mA,rms) (max)100KHz,105°C
6.3	22	4x5.7	1.35	80
	33	4x5.7	1.35	80
	47	5x5.7	0.8	150
	100	6.3x5.7	0.44	230
	150	6.3x5.7	0.44	230
	200	6.3x7.7	0.36	280
	330	8x6.5	0.36	280
		8x10	0.17	450
	470	8x10	0.17	450
		10x7.7	0.17	450
	680	8x10	0.17	450
		10x7.7	0.17	450
	1000	8x10	0.17	450
	1500	10x10	0.09	670
	2200	12.5x13.5	0.07	820
	3300	12.5x16	0.06	950
	4700	16x16.5	0.054	1260
	6800	18x16.5	0.048	1500
		16x21.5	0.038	1630
	8200	18x16.5	0.048	1500
		16x21.5	0.038	1630
10	22	4x5.7	1.35	80
	33	5x5.7	0.44	150
	47	6.3x5.7	0.44	230
	100	6.3x5.7	0.44	230
	150	6.3x5.7	0.44	230
	220	6.3x7.7	0.36	280
		8x6.5	0.36	280
	330	8x10	0.17	450
		10x7.7	0.17	450
	470	8x10	0.17	450
		10x7.7	0.17	450
	680	10x10	0.09	670
	1000	10x10	0.09	670
	1500	12.5x13.5	0.07	820
	2200	12.5x16	0.06	950
	3300	16x16.5	0.054	1260
	4700	16x16.5	0.054	1260
	6800	18x16.5	0.048	1500
		16x21.5	0.038	1630
	8200	18x21.5	0.038	1750

W.V.	Cap (μF)	Size (mm) ϕ DxL	Imp. (Ω) 100KHz, 20°C	R.C. (mA,rms) (max)100KHz,105°C
16	10	4x5.7	1.35	80
	22	5x5.7	0.8	150
	33	6.3x5.7	0.44	230
	47	6.3x5.7	0.44	230
	100	6.3x5.7	0.44	230
	150	6.3x7.7	0.36	280
		8x6.5	0.36	280
	220	6.3x7.7	0.36	280
	330	8x10	0.17	450
		10x.7	0.17	450
	470	8x10	0.17	450
		10x10	0.09	670
	680	10x10	0.09	670
	1000	12.5x13.5	0.07	820
	1500	12.5x16	0.06	950
	2200	16x16.5	0.054	1260
25	3300	16x16.5	0.054	1260
		16x21.5	0.038	1630
	4700	18x16.5	0.048	1500
		16x21.5	0.038	1630
	10	4x5.7	1.35	80
	22	5x5.7	0.8	150
	33	6.3x5.7	0.44	230
	47	6.3x5.7	0.44	230
	100	6.3x7.7	0.36	280
		8x6.5	0.36	280
	150	8x10	0.17	450
	220	8x10	0.17	450
		10x7.7	0.17	450
	330	8x10	0.17	450
	470	10x10	0.09	670
	680	12.5x13.5	0.07	820
35	1000	12.5x16	0.06	950
	1500	16x16.5	0.054	1260
	2200	16x16.5	0.054	1260
	3300	18x16.5	0.048	1500
		16x21.5	0.038	1630
		18x21.5	0.038	1750
	4.7	4x5.7	1.35	80
	10	5x5.7	0.8	150
	22	6.3x5.7	0.44	230
	33	6.3x5.7	0.44	230
	47	6.3x5.7	0.44	230
	68	8x6.5	0.36	280
	100	8x10	0.17	450
	150	8x10	0.17	450
		10x7.7	0.17	450
	220	10x10	0.09	670
35	330	10x10	0.09	670
		12.5x13.5	0.07	820
	470	12.5x16	0.06	950
	680	12.5x16	0.06	950
	1000	16x16.5	0.054	950
	1500	18x16.5	0.048	1500
		16x21.5	0.038	1630
	2200	18x21.5	0.038	1750

W.V.	Cap (μF)	Size (mm) ϕ DxL	Imp. (Ω) 100KHz, 20°C	R.C. (mA,rms) (max)100KHz,105°C
50	1	4x5.7	2.9	60
	2.2	4x5.7	2.9	60
	3.3	4x5.7	2.9	60
	4.7	5x5.7	1.52	85
	10	6.3x5.7	0.88	165
	22	6.3x5.7	0.88	165
	33	6.3x7.7	0.68	185
	47	6.3x7.7	0.68	185
	68	8x6.5	0.68	185
	100	8x10	0.34	369
	150	10x10	0.18	553
	220	10x10	0.18	553
	330	12.5x13.5	0.12	650
	470	12.5x13.5	0.12	650
	680	16x16.5	0.073	1000
	1000	16x16.5	0.073	1000
	1500	18x16.5	0.066	1500
	1500	18x21.5	0.05	1620
63	4.7	5x5.7	1.9	70
	10	6.3x5.7	1.2	130
	22	6.3x7.7	0.9	150
	33	8x10	0.5	280
	47	8x10	0.5	280
	100	10x10	0.25	450
	150	12.5x13.5	0.15	700
	220	12.5x13.5	0.15	700
	330	16x16.5	0.082	900
	470	16x16.5	0.082	900
	680	18x16.5	0.08	1150
	1000	16x21.5	0.08	1150
80	22	18x21.5	0.06	1250
	22	8x10	1.3	130
	33	8x10	1.3	130
	47	10x10	0.7	200
	100	10x10	0.7	200
	150	12.5x13.5	0.32	450
	220	12.5x16	0.26	550
	330	16x16.5	0.17	650
	470	16x21.5	0.15	900
100	680	18x21.5	0.15	950
	22	8x10	1.3	130
	33	10x10	0.7	200
	47	10x10	0.7	200
	100	12.5x13.5	0.32	450
	150	12.5x16	0.26	550
	220	16x16.5	0.17	650
	330	18x21.5	0.15	950
	470	18x16.5	0.15	850
		16x21.5	0.15	900
		18x21.5	0.15	950



SWG Screw Terminal, General, 85°C

Features

- Endurance with ripple current:85°C,2000hours



Specifications

Item	Performance Characteristics						
Operating Temperature Range	-40 to +85°C			-25 to +85°C			
Rated voltage Range	10 to 100 VDC			160 to 450 VDC			
Capacitance Tolerance	±20%(120Hz, +20°C)						
Leakage Current (+20°C, max.)	1≤0.01 CV or 5(mA) whichever is smaller (after 5 minutes) Where,C=rated capacitance in μF. V=rated DC working voltage in V.						
Dissipation Factor (tanδ)	Shown in the table of standard rating						
Low Temperature Characteristics (at 120Hz)	Capacitance change: C(-25°C)/C(+20°C)≥0.7						
Load Life	Test Time			2000 Hrs			
	Capacitance Change			Within ±15% of initial value			
	Dissipation Factor			Less than 175% of specified value			
	Leakage Current			Within specified value			
	*The above specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with rated ripple current applied for 2000 hrs at 85°C						
Shelf Life	Test Time			1000 Hrs			
	Capacitance Change			Within ±20% of initial value			
	Dissipation Factor			Less than 200% of specified value			
	Leakage Current			Within specified value			
	*The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hrs at 85°C without voltage applied. The rated voltage shall be applied to the capacitors before the measurements(Refer to JIS C 5102-4.4).						
Ripple Current & Frequency Multipliers	Freq. (Hz)		50(60)	120	300	1K	10K UP
	Multiplier		0.7	1.0	1.1	1.3	1.4
Ripple Current & Frequency Multipliers	Temperature (°C)	40	60	70	85		
	Multiplier	2.7	2.0	1.7	1.0		
Standards	Satisfies Characteristic W of JIS C 5101- 4						



SWG Screw Terminal, General, 85°C

Diagram of Dimensions: (Unit: mm)

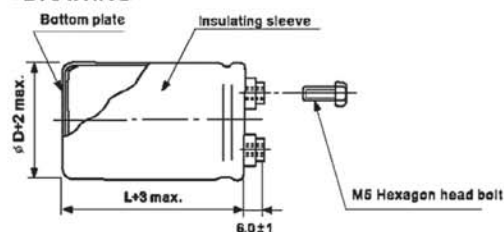
Screw specifications:

Plus hexagon-headed screw: M5x0.8x10

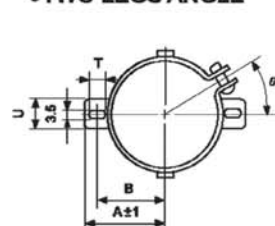
Max. screw tightening torque: 3.23Nm

Dφ	P	α	L1	W1	W2	H	h
35	12.7	2	10.0	48	58	15.0	10.0

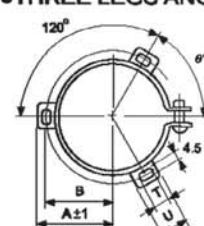
●DRAWING



●TWO LEGS ANGLE



●THREE LEGS ANGLE



Dφ	P	α	L1	W1	W2	H	h	a	b	c	θ°
51	22.0	2	10	61.0	65.5	21.0	15.0	7.0	12.0	4.5	60
64	28.6	2	10	72.5	78.0	25.0	20.0	7.0	14.0	4.5	60
77	32.0	2	10	85.5	91.0	35.0	20.0	8.0	16.0	4.5	60
90	32.0	2	10	101	106	34.5	20.0	8.0	16.0	5.0	60

Case Size

φD x L (mm)

WV	Cap (μF)	Size (mm) φDxL	DF (%) (max) 120Hz, 20°C	R.C. (A., rms) (max) 120Hz, 85°C
10	33000	35x53	0.60	4.4
	39000	35x53	0.60	4.7
	47000	35x65	0.60	5.6
	56000	35x65	0.60	5.9
	68000	35x83	0.60	7.5
	82000	35x83	0.60	7.7
	100000	35x121	0.70	9.2
	120000	35x121	0.70	9.4
	150000	51x83	0.90	10.2
	180000	51x83	0.90	10.7
	220000	51x121	1.00	13.9
	270000	51x121	1.20	15.2
	330000	64x121	1.40	17.2
	390000	64x121	1.50	18.1
	470000	77x121	2.00	19.2
	560000	77x121	2.50	19.8
	680000	77x121	3.00	21.0



SWG Screw Terminal, General, 85°C

φD x L (mm)

WV	Cap (μF)	Size (mm) φDxL	DF (%) (max) 120Hz, 20°C	R.C. (A., rms) (max) 120Hz, 85°C
16	27000	35x53	0.45	4.2
	33000	35x65	0.50	5.5
	39000	35x65	0.50	5.8
	47000	35x83	0.55	7.2
	56000	35x83	0.60	7.5
	68000	35x121	0.60	10.2
	82000	35x121	0.70	10.4
	100000	51x83	0.70	10.9
	120000	51x83	0.80	11.3
	150000	51x121	0.90	12.6
	180000	51x121	0.90	13.0
	220000	64x100	1.00	14.7
	270000	64x100	1.20	15.3
	330000	77x121	1.30	18.2
	390000	77x121	1.60	18.6
	470000	77x121	1.80	19.3
25	560000	77x144	2.00	20.7
	18000	35x53	0.35	4.0
	22000	35x65	0.35	4.5
	27000	35x65	0.40	5.0
	33000	35x83	0.40	5.5
	39000	35x83	0.40	6.2
	47000	35x121	0.40	7.4
	56000	35x121	0.45	8.3
	68000	51x100	0.50	9.3
	82000	51x121	0.50	9.7
	100000	51x121	0.60	10.5
	120000	51x121	0.60	11.5
	150000	64x100	0.70	12.9
	180000	64x121	0.75	14.7
	220000	64x144	0.80	18.0
	270000	64x144	0.90	18.3
35	330000	77x144	1.00	19.5
	390000	77x144	1.20	20.8
	10000	35x53	0.30	3.5
	12000	35x53	0.30	3.7
	15000	35x65	0.30	3.9
	18000	35x65	0.35	4.2
	22000	35x83	0.35	4.9
	27000	35x83	0.40	5.2
	33000	35x121	0.40	7.1
	39000	35x121	0.40	7.3
	47000	51x83	0.45	8.3
	56000	51x83	0.50	8.7
	68000	51x100	0.50	10.2
	82000	51x100	0.55	10.5
	100000	64x100	0.60	10.9
	120000	64x121	0.60	12.8
50	150000	64x144	0.70	15.3
	180000	64x144	0.70	15.8
	220000	77x144	0.75	17.3
	6800	35x53	0.25	3.2
	8200	35x53	0.25	3.4
	10000	35x65	0.25	4.3
	12000	35x65	0.25	4.5
	15000	35x83	0.25	4.7
	18000	35x83	0.25	4.9
	22000	35x121	0.30	6.3
	27000	35x121	0.35	6.6
	33000	51x83	0.40	7.5
	39000	51x83	0.40	7.7
	47000	51x100	0.40	9.6
	56000	51x100	0.40	9.8
	68000	64x100	0.45	11.9
	82000	64x100	0.50	12.2
	100000	64x144	0.50	14.2
	120000	64x144	0.50	14.5
	150000	77x144	0.60	16.5
	180000	77x144	0.70	16.8



SWG Screw Terminal, General, 85°C

φD x L (mm)

WV	Cap (μF)	Size (mm) φDxL	DF (%) (max) 120Hz, 20°C	R.C. (A., rms) (max) 120Hz, 85°C
63	5600	35x53	0.20	3.0
	6800	35x53	0.20	3.7
	8200	35x65	0.25	4.4
	10000	35x83	0.25	4.5
	12000	35x83	0.25	4.7
	15000	35x100	0.25	5.6
	18000	35x100	0.25	6.2
	22000	51x83	0.30	7.7
	27000	51x83	0.30	8.2
	33000	51x100	0.35	8.7
	39000	51x100	0.35	9.6
	47000	64x100	0.40	11.5
	56000	64x100	0.40	11.8
	68000	64x144	0.40	13.7
	82000	64x144	0.45	14.2
	100000	77x144	0.45	15.2
	120000	77x144	0.50	15.8
80	3300	35x53	0.15	2.5
	3900	35x53	0.15	2.7
	4700	35x65	0.15	2.9
	5600	35x65	0.20	3.7
	6800	35x83	0.20	4.3
	8200	35x83	0.20	4.5
	10000	35x100	0.20	5.4
	12000	35x100	0.20	5.6
	15000	51x83	0.25	7.3
	18000	51x83	0.25	7.7
	22000	51x100	0.30	8.5
	27000	64x100	0.30	8.6
	33000	64x100	0.35	10.5
	39000	64x121	0.35	11.8
	47000	64x144	0.35	14.0
	56000	64x144	0.35	14.2
	68000	77x144	0.35	16.7
	82000	77x144	0.35	17.1
100	2200	35x53	0.15	2.5
	2700	35x53	0.15	2.5
	3300	35x65	0.15	2.9
	3900	35x83	0.15	3.5
	4700	35x83	0.15	3.7
	5600	35x100	0.20	4.6
	6800	35x100	0.20	4.9
	8200	51x83	0.20	5.8
	10000	51x83	0.20	6.2
	12000	51x100	0.20	7.5
	15000	51x121	0.20	8.5
	18000	64x100	0.20	8.8
	22000	64x100	0.25	9.6
	27000	64x121	0.25	10.3
	33000	64x144	0.25	12.1
	39000	77x144	0.25	12.4
	47000	77x144	0.25	13.9
	56000	77x144	0.30	15.3

SCREW



SWG Screw Terminal, General, 85°C

φD x L (mm)

WV	Cap (μF)	Size (mm) φDxL	DF (%) (max) 120Hz, 20°C	R.C. (A., rms) (max) 120Hz, 85°C
160	3300	35x121	0.15	5.2
	3900	51x75	0.15	5.3
	4700	51x75	0.15	5.8
	5600	51x96	0.15	7.0
	6800	51x96	0.15	7.7
	8200	51x115	0.15	9.1
	10000	64x96	0.15	10.3
	12000	64x96	0.15	11.3
	15000	64x130	0.15	14.3
	18000	64x130	0.15	15.6
	22000	77x130	0.15	18.2
	27000	77x130	0.15	20.2
	33000	90x130	0.15	23.7
200	39000	90x157	0.15	27.8
	2200	35x100	0.15	3.9
	2700	35x121	0.15	4.7
	3300	51x75	0.15	4.9
	3900	51x75	0.15	5.3
	4700	51x96	0.15	6.4
	5600	51x115	0.15	7.5
	6800	51x130	0.15	8.7
	8200	64x96	0.15	9.4
	10000	64x96	0.15	10.3
	12000	77x96	0.15	12.0
	15000	77x96	0.15	14.4
	18000	77x130	0.15	16.5
250	22000	77x155	0.15	19.6
	27000	90x130	0.15	21.5
	33000	90x157	0.15	25.5
	1500	35x100	0.15	3.2
	1800	35x100	0.15	3.5
	2200	51x75	0.15	4.0
	2700	51x75	0.15	4.4
	3300	51x96	0.15	5.4
	3900	51x115	0.15	6.3
	4700	64x96	0.15	7.1
	5600	64x96	0.15	7.7
	6800	64x115	0.15	9.1
	8200	64x115	0.15	10.0
350	10000	64x130	0.15	11.6
	12000	77x115	0.15	12.8
	15000	77x130	0.15	15.1
	18000	77x155	0.15	17.7
	22000	90x157	0.15	20.9
	390	35x53	0.15	1.6
	470	35x65	0.15	2.1
	560	35x83	0.15	2.3
	680	35x83	0.15	2.6
	820	35x100	0.15	3.0
	1000	35x100	0.15	3.4
	1200	51x75	0.15	3.8
	1500	51x75	0.15	4.2
	1800	51x96	0.15	5.1
	2200	51x96	0.15	5.7
	2700	51x130	0.15	7.1
	3300	64x115	0.15	7.9
	3900	64x115	0.15	8.9
	4700	64x130	0.15	10.3
	5600	77x115	0.15	11.3
	6800	77x130	0.15	13.1
	8200	77x155	0.15	15.4
	10000	90x157	0.15	18.1
	12000	90x157	0.15	20.0



SWG Screw Terminal, General, 85°C

φD x L (mm)

WV	Cap (μF)	Size (mm) φDxL	DF (%) (max) 120Hz, 20°C	R.C. (A., rms) (max) 120Hz, 85°C
400	330	35x53	0.15	1.5
	390	35x65	0.15	2.0
	470	35x83	0.15	2.1
	560	35x83	0.15	2.3
	680	35x100	0.15	2.8
	820	35x100	0.15	3.1
	1000	51x75	0.15	3.5
	1200	51x75	0.15	3.8
	1500	51x96	0.15	4.7
	1800	51x96	0.15	5.1
	2200	51x130	0.15	6.4
	2700	64x96	0.15	6.9
	3300	64x115	0.15	8.2
	3900	64x130	0.15	9.4
	4700	77x115	0.15	10.4
	5600	77x130	0.15	11.9
	6800	90x157	0.15	14.0
	8200	90x157	0.15	16.4
450	10000	90x157	0.15	18.2
	270	35x53	0.15	1.3
	330	35x65	0.15	1.8
	390	35x83	0.15	2.0
	470	35x83	0.15	2.1
	560	35x100	0.15	2.5
	680	35x100	0.15	2.8
	820	51x75	0.15	3.2
	1000	51x75	0.15	3.5
	1200	51x96	0.15	4.2
	1500	51x115	0.15	5.0
	1800	51x130	0.15	5.8
	2200	64x96	0.15	6.3
	2700	64x115	0.15	7.5
	3300	64x130	0.15	8.6
	3900	77x115	0.15	9.5
	4700	77x130	0.15	10.8
	5600	77x155	0.15	12.8
	6800	90x157	0.15	15.0
	8200	90x157	0.15	16.4

SCREW



SWK Screw Terminal, General, 105°C

Features

- Endurance with ripple current:105°C,2000 hours

Specifications



Item	Performance Characteristics						
Operating Temperature Range	-40 to +105°C			-25 to +105°C			
Rated voltage Range	10 to 100 VDC			160 to 450 VDC			
Capacitance Tolerance	±20%(120Hz, +20°C)						
Leakage Current (+20°C, max.)	1≤0.01 CV or 5(mA) whichever is smaller (after 5 minutes) Where,C=rated capacitance in μF. V=rated DC working voltage in V.						
Dissipation Factor (tanδ)	Shown in the table of standard rating						
Low Temperature Characteristics (at 120Hz)	Capacitance change: C(-25°C)/C(+20°C)≥0.7						
Load Life	Test Time			2000 Hrs			
	Capacitance Change			Within ±20% of initial value			
	Dissipation Factor			Less than 200% of specified value			
	Leakage Current			Within specified value			
	*The above specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with rated ripple current applied for 2000 hrs at 105°C						
Shelf Life	Test Time			1000 Hrs			
	Capacitance Change			Within ±20% of initial value			
	Dissipation Factor			Less than 200% of specified value			
	Leakage Current			Within specified value			
	*The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hrs at 105°C without voltage applied. The rated voltage shall be applied to the capacitors before the measurements(Refer to JIS C 5102-4.4).						
Ripple Current & Frequency Multipliers	Freq. (Hz)		50(60)	120	300	1K	10K UP
	Multiplier		0.8	1.0	1.1	1.3	1.4
Ripple Current & Frequency Multipliers	Temperature (°C)		40	55	70	85	105
	Multiplier	≤250V	4.9	3.9	3.0	1.8	1.0
		≥350V	3.8	3.3	2.5	2.0	1.0
Standards	Satisfies Characteristic W of JIS C 5101- 4						



SWK Screw Terminal, General, 105°C

Diagram of Dimensions: (Unit: mm)

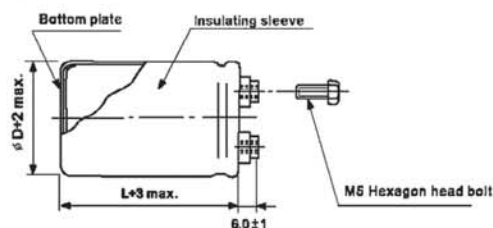
Screw specifications:

Plus hexagon-headed screw: M5x0.8x10

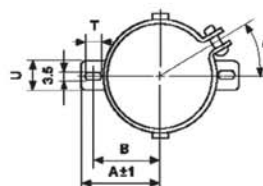
Max. screw tightening torque: 3.23Nm

Dφ	P	α	L1	W1	W2	H	h
35	12.7	2	10.0	48	58	15.0	10.0

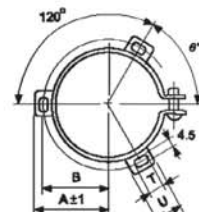
•DRAWING



•TWO LEGS ANGLE



•THREE LEGS ANGLE



Dφ	P	α	L1	W1	W2	H	h	a	b	c	θ°
51	22.0	2	10	61.0	65.5	21.0	15.0	7.0	12.0	4.5	60
64	28.6	2	10	72.5	78.0	25.0	20.0	7.0	14.0	4.5	60
77	32.0	2	10	85.5	91.0	35.0	20.0	8.0	16.0	4.5	60
90	32.0	2	10	101	106	34.5	20.0	8.0	16.0	5.0	60

Case Size

φD x L (mm)

WV	Cap (μF)	Size (mm) φDxL	DF (%) (max) 120Hz, 20°C	R.C. (A., rms) (max) 120Hz, 105°C
16	18000	35x53	0.40	4.2
	22000	35x53	0.40	4.7
	27000	35x53	0.40	5.5
	33000	35x65	0.45	5.7
	39000	35x65	0.45	6.8
	47000	35x83	0.50	7.1
	56000	35x100	0.50	8.4
	68000	35x121	0.55	8.8
	82000	51x83	0.55	10.7
	100000	51x83	0.65	10.8
	120000	51x100	0.65	13.1
	150000	51x121	0.70	15.3
	180000	51x121	0.80	15.7
	220000	64x121	0.85	19.2
	270000	64x121	1.00	19.6
	330000	77x121	1.30	21.1
	390000	77x121	1.50	21.3
	470000	77x144	1.60	24.2



SWK Screw Terminal, General, 105°C

φD x L (mm)

WV	Cap (μF)	Size (mm) φDxL	DF (%) (max) 120Hz, 20°C	R.C. (A., rms) (max) 120Hz, 105°C
25	12000	35x53	0.35	3.7
	15000	35x53	0.35	4.1
	18000	35x65	0.35	4.8
	22000	35x65	0.35	5.3
	27000	35x83	0.40	6.4
	33000	35x83	0.40	6.7
	39000	35x100	0.40	7.8
	47000	35x121	0.40	9.3
	56000	51x75	0.50	9.7
	68000	51x100	0.50	11.2
	82000	51x100	0.60	11.2
	100000	51x121	0.60	14.8
	120000	64x100	0.80	14.9
	150000	64x121	0.80	17.9
	180000	64x121	1.00	17.9
	220000	77x121	1.00	21.3
	270000	77x121	1.00	21.7
	330000	77x144	1.00	23.4
	390000	90x130	1.00	24.9
35	8200	35x53	0.30	3.3
	10000	35x53	0.30	3.6
	12000	35x65	0.30	4.2
	15000	35x65	0.30	4.7
	18000	35x83	0.35	5.7
	22000	35x83	0.35	6.3
	27000	35x100	0.40	7.5
	33000	35x121	0.40	9.0
	39000	51x75	0.45	9.2
	47000	51x100	0.45	11.2
	56000	51x100	0.50	11.4
	68000	51x121	0.50	13.6
	82000	64x100	0.60	14.8
	100000	64x121	0.60	17.6
	120000	64x121	0.70	17.6
	150000	77x121	0.70	19.8
	180000	77x121	0.70	19.8
	220000	77x144	0.70	23.4
	270000	90x157	0.70	25.5
50	3900	35x53	0.25	2.8
	4700	35x53	0.25	3.1
	5600	35x53	0.25	3.3
	6800	35x53	0.25	3.3
	8200	35x65	0.25	3.8
	10000	35x83	0.25	4.6
	12000	35x83	0.30	5.1
	15000	35x83	0.30	5.7
	18000	35x100	0.35	6.7
	22000	35x121	0.35	8.1
	27000	51x75	0.40	9.1
	33000	51x100	0.40	11.1
	39000	51x121	0.40	13.1
	47000	51x121	0.40	13.9
	56000	64x100	0.45	13.9
	68000	64x121	0.45	16.6
	82000	77x121	0.50	18.9
	100000	77x121	0.50	19.5
	120000	77x121	0.50	19.5
	150000	90x130	0.50	22.5
	180000	90x157	0.50	23.9



SWK Screw Terminal, General, 105°C

φD x L (mm)

WV	Cap (μF)	Size (mm) φDxL	DF (%) (max) 120Hz, 20°C	R.C. (A., rms) (max) 120Hz, 105°C
63	2700	35x53	0.20	2.3
	3300	35x53	0.20	2.5
	3900	35x53	0.20	2.8
	4700	35x53	0.20	3.1
	5600	35x65	0.20	3.5
	6800	35x65	0.20	3.9
	8200	35x83	0.25	4.4
	10000	35x83	0.25	4.7
	12000	35x100	0.25	5.5
	15000	35x121	0.25	6.6
	18000	51x75	0.30	7.4
	22000	51x100	0.30	9.0
	27000	51x121	0.30	10.9
	33000	51x121	0.30	12.0
	39000	64x100	0.35	12.5
	47000	64x121	0.35	14.9
	56000	64x121	0.40	16.3
	68000	77x121	0.40	18.4
	82000	77x144	0.40	20.0
	100000	77x144	0.40	20.0
80	2200	35x53	0.15	2.4
	2700	35x53	0.15	2.7
	3300	35x53	0.15	3.0
	3900	35x65	0.15	3.4
	4700	35x65	0.15	3.7
	5600	35x83	0.20	4.5
	6800	35x83	0.20	4.9
	8200	35x100	0.20	5.1
	10000	35x121	0.20	6.1
	12000	51x75	0.25	6.7
	15000	51x100	0.25	8.3
	18000	51x121	0.25	9.9
	22000	51x121	0.25	11.0
	27000	64x100	0.30	11.4
	33000	77x100	0.30	13.9
	39000	77x100	0.30	13.9
	47000	77x121	0.30	16.5
	56000	77x121	0.30	18.1
	68000	77x144	0.30	19.7
100	82000	90x130	0.30	22.1
	1800	35x53	0.15	2.7
	2200	35x53	0.15	3.0
	2700	35x65	0.20	3.5
	3300	35x83	0.20	4.2
	3900	35x83	0.20	4.2
	4700	35x100	0.20	5.0
	5600	35x100	0.20	5.4
	6800	35x121	0.20	5.8
	8200	51x75	0.25	6.4
	10000	51x100	0.25	7.8
	12000	51x121	0.25	9.3
	15000	51x121	0.25	10.4
	18000	64x100	0.30	10.4
	22000	64x121	0.30	12.5
	27000	77x121	0.30	13.7
	33000	77x121	0.30	15.2
	39000	77x144	0.30	16.1
	47000	90x130	0.30	19.3
	56000	90x157	0.30	21.1

SCREW



SWK Screw Terminal, General, 105°C

φD x L (mm)

WV	Cap (μF)	Size (mm) φDxL	DF (%) (max) 120Hz, 20°C	R.C. (A., rms) (max) 120Hz, 105°C
160	560	35x53	0.15	1.2
	680	35x53	0.15	1.3
	820	35x65	0.15	1.4
	1000	35x83	0.15	1.8
	1200	35x83	0.15	1.9
	1500	35x83	0.15	2.1
	1800	35x83	0.15	2.5
	2200	35x100	0.15	2.8
	2700	35x100	0.15	3.3
	3300	51x75	0.15	3.8
	3900	51x75	0.15	3.8
	4700	51x96	0.15	4.6
	5600	51x96	0.15	5.1
	6800	64x96	0.15	6.1
	8200	64x96	0.15	7.0
	10000	77x96	0.15	8.4
	12000	77x115	0.15	9.4
	15000	77x130	0.15	11.4
	18000	77x144	0.15	13.4
	22000	90x130	0.15	14.5
	27000	90x157	0.15	16.0
200	330	35x53	0.15	0.9
	390	35x53	0.15	1.0
	470	35x53	0.15	1.1
	560	35x53	0.15	1.2
	680	35x53	0.15	1.3
	820	35x65	0.15	1.5
	1000	35x83	0.15	1.7
	1200	35x83	0.15	1.9
	1500	35x100	0.15	2.3
	1800	35x100	0.15	2.5
	2200	51x75	0.15	3.0
	2700	51x96	0.15	3.6
	3300	51x96	0.15	4.1
	3900	51x115	0.15	4.9
	4700	64x96	0.15	5.3
	5600	64x96	0.15	5.8
	6800	64x115	0.15	6.9
	8200	64x130	0.15	7.6
	10000	77x115	0.15	9.6
	12000	77x130	0.15	10.2
	15000	90x130	0.15	12.2
	18000	90x157	0.15	13.1
250	270	35x53	0.15	0.8
	330	35x53	0.15	0.9
	390	35x53	0.15	1.0
	470	35x53	0.15	1.1
	560	35x65	0.15	1.4
	680	35x83	0.15	1.5
	820	35x83	0.15	1.6
	1000	35x100	0.15	1.8
	1200	35x100	0.15	1.9
	1500	51x75	0.15	2.3
	1800	51x75	0.15	2.5
	2200	51x96	0.15	3.0
	2700	51x115	0.15	3.5
	3300	64x96	0.15	4.2
	3900	64x96	0.15	4.6
	4700	64x115	0.15	5.7
	5600	64x130	0.15	6.3
	6800	77x115	0.15	7.7
	8200	77x130	0.15	8.4
	10000	77x155	0.15	10.0
	12000	90x140	0.15	11.9
	15000	90x157	0.15	12.5



SWK Screw Terminal, General, 105°C

φD x L (mm)

WV	Cap (μF)	Size (mm) φDxL	DF (%) (max) 120Hz, 20°C	R.C. (A., rms) (max) 120Hz, 105°C
350	180	35x53	0.15	0.8
	220	35x53	0.15	0.9
	270	35x53	0.15	1.0
	330	35x65	0.15	1.2
	390	35x65	0.15	1.3
	470	35x83	0.15	1.5
	560	35x83	0.15	1.6
	680	35x100	0.15	1.7
	820	35x100	0.15	1.8
	1000	51x75	0.15	2.2
	1200	51x75	0.15	2.3
	1500	51x96	0.15	3.0
	1800	51x115	0.15	3.6
	2200	51x130	0.15	4.0
	2700	64x96	0.15	4.6
	3300	64x115	0.15	5.6
	3900	64x130	0.15	6.7
	4700	77x121	0.15	7.5
	5600	77x130	0.15	8.3
	6800	77x155	0.15	9.4
400	8200	77x157	0.15	11.4
	180	35x53	0.15	0.8
	220	35x53	0.15	0.9
	270	35x65	0.15	1.1
	330	35x65	0.15	1.2
	390	35x83	0.15	1.3
	470	35x83	0.15	1.4
	560	35x100	0.15	1.6
	680	35x100	0.15	1.7
	820	35x121	0.15	2.0
	1000	51x75	0.15	2.2
	1200	51x96	0.15	2.7
	1500	51x115	0.15	3.3
	1800	51x130	0.15	3.7
	2200	64x96	0.15	4.2
	2700	64x115	0.15	4.8
	3300	64x130	0.15	5.5
	3900	77x115	0.15	6.5
	4700	77x130	0.15	7.6
	5600	77x155	0.15	9.4
	6800	90x157	0.15	10.4
	8200	90x157	0.15	11.8

SCREW