

GL series

Features

- ◆ Low impedance for high frequency , Anti-Solvent Design.
- ◆ Long life 2000 ~6000 Hrs at 105°C depending on case size.
- ◆ Radial type for switching power supply.
- ◆ For detail specifications , please refer to Engineering Bulletin No.E103
- ◆ RoHS Compliant



Specifications

Item	Performance Characteristics								
Operating Temperature Range	-55 to +105°C								
Rate Voltage Range	6.3 to 63VDC								
Capacitance Range	0.47 to 10000 µF								
Capacitance Tolerance	±20% (120Hz, +20°C)								
Leakage current (+20°C,max.)	I ≤ 0.01CV 或 3 (µA) After 2 minutes ,whichever is greater measured with rated working voltage applied								
Dissipation factor (tgδ)	Working Voltage(VDC)	6.3	10	16	25	35	50	63	
	D.F(%)max	20	18	16	14	12	10	9	
For capacitance>1000µF , Add 2% per another 1000µF (120Hz, +20°C)									
Low Temperature Characteristics (120Hz)	Impedance ratio max.								
	Working Voltage(VDC)	6.3	10	16	25	35	50	63	
	Z-25°C/ Z+20°C	4	3	2	2	1.5	1.5	1.5	
	Z-40°C/ Z+20°C	6	4	3	3	2	2	2	
Z-55°C/ Z+20°C									
For capacitance>1000µF , Add 0.5 per another 1000µF For Z-25°C/ Z+20°C Add 1.0 per another 1000µF For Z-40°C/ Z+20°C Add 1.5 per another 1000µF For Z-55°C/ Z+20°C									
Load Life	Test conditions						D Φ		Life hours
	Duration time	: as right					5-6.3Φ	2000	
Ambient temperature						: +105°C		8Φ	3000
Applied voltage						: Rated DC working voltage		≥10Φ	6000
After test requirement 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 requirement 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

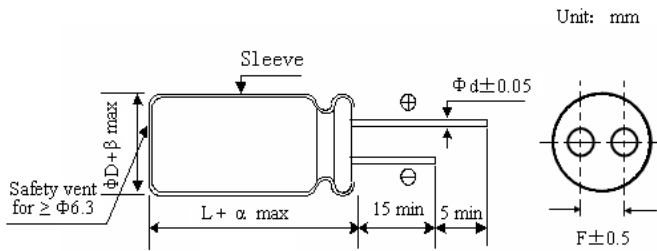
CAP(µF)	50(60)	120	400	1k	10k	50k-100k
Frequency (Hz)						
CAP ≤ 10	0.47	0.59	0.76	0.85	0.97	1.00
10 < CAP ≤ 100	0.52	0.65	0.80	0.89	0.97	1.00
100 < CAP ≤ 1000	0.58	0.72	0.84	0.90	0.98	1.00
1000 < CAP	0.63	0.78	0.87	0.91	0.98	1.00

Multiplier for Ripple Current vs. Temperature

Temperature °C	45	60	70	85	105
Factor	1.80	1.50	1.45	1.30	1.00

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Diagram of Dimensions



ΦD	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	12.5
Φd	0.5	0.5	0.5	0.6	0.6	0.8	0.8	0.8	1.0
α	(L < 20) + 1.5				(L ≥ 20) + 2.0				
β	(D < 20) + 0.5				(D ≥ 20) + 1.0				

Case Size

Voltage	Φ D × L								
	6.3V			10V			16V		
Cap(μF)	Case Size	Ripple Current	Impedance	Case Size	Ripple Current	Impedance	Case Size	Ripple Current	Impedance
10							5×11	37	4.00
15							5×11	60	3.52
22				5×11	56	2.60	5×11	70	2.00
27				5×11	57	2.40	5×11	110	1.60
33				5×11	58	2.20	5×11	130	1.26
39				5×11	95	1.85	5×11	150	0.87
47				5×11	120	1.20	5×11	190	0.52
56				5×11	130	1.05	5×11	205	0.49
68				5×11	145	0.89	5×11	210	0.45
82				5×11	170	0.75	6.3×12	250	0.37
100	5×11	185	0.95	5×11	205	0.48	6.3×12	260	0.31
120	5×11	190	0.90	5×11	230	0.44	6.3×12	290	0.29
150	6.3×12	210	0.75	6.3×12	270	0.37	6.3×12	300	0.26
180	6.3×12	240	0.70	6.3×12	290	0.35	6.3×15	370	0.23
							8×12	368	0.24
220	6.3×12	300	0.55	6.3×12	330	0.28	6.3×15	470	0.20
							8×12	455	0.21
270	6.3×12	310	0.49	6.3×15	370	0.25	8×12	490	0.17
				8×12	390	0.21			
330	6.3×15	320	0.34	6.3×15	445	0.15	8×12	550	0.12
	8×12	390	0.30	8×12	430	0.16			
470	6.3×15	435	0.25	8×12	555	0.115	8×16	745	0.092
	8×12	430	0.22				10×13	722	0.095
560	8×12	480	0.20	8×12	620	0.095	10×13	780	0.082
680	8×12	510	0.18	8×16	630	0.090	10×16	920	0.074
820	8×16	620	0.14	8×20	870	0.084	10×16	1020	0.067
1000	8×16	710	0.10	8×20	1040	0.070	10×20	1180	0.050
	10×13	625	0.12	10×16	1010	0.072			

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

Max Impedance(Ω) at 20°C 100KHz,

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Case Size

Φ D×L

Voltage	6.3V			10V			16V		
Cap(μF)	Case Size	Ripple Current	Impedance	Case Size	Ripple Current	Impedance	Case Size	Ripple Current	Impedance
1200	10×16	810	0.095	10×16	1130	0.062	10×25	1370	0.047
1500	10×16	1050	0.074	10×20	1270	0.056	10×25	1470	0.041
1800	10×20	1200	0.065	10×25	1430	0.045	13×21	1630	0.038
				13×21	1450	0.048			
2200	10×20	1300	0.060	13×21	1690	0.040	13×21	1800	0.035
	10×25	1400	0.057				13×25	1950	0.033
2700	10×25	1400	0.055	13×21	1800	0.033	13×25	2050	0.031
	13×21	1410	0.052						
3300	13×21	1500	0.048	13×25	1980	0.029	13×30	2410	0.025
							16×25	2340	0.028
4700	13×25	1800	0.032	13×30	2300	0.025	16×32	2650	0.022
	13×30	1950	0.025	16×25	2100	0.029	18×25	2570	0.024
6800	13×30	2020	0.024	16×32	2340	0.023	18×32	2700	0.020
	16×25	2230	0.021						
8200	16×32	2530	0.020	16×36	2580	0.019	18×36	2830	0.018
10000	16×36	2740	0.019	18×32	2770	0.017	18×41	3300	0.015

Voltage	25V			35V			50V			63V		
Cap(μF)	Case Size	Ripple Current	Impedance	Case Size	Ripple Current	Impedance	Case Size	Ripple Current	Impedance	Case Size	Ripple Current	Impedance
0.47							5×11	15	5.00	5×11	16	5.00
1							5×11	25	3.95	5×11	27	3.95
2.2							5×11	33	2.60	5×11	38	2.60
3.3							5×11	45	2.00	5×11	48	2.00
4.7							5×11	58	1.89	5×11	62	1.89
5.6							5×11	80	1.85	5×11	85	1.82
6.8							5×11	85	1.77	5×11	90	1.75
8.2							5×11	90	1.72	5×11	100	1.69
10	5×11	56	2.10	5×11	70	1.90	5×11	100	1.70	5×11	105	1.65
15	5×11	97	1.95	5×11	115	1.72	5×11	110	1.53	5×11	110	1.47
22	5×11	120	1.80	5×11	130	1.36	6.3×12	135	1.00	6.3×12	170	0.80
27	5×11	130	1.56	5×11	140	1.20	6.3×12	160	0.93	6.3×12	190	0.75
33	5×11	150	1.20	5×11	175	0.95	6.3×12	230	0.74	8×12	245	0.61
39	5×11	170	0.82	6.3×12	200	0.74	6.3×12	240	0.65	8×12	270	0.58
47	5×11	220	0.50	6.3×12	250	0.44	8×12	285	0.50	8×12	290	0.56

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

Max Impedance(Ω) at 20°C 100KHz,

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Case Size

Φ D×L

Voltage	25V			35V			50V			63V		
	Cap(μF)	Case Size	Ripple Current	Impedance	Case Size	Ripple Current	Impedance	Case Size	Ripple Current	Impedance	Case Size	Ripple Current
56	5×11	245	0.44	6.3×12	270	0.40	8×12	300	0.39	8×12	320	0.38
68	6.3×12	270	0.39	6.3×12	300	0.35	8×12	340	0.30	8×16	480	0.30
82	6.3×12	285	0.33	6.3×15	350	0.29	8×12	400	0.25	8×16	510	0.28
100	6.3×12	300	0.28	6.3×15	390	0.18	8×16	475	0.18	10×16	590	0.24
				8×12	380	0.19						
120	6.3×12	350	0.22	8×12	460	0.17	8×16	520	0.17	10×16	660	0.16
150	6.3×15	420	0.20	8×16	580	0.15	10×16	675	0.13	10×20	790	0.11
180	6.3×15	440	0.18	8×16	630	0.13	10×16	760	0.095	10×20	850	0.095
	8×12	435	0.19									
220	8×12	550	0.125	8×16	740	0.095	10×20	900	0.085	10×25	1020	0.082
				10×13	720	0.098				13×21	1054	0.080
270	8×12	620	0.095	8×20	830	0.086	10×20	950	0.075	13×21	1100	0.072
				10×16	840	0.088						
330	8×16	740	0.085	10×16	995	0.065	10×25	1050	0.068	10×30	1200	0.064
	10×13	720	0.082							13×25	1160	0.067
470	10×16	1040	0.065	10×20	1150	0.050	13×21	1490	0.048	16×25	1750	0.048
560	10×16	1070	0.061	10×25	1310	0.048	13×21	1550	0.045	16×25	1830	0.044
680	10×20	1280	0.052	13×21	1440	0.044	13×25	1840	0.041	16×32	2070	0.040
820	10×25	1460	0.043	13×21	1600	0.038	13×30	2060	0.036	16×32	2100	0.035
1000	10×25	1530	0.039	13×30	1950	0.036	13×40	2200	0.033	16×36	2450	0.031
	13×25	1580	0.038				16×32	2130	0.030			
1200	13×25	1800	0.036	16×25	2200	0.029	16×32	2520	0.027	18×31	2500	0.026
1500	13×25	2020	0.032	16×32	2520	0.027	16×36	2700	0.026	18×36	2700	0.025
1800	13×30	2300	0.027	16×32	2560	0.026	18×32	2800	0.025	18×41	2900	0.024
2200	13×30	2480	0.025	16×32	2650	0.025	18×36	2900	0.024	18×41	2990	0.023
	16×25	2405	0.024	18×25	2570	0.026						
2700	16×32	2670	0.020	18×32	2660	0.023	18×41	2970	0.021			
3300	16×32	2960	0.022	18×36	3000	0.020						
	18×25	3050	0.022									
4700	16×41	3490	0.021	18×41	3300	0.019						
	18×36	3520	0.017									
6800	18×41	3600										

Ripple Current (mA, rms) at 105°C 100KHz,
x Impedance(Ω) at 20°C 100KHz