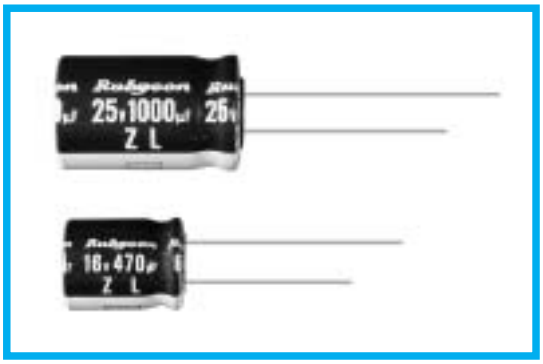
ZL シリーズ SERIES

105℃ High ripple current, Low impedance.



◆FEATURES

- Enabled high ripple current by a reduction of impedance at high frequency range.
- Load Life : 105℃ 1000～5000hours.
- RoHS compliance.

◆SPECIFICATIONS

Items	Characteristics
Category Temperature Range	−40～+105℃
Rated Voltage Range	6.3～100V.DC
Capacitance Tolerance	±20%（20℃，120Hz）
Leakage Current(MAX)	I=0.01CV or 3 μA whichever is greater. (After 2 minutes) I=Leakage Current(μA) C=Rated Capacitance(μF) V=Rated Voltage(V)
Dissipation Factor(MAX) (tan δ)	（20℃，120Hz） When rated capacitance is over 1000 μF, tan δ shall be added 0.02 to the listed value with increase of every 1000 μF.
Endurance	After life test with rated ripple current at conditions stated in the table below, the capacitors shall meet the following requirements.
Low Temperature Stability Impedance Ratio(MAX)	（120Hz）

Dissipation Factor(MAX) (tan δ)

Rated Voltage (V)	6.3	10	16	25	35	50	63	100
tan δ	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08

Endurance

Capacitance Change	Within ±25% of the initial value.
Dissipation Factor	Not more than 200% of the specified value.
Leakage Current	Not more than the specified value.

Case size		Life Time (hrs)
L=7		1000
L≧11	φD≦6.3	2000
	φD= 8	3000
	φD= 10	4000
	φD≧12.5	5000

Low Temperature Stability Impedance Ratio(MAX)

Rated Voltage	6.3	10	16	25	35	50	63	100
Z(−25℃)/Z(20℃)	2	2	2	2	2	2	2	2
Z(−40℃)/Z(20℃)	3	3	3	3	3	3	3	3

◆MULTIPLIER FOR RIPPLE CURRENT

Frequency coefficient

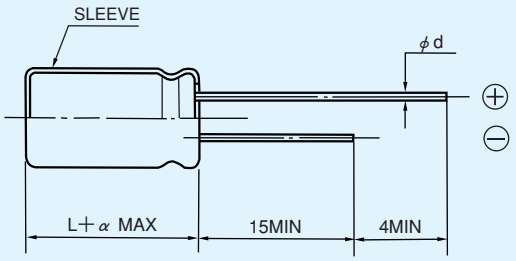
Frequency (Hz)		120	1k	10k	100k≦
Coefficient	5.6～33 μF	0.42	0.70	0.90	1.00
	39～270 μF	0.50	0.73	0.92	1.00
	330～680 μF	0.55	0.77	0.94	1.00
	820～1800 μF	0.60	0.80	0.96	1.00
	2200～6800μF	0.70	0.85	0.98	1.00

◆PART NUMBER

□□□	ZL	□□□□□	□	□□□	□□	D×L
Rated Voltage	Series	Rated Capacitance	Capacitance Tolerance	Option	Lead Forming	Case Size

◆DIMENSIONS

(mm)



〈L＝7〉

φD	4	5	6.3	8
φd	0.45			
F	1.5	2.0	2.5	3.5
α	1.0			

〈L≧11〉

φD	5	6.3	8	10	12.5	16	18
φd	0.5		0.6			0.8	
F	2.0	2.5	3.5	5.0		7.5	
α	L≦16 : α＝1.5 L≧20 : α＝2.0						

◆STANDARD SIZE

Rated voltage 6.3V(0J)				
Rated capacitance (μF)	Size φD×L(mm)	Rated ripple current (mA r.m.s./105℃, 100kHz)	Impedance (Ω MAX)	
			20℃, 100kHz	−10℃, 100kHz
39	4×7	130	0.85	2.6
68	5×7	210	0.43	1.3
150	6.3×7	300	0.23	0.69
150	5×11	250	0.30	1.0
220	8×7	380	0.15	0.45
330	6.3×11	405	0.13	0.41
560	8×11.5	760	0.072	0.22
820	8×16	995	0.056	0.17
1000	10×12.5	1030	0.053	0.16
1200	8×20	1250	0.041	0.13
1200	10×16	1430	0.038	0.12
1500	10×20	1820	0.023	0.069
2200	10×23	2150	0.022	0.066
3300	12.5×20	2360	0.021	0.053
3900	12.5×25	2770	0.018	0.045
4700	12.5×30	3290	0.016	0.041
5600	12.5×35	3400	0.015	0.039
5600	16×20	3140	0.018	0.045
6800	16×25	3460	0.016	0.043

Rated voltage 10V(1A)				
Rated capacitance (μF)	Size φD×L(mm)	Rated ripple current (mA r.m.s./105℃, 100kHz)	Impedance (Ω MAX)	
			20℃, 100kHz	−10℃, 100kHz
27	4×7	130	0.89	2.7
56	5×7	210	0.44	1.4
100	5×11	250	0.30	1.0
120	6.3×7	300	0.23	0.69
180	8×7	380	0.15	0.45
220	6.3×11	405	0.13	0.41
470	8×11.5	760	0.072	0.22
680	8×16	995	0.056	0.17
680	10×12.5	1030	0.053	0.16
1000	8×20	1250	0.041	0.13
1000	10×16	1430	0.038	0.12
1200	10×20	1820	0.023	0.069
1500	10×23	2150	0.022	0.066
2200	12.5×20	2360	0.021	0.053
3300	12.5×25	2770	0.018	0.045
3900	12.5×30	3290	0.016	0.041
3900	16×20	3140	0.018	0.045
4700	12.5×35	3400	0.015	0.039
5600	16×25	3460	0.016	0.043

Rated voltage 16V(1C)				
Rated capacitance (μF)	Size φD×L(mm)	Rated ripple current (mA r.m.s./105℃, 100kHz)	Impedance (Ω MAX)	
			20℃, 100kHz	−10℃, 100kHz
18	4×7	130	0.92	2.8
33	5×7	210	0.45	1.4
56	5×11	250	0.30	1.0
68	6.3×7	300	0.24	0.72
120	8×7	380	0.15	0.45
120	6.3×11	405	0.13	0.41
330	8×11.5	760	0.072	0.22
470	8×16	995	0.056	0.17
470	10×12.5	1030	0.053	0.16
680	8×20	1250	0.041	0.13
680	10×16	1430	0.038	0.12
1000	10×20	1820	0.023	0.069
1200	10×23	2150	0.022	0.066
1500	12.5×20	2360	0.021	0.053
2200	12.5×25	2770	0.018	0.045
2700	12.5×30	3290	0.016	0.041
2700	16×20	3140	0.018	0.045
3300	12.5×35	3400	0.015	0.039
3900	16×25	3460	0.016	0.043

Rated voltage 25V(1E)				
Rated capacitance (μF)	Size φD×L(mm)	Rated ripple current (mA r.m.s./105℃, 100kHz)	Impedance (Ω MAX)	
			20℃, 100kHz	−10℃, 100kHz
15	4×7	130	0.94	2.9
27	5×7	210	0.46	1.4
47	5×11	250	0.30	1.0
56	6.3×7	300	0.24	0.72
100	8×7	380	0.15	0.45
100	6.3×11	405	0.13	0.41
220	8×11.5	760	0.072	0.22
330	8×16	995	0.056	0.17
330	10×12.5	1030	0.053	0.16
470	8×20	1250	0.041	0.13
470	10×16	1430	0.038	0.12
680	10×20	1820	0.023	0.069
820	10×23	2150	0.022	0.066
1000	12.5×20	2360	0.021	0.053
1500	12.5×25	2770	0.018	0.045
1800	12.5×30	3290	0.016	0.041
1800	16×20	3140	0.018	0.045
2200	12.5×35	3400	0.015	0.039
2700	16×25	3460	0.016	0.043

Rated voltage 35V(1V)				
Rated capacitance (μF)	Size φD×L(mm)	Rated ripple current (mA r.m.s./105℃, 100kHz)	Impedance (Ω MAX)	
			20℃, 100kHz	−10℃, 100kHz
10	4×7	130	0.96	2.9
18	5×7	210	0.47	1.5
33	5×11	250	0.30	1.0
39	6.3×7	300	0.25	0.75
56	8×7	380	0.16	0.48
56	6.3×11	405	0.13	0.41
150	8×11.5	760	0.072	0.22
220	8×16	995	0.056	0.17
220	10×12.5	1030	0.053	0.16
270	8×20	1250	0.041	0.13
330	10×16	1430	0.038	0.12
470	10×20	1820	0.023	0.069
560	10×23	2150	0.022	0.066
680	12.5×20	2360	0.021	0.053
1000	12.5×25	2770	0.018	0.045
1200	12.5×30	3290	0.016	0.041
1200	16×20	3140	0.018	0.045
1500	12.5×35	3400	0.015	0.039
1800	16×25	3460	0.016	0.043

Rated voltage 50V(1H)				
Rated capacitance (μF)	Size φD×L(mm)	Rated ripple current (mA r.m.s./105℃, 100kHz)	Impedance (Ω MAX)	
			20℃, 100kHz	−10℃, 100kHz
5.6	4×7	130	1.0	3.0
10	5×7	210	0.50	1.5
22	6.3×7	300	0.26	0.78
22	5×11	238	0.34	1.18
33	8×7	380	0.17	0.51
56	6.3×11	385	0.14	0.50
100	8×11.5	724	0.074	0.22
120	8×16	950	0.061	0.18
150	10×12.5	979	0.061	0.18
180	8×20	1190	0.046	0.14
220	10×16	1370	0.042	0.12
270	10×20	1580	0.030	0.090
330	10×23	1870	0.028	0.085
470	12.5×20	2050	0.027	0.068
560	12.5×25	2410	0.023	0.059
680	12.5×30	2860	0.021	0.052
820	12.5×35	2960	0.019	0.051
820	16×20	2730	0.023	0.059
1000	16×25	3010	0.021	0.056

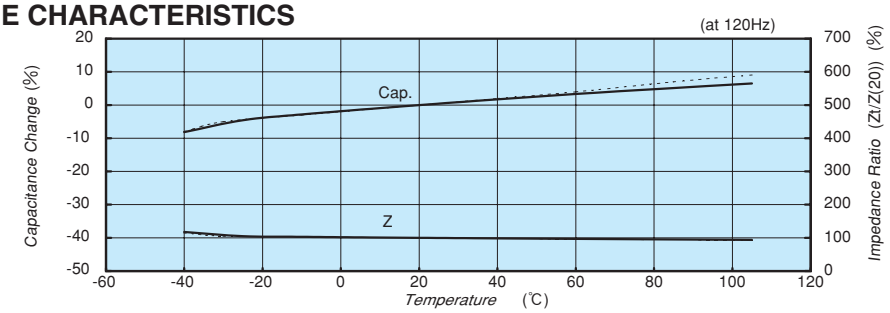
Rated voltage 63V(1J)				
Rated capacitance (μF)	Size φD×L(mm)	Rated ripple current (mA r.m.s./105℃, 100kHz)	Impedance (Ω MAX)	
			20℃, 100kHz	−10℃, 100kHz
15	5×11	165	0.88	3.5
33	6.3×11	265	0.35	1.4
56	8×11.5	500	0.22	0.88
82	8×16	665	0.16	0.64
82	10×12.5	685	0.15	0.60
120	8×20	820	0.12	0.48
120	10×16	945	0.11	0.44
180	10×20	1100	0.080	0.32
180	12.5×16	1135	0.082	0.27
220	10×23	1300	0.073	0.29
270	12.5×20	1495	0.060	0.20
330	12.5×25	1850	0.043	0.14
470	12.5×30	2250	0.039	0.13
470	16×20	1990	0.045	0.14
560	12.5×35	2450	0.033	0.11
560	16×25	2550	0.032	0.096
680	12.5×40	2780	0.029	0.096
680	18×20	2450	0.038	0.10
820	16×31.5	2810	0.026	0.078
820	18×25	2780	0.031	0.084
1000	16×35.5	2835	0.021	0.063
1000	18×31.5	3270	0.025	0.068
1200	16×40	3340	0.019	0.057
1200	18×35.5	3310	0.020	0.054
1500	18×40	3420	0.018	0.049

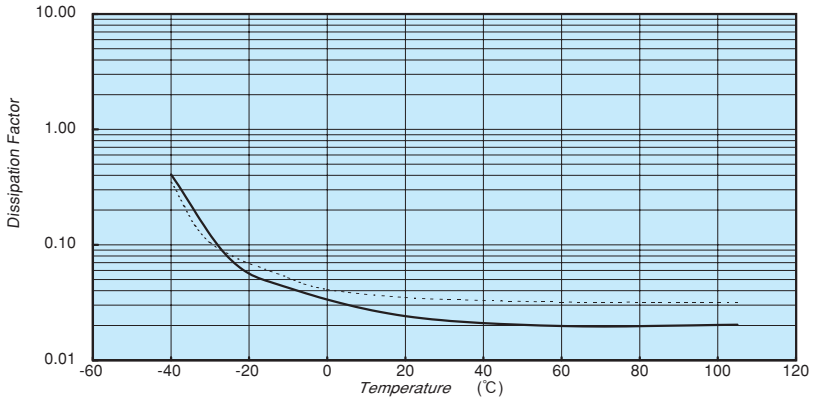
Rated voltage 100V(2A)				
Rated capacitance (μF)	Size φD×L(mm)	Rated ripple current (mA r.m.s./105℃, 100kHz)	Impedance (Ω MAX)	
			20℃, 100kHz	−10℃, 100kHz
6.8	5×11	125	1.40	5.6
15	6.3×11	205	0.57	2.3
27	8×11.5	355	0.36	1.4
39	8×16	450	0.25	1.0
47	10×12.5	450	0.24	0.96
56	8×20	565	0.19	0.76
68	10×16	580	0.18	0.72
82	10×20	750	0.13	0.52
82	12.5×16	735	0.13	0.43
100	10×23	880	0.12	0.48
120	12.5×20	1045	0.094	0.31
180	12.5×25	1195	0.071	0.23
220	12.5×30	1410	0.063	0.21
220	16×20	1295	0.071	0.21
270	12.5×35	1560	0.052	0.17
270	16×25	1600	0.053	0.16
270	18×20	1470	0.069	0.19
330	12.5×40	1700	0.046	0.15
390	16×31.5	1750	0.041	0.12
390	18×25	1620	0.049	0.13
470	16×35.5	1890	0.033	0.10
470	18×31.5	1775	0.039	0.11
560	16×40	2080	0.030	0.090
560	18×35.5	2060	0.031	0.084
680	18×40	2570	0.028	0.076

◆CHARACTERISTIC DATA

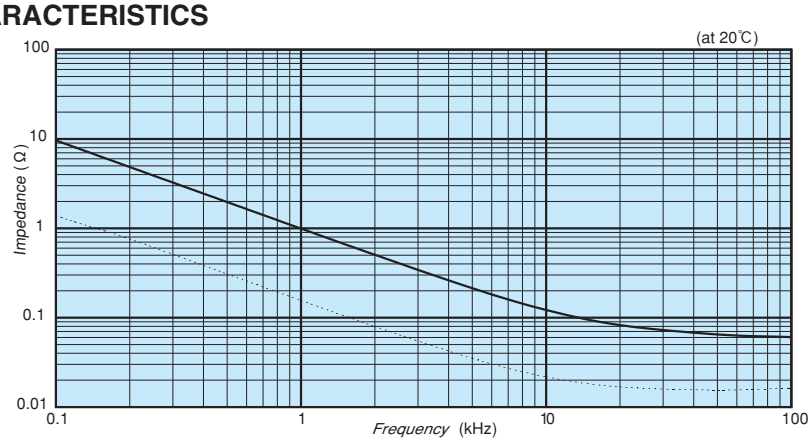
35 ZL 150 M 8×11.5
25 ZL 1000 M 12.5×20

· TEMPERATURE CHARACTERISTICS





· FREQUENCY CHARACTERISTICS



· ENDURANCE