

- Load life of 2000 hours at 105°C
- High ripple current
- Computers communication powers, hi-ripple circuit of electric vehicle, electric train, general-purpose inverter



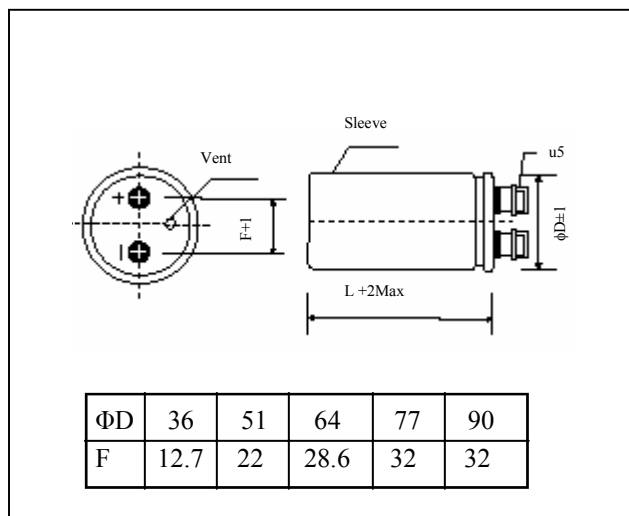
## ■ SPECIFICATIONS

Item	Characteristics	
Rated Voltage Range (V)	10~100	160~450
Operating Temperature Range (°C)	-40~+105	-25~+105
Capacitance Tolerance (25°C, 120Hz)	± 20%	
Leakage Current (μ A)	0.02CV or 5mA, whichever is smaller. (25° C, after 5 minutes) C: Nominal Capacitance (μ F), V: Rated Voltage (V)	
Dissipation Factor (25° C, 120Hz)	Tan δ shall not exceed the values shown in the table of STANDARD RATINGS	
Temperature Stability (120Hz)	Capacitance change 10~100VDC: Capacitance at ~40° C shall not be less than 60% of the 25°C value 160~400VDC: Capacitance at -25° C shall not be less than 70% of the 25° C value	
Load Life (+105°C)	Time	2000 hours
	Leakage current	Not more than the specified value
	Capacitance change	Within ±20% of the initial value
	Dissipation factor	Not more than 200% of specified
Shelf Life (+105°C)	Time	1000 hours
	Leakage current	Not more than the specified value
	Capacitance change	Within ±20% of the initial value
	Dissipation factor	Not more than 200% of specified

\*After test (V) to be applied for 60 minutes, 24 to 48 hours before measurement.

## ■ DIMENSIONS

mm



## ■ MULTIPLIER FOR RIPPLE CURRENT

Frequency coefficient

Frequency (Hz)	50,60	120	300	1K	≥10K
Factor	0.8	1.0	1.10	1.20	1.50

Temperature coefficient

Temperature (°C)	+70	+85	+105
Factor	2.1	1.7	1.0

Rated Voltage (V.DC)	Surge Voltage (V.DC)	Rated Capacitance ( $\mu$ F)	Dissipation Factor MAX	Ripple Current 105°C 120Hz	Size $\Phi$ DxL (mm)
10	13	27000	0.45	4.9	36x53
		33000	0.50	5.1	36x53
		39000	0.50	5.9	36x65
		47000	0.50	7.1	36x83
		56000	0.60	7.1	36x83
		68000	0.60	8.5	36x100
		82000	0.65	8.9	36x100
		100000	0.65	10.7	36x121
		120000	0.75	11.0	51x83
		150000	0.80	13.2	51x96
		180000	0.80	15.7	51x121
		220000	0.85	16.8	51x121
		270000	1.00	19.6	64x115
		330000	1.20	19.7	64x115
		390000	1.50	21.3	77x115
		470000	1.80	21.4	77x115
		560000	2.00	23.6	77x144
		680000	2.40	26.0	90x145
16	20	18000	0.40	4.2	36x53
		22000	0.40	4.7	36x53
		27000	0.40	5.5	36x65
		33000	0.45	5.7	36x65
		39000	0.45	6.8	36x83
		47000	0.50	7.1	36x83
		56000	0.50	8.4	36x100
		68000	0.55	8.8	36x100
		82000	0.55	10.7	51x83
		100000	0.65	10.8	51x83
		120000	0.65	13.1	51x96
		150000	0.70	15.3	51x121
		180000	0.80	15.7	51x121
		220000	0.85	19.2	64x115
		270000	1.00	19.6	64x115

Rated Voltage (V.DC)	Surge Voltage (V.DC)	Rated Capacitance ( $\mu$ F)	Dissipation Factor MAX	Ripple Current 105°C 120Hz	Size $\Phi$ DxL (mm)
16	20	330000	1.30	21.1	77x115
		390000	1.50	21.3	77x115
		470000	1.60	24.2	77x144
		560000	2.00	28.1	90x145
		680000	2.40	28.5	90x145
25	32	12000	0.35	3.7	36x53
		15000	0.35	4.1	36x53
		18000	0.35	4.8	36x65
		22000	0.35	5.3	36x65
		27000	0.35	6.4	36x83
		33000	0.40	6.7	36x83
		39000	0.40	7.8	36x100
		47000	0.40	9.3	36x121
		56000	0.45	9.7	51x75
		68000	0.45	11.2	51x96
		82000	0.50	11.2	51x100
		100000	0.50	14.8	51x120
		120000	0.65	14.9	64x96
		150000	0.65	17.9	64x115
		180000	0.80	17.9	64x130
		220000	0.85	21.3	77x115
		270000	1.00	21.7	77x115
		330000	1.20	23.4	77x144
		390000	1.50	24.9	90x145
		35	44	8200	0.30
10000	0.30			3.6	36x53
12000	0.30			4.2	36x65
15000	0.30			4.7	36x65
18000	0.30			5.7	36x83
22000	0.30			6.3	36x83
27000	0.30			7.5	36x100
33000	0.30			9.0	36x121
39000	0.35			9.2	51x75
47000	0.35			11.2	51x100
56000	0.40			11.4	51x100
68000	0.40			13.6	51x121
82000	0.45			14.8	64x96
100000	0.45			17.6	64x115

Rated Voltage (V.DC)	Surge Voltage (V.DC)	Rated Capacitance (μ F)	Dissipation Factor MAX	Ripple Current 105°C 120Hz	Size ΦDxL (mm)
35	44	120000	0.55	17.6	64x115
		150000	0.65	19.8	77x115
		180000	0.80	19.8	77x115
		220000	0.80	23.4	77x144
		270000	1.00	25.5	90x145
50	63	3900	0.20	2.8	36x53
		4700	0.20	3.1	36x53
		5600	0.20	3.3	36x53
		6800	0.25	3.3	36x53
		8200	0.25	3.8	36x65
		10000	0.25	4.6	36x83
		12000	0.25	5.1	36x83
		15000	0.25	5.7	36x83
		18000	0.25	6.7	36x100
		22000	0.25	8.1	36x121
		27000	0.25	9.1	51x83
		33000	0.25	11.1	51x100
		39000	0.25	13.1	51x121
		47000	0.30	13.9	51x121
		56000	0.35	13.9	64x100
		68000	0.35	16.6	64x121
		82000	0.40	18.9	77x115
		100000	0.45	19.5	77x115
		120000	0.55	19.5	77x115
		150000	0.60	23.9	90x145
180000	0.75	23.9	90x145		
63	79	2700	0.20	2.3	36x53
		3300	0.20	2.5	36x53
		3900	0.20	2.8	36x53
		4700	0.20	3.1	36x53
		5600	0.20	3.5	36x65
		6800	0.20	3.9	36x65
		8200	0.20	4.7	36x83
		10000	0.25	4.7	36x83
		12000	0.25	5.5	36x100
		15000	0.25	6.6	36x121
		18000	0.25	7.4	51x75
		22000	0.25	9.0	51x100

Rated Voltage (V.DC)	Surge Voltage (V.DC)	Rated Capacitance ( $\mu$ F)	Dissipation Factor MAX	Ripple Current 105°C 120Hz	Size $\Phi$ DxL (mm)
63	79	27000	0.25	10.9	51X115
		3300	0.25	12.0	51X121
		39000	0.30	12.5	64X96
		47000	0.30	14.9	64X115
		56000	0.30	16.3	64X130
		68000	0.35	18.4	77X115
		82000	0.40	20.0	77X144
		100000	0.50	20.0	77X144
		120000	0.60	21.8	90X145
80	100	2200	0.15	2.4	36X53
		2700	0.15	2.7	36X53
		3300	0.15	3.0	36X53
		3900	0.15	3.4	36X65
		4700	0.15	3.7	36X65
		5600	0.15	4.5	36X83
		6800	0.15	4.9	36X83
		8200	0.20	5.1	36X100
		10000	0.20	6.1	36X121
		12000	0.20	6.7	51X75
		15000	0.20	8.3	51X100
		18000	0.20	9.9	51X115
		22000	0.20	11.0	51X121
		27000	0.25	11.4	64X96
		33000	0.25	13.9	77X96
		39000	0.30	13.9	77X96
		47000	0.30	16.5	77X115
		56000	0.30	18.1	77X115
		68000	0.35	19.7	77X144
		82000	0.40	22.1	90X145
100	125	1800	0.10	2.7	36X53
		2200	0.10	3.0	36X53
		2700	0.10	3.5	36X65
		3300	0.10	4.2	36X83
		3900	0.12	4.2	36X83
		4700	0.12	5.0	36X100
		5600	0.12	5.4	36X121
		6800	0.15	5.8	51X75
		8200	0.15	6.4	51X96

Rated Voltage (V.DC)	Surge Voltage (V.DC)	Rated Capacitance (μ F)	Dissipation Factor MAX	Ripple Current 105°C 120Hz	Size ΦDxL (mm)
100	125	10000	0.15	7.8	51X96
		12000	0.15	9.3	51X115
		15000	0.15	10.4	51X121
		18000	0.20	10.4	64X96
		22000	0.20	12.5	64X115
		27000	0.25	13.7	77X115
		33000	0.25	15.2	77X130
		39000	0.30	16.1	77X155
		47000	0.30	19.3	90X157
		56000	0.30	21.1	90X157
160	200	560	0.15	1.2	36X53
		680	0.15	1.3	36X53
		820	0.15	1.4	36X53
		1000	0.15	1.6	36X53
		1200	0.15	1.9	36X65
		1500	0.15	2.1	36X65
		1800	0.15	2.5	36X83
		2200	0.15	2.8	36X83
		2700	0.15	3.3	36X100
		3300	0.15	3.8	36X121
		3900	0.20	3.8	51X75
		4700	0.20	4.6	51X96
		5600	0.20	5.1	51X100
		6800	0.20	6.1	51X121
		8200	0.20	7.0	64X96
		10000	0.20	8.4	64X115
		12000	0.20	9.4	77X96
		15000	0.20	11.4	77X130
		18000	0.20	13.4	77X155
		22000	0.25	14.5	90X157
27000	0.25	16.0	90X157		
200	250	330	0.15	0.9	36x53
		390	0.15	1.0	36x53
		470	0.15	1.1	36x53
		560	0.15	1.2	36x53
		680	0.15	1.3	36x53
		820	0.15	1.4	36x53
		1000	0.15	1.7	36x65

Rated Voltage (V.DC)	Surge Voltage (V.DC)	Rated Capacitance (μ F)	Dissipation Factor MAX	Ripple Current 105°C 120Hz	Size ΦDxL (mm)
200	250	1200	0.15	1.9	36x65
		1500	0.15	2.3	36x83
		1800	0.15	2.5	36x83
		2200	0.15	3.0	36x100
		2700	0.15	3.6	36x121
		3300	0.15	4.1	51x75
		3900	0.15	4.9	51x100
		4700	0.20	5.3	64x96
		5600	0.20	5.8	64x100
		6800	0.20	6.9	64x115
		8200	0.20	7.6	64x130
		10000	0.20	9.3	77x115
		12000	0.20	10.2	77x130
		15000	0.20	12.2	77x155
250	300	270	0.15	0.8	36x53
		330	0.15	0.9	36x53
		390	0.15	1.0	36x53
		470	0.15	1.1	36x53
		560	0.15	1.2	36x53
		680	0.15	1.4	36x65
		820	0.15	1.6	36x83
		1000	0.15	1.6	36x83
		1200	0.20	1.8	36x83
		1500	0.20	2.1	36x100
		1800	0.20	2.5	36x121
		2200	0.20	2.9	51x75
		2700	0.20	3.5	51x100
		3300	0.20	4.2	51x121
		3900	0.20	4.6	51x121
		4700	0.20	5.7	64x115
		5600	0.20	6.3	64x130
		6800	0.20	7.7	77x115
		8200	0.20	8.4	77x130
		10000	0.20	10.0	77x155
315	365	180	0.10	0.8	36x53
		220	0.10	0.9	36x53

Rated Voltage (V.DC)	Surge Voltage (V.DC)	Rated Capacitance ( $\mu$ F)	Dissipation Factor MAX	Ripple Current 105°C 120Hz	Size $\Phi$ DxL (mm)
315	365	270	0.10	1.0	36x53
		330	0.10	1.1	36x53
		390	0.10	1.2	36x53
		470	0.10	1.4	36x65
		560	0.10	1.5	36x65
		680	0.10	1.7	36x83
		820	0.15	1.7	36x83
		1000	0.15	2.0	36x100
		1200	0.15	2.4	36x121
		1500	0.15	2.7	51x75
		1800	0.15	3.3	51x96
		2200	0.15	4.0	51x115
		2700	0.15	4.4	51x121
		3300	0.15	5.1	64x96
		3900	0.15	6.0	64x115
		4700	0.15	6.8	77x115
		5600	0.15	8.0	77x115
		6800	0.15	9.2	77x130
		8200	0.15	11.4	90x157
		10000	0.15	12.6	90x157
350	400	180	0.10	0.8	36x53
		220	0.10	0.8	36x53
		270	0.10	1.0	36x53
		330	0.10	1.1	36x53
		390	0.10	1.3	36x65
		470	0.10	1.4	36x65
		560	0.10	1.6	36x83
		680	0.15	1.6	36x83
		820	0.15	1.8	36x100
		1000	0.15	2.2	36x121
		1200	0.15	2.4	51x75
		1500	0.15	3.0	51x100
		1800	0.15	3.6	51x115
		2200	0.15	4.0	51x121
		2700	0.15	4.6	64x96
		2900	0.15	6.7	77x115
		5600	0.15	8.3	77x130
		6800	0.15	9.5	77x155

Rated Voltage (V.DC)	Surge Voltage (V.DC)	Rated Capacitance ( $\mu$ F)	Dissipation Factor MAX	Ripple Current 105°C 120Hz	Size $\Phi$ DxL (mm)
350	400	8200	0.15	11.4	77x157
400	450	180	0.10	0.8	36x53
		220	0.10	0.9	36x53
		270	0.10	1.0	36x53
		330	0.10	1.2	36x65
		390	0.10	1.3	36x65
		470	0.10	1.4	36x83
		560	0.15	1.4	36x83
		680	0.15	1.7	36x100
		820	0.15	2.0	36x121
		1000	0.15	2.2	51x75
		1200	0.15	2.7	51x100
		1500	0.15	3.3	51x115
		2200	0.15	4.2	64x96
		3300	0.15	5.5	64x115
		4700	0.15	7.6	77x130
		5600	0.15	9.4	77x155
		6800	0.15	10.4	90x157
450	500	220	0.15	1.1	36x53
		330	0.15	1.5	36x100
		470	0.15	2.1	51x83
		680	0.15	2.7	51x96
		1000	0.15	4.2	51x100
		1500	0.15	5.7	51x130
		2200	0.15	7.3	64x115
		3300	0.15	10.1	77x130
		4700	0.15	12.6	77x155
		5600	0.15	15.8	90x157