

# LS Series

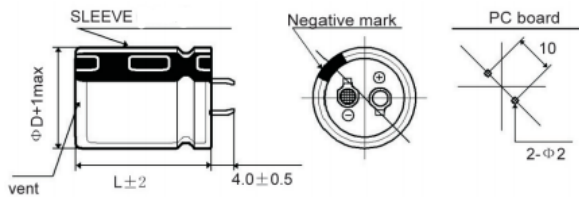
- No sparks against DC over-voltage
- Endurance with ripple current:5000 hours at +105°C
- RoHS Compliant



## ◆ SPECIFICATIONS

Items	Characteristics	
Temperature Range	-25 to +105°C	
Rated Voltage Range	200 to 400 V.DC	
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)	
Leakage Current	$I \leq 0.02CV$ or 3mA, whichever is smaller Where ,I: Max. leakage current (u A),C: Nominal capacitance(u F),V: Rated voltage(V) (at 20°C after 5 minutes)	
ESL	50nH max (at 20°C,1MHz)	
DC Over voltage Test	When an excessive DC voltage is applied to the capacitors under the test conditions on next page, the vent shall operate and then the capacitors shall become open-circuit without burning materials.	
Dissipation Factor (tan δ)	0.15 max (at 20°C,120Hz)	
Low Temperature Characteristics	$Z(-25^{\circ}\text{C})/Z(+20^{\circ}\text{C}) \leq 4$ (at 120Hz)	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied for 5,000 hours at 105°C.	
	Capacitance change	≤20% of the initial value
	D.F.(tanδ)	≤200% of the initial specified value
	Leakage current	≤The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.	
	Capacitance change	≤15% of the initial value
	D.F.(tanδ)	≤150% of the initial specified value
	Leakage current	≤200% of The initial specified value

## ◆ DIMENSIONS (mm)



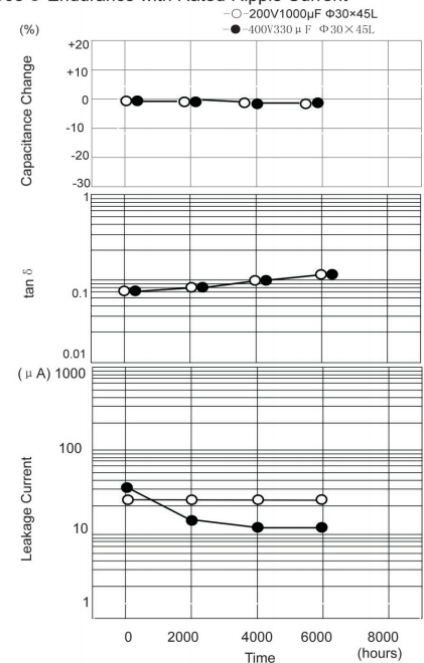
## ◆ RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current(Hz)

W.V	120	1K	10K	100K
200	1.00	1.32	1.45	1.50
400	1.00	1.30	1.41	1.43

The endurance of capacitors is shorted with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the r.ms ripple current has to be reduced.

105°C Endurance with Rated Ripple Current



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## ◆ STANDARD RATINGS

WV (V dc)	Cap (u F)	Case size $\Phi D \times L$ (mm)	$\tan \delta$	Ripple current (Arms/105°C,120Hz)
200 (2D)	270	22×25	0.15	0.45
	330	22×30	0.15	0.62
	330	25.4×25	0.15	0.62
	390	22×35	0.15	0.67
	390	25.4×30	0.15	0.66
	470	22×40	0.15	0.72
	470	25.4×30	0.15	0.72
	470	30×25	0.15	0.77
	560	22×45	0.15	0.80
	560	25.4×35	0.15	0.78
	560	30×30	0.15	0.81
	680	22×50	0.15	0.89
	680	25.4×40	0.15	0.89
	680	30×30	0.15	0.89
	680	35×25	0.15	0.88
	820	25.4×50	0.15	1.05
	820	30×35	0.15	1.03
	820	35×30	0.15	1.05
	1000	30×45	0.15	1.18
	1000	35×35	0.15	1.18
1200	30×50	0.15	1.33	
1200	35×40	0.15	1.36	
1500	35×45	0.15	1.57	
400 (2G)	68	22×25	0.15	0.26
	68	25.4×20	0.15	0.24

WV (V dc)	Cap (u F)	Case size $\Phi D \times L$ (mm)	$\tan \delta$	Ripple current (Arms/105°C,120Hz)
400 (2G)	82	22×30	0.15	0.30
	82	25.4×25	0.15	0.30
	100	22×35	0.15	0.34
	100	25.4×30	0.15	0.34
	120	22×40	0.15	0.37
	120	25.4×30	0.15	0.37
	120	30×25	0.15	0.39
	150	22×45	0.15	0.42
	150	25.4×35	0.15	0.43
	150	30×30	0.15	0.43
	180	22×50	0.15	0.49
	180	25.4×40	0.15	0.48
	180	30×30	0.15	0.47
	180	35×25	0.15	0.48
	220	25.4×45	0.15	0.55
	220	30×35	0.15	0.54
	220	35×30	0.15	0.55
	270	25.4×50	0.15	0.62
	270	30×40	0.15	0.62
	270	35×30	0.15	0.59
	330	30×45	0.15	0.71
	330	35×35	0.15	0.69
	390	30×50	0.15	0.80
	390	35×40	0.15	0.79
	470	35×45	0.15	0.89

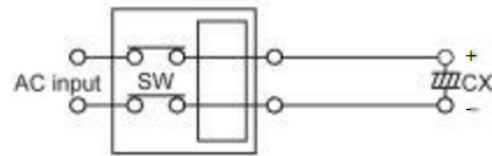
## ◆ DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following excess DC voltage is applied.

### ● Test DC voltage

Rated Voltage	Capacitance	Current limit	Test DC voltage
200Vdc	<330uF	4A	300/375Vdc
	$330 \leq C < 470$ uF	5A	
	$\geq 470$ uF	7A	
400Vdc	<100uF	2A	500/600Vdc
	$100 \leq C < 220$ uF	4A	
	$\geq 220$ uF	7A	

### ● Test Circuit



Constant DC voltage/current power supply