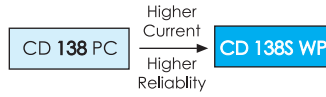


# CD 138S WP SERIES



10000h at 85°C

- Features
  - Higher ripple current
  - Long useful life & High Reliability
  - RoHS Compliant
- Applications
  - For Professional Power application and Inverters

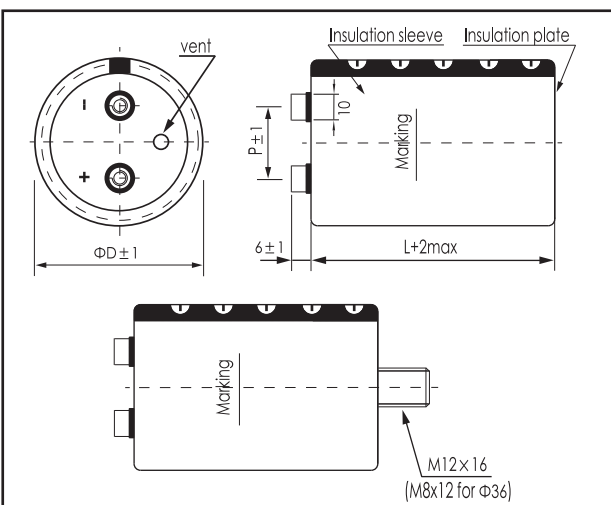


Items	Characteristics
Operating Temperature Range (°C)	-40 ~ +85
Voltage Range (V)	350 ~ 500
Capacitance Range (µF)	1500 ~ 12000
Capacitance Tolerance (20°C, 120Hz)	± 20%
Leakage Current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 5mA, whichever is smaller. C: Nominal Capacitance (µF) V: Rated Voltage (V)
Dissipation Factor (20°C, 120Hz)	Less than 0.15
Stability at Low Temperature (120Hz)	$C_{-25°C} / C_{+20°C} \geq 0.7$

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	15000h	>250000h	10000h	12000h	1000h
Leakage Current	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value
Capacitance Change	Within ± 30% of initial value		Within ± 20% of initial value	Within ± 10% of initial value	Within ± 20% of initial value
Dissipation Factor	Not more than 300% of specified value		Not more than 200% of specified value	Not more than 130% of specified value	Not more than 200% of specified value
Condition: Applied Voltage Applied Current Applied Temperature	$U_R$ $I_R$ 85°C	$U_R$ $1.2 \times I_R$ 40°C	$U_R$ $I_R$ 85°C	$U_R$ $I_R = 0$ 85°C	$U_R = 0$ $I_R = 0$ 85°C After test: $U_R$ to be applied for 60min >24h before measurement

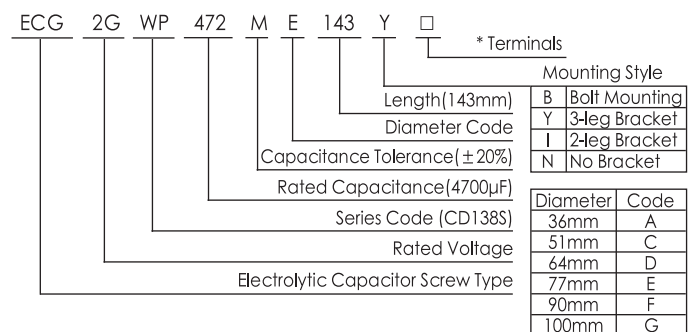
## Dimensions

mm



ΦD/mm	51	64	77	90	101
P/mm	22.0	28.2	31.4	31.4	41.5

## Part Number System (Ex: 450v4700µF)



## Ripple Current Coefficient

Frequency (Hz)	50/60	120	300	1k	>10k
Coefficient	0.80	1.00	1.10	1.30	1.40

Ambient Temp (°C)	40	60	85
Coefficient	1.89	1.67	1.00

The useful life can be prolonged by operating capacitor at loads below the rated values (e.g. lower operating voltage, Rms ripple current or ambient temperature) and by appropriate cooling measures. It is advisable not to apply a ripple current exceeding the rated ripple current without any cooling measures as this will shorten capacitor's life.

\*Hex head screw M5 x 10 and M6 x 12 are standard screws. Longer screws are available on request.  
 \*Max tightening torque for screw terminal M5: 3Nm, M6: 4Nm.  
 Max torque for bolt mounting M12: 12.5Nm.  
 \*Screws, Bracket and cap nut will be delivered separately. See "Accessories" for shape and dimensions.

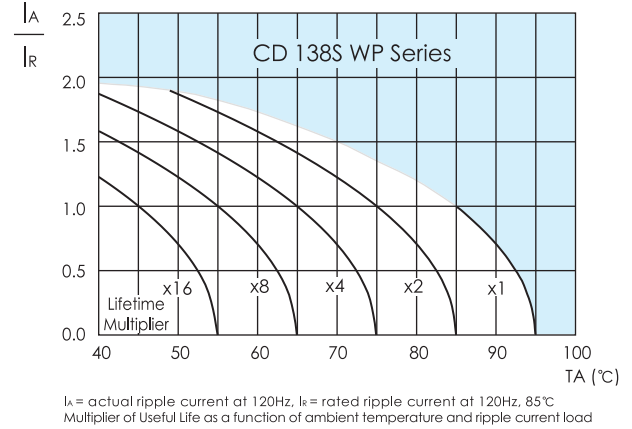
## Ratings for CD 138S WP Series

$U_r$ (Surge Voltage) Code	Rated Capacitance	Max.ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	-
350 (400) 2V	3900	50	25	14.6	64×96	ECCG2VWP392MD096□□
	4700	40	20	16.9	64×115	ECCG2VWP472MD115□□
	5600	34	17	19.8	64×130	ECCG2VWP562MD130□□
	5600	34	17	21.6	77×115	ECCG2VWP562MD115□□
	6800	28	14	25.0	77×143	ECCG2VWP682ME143□□
	6800	28	14	26.2	90×105	ECCG2VWP682ME105□□
	8200	24	12	29.3	77×143	ECCG2VWP822MF143□□
	8200	24	12	30.1	77×155	ECCG2VWP822ME155□□
	10000	18	9	35.7	90×157	ECCG2VWP103MF157□□
	12000	16	8	39.1	90×157	ECCG2VWP123MF157□□
400 (450) 2G	2700	76	38	11.5	64×96	ECCG2VWP272MF096□□
	3300	60	30	14.2	64×115	ECCG2GWP332MD115□□
	3900	52	26	16.5	64×115	ECCG2GWP392MD115□□
	3900	52	26	17.2	77×105	ECCG2GWP392MD105□□
	4700	42	21	18.1	64×130	ECCG2GWP472ME130□□
	4700	42	21	20.8	77×115	ECCG2GWP472MD115□□
	5600	36	18	22.7	77×130	ECCG2GWP562MD130□□
	5600	36	18	23.8	90×105	ECCG2GWP562ME105□□
	6800	30	15	26.6	77×155	ECCG2GWP682MF155□□
	6800	30	15	27.4	90×130	ECCG2GWP682ME130□□
8200	24	12	32.2	90×157	ECCG2GWP822MF157□□	
10000	20	10	35.7	90×157	ECCG2GWP103MF157□□	
450 (500) 2W	2200	92	46	10.4	64×96	ECCG2GWP222MD096□□
	2200	92	46	11.5	77×80	ECCG2WWP222ME080□□
	2700	76	38	12.8	64×115	ECCG2WWP272MD115□□
	3300	60	30	15.2	64×130	ECCG2WWP332MD130□□
	3300	60	30	15.8	77×105	ECCG2WWP332ME105□□
	3900	54	27	16.5	64×130	ECCG2WWP392MD130□□
	3900	54	27	18.0	77×115	ECCG2WWP392ME115□□
	4700	42	21	20.8	77×143	ECCG2WWP472ME143□□
	4700	42	21	21.8	90×105	ECCG2WWP472MF105□□
	5600	36	18	24.2	77×143	ECCG2WWP562ME143□□
5600	36	18	24.9	90×130	ECCG2WWP562ME130□□	
6800	30	15	29.4	90×157	ECCG2WWP682MF157□□	
8200	24	12	32.2	90×157	ECCG2WWP822MF157□□	
10000	20	10	36.9	90×171	ECCG2WWP103MF171□□	
500 (550) 2H	1500	148	74	8.6	64×96	ECCG2WWP152MD096□□
	1800	132	62	10.0	64×115	ECCG2HWP182MD115□□
	2200	102	51	11.7	64×130	ECCG2HWP222MD130□□
	2700	82	41	15.0	77×115	ECCG2HWP272ME115□□
	3300	68	34	17.5	77×130	ECCG2HWP332ME130□□
	3900	58	29	20.2	77×143	ECCG2HWP392ME143□□
	4700	48	24	21.8	90×130	ECCG2HWP472MF130□□
	5600	40	20	25.3	90×157	ECCG2HWP562MF157□□
6800	32	16	29.0	90×171	ECCG2HWP682MF171□□	

Mounting code("B" for bolt mounting, "Y/I/N" for bracket mounting.)  
Terminal options(A,B,C see "Dimensions" for details.)

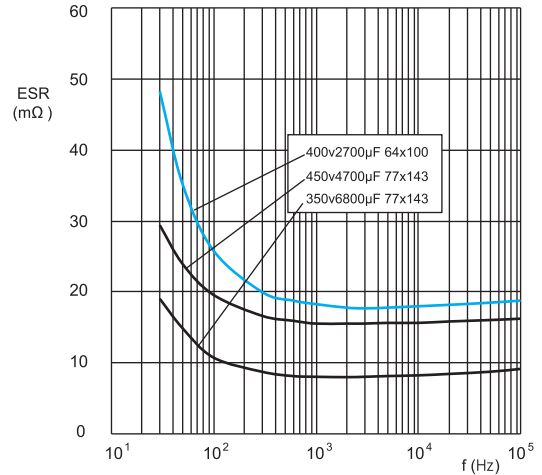
Customer products are available on request.

## Lifetime Diagram



## Typical Curves

### ESR ~ Frequency f at 20°C



### Impedance Z ~ Frequency f at 20°C

