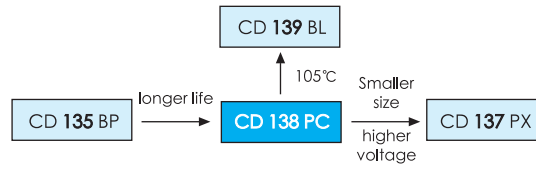


5000h at 85°C

- Features
  - Long Life
  - High Reliability
  - RoHS Compliant
- Applications
  - High Currents for High Professional
  - Power Application and Inverters

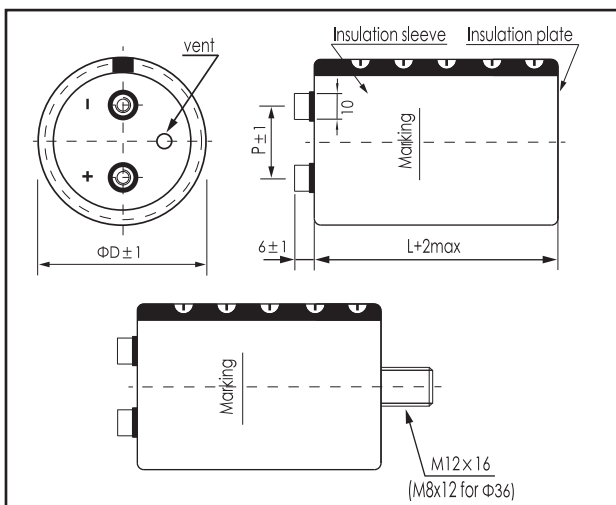


Items	Characteristics
Operating Temperature Range (°C)	-40 ~ +85
Voltage Range (V)	350 ~ 450
Capacitance Range (µF)	1000 ~ 18000
Capacitance Tolerance (20°C, 120Hz)	± 20%
Leakage Current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 5mA, whichever is smaller. C: Nominal Capacitance (µF) V: Rated Voltage (V)
Dissipation Factor (20°C, 120Hz)	Less than 0.15
Stability at Low Temperature (120Hz)	$C_{-25^{\circ}\text{C}} / C_{+20^{\circ}\text{C}} \geq 0.7$

Lifetime	Useful Life		Load Life	Endurance Test	Shelf Life
	>10000h	>100000h	5000h	5000h	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

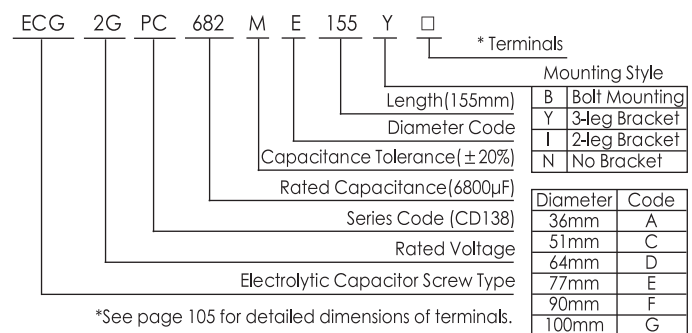
mm



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

- \*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" (page 104.105) for shape and dimensions.

## Part Number System (Ex: 400V6800µF)



## 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.

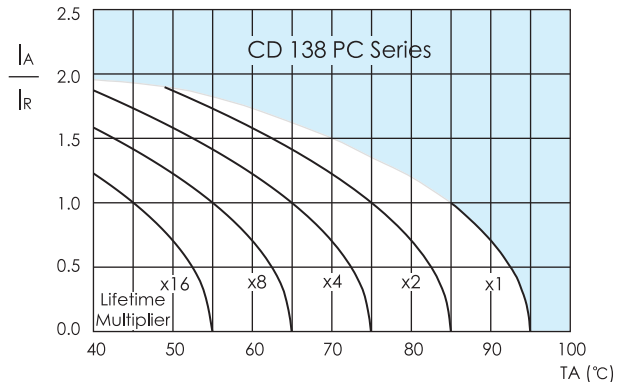
## Ratings for CD 138 PC Series

$U_r$ (Surge Voltage) Code	Rated Capacitance	Max.ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size $\Phi D \times L$	P/N
(V)	( $\mu F$ )	(m $\Omega$ )	(m $\Omega$ )	(Arms)	(mm)	-
350 (400) 2V	1200	215	67	5.50	51 × 83	ECG2VPC122MC083□□
	1500	172	55	6.10	51 × 83	ECG2VPC152MC083□□
	1800	143	43	7.40	51 × 96	ECG2VPC182MC096□□
	2200	117	30	8.20	51 × 96	ECG2VPC222MC096□□
	2700	96	27	10.20	51 × 130	ECG2VPC272MC130□□
	3300	78	23	11.30	51 × 130	ECG2VPC332MC130□□
	3900	66	19	12.80	64 × 115	ECG2VPC392MD115□□
	4700	55	16	14.80	64 × 130	ECG2VPC472MD130□□
	5600	46	14	16.30	77 × 115	ECG2VPC562ME115□□
	6800	38	13	18.80	77 × 130	ECG2VPC682ME130□□
	8200	31	11	22.10	77 × 155	ECG2VPC822ME155□□
	10000	26	10	25.90	90 × 157	ECG2VPC103MF157□□
	12000	22	8	28.40	90 × 157	ECG2VPC123MF157□□
	15000	17	6	34.60	90 × 196	ECG2VPC153MF196□□
	18000	14	4	41.40	90 × 236	ECG2VPC183MF236□□
400 (450) 2G	1000	215	82	5.00	51 × 83	ECG2GPC102MC083□□
	1200	179	70	5.50	51 × 83	ECG2GPC122MC083□□
	1500	143	50	6.70	51 × 96	ECG2GPC152MC096□□
	1800	119	40	7.40	51 × 96	ECG2GPC182MC096□□
	2200	98	28	9.20	51 × 130	ECG2GPC222MC130□□
	2700	80	23	9.90	64 × 96	ECG2GPC272MD096□□
	3300	65	21	11.80	64 × 115	ECG2GPC332MD115□□
	3900	55	19	13.50	64 × 130	ECG2GPC392MD130□□
	4700	46	15	14.90	77 × 115	ECG2GPC472ME115□□
	5600	39	14	17.00	77 × 130	ECG2GPC562ME130□□
	6800	32	13	20.20	77 × 155	ECG2GPC682ME155□□
	8200	26	12	23.50	90 × 157	ECG2GPC822MF157□□
	10000	22	10	25.90	90 × 157	ECG2GPC103MF157□□
	12000	18	8	31.00	90 × 196	ECG2GPC123MF196□□
	15000	14	6	37.50	90 × 236	ECG2GPC153MF236□□
450 (500) 2W	1000	215	93	5.00	51 × 83	ECG2WPC102MC083□□
	1200	179	69	6.00	51 × 96	ECG2WPC122MC096□□
	1500	143	56	7.20	51 × 115	ECG2WPC152MC115□□
	1800	119	45	8.30	51 × 130	ECG2WPC182MC130□□
	2200	98	35	9.00	64 × 96	ECG2WPC222MD096□□
	2700	80	30	10.70	64 × 115	ECG2WPC272MD115□□
	3300	65	24	12.40	64 × 130	ECG2WPC332MD130□□
	3900	55	20	13.60	77 × 115	ECG2WPC392ME115□□
	4700	46	16	15.60	77 × 130	ECG2WPC472ME130□□
	5600	38	13	18.30	77 × 155	ECG2WPC562ME155□□
	6800	32	11	21.40	90 × 157	ECG2WPC682MF157□□
	8200	26	10	23.50	90 × 157	ECG2WPC822MF157□□
	10000	22	9	28.30	90 × 196	ECG2WPC103MF196□□
	12000	18	8	33.60	90 × 236	ECG2WPC123MF236□□

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.

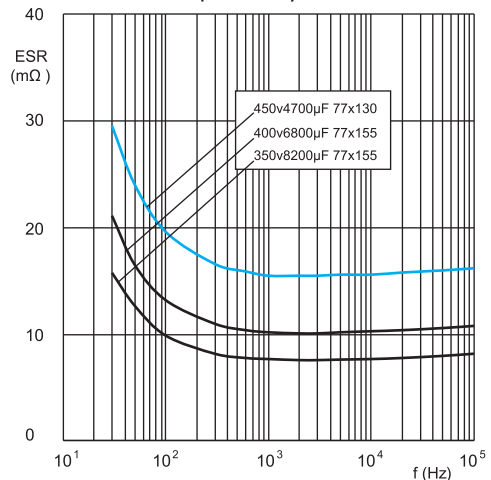
## Lifetime Diagram



$I_A$  = actual ripple current at 120Hz,  $I_R$  = rated ripple current at 120Hz, 85°C  
Multiplier of Useful Life as a function of ambient temperature and ripple current load

## Typical Curves

### ESR ~ Frequency $f$ at 20°C



### Impedance $Z$ ~ Frequency $f$ at 20°C

