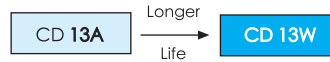


5000h at 85°C

■ Features

- Capacitance improved by 35%, comparison with CD137 model by special etched foil technology and new structure of element
- High reliability series with the warranty of 5000 hours
- RoHS Compliant

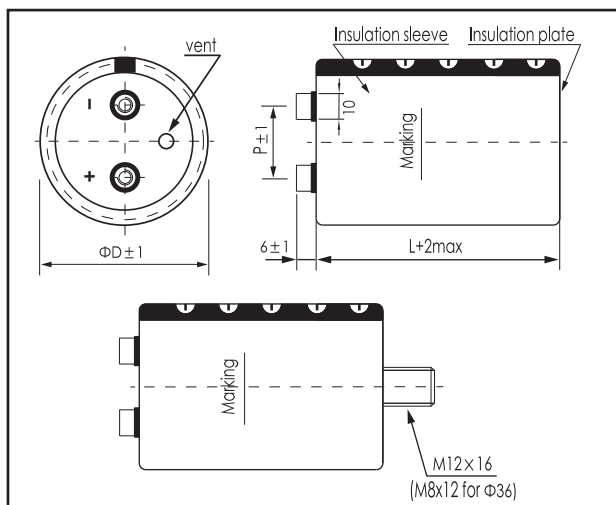


Items	Characteristics
Operating Temperature Range (°C)	-10 ~ +85
Voltage Range (V)	350 ~ 450
Capacitance Range (µF)	9000 ~ 38000
Capacitance Tolerance (20°C, 120Hz)	± 20%
Leakage Current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01 CV or 7mA, whichever is smaller. C: Nominal Capacitance (µF) V: Rated Voltage (V)
Dissipation Factor (20°C, 120Hz)	Less than 0.7
Stability at Low Temperature (120Hz)	$C_{-25°C} / C_{+20°C} \geq 0.7$

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	10000h	>80000h	5000h	2000h	500h
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

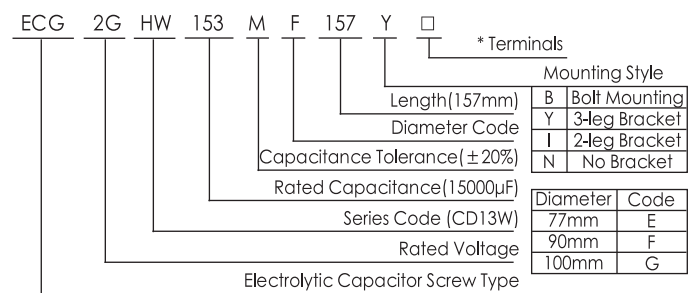
mm



ΦD/mm	77	90	101
P/mm	31.4	31.4	41.5

\*Hex head screw M5 x 10 and M8 x 16 are standard screws. Other screws are available on request.  
 \*Max tightening torque for screw terminal M5: 3Nm, M6: 4Nm, M8: 6Nm. 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: 400v15000µF)



\*See page 105 for detailed dimensions of terminals.

## Ripple Current Coefficient

Frequency(Hz)	50/60	120	300	1K	>10k
Coefficient	0.70	1.00	1.10	1.30	1.40
Ambient Temp (°C)	40	60	70	85	
Coefficient	2.70	2.00	1.70	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.

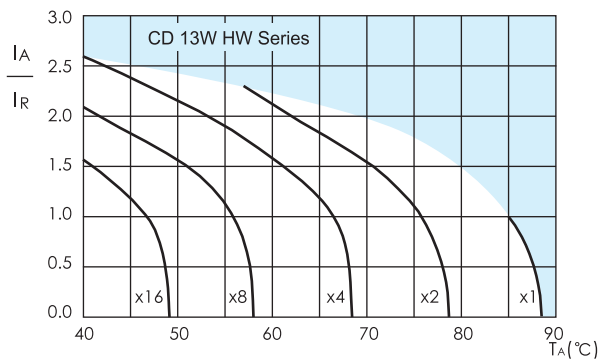
## Ratings for CD 13W HW Series

$U_R$ (Surge Voltage) Code	Rated Capacitance	Case Size $\Phi D \times L$	Rated Ripple Current 40°C, 120Hz	Rated Ripple Current 80°C, 120Hz	Typ. ESR 20°C, 120Hz	Max. Z 20°C, 10KHz	Typ. ESL	P/N
(V)	( $\mu F$ )	(mm)	(Arms)	(Arms)	(m $\Omega$ )	(mm)	(nH)	-
350 (400) 2V	13000	77 × 155	20.7	7.67	25	26	26	ECG2VHW133ME155□□
	17000	77 × 195	25.4	9.41	19	20	26	ECG2VHW173ME195□□
	17000	90 × 157	25.4	9.41	19	20	26	ECG2VHW173MF157□□
	22000	77 × 235	32.1	11.9	17	18	26	ECG2VHW223ME235□□
	24000	90 × 196	33.8	12.5	16	18	26	ECG2VHW243MF196□□
	24000	101 × 175	33.8	12.5	16	18	36	ECG2VHW243MG175□□
	30000	90 × 236	39.7	14.7	12	13	26	ECG2VHW303MF236□□
	30000	101 × 195	39.7	14.7	12	13	36	ECG2VHW303MG195□□
400 (450) 2G	38000	101 × 237	45.6	16.9	10	12	36	ECG2VHW383MG237□□
	11000	77 × 155	19.2	7.11	31	32	26	ECG2GHW113ME155□□
	13000	77 × 195	23.0	8.52	26	27	26	ECG2GHW133ME195□□
	15000	90 × 157	24.0	8.89	23	24	26	ECG2GHW153MF157□□
	16000	77 × 235	28.0	10.4	21	22	26	ECG2GHW163ME235□□
	19000	90 × 196	30.0	11.1	21	22	26	ECG2GHW193MF196□□
	20000	101 × 175	29.4	10.9	20	21	36	ECG2GHW203MG175□□
	24000	90 × 236	35.9	13.3	17	18	26	ECG2GHW243MF236□□
450 (500) 2W	24000	101 × 195	33.8	12.5	17	18	36	ECG2GHW243MG195□□
	30000	101 × 237	40.5	15.0	13	14	36	ECG2GHW303MG237□□
	9000	77 × 155	17.4	6.44	38	39	26	ECG2WHW902ME155□□
	11000	77 × 195	21.2	7.85	31	32	26	ECG2WHW113ME195□□
	12000	90 × 157	20.2	7.48	28	29	26	ECG2WHW123ME157□□
	14000	77 × 235	26.4	9.78	25	27	26	ECG2WHW143ME235□□
	16000	90 × 196	27.1	10.0	23	25	26	ECG2WHW163MF196□□
	17000	101 × 175	27.1	10.0	21	21	36	ECG2WHW173MG175□□
450 (500) 2W	20000	90 × 236	32.7	12.1	19	20	26	ECG2WHW203MF236□□
	20000	101 × 195	30.7	11.4	19	20	36	ECG2WHW203MG195□□
	25000	101 × 237	37.0	13.7	17	18	36	ECG23WHW253MG237□□

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;  
 $T_A$  = Ambient temperature