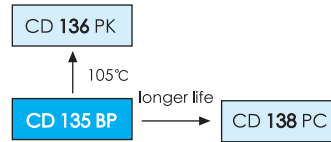


2000h at 85°C

- Features
 - Standard at 85°C
 - RoHS Compliant
- Applications
 - UPS
 - Drive, Inverter

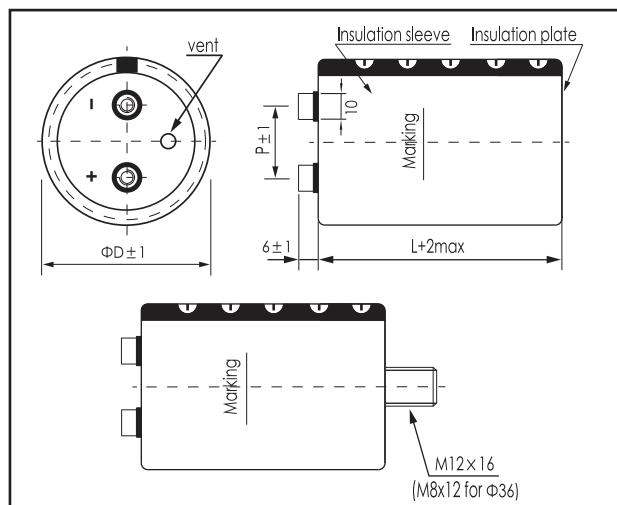


Items	Characteristics	
Operating Temperature Range (°C)	-40 ~ +85	-25 ~ +85
Voltage Range (V)	10 ~ 250	350 ~ 500
Capacitance Range (µF)	470 ~ 820000	
Capacitance Tolerance (20°C, 120Hz)	± 20%	
Leakage Current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 5mA, whichever is smaller. C: Nominal Capacitance (µF) V: Rated Voltage (V)	
Dissipation Factor (20°C, 120Hz)	Less than values shown in the standard ratings	

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	>4000h	>65000h	2000h	2000h	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

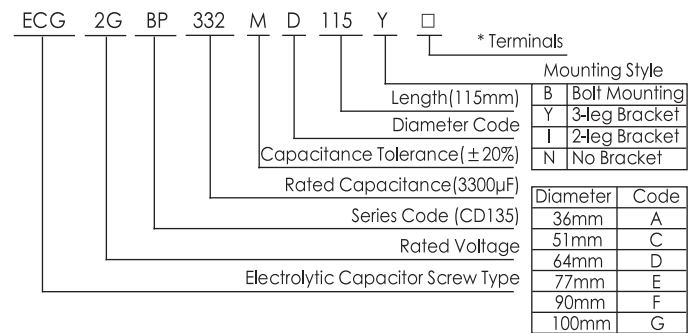
mm



ΦD/mm	36	51	64	77	90
P/mm	12.7	22.0	28.2	31.4	31.4

*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.

Part Number System (Ex: 400v3300µF)



Ripple Current Coefficient

Rated Voltage(V)	Frequency(Hz)				
	50/60	120	300	1k	>10k
10~50	0.95	1.00	1.04	1.10	1.15
63~100	0.95	1.00	1.06	1.16	1.30
160~500	0.80	1.00	1.10	1.25	1.50

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.

CD 135 BP SERIES



Ratings for CD 135 BP Series

U _r (Surge Voltage) Code	Rated Capa- citance	Dissipation Factor 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	-	(mΩ)	(Arms)	(mm)	-
10 (13) 1A	33000	0.80	21	4.3	36×53	ECG1ABP333MA053□□
	39000	0.80	18	4.7	36×53	ECG1ABP393MA053□□
	47000	0.80	15	5.2	36×65	ECG1ABP473MA065□□
	56000	0.80	13	6.1	36×83	ECG1ABP563MA083□□
	68000	0.80	10	6.7	36×83	ECG1ABP683MA083□□
	82000	0.80	9	7.7	36×100	ECG1ABP823MA100□□
	100000	0.80	8	8.8	36×100	ECG1ABP104MA100□□
	120000	0.80	7	10.0	36×121	ECG1ABP124MA121□□
	150000	1.00	7	10.8	36×121	ECG1ABP154MA121□□
	180000	1.00	6	12.0	51×96	ECG1ABP184MC096□□
	220000	1.50	5	11.2	51×121	ECG1ABP224MC121□□
	270000	1.50	4	12.8	51×121	ECG1ABP274MC121□□
	330000	1.50	4	15.3	64×96	ECG1ABP334MD096□□
	390000	1.50	3	17.3	64×115	ECG1ABP394MD115□□
	470000	2.00	3	16.7	64×130	ECG1ABP474MD130□□
	560000	2.00	3	19.0	77×115	ECG1ABP564ME115□□
16 (20) 1C	680000	2.00	3	21.7	77×130	ECG1ABP684ME130□□
	820000	2.00	2	24.7	77×155	ECG1ABP824ME155□□
	22000	0.60	22	4.1	36×53	ECG1CBP223MA053□□
	27000	0.60	19	4.5	36×53	ECG1CBP273MA053□□
	33000	0.60	16	5.0	36×53	ECG1CBP333MA053□□
	39000	0.60	13	5.9	36×65	ECG1CBP393MA065□□
	47000	0.60	11	6.4	36×83	ECG1CBP473MA083□□
	56000	0.60	10	7.3	36×83	ECG1CBP563MA083□□
	68000	0.60	8	8.4	36×100	ECG1CBP683MA100□□
	82000	0.80	7	8.3	36×100	ECG1CBP823MA100□□
	100000	0.80	6	9.5	36×121	ECG1CBP104MA121□□
	120000	0.80	5	10.9	36×121	ECG1CBP124MA121□□
	150000	1.00	4	11.3	51×96	ECG1CBP154MC096□□
	180000	1.00	3	12.8	51×115	ECG1CBP184MC115□□
	220000	1.00	3	15.3	51×130	ECG1CBP224MC130□□
	270000	1.00	3	17.6	64×96	ECG1CBP274MD096□□
25 (32) 1E	330000	1.50	3	16.8	64×115	ECG1CBP334MD115□□
	390000	1.50	3	18.3	64×130	ECG1CBP394MD130□□
	470000	1.50	2	21.3	77×115	ECG1CBP474ME115□□
	560000	1.50	2	23.6	77×130	ECG1CBP564ME130□□
	680000	1.50	2	27.6	77×155	ECG1CBP684ME155□□
	820000	2.00	2	27.1	90×157	ECG1CBP824MF157□□
	15000	0.50	22	3.7	36×53	ECG1EBP153MA053□□
	18000	0.50	18	4.1	36×53	ECG1EBP183MA053□□
	22000	0.50	16	4.5	36×53	ECG1EBP223MA053□□
	27000	0.50	13	5.0	36×65	ECG1EBP273MA065□□
	33000	0.50	11	5.9	36×83	ECG1EBP333MA083□□
	39000	0.50	9	6.7	36×83	ECG1EBP393MA083□□
	47000	0.50	8	7.7	36×100	ECG1EBP473MA100□□
	56000	0.60	7	7.9	36×100	ECG1EBP563MA100□□
	68000	0.60	6	9.1	36×121	ECG1EBP683MA121□□
	82000	0.60	5	10.4	36×121	ECG1EBP823MA121□□
35 (44) 1V	100000	0.80	4	10.3	51×96	ECG1EBP104MC096□□
	120000	0.80	4	11.7	51×115	ECG1EBP124MC115□□
	150000	0.80	3	14.1	51×130	ECG1EBP154MC130□□
	180000	0.80	3	15.7	64×96	ECG1EBP184MD096□□
	220000	1.00	3	16.1	64×115	ECG1EBP224MD115□□
	270000	1.00	3	18.6	64×130	ECG1EBP274MD130□□
	330000	1.00	2	21.9	64×155	ECG1EBP334MD155□□
	390000	1.20	2	22.0	77×115	ECG1EBP394ME115□□
	470000	1.20	2	25.6	77×155	ECG1EBP474ME155□□
	560000	1.20	2	27.9	90×131	ECG1EBP564MF131□□
	680000	1.20	2	32.5	90×157	ECG1EBP684MF157□□
	10000	0.40	24	3.4	36×53	ECG1VBP103MA053□□
	12000	0.40	20	3.7	36×53	ECG1VBP123MA053□□
	15000	0.40	17	4.2	36×65	ECG1VBP153MA065□□
	18000	0.40	14	4.9	36×83	ECG1VBP183MA083□□
	22000	0.40	12	5.7	36×83	ECG1VBP223MA083□□

U _r (Surge Voltage) Code	Rated Capa- citance	Dissipation Factor 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	-	(mΩ)	(Arms)	(mm)	-
35 (44) 1V	270000	1.00	3	20.3	77×155	ECG1VBP274ME155□□
	330000	1.00	2	23.5	90×131	ECG1VBP334MF131□□
	390000	1.00	2	26.4	90×157	ECG1VBP394MF157□□
	470000	1.00	2	29.6	90×157	ECG1VBP474MF157□□
	5600	0.30	46	3.0	36×53	ECG1HBP562MA053□□
	6800	0.30	38	3.3	36×53	ECG1HBP682MA053□□
	8200	0.30	31	3.6	36×53	ECG1HBP822MA053□□
	10000	0.30	26	4.0	36×65	ECG1HBP103MA065□□
	12000	0.30	22	4.7	36×83	ECG1HBP123MA083□□
	15000	0.30	15	5.5	36×83	ECG1HBP153MA083□□
	18000	0.30	12	6.2	36×100	ECG1HBP183MA100□□
	22000	0.40	11	6.3	36×121	ECG1HBP223MA121□□
	27000	0.40	10	7.1	36×121	ECG1HBP273MA121□□
	33000	0.40	9	8.2	51×96	ECG1HBP333MC096□□
	39000	0.50	8	8.1	51×96	ECG1HBP393MC096□□
	47000	0.50	8	9.3	51×115	ECG1HBP473MC115□□
50 (63) 1H	56000	0.50	6	10.5	64×96	ECG1HBP563MD096□□
	68000	0.50	5	12.0	64×96	ECG1HBP683MD096□□
	82000	0.50	4	13.7	64×115	ECG1HBP823MD115□□
	100000	0.60	4	14.7	77×115	ECG1HBP104ME115□□
	120000	0.60	3	16.7	77×115	ECG1HBP124ME115□□
	150000	0.60	3	19.3	77×130	ECG1HBP154ME130□□
	180000	0.60	3	21.9	77×155	ECG1HBP184ME155□□
	220000	0.60	2	21.4	90×131	ECG1HBP224MF131□□
	270000	0.60	2	24.6	90×157	ECG1HBP274MF157□□
	3900	0.25	47	2.7	36×53	ECG1JBP392MA053□□
	4700	0.25	39	3.0	36×53	ECG1JBP472MA053□□
	5600	0.25	38	3.3	36×53	ECG1JBP562MA053□□
	6800	0.25	32	3.6	36×65	ECG1JBP682MA065□□
	8200	0.25	26	4.3	36×83	ECG1JBP822MA083□□
	10000	0.25	23	4.9	36×83	ECG1JBP103MA083□□
	12000	0.25	18	5.6	36×100	ECG1JBP123MA100□□
63 (79) 1J	15000	0.30	16	5.9	36×100	ECG1JBP153MA100□□
	18000	0.30	15	6.7	36×121	ECG1JBP183MA121□□
	22000	0.30	13	7.8	36×121	ECG1JBP223MA121□□
	27000	0.40	12	7.4	51×96	ECG1JBP273MC096□□
	33000	0.40	8	8.4	51×96	ECG1JBP333MC096□□
	39000	0.40	7	9.5	51×115	ECG1JBP393MC115□□
	47000	0.40	6	11.3	51×130	ECG1JBP473MC130□□
	56000	0.40	6	12.8	64×115	ECG1JBP563MD115□□
	68000	0.50	5	12.7	64×121	ECG1JBP683MD121□□
	82000	0.50	4	14.5	64×130	ECG1JBP823MD130□□
	100000	0.50	4	16.7	77×115	ECG1JBP104ME115□□
	120000	0.50	3	18.9	77×130	ECG1JBP124ME130□□
	150000	0.50	2	22.4	77×155	ECG1JBP154ME155□□
	180000	0.60	2	22.4	90×131	ECG1JBP184MF131□□
	220000	0.60	2	26.2	90×157	ECG1JBP224MF157□□
	3300	0.25	54	2.5	36×53	ECG1KBP332MA053□□
80 (100) 1K	3900	0.25	46	2.8	36×53	ECG1KBP392MA053□□
	4700	0.25	38	3.0	36×65	ECG1KBP472MA065□□
	5600	0.25	32	3.6	36×83	ECG1KBP562MA083□□
	6800	0.25	26	3.9	36×83	ECG1KBP682MA083□□
	8200	0.25	22	4.5	36×83	ECG1KBP822MA083□□
	10000	0.25	17	5.2	36×100	ECG1KBP103MA100□□
	12000	0.25	15	5.9	36×100	ECG1KBP123MA100□□
	15000	0.25	12	6.8	36×121	ECG1KBP153MA121□□
	18000	0.25	10	7.8	36×121	ECG1KBP183MA121□□
	22000	0.30	10	8.0	51×96	ECG1KBP223MC096□□
	27000	0.30	8	9.2	51×96	ECG1KBP273MC096□□
	33000	0.30	7	10.5	51×115	ECG1KBP333MC115□□
	39000	0.30	6	12.0	51×130	ECG1KBP393MC130□□
	47000	0.30	5	13.6	64×115	ECG1KBP473MD115□□
	56000	0.40	4	13.4	64×130	ECG1KBP563MD130□□
	68000	0.40	4	15.4	77×115	ECG1KBP683ME115□□
100 (125) 2A	82000	0.40	4	17.5	77×130	ECG1KBP823ME130□□
	100000	0.40	3	20.5	77×155	ECG1KBP104ME155□□
	120000	0.40	2	22.4	90×131	ECG1KBP124MF131□□
	150000	0.40	2	26.5	90×157	ECG1KBP154MF157□□
	1800	0.25	48	1.9	36×53	ECG2ABP182MA053□□
	2200	0.25	44	2.1	36×53	ECG2ABP222MA053□□
	2700	0.25	39	2.3	36×53	ECG2ABP272MA053□□
	3300	0.25	35	2.6	36×65	ECG2ABP332MA065□□
	3900	0.25	28	3.0	36×83	ECG2ABP392MA083□□
	4700	0.25	26	3.5	36×83	ECG2ABP472MA083□□
	5600	0.25	23	3.9	36×100	ECG2ABP562MA100□□
	6800	0.25	22	4.5	36×100	ECG2ABP682MA100□□
	8200	0.25	20	5.1	36×121	ECG2ABP822MA121□□
	10000	0.25	19	5.9	36×121	ECG2ABP103MA121□□
	12000	0.25	16	6.4	51×75	ECG2ABP123MC075□□
	15000	0.25	12	7.0	51×96	ECG2ABP153MC096□□

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

Ratings for CD 135 BP Series

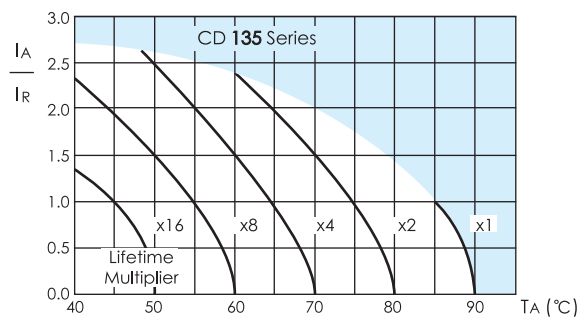
U _r (Surge Voltage) Code	Rated Capa- cittance	Dissipation Factor 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	-	(mΩ)	(Arms)	(mm)	-
160 (200) 2C	3300	0.25	31	5.2	36×121	ECG2CBP332MA121 □□
	4700	0.25	21	5.9	51×75	ECG2CBP472MC075 □□
	5600	0.25	19	7.0	51×96	ECG2CBP562MC096 □□
	6800	0.25	16	7.8	51×96	ECG2CBP682MC096 □□
	10000	0.25	13	10.4	64×96	ECG2CBP103MD096 □□
	12000	0.25	10	11.6	51×120	ECG2CBP123MC120 □□
	15000	0.25	9	14.3	64×130	ECG2CBP153MD130 □□
	18000	0.25	8	15.6	64×130	ECG2CBP183MD130 □□
	22000	0.25	6	18.3	77×130	ECG2CBP223MC130 □□
	33000	0.25	4	23.8	90×131	ECG2CBP333MF131 □□
	39000	0.25	2	27.9	90×157	ECG2CBP393MF157 □□
	2200	0.25	38	3.9	36×100	ECG2DBP222MA100 □□
200 (250) 2D	3300	0.25	24	4.9	51×75	ECG2DBP332MC075 □□
	4700	0.25	20	6.4	51×96	ECG2DBP472MC096 □□
	5600	0.25	18	7.6	51×115	ECG2DBP562MC115 □□
	6800	0.25	14	8.8	51×130	ECG2DBP682MC130 □□
	8200	0.25	11	9.4	64×96	ECG2DBP822MD096 □□
	10000	0.25	9	10.4	64×96	ECG2DBP103MD096 □□
	15000	0.25	7	14.4	77×96	ECG2DBP153ME096 □□
	18000	0.25	6	16.5	77×130	ECG2DBP183ME130 □□
	22000	0.25	4	19.6	77×155	ECG2DBP223ME155 □□
	33000	0.25	3	25.3	90×157	ECG2DBP333MF157 □□
	1500	0.25	49	3.2	36×100	ECG2EBP152MA100 □□
	2200	0.25	33	4.0	51×75	ECG2EBP222MC075 □□
250 (300) 2E	3300	0.25	23	5.4	51×96	ECG2EBP332MC096 □□
	4700	0.25	17	7.1	64×96	ECG2EBP472MD096 □□
	6800	0.25	12	9.1	64×115	ECG2EBP682MD115 □□
	8200	0.25	11	10.0	64×115	ECG2EBP822MD115 □□
	10000	0.25	11	11.7	64×130	ECG2EBP103MD130 □□
	15000	0.25	7	15.1	77×130	ECG2EBP153ME130 □□
	18000	0.25	6	17.7	77×155	ECG2EBP183ME155 □□
	22000	0.25	3	20.9	90×157	ECG2EBP223MF157 □□
	470	0.2	228	2.2	36×83	ECG2VBP471MA083 □□
	680	0.2	152	2.6	36×83	ECG2VBP681MA083 □□
	1000	0.2	104	3.4	36×100	ECG2VBP102MA100 □□
	1500	0.2	72	4.3	51×75	ECG2VBP152MC075 □□
350 (400) 2V	1800	0.2	58	5.1	51×96	ECG2VBP182MC096 □□
	2200	0.2	48	5.7	51×96	ECG2VBP222MC096 □□
	2700	0.2	39	7.1	51×130	ECG2VBP272MC130 □□
	3300	0.2	32	7.9	51×130	ECG2VBP332MC130 □□
	3900	0.2	28	9.0	64×115	ECG2VBP392MD115 □□
	4700	0.2	25	10.3	64×130	ECG2VBP472MD130 □□
	5600	0.2	22	11.4	77×115	ECG2VBP562ME115 □□
	6800	0.2	17	13.1	77×130	ECG2VBP682ME130 □□
	8200	0.2	14	15.4	77×155	ECG2VBP822ME155 □□
	10000	0.2	12	18.1	90×157	ECG2VBP103MF157 □□
	12000	0.2	10	20.0	90×157	ECG2VBP123MF157 □□
	15000	0.2	8	24.5	90×196	ECG2VBP153MF196 □□
400 (450) 2G	18000	0.2	6	28.8	90×236	ECG2VBP183MF236 □□
	470	0.2	178	2.2	36×83	ECG2GBP471MA083 □□
	680	0.2	119	2.8	36×100	ECG2GBP681MA100 □□
	1000	0.2	82	3.5	51×75	ECG2GBP102MC075 □□
	1200	0.2	68	3.8	51×75	ECG2GBP122MC075 □□
	1500	0.2	58	4.7	51×96	ECG2GBP152MC096 □□
	1800	0.2	47	5.2	51×96	ECG2GBP182MC096 □□
	2200	0.2	35	6.4	51×120	ECG2GBP222MC120 □□
	2700	0.2	33	7.0	64×96	ECG2GBP272MD096 □□
	3300	0.2	31	8.2	64×115	ECG2GBP332MD115 □□

U _r (Surge Voltage) Code	Rated Capa- cittance	Dissipation Factor 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	-	(mΩ)	(Arms)	(mm)	-
400 (450) 2G	3900	0.2	25	9.4	64×130	ECG2GBP392MD130 □□
	4700	0.2	24	10.4	77×115	ECG2GBP472ME115 □□
	5600	0.2	19	11.9	77×130	ECG2GBP562ME130 □□
	6800	0.2	16	14.1	77×155	ECG2GBP682ME155 □□
	8200	0.2	14	16.4	90×157	ECG2GBP822MF157 □□
	10000	0.2	11	18.3	90×157	ECG2GBP103MF157 □□
	12000	0.2	10	21.8	90×196	ECG2GBP123MF196 □□
	15000	0.2	8	26.3	90×236	ECG2GBP153MF236 □□
	470	0.2	200	2.2	36×83	ECG2WBP471MA083 □□
	680	0.2	140	2.8	36×100	ECG2WBP681MA100 □□
	820	0.2	96	3.2	51×75	ECG2WBP821MC075 □□
	1000	0.2	82	3.5	51×75	ECG2WBP102MC075 □□
450 (500) 2W	1200	0.2	72	4.2	51×96	ECG2WBP122MC096 □□
	1500	0.2	58	5.1	51×115	ECG2WBP152MC115 □□
	1800	0.2	46	5.9	51×130	ECG2WBP182MC130 □□
	2200	0.2	33	6.3	64×96	ECG2WBP222MD096 □□
	2700	0.2	32	7.5	64×115	ECG2WBP272MD115 □□
	3300	0.2	30	8.7	64×130	ECG2WBP332MD130 □□
	3900	0.2	29	9.5	77×115	ECG2WBP392ME115 □□
	4700	0.2	24	10.9	77×130	ECG2WBP472ME130 □□
	5600	0.2	16	12.8	77×155	ECG2WBP562ME155 □□
	6800	0.2	14	15.0	90×157	ECG2WBP682MF157 □□
	8200	0.2	12	16.5	90×157	ECG2WBP822MF157 □□
	10000	0.2	10	20.0	90×196	ECG2WBP103MF196 □□
500 (550) 2H	12000	0.2	8	23.6	90×236	ECG2WBP123MF236 □□
	1000	0.25	85	4.6	51×115	ECG2HBP102MC115 □□
	1500	0.25	60	5.7	64×96	ECG2HBP152MD096 □□
	2200	0.25	41	6.9	64×130	ECG2HBP222MD130 □□
	2700	0.25	36	8.1	77×115	ECG2HBP272ME115 □□
	3300	0.25	32	9.6	77×130	ECG2HBP332ME130 □□
	3900	0.25	30	10.8	77×130	ECG2HBP392ME130 □□
	4700	0.25	27	12.1	77×155	ECG2HBP472ME155 □□
	5600	0.25	21	13.8	90×157	ECG2HBP562MF157 □□
	6800	0.25	18	15.8	90×171	ECG2HBP682MF171 □□
	8200	0.25	14	17.2	77×220	ECG2HBP822ME220 □□
	10000	0.25	10	22.1	90×236	ECG2HBP103MF236 □□

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