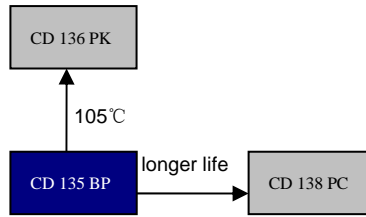


CD 135 BP SERIES



2000h at 85°C

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

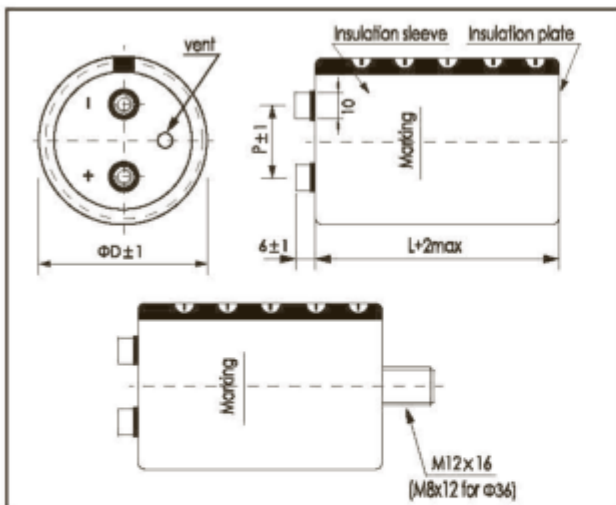


Items	Characteristics	
Operating Temperature Range(°C)	-40 ~ +85	-25~+85
Voltage Range (V)	10~250	350~500
Capacitance Range(µF)	470~820000	
Capacitance Tolerance (20°C,120Hz)	±20%	
Leakage Current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 5mA,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

Life Time	Useful Life		Load Life	Endurance Test	Shelf Life
	>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×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>24hbefore measurement

Dimensions

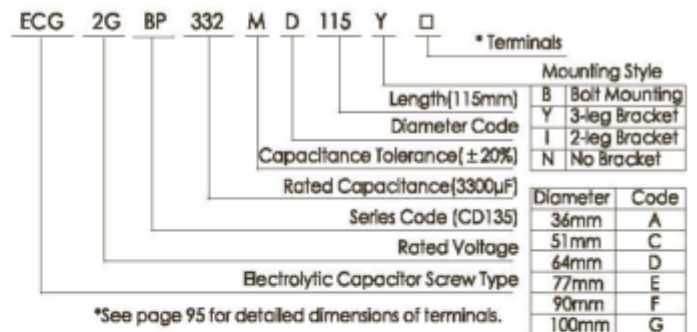
mm



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: 6Nm. Max torque for bolt mounting M12: 12.5Nm.
 *Screws, Bracket and cap nut will be delivered separately. See "Accessories" (page 94.95) 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 CD135BPSeries

U _r (Surge Voltage) Code	Rated Capacitance	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	33.000	0.80	21	4.3	36X53	ECG1ABP333MA053□□
	39.000	0.80	18	4.7	36X53	ECG1ABP393MA053□□
	47.000	0.80	15	5.2	36X65	ECG1ABP473MA065□□
	56.000	0.80	13	6.1	36X83	ECG1ABP563MA083□□
	68.000	0.80	10	6.7	36X83	ECG1ABP683MA083□□
	82.000	0.80	9	7.7	36X100	ECG1ABP823MA100□□
	100.000	0.80	8	8.8	36X100	ECG1ABP104MA100□□
	120.000	0.80	7	10.0	36X121	ECG1ABP124MA121□□
	150.000	1.00	7	10.8	36X121	ECG1ABP154MA121□□
	180.000	1.00	6	12.0	51X96	ECG1ABP184MC096□□
	220.000	1.50	5	11.2	51X121	ECG1ABP224MC121□□
	270.000	1.50	4	12.8	51X121	ECG1ABP274MC121□□
	330.000	1.50	4	15.3	64X96	ECG1ABP334MD096□□
	390.000	1.50	3	17.3	64X115	ECG1ABP394MD115□□
	470.000	2.00	3	16.7	64X130	ECG1ABP474MD130□□
	560.000	2.00	3	19.0	77X115	ECG1ABP564ME115□□
	680.000	2.00	3	21.7	77X130	ECG1ABP684ME130□□
	820.000	2.00	2	24.7	77X155	ECG1ABP824ME155□□
	16 (20) 1C	22.000	0.60	22	4.1	36X53
27.000		0.60	19	4.5	36X53	ECG1CBP273MA053□□
33.000		0.60	16	5.0	36X53	ECG1CBP333MA053□□
39.000		0.60	13	5.9	36X65	ECG1CBP393MA065□□
47.000		0.60	11	6.4	36X83	ECG1CBP473MA083□□
56.000		0.60	10	7.3	36X83	ECG1CBP563MA083□□
68.000		0.60	8	8.4	36X100	ECG1CBP683MA100□□
82.000		0.80	7	8.3	36X100	ECG1CBP823MA100□□
100.000		0.80	6	9.5	36X121	ECG1CBP104MA121□□
120.000		0.80	5	10.9	36X121	ECG1CBP124MA121□□
150.000		1.00	4	11.3	51X96	ECG1CBP154MC096□□
180.000		1.00	3	12.8	51X115	ECG1CBP184MC115□□
220.000		1.00	3	15.3	51X130	ECG1CBP224MC130□□
270.000		1.00	3	17.6	64X96	ECG1CBP274MD096□□
330.000		1.50	3	16.8	64X115	ECG1CBP334MD115□□
390.000		1.50	3	18.3	64X130	ECG1CBP394MD130□□
470.000		1.50	2	21.3	77X115	ECG1CBP474ME115□□
560.000		1.50	2	23.6	77X130	ECG1CBP564ME130□□
680.000		1.50	2	27.6	77X155	ECG1CBP684ME155□□
820.000	2.00	2	27.1	90X157	ECG1CBP824ME157□□	
25 (32) 1E	15.000	0.50	22	3.7	36X53	ECG1EBP153MA053□□
	18.000	0.50	18	4.1	36X53	ECG1EBP183MA053□□
	22.000	0.50	16	4.5	36X53	ECG1EBP223MA053□□
	27.000	0.50	13	5.0	36X65	ECG1EBP273MA065□□
	33.000	0.50	11	5.9	36X83	ECG1EBP333MA083□□
	39.000	0.50	9	6.7	36X83	ECG1EBP393MA083□□
	47.000	0.50	8	7.7	36X100	ECG1EBP473MA100□□
	56.000	0.60	7	7.9	36X100	ECG1EBP563MA100□□
	68.000	0.60	6	9.1	36X121	ECG1EBP683MA121□□
	82.000	0.60	5	10.4	36X121	ECG1EBP823MA121□□
	100.000	0.80	4	10.3	51X96	ECG1EBP104MC096□□
	120.000	0.80	4	11.7	51X115	ECG1EBP124MC115□□
	150.000	0.80	3	14.1	51X130	ECG1EBP154MC130□□
	180.000	0.80	3	15.7	64X96	ECG1EBP184MD096□□
	220.000	1.00	3	16.1	64X115	ECG1EBP224MD115□□
	270.000	1.00	3	18.6	64X130	ECG1EBP274MD130□□
	330.000	1.00	2	21.9	64X155	ECG1EBP334MD155□□
	390.000	1.20	2	22.0	77X115	ECG1EBP394ME115□□
	470.000	1.20	2	25.6	77X155	ECG1EBP474ME155□□
560.000	1.20	2	27.9	90X131	ECG1EBP564ME131□□	
680.000	1.20	2	32.5	90X157	ECG1EBP684ME157□□	
35 (44) 1V	10.000	0.40	24	3.4	36X53	ECG1VBP103MA053□□
	12.000	0.40	20	3.7	36X53	ECG1VBP123MA053□□
	15.000	0.40	17	4.2	36X65	ECG1VBP153MA065□□
	18.000	0.40	14	4.9	36X83	ECG1VBP183MA083□□
	22.000	0.40	12	5.7	36X83	ECG1VBP223MA083□□
	27.000	0.40	9	6.3	36X100	ECG1VBP273MA100□□
	33.000	0.40	9	7.2	36X100	ECG1VBP333MA100□□
	39.000	0.50	8	7.3	36X121	ECG1VBP393MA121□□
	47.000	0.50	8	8.7	51X96	ECG1VBP473MC096□□
	56.000	0.60	8	8.6	51X96	ECG1VBP563MC096□□
	68.000	0.60	6	9.8	51X115	ECG1VBP683MC115□□
	82.000	0.60	5	11.6	64X96	ECG1VBP823MD096□□
	100.000	0.60	4	13.3	64X115	ECG1VBP104MD115□□
	120.000	0.60	4	14.8	64X121	ECG1VBP124MD121□□
	150.000	0.80	4	14.9	64X130	ECG1VBP154MD130□□
	180.000	0.80	3	17.0	77X115	ECG1VBP184ME115□□
	220.000	0.80	3	20.0	77X130	ECG1VBP224ME130□□

U _r (Surge Voltage) Code	Rated Capacitance	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	270.000	1.00	3	20.3	77x155	ECG1VBP274ME155□□	
	330.000	1.00	2	23.5	90x131	ECG1VBP334ME131□□	
	390.000	1.00	2	26.4	90x157	ECG1VBP394ME157□□	
	470.000	1.00	2	29.6	90x157	ECG1VBP474ME157□□	
	5.600	0.30	46	3.0	36X53	ECG1HBP562MA053□□	
	6.800	0.30	38	3.3	36X53	ECG1HBP682MA053□□	
	8.200	0.30	31	3.6	36X53	ECG1HBP822MA053□□	
	10.000	0.30	26	4.0	36X65	ECG1HBP103MA065□□	
50 (63) 1H	12.000	0.30	22	4.7	36X83	ECG1HBP123MA083□□	
	15.000	0.30	15	5.5	36X83	ECG1HBP153MA083□□	
	18.000	0.30	12	6.2	36X100	ECG1HBP183MA100□□	
	22.000	0.40	11	6.3	36x121	ECG1HBP223MA121□□	
	27.000	0.40	10	7.1	36x121	ECG1HBP273MA121□□	
	33.000	0.40	9	8.2	51X96	ECG1HBP333MC096□□	
	39.000	0.50	8	8.1	51X96	ECG1HBP393MC096□□	
	47.000	0.50	8	9.3	51x115	ECG1HBP473MC115□□	
	56.000	0.50	6	10.5	64X96	ECG1HBP563MD096□□	
	68.000	0.50	5	12.0	64X96	ECG1HBP683MD096□□	
	82.000	0.50	4	13.7	64x115	ECG1HBP823MD115□□	
	10.000	0.60	4	14.7	77x115	ECG1HBP104ME115□□	
	120.000	0.60	3	16.7	77X115	ECG1HBP124ME115□□	
	150.000	0.60	3	19.3	77X130	ECG1HBP154ME130□□	
	180.000	0.60	3	21.9	77x155	ECG1HBP184ME155□□	
	220.000	0.60	2	21.4	90x131	ECG1HBP224ME131□□	
	270.000	0.60	2	24.6	90x157	ECG1HBP274ME157□□	
	63 (79) 1J	3.900	0.25	47	2.7	36X53	ECG1IBP392MA053□□
		4.700	0.25	39	3.0	36X53	ECG1IBP472MA053□□
5.600		0.25	38	3.3	36X53	ECG1IBP562MA053□□	
6.800		0.25	32	3.6	36X65	ECG1IBP682MA065□□	
8.200		0.25	26	4.3	36X83	ECG1IBP822MA083□□	
10.000		0.25	23	4.9	36X83	ECG1IBP103MA083□□	
12.000		0.25	18	5.6	36x100	ECG1IBP123MA100□□	
15.000		0.30	16	5.9	36x100	ECG1IBP153MA100□□	
18.000		0.30	15	6.7	36x121	ECG1IBP183MA121□□	
22.000		0.30	13	7.8	36x121	ECG1IBP223MA121□□	
27.000		0.40	12	7.4	51X96	ECG1IBP273MC096□□	
33.000		0.40	8	8.4	51X96	ECG1IBP333MC096□□	
39.000		0.40	7	9.5	51x115	ECG1IBP393MC115□□	
47.000		0.40	6	11.3	51x130	ECG1IBP473MC130□□	
56.000		0.40	6	12.8	64x115	ECG1IBP563MC115□□	
68.000		0.50	5	12.7	64x121	ECG1IBP683MD121□□	
82.000		0.50	4	14.5	64x130	ECG1IBP823MD130□□	
100.000		0.50	4	16.7	77x115	ECG1IBP104ME115□□	
120.000		0.50	3	18.9	77x130	ECG1IBP124ME130□□	
150.000	0.50	2	22.4	77X155	ECG1IBP154ME155□□		
180.000	0.60	2	22.4	90x131	ECG1IBP184ME131□□		
220.000	0.60	2	26.2	90X157	ECG1IBP224ME157□□		
80 (100) 1K	3.300	0.25	54	2.5	36X53	ECG1KBP332MA053□□	
	3.900	0.25	46	2.8	36X53	ECG1KBP392MA053□□	
	4.700	0.25	38	3.0	36X65	ECG1KBP472MA065□□	
	5.600	0.25	32	3.6	36X83	ECG1KBP562MA083□□	
	6.800	0.25	26	3.9	36X83	ECG1KBP682MA083□□	
	8.200	0.25	22	4.5	36X83	ECG1KBP822MA083□□	
	10.000	0.25	17	5.2	36x100	ECG1KBP103MA100□□	
	12.000	0.25	15	5.9	36X100	ECG1KBP123MA100□□	
	15.000	0.25	12	6.8	36x121	ECG1KBP153MA121□□	
	18.000	0.25	10	7.8	36x121	ECG1KBP183MA121□□	
	22.000	0.30	10	8.0	51X96	ECG1KBP223MC096□□	
	27.000	0.30	8	9.2	51X96	ECG1KBP273MC096□□	
	33.000	0.30	7	10.5	51X115	ECG1KBP333MC115□□	
	39.000	0.30	6	12.0	51X130	ECG1KBP393MC130□□	
	47.000	0.30	5	13.6	64X115	ECG1KBP473MD115□□	
	56.000	0.40	4	13.4	64x130	ECG1KBP563MD130□□	
	68.000	0.40	4	15.4	77x115	ECG1KBP683ME115□□	
	82.000	0.40	4	17.5	77x130	ECG1KBP823ME130□□	
	100.000	0.40	3	20.5	77X155	ECG1KBP104ME155□□	
120.000	0.40	2	22.4	90x131	ECG1KBP124ME131□□		
150.000	0.40	2	26.5	90x157	ECG1KBP154ME157□□		
100 (125)2A	1.800	0.25	48	1.9	36X53	ECG2ABP182MA053□□	
	2.200	0.25	44	2.1	36X53	ECG2ABP222MA053□□	
	2.700	0.25	39	2.3	36X53	ECG2ABP272MA053□□	
	3.300	0.25	35	2.6	36X65	ECG2ABP332MA065□□	
	3.900	0.25	28	3.0	36X83	ECG2ABP392MA083□□	

CD 135 BP SERIES



Ratings for CD135BPSeries

U _r (Surge Voltage) Code	Rated Capacitance	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	36X121	ECG2GBP471MA083□□
	4700	0.25	21	5.9	51X75	ECG2GBP681MA100□□
	5600	0.25	19	7.0	51X96	ECG2GBP102MC075□□
	6800	0.25	16	7.8	51X96	ECG2GBP122MC075□□
	10000	0.25	13	10.4	64X96	ECG2GBP152MC096□□
	12000	0.25	10	11.3	51X120	ECG2GBP182MC096□□
	15000	0.25	9	14.3	64X130	ECG2GBP222MC120□□
	18000	0.25	8	15.6	64X130	ECG2GBP272MD096□□
	22000	0.25	6	18.3	77X130	ECG2GBP332MD115□□
	33000	0.25	4	23.8	90X131	ECG2CBP332MD115□□
200 (250) 2D	39000	0.25	2	27.9	90X157	ECG2CBP332MA121□□
	2200	0.25	38	3.9	36X100	ECG2CBP562MC096□□
	3300	0.25	24	4.9	51X75	ECG2CBP682MC096□□
	4700	0.25	20	6.4	51X96	ECG2CBP103MD096□□
	5600	0.25	18	7.6	51X115	ECG2CBP123MC120□□
	6800	0.25	14	8.8	51X130	ECG2CBP153MD130□□
	8200	0.25	11	9.4	64X96	ECG2CBP183MD130□□
	10000	0.25	9	10.4	64X96	ECG2CBP223ME130□□
	15000	0.25	7	14.4	77X96	ECG2CBP333MF131□□
	18000	0.25	6	16.5	77X130	ECG2CBP393MF157□□
250 (300) 2E	22000	0.25	4	19.6	77X155	ECG2DBP222MA100□□
	33000	0.25	3	25.3	90X157	ECG2DBP332MC075□□
	1500	0.25	49	3.2	36X100	ECG2DBP472MC096□□
	2200	0.25	33	4.0	51X75	ECG2DBP562MC115□□
	3300	0.25	23	5.4	51X96	ECG2DBP682MC130□□
	4700	0.25	17	7.1	64X96	ECG2DBP822MD096□□
	6800	0.25	12	9.1	64X115	ECG2DBP103MD096□□
	8200	0.25	11	10.0	64X115	ECG2DBP153ME096□□
	10000	0.25	11	11.7	64X130	ECG2DBP183ME130□□
	15000	0.25	7	15.1	77X130	ECG2DBP223ME155□□
350 (400) 2V	18000	0.25	6	17.7	77X155	ECG2DBP333MF157□□
	22000	0.25	3	20.9	90X157	ECG2EBP152MA100□□
	470	0.2	228	2.2	36X83	ECG2EBP222MC075□□
	680	0.2	152	2.6	36X83	ECG2EBP332MC096□□
	1000	0.2	104	3.4	36X100	ECG2EBP472MD096□□
	1500	0.2	72	4.3	51X75	ECG2EBP682MD115□□
	1800	0.2	58	5.1	51X96	ECG2EBP822MD115□□
	2200	0.2	48	5.7	51X96	ECG2EBP103MD130□□
	2700	0.2	39	7.1	51X130	ECG2EBP153ME130□□
	3300	0.2	32	7.9	51X130	ECG2EBP183ME155□□
400 (450) 2G	3900	0.2	28	9.0	64X115	ECG2EBP223MF157□□
	4700	0.2	25	10.3	64X130	ECG2VBP471MA083□□
	5600	0.2	22	11.4	77X115	ECG2VBP681MA083□□
	6800	0.2	17	13.1	77X130	ECG2VBP102MA100□□
	8200	0.2	14	15.4	77X155	ECG2VBP152MC075□□
	10000	0.2	12	18.1	90X157	ECG2VBP182MC096□□
	12000	0.2	10	20.0	90X157	ECG2VBP222MC096□□
	15000	0.2	8	24.5	90X196	ECG2VBP272MC130□□
	18000	0.2	6	28.8	90X236	ECG2VBP332MC130□□

U _r (Surge Voltage) Code	Rated Capacitance	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	470	0.2	178	2.2	36X83	ECG2VBP392MD115□□
	680	0.2	119	2.8	36X100	ECG2VBP472MD130□□
	1000	0.2	82	3.5	51X75	ECG2VBP562ME115□□
	1200	0.2	68	3.8	51X75	ECG2VBP682ME130□□
	1500	0.2	58	4.7	51X96	ECG2VBP822ME155□□
	1800	0.2	47	5.2	51X96	ECG2VBP103MF157□□
	2200	0.2	35	6.4	51X120	ECG2VBP123MF157□□
	2700	0.2	33	7.0	64X96	ECG2VBP153MF196□□
	3300	0.2	31	8.2	64X115	ECG2VBP183MF236□□
	3900	0.2	25	9.4	64X130	ECG2GBP392MD130□□
450 (500) 2W	4700	0.2	24	10.4	77X115	ECG2GBP472ME115□□
	5600	0.2	19	11.9	77X130	ECG2GBP562ME130□□
	6800	0.2	16	14.1	77X155	ECG2GBP682ME155□□
	8200	0.2	14	16.4	90X157	ECG2GBP822MF157□□
	10000	0.2	11	18.3	90X157	ECG2GBP103MF157□□
	12000	0.2	10	21.8	90X196	ECG2GBP123MF196□□
	15000	0.2	8	26.3	90X236	ECG2GBP153MF236□□
	470	0.2	200	2.2	36X83	ECG2WBP471MA083□□
	680	0.2	140	2.8	36X100	ECG2WBP681MA100□□
	820	0.2	96	3.2	51X75	ECG2WBP821MC075□□
500 (550) 2H	1000	0.2	82	3.5	51X75	ECG2WBP102MC075□□
	200	0.2	72	4.2	51X96	ECG2WBP122MC096□□
	1500	0.2	58	5.1	51X115	ECG2WBP152MC115□□
	1800	0.2	46	5.9	51X130	ECG2WBP182MC130□□
	2200	0.2	33	6.3	64X96	ECG2WBP222MD096□□
	2700	0.2	32	7.5	64X115	ECG2WBP272MD115□□
	3300	0.2	30	8.7	64X130	ECG2WBP332MD130□□
	3900	0.2	29	9.5	77X115	ECG2WBP392ME115□□
	4700	0.2	24	10.9	77X130	ECG2WBP472ME130□□
	5600	0.2	16	12.8	77X155	ECG2WBP562ME155□□
500 (550) 2H	6800	0.2	14	15.0	90X157	ECG2WBP682MF157□□
	8200	0.2	12	16.5	90X157	ECG2WBP822MF157□□
	10000	0.2	10	20.0	90X196	ECG2WBP103MF196□□
	12000	0.2	8	23.6	90X236	ECG2WBP123MF236□□
	1000	0.25	85	4.6	51X115	ECG2HBP102MC115□□
	1500	0.25	60	5.7	64X96	ECG2HBP152MD096□□
	2200	0.25	41	6.9	64X130	ECG2HBP222MD130□□
	2700	0.25	36	8.1	77X115	ECG2HBP272ME115□□
	3300	0.25	32	9.6	77X130	ECG2HBP332ME130□□
	3900	0.25	30	10.8	77X130	ECG2HBP392ME130□□
500 (550) 2H	4700	0.25	27	12.1	77X155	ECG2HBP472ME155□□
	5600	0.25	21	13.8	90X157	ECG2HBP562MF157□□
	6800	0.25	18	15.8	90X171	ECG2HBP682MF171□□
	8200	0.25	14	17.2	77X220	ECG2HBP822ME220□□
	10000	0.25	10	22.1	90X236	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

