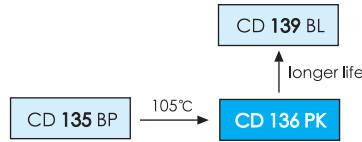


2000h at 105°C

- Features
  - Standard at 105°C
  - RoHS Compliant
- Applications
  - Professional Inverters and Power Supplies

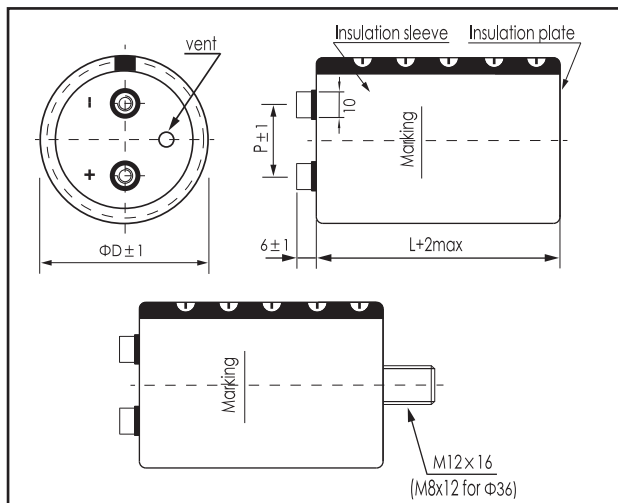


Items	Characteristics	
Operating Temperature Range (°C)	-40 ~ +105	-25 ~ +105
Voltage Range (V)	25 ~ 100	160 ~ 450
Capacitance Range (µF)	220 ~ 33000	
Capacitance Tolerance (20°C, 120Hz)	± 20%	
Leakage Current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 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	

Lifetime	Useful Life		Load Life	Endurance Test	Shelf Life
	>4000h	>200000h			
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	$U_R$ $I_R$ 105°C	$U_R$ $1.2 \times I_R$ 40°C	$U_R$ $I_R$ 105°C	$U_R$ $I_R = 0$ 105°C	$U_R = 0$ $I_R = 0$ 105°C After test: $U_R$ to be applied for 60min >24h before measurement

## Dimensions

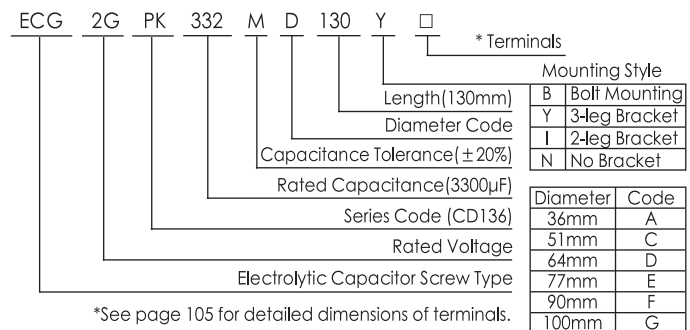
mm



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" (page 104.105) for shape and dimensions.

## Part Number System (Ex: 400v3300µF)



\*See page 105 for detailed dimensions of terminals.

## Ripple Current Coefficient

Rated Voltage(V)	Frequency(Hz)				
	50/60	120	300	1K	>10k
25~100	0.95	1.00	1.04	1.10	1.15
160~250	0.90	1.00	1.08	1.15	1.20
350~450	0.80	1.00	1.18	1.35	1.40

Coefficient	Ambient Temp(°C)				
	40	55	70	85	105
	25~100V				
	4.9	3.9	3.0	1.8	1.0
	160~250V				
	3.8	3.3	2.5	2.0	1.0
	350~450V				
	2.44	2.28	2.12	2.0	1.0

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 136 PK SERIES



## Ratings for CD 136 PK Series

U <sub>r</sub> (Surge Voltage) Code	Rated Capacitance	Dissipation Factor 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	-	(mΩ)	(Arms)	(mm)	-
25 (32) 1E	10000	0.35	25	2.9	36×53	ECG1EPK103MA053□□
	15000	0.35	20	4.2	36×83	ECG1EPK153MA083□□
	22000	0.40	13	5.1	36×83	ECG1EPK223MA083□□
	33000	0.40	10	6.3	36×100	ECG1EPK333MA100□□
	47000	0.40	7	8	51×75	ECG1EPK473MC075□□
	68000	0.50	6	10	51×115	ECG1EPK683MC115□□
	100000	0.60	5	11.3	64×96	ECG1EPK104MD096□□
	150000	0.80	4	12.9	64×115	ECG1EPK154MD115□□
	220000	1.00	3	14.8	77×115	ECG1EPK224ME115□□
	330000	1.00	2	19.9	90×131	ECG1EPK334MF131□□
35 (44) 1V	6800	0.30	25	2.6	36×53	ECG1VPK682MA053□□
	10000	0.30	20	3.7	36×83	ECG1VPK103MA083□□
	15000	0.30	13	4.5	36×83	ECG1VPK153MA083□□
	22000	0.35	10	5.5	36×100	ECG1VPK223MA100□□
	33000	0.40	7	6.7	51×75	ECG1VPK333MC075□□
	47000	0.45	6	8.1	51×96	ECG1VPK473MC096□□
	68000	0.50	5	10	51×115	ECG1VPK683MC115□□
	100000	0.60	4	12.1	64×115	ECG1VPK104MD115□□
	150000	0.70	3	13.8	77×115	ECG1VPK154ME115□□
	220000	0.70	2	17.6	90×131	ECG1VPK224MF131□□
50 (63) 1H	3300	0.20	50	2.2	36×53	ECG1HPK332MA053□□
	4700	0.25	36	3.3	36×53	ECG1HPK472MA053□□
	6800	0.25	32	3.4	36×83	ECG1HPK682MA083□□
	10000	0.25	22	4.1	36×83	ECG1HPK103MA083□□
	15000	0.30	14	4.9	36×100	ECG1HPK153MA100□□
	22000	0.35	10	5.9	51×75	ECG1HPK223MC075□□
	33000	0.40	7	7.8	51×115	ECG1HPK333MC115□□
	47000	0.40	6	9.5	64×96	ECG1HPK473MD096□□
	68000	0.45	5	11.6	64×115	ECG1HPK683MD115□□
	100000	0.50	4	14.1	77×115	ECG1HPK104ME115□□
150000	0.50	3	18.9	90×131	ECG1HPK154MF131□□	
63 (79) 1J	2200	0.15	70	2.1	36×53	ECG1JPK222MA053□□
	3300	0.20	50	2.2	36×53	ECG1JPK332MA053□□
	4700	0.20	36	3.1	36×83	ECG1JPK472MA083□□
	6800	0.20	25	3.7	36×83	ECG1JPK682MA083□□
	10000	0.25	20	4.4	36×100	ECG1JPK103MA100□□
	15000	0.25	14	5.7	51×75	ECG1JPK153MC075□□
	22000	0.30	10	6.8	51×96	ECG1JPK223MC096□□
	33000	0.30	7	9.2	64×96	ECG1JPK333MD096□□
	47000	0.35	6	10.9	64×115	ECG1JPK473MD115□□
	68000	0.40	5	13	77×115	ECG1JPK683ME115□□
100000	0.40	4	17.2	90×131	ECG1JPK104MF131□□	
80 (100) 1K	2200	0.15	57	2.1	36×53	ECG1KPK222MA053□□
	3300	0.15	38	3	36×83	ECG1KPK332MA083□□
	4700	0.15	27	3.6	36×83	ECG1KPK472MA083□□
	6800	0.20	19	4	36×100	ECG1KPK682MA100□□
	10000	0.20	17	5.2	51×75	ECG1KPK103MC075□□
	15000	0.25	11	6.2	51×96	ECG1KPK153MC096□□
	22000	0.25	8	8.2	64×96	ECG1KPK223MD096□□
	33000	0.30	7	9.7	77×96	ECG1KPK333ME096□□
	47000	0.30	6	12.5	77×115	ECG1KPK473ME115□□
	68000	0.30	5	16.4	90×131	ECG1KPK683MF131□□
100 (125) 2A	1000	0.15	70	1.4	36×53	ECG2APK102MA053□□
	1500	0.15	55	1.7	36×53	ECG2APK152MA053□□
	2200	0.15	38	2.5	36×83	ECG2APK222MA083□□
	3300	0.15	25	3	36×83	ECG2APK332MA083□□
	4700	0.15	21	3.9	36×100	ECG2APK472MA100□□
	6800	0.15	19	5	51×75	ECG2APK682MC075□□
	10000	0.15	13	6.5	51×96	ECG2APK103MC096□□
	15000	0.20	9	7.6	64×96	ECG2APK153MD096□□
	22000	0.20	7	9.7	77×96	ECG2APK223ME096□□
	33000	0.25	6	11.8	77×130	ECG2APK333ME130□□
47000	0.25	5	15	90×131	ECG2APK473MF131□□	

U <sub>r</sub> (Surge Voltage) Code	Rated Capacitance	Dissipation Factor 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	-	(mΩ)	(Arms)	(mm)	-
160 (200) 2C	470	0.15	265	1	36×53	ECG2CPK471MA053□□
	680	0.15	186	1.1	36×53	ECG2CPK681MA053□□
	1000	0.15	125	1.7	36×83	ECG2CPK102MA083□□
	1500	0.15	85	2	36×83	ECG2CPK152MA083□□
	2200	0.15	55	2.7	36×100	ECG2CPK222MA100□□
	3300	0.15	38	3.5	51×83	ECG2CPK332MC083□□
	4700	0.15	35	4.4	51×96	ECG2CPK472MC096□□
	6800	0.15	25	5.9	64×96	ECG2CPK682MD096□□
	10000	0.15	15	7.6	77×96	ECG2CPK103ME096□□
	15000	0.15	11	10.3	77×130	ECG2CPK153ME130□□
200 (250) 2D	22000	0.15	6	13.2	90×131	ECG2CPK223MF131□□
	330	0.15	375	0.8	36×53	ECG2DPK331MA053□□
	470	0.15	262	1	36×53	ECG2DPK471MA053□□
	680	0.15	180	1.1	36×53	ECG2DPK681MA053□□
	1000	0.15	125	1.7	36×83	ECG2DPK102MA083□□
	1500	0.15	75	2.2	36×100	ECG2DPK152MA100□□
	2200	0.15	50	2.8	51×75	ECG2DPK222MC075□□
	3300	0.15	36	3.7	51×96	ECG2DPK332MC096□□
	4700	0.15	24	4.9	64×96	ECG2DPK472MD096□□
	6800	0.15	16	6.3	64×115	ECG2DPK682MD115□□
250 (300) 2E	10000	0.15	12	8.1	77×115	ECG2DPK103ME115□□
	15000	0.15	6	10.9	90×131	ECG2DPK153MF131□□
	330	0.15	160	0.8	36×53	ECG2EPK331MA053□□
	470	0.15	120	1	36×53	ECG2EPK471MA053□□
	680	0.15	85	1.4	36×83	ECG2EPK681MA083□□
	1000	0.15	55	1.9	36×100	ECG2EPK102MA100□□
	1500	0.15	40	2.3	51×75	ECG2EPK152MC075□□
	2200	0.15	28	3.1	51×96	ECG2EPK222MC096□□
	3300	0.15	20	4.2	64×96	ECG2EPK332MD096□□
	4700	0.15	15	5.4	64×115	ECG2EPK472MD115□□
400 (450) 2G	6800	0.15	10	6.9	64×115	ECG2EPK682MD115□□
	10000	0.15	8	9.3	77×155	ECG2EPK103ME155□□
	15000	0.15	6	12.2	90×157	ECG2EPK153MF157□□
	1000	0.15	82	2.5	51×75	ECG2GPK102MC075□□
	1200	0.15	70	3	51×96	ECG2GPK122MC096□□
	1500	0.15	49	3.6	51×115	ECG2GPK152MC115□□
	1800	0.15	39	4.1	51×130	ECG2GPK182MC130□□
	2200	0.15	30	4.5	64×96	ECG2GPK222MD096□□
	2700	0.15	22	5.3	64×115	ECG2GPK272MD115□□
	3300	0.15	20	6.2	64×130	ECG2GPK332MD130□□
450 (500) 2W	3900	0.15	18	7.2	64×155	ECG2GPK392MD155□□
	3900	0.15	18	6.8	77×115	ECG2GPK392ME115□□
	4700	0.15	13	8.7	64×195	ECG2GPK472MD195□□
	4700	0.15	13	7.8	77×130	ECG2GPK472ME130□□
	5600	0.15	12	9.6	64×195	ECG2GPK562MD195□□
	5600	0.15	12	9.2	77×155	ECG2GPK562ME155□□
	6800	0.15	11	10.7	90×157	ECG2GPK682MF157□□
	8200	0.15	10	11.8	90×157	ECG2GPK822MF157□□
	10000	0.15	9	14.1	90×196	ECG2GPK103MF196□□
	220	0.15	415	1.1	36×53	ECG2WPK221MA053□□
330	0.15	277	1.5	36×100	ECG2WPK331MA100□□	
470	0.15	195	2.1	51×83	ECG2WPK471MC083□□	
680	0.15	135	2.7	51×96	ECG2WPK681MC096□□	
1000	0.15	90	4.2	51×100	ECG2WPK102MC100□□	
1500	0.15	54	5.7	51×130	ECG2WPK152MC130□□	
2200	0.15	33	7.3	64×115	ECG2WPK222MD115□□	
3300	0.15	22	10.1	77×130	ECG2WPK332ME130□□	
4700	0.15	15	12.6	77×155	ECG2WPK472ME155□□	
5600	0.15	11	15.8	90×157	ECG2WPK562MF157□□	

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.

SCREW