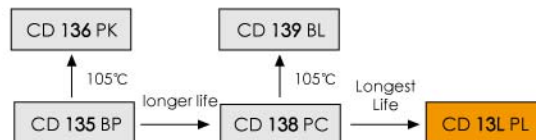


20000h at 85°C

- Warranty of 20000 hours at 85°C

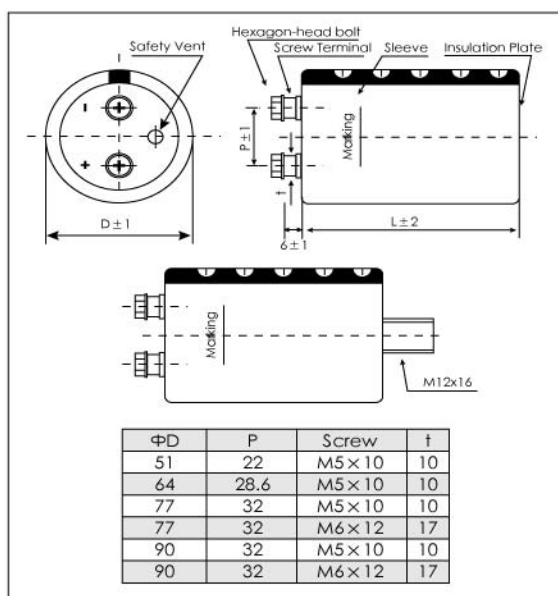


Items	Characteristics
Operating Temperature Range (°C)	-40 ~ +85
Voltage Range (V)	350, 400, 450
Capacitance Range (μF)	1000~15000
Capacitance Tolerance (20°C, 120Hz)	± 20%
Leakage Current (μA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 5mA, whichever is smaller. C: Nominal Capacitance (μF) V: Rated Voltage (V)
Dissipation Factor (20°C, 120Hz)	Less than 0.15

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	25000h	≥ 300000h	20000h	20000h	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 ± 15% of initial value	Within ± 15% of initial value
Dissipation Factor	Not more than 300% of specified value		Not more than 200% of specified value	Not more than 175% of specified value	Not more than 175% of specified value
Condition: Applied Voltage Applied Current Applied Temperature Failure Rate Level	U _R I _R 85°C ≤ 1% Failure Rate	U _R 1.4 x I _R 40°C ≤ 1% Failure Rate	U _R I _R 85°C guaranteed	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



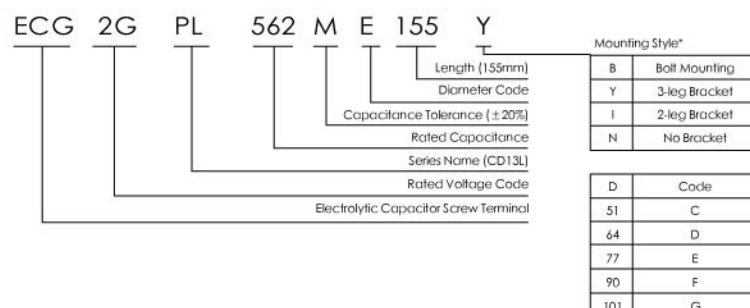
Frequency Coefficient

Frequency	50/60Hz	120Hz	300Hz	1kHz	≥ 10kHz
Coefficient	0.70	1.00	1.10	1.30	1.40

Temperature Coefficient

Temperature(°C)	+40	+60	+85
Coefficient	1.89	1.67	1.00

Part Numbering System (Example:400V 5600μF)



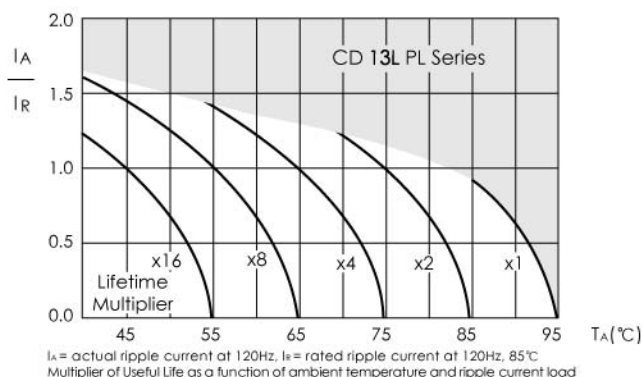


Ratings for CD 13L PL Series

U _R (Surge Voltage) Code	Rated Capa- citance	Dissipation Factor	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size Φ D x L	Size Φ D x L
(V)	(μF)	-	(mΩ)	(mΩ)	(Arms)	(mm)	(mm)
350 (400) 2V	1000	0.15	259	69	3.9	51 × 75	ECG2VPL102MC075□
	1200	0.15	215	65	4.2	51 × 75	ECG2VPL122MC075□
	1500	0.15	172	55	5.2	51 × 96	ECG2VPL152MC096□
	1800	0.15	143	43	5.7	51 × 96	ECG2VPL182MC096□
	2200	0.15	117	30	7.1	51 × 130	ECG2VPL222MC130□
	2700	0.15	96	27	7.7	64 × 96	ECG2VPL272MD096□
	3300	0.15	78	23	9.1	64 × 115	ECG2VPL332MD115□
	3900	0.15	66	19	10.4	64 × 130	ECG2VPL392MD130□
	4700	0.15	55	16	12.2	64 × 155	ECG2VPL472MD155□
		0.15	55	14	11.5	77 × 115	ECG2VPL472ME115□
	5600	0.15	46	14	14.6	64 × 195	ECG2VPL562MD195□
		0.15	46	12	13.1	77 × 130	ECG2VPL562ME130□
	6800	0.15	38	13	15.5	77 × 155	ECG2VPL682ME155□
	8200	0.15	31	11	18.1	90 × 157	ECG2VPL822MF157□
	10000	0.15	26	10	19.9	90 × 157	ECG2VPL103MF157□
	12000	0.15	22	8	23.8	90 × 196	ECG2VPL123MF196□
	15000	0.15	17	6	28.8	90 × 236	ECG2VPL153MF236□
400 (450) 2G	1000	0.15	215	70	3.9	51 × 75	ECG2GPL102MC075□
	1200	0.15	179	64	4.6	51 × 96	ECG2GPL122MC096□
	1500	0.15	143	54	5.6	51 × 115	ECG2GPL152MC115□
	1800	0.15	119	43	6.4	51 × 130	ECG2GPL182MC130□
	2200	0.15	98	41	6.9	64 × 96	ECG2GPL222MD096□
	2700	0.15	80	38	8.2	64 × 115	ECG2GPL272MD115□
	3300	0.15	65	29	9.5	64 × 130	ECG2GPL332MD130□
	3900	0.15	55	28	11.1	64 × 155	ECG2GPL392MD155□
		0.15	55	25	10.4	77 × 115	ECG2GPL392ME115□
	4700	0.15	46	20	13.4	64 × 195	ECG2GPL472MD195□
		0.15	46	22	12.0	77 × 130	ECG2GPL472ME130□
	5600	0.15	39	19	14.6	64 × 195	ECG2GPL562MD195□
		0.15	39	19	14.4	77 × 155	ECG2GPL562ME155□
	6800	0.15	32	17	16.5	90 × 157	ECG2GPL682MF157□
	8200	0.15	26	15	18.1	90 × 157	ECG2GPL822MF157□
	10000	0.15	22	12	21.7	90 × 196	ECG2GPL103MF196□
	12000	0.15	18	8	25.8	90 × 236	ECG2GPL123MF236□
450 (500) 2W	1000	0.15	215	70	4.2	51 × 96	ECG2WPL102MC096□
	1200	0.15	179	66	5.0	51 × 115	ECG2WPL122MC115□
	1500	0.15	143	54	5.9	51 × 130	ECG2WPL152MC130□
	1800	0.15	119	44	6.3	64 × 96	ECG2WPL182MD096□
	2200	0.15	98	42	7.4	64 × 115	ECG2WPL222MD115□
	2700	0.15	80	40	8.6	64 × 130	ECG2WPL272MD130□
		0.15	80	42	8.7	77 × 115	ECG2WPL272ME115□
	3300	0.15	65	31	10.2	64 × 155	ECG2WPL332MD155□
		0.15	65	35	10.1	77 × 130	ECG2WPL332ME130□
	3900	0.15	55	28	12.3	64 × 195	ECG2WPL392MD195□
	4700	0.15	46	25	12.9	77 × 155	ECG2WPL472ME155□
		0.15	38	22	15.4	77 × 195	ECG2WPL562ME195□
	5600	0.15	38	24	14.9	90 × 157	ECG2WPL562MF157□
	6800	0.15	32	21	18.0	90 × 196	ECG2WPL682MF196□
	8200	0.15	27	18	19.8	90 × 196	ECG2WPL822MF196□
	10000	0.15	22	16	23.6	90 × 236	ECG2WPL103MF236□

Customer products are available on request.

Lifetime Diagram



Order Code **Screw Type**

EC	G	1C	BP	101	M	B	E	160	A361	JExxxxx
Technology	Terminal Type	Rated Voltage Code	Series Code	Capacitance Code	Capacitance Tolerance	Mounting	Diameter	Length	For Terminal Code see tables below	for Specials only
EC = Electrolytic Capacitor	Screw = G	For coding please refer to the pages of ratings	CD 135 = BP CD 136 = PK CD 137 = PX CD 138 = PC CD 139 = BL CD 13H = BH CD 138S = WP CD 838 = ZT	100 = 101 1000 = 102 10000 = 103	±20% = M ±10% = K +30 / -10% = Q +20 / -0% = R +20 / -10% = V +50 / -10% = T	Bolt = B No double sleeve = N 2 stoppers bracket+double sleeve* = I 3 stoppers bracket+double sleeve* = Y No bracket, but double sleeve* = D * Double sleeve for diameter ≥ 51 only	36 = A 40 = B 51 = C 64 = D 77 = E 90 = F 101 = G	53 = 053 65 = 065 96 = 096 100 = 100 115 = 115 236 = 236		

Technical Specification **Screw Type**

Dimensions

Standard Housing

Order Code: I, Y, D, N

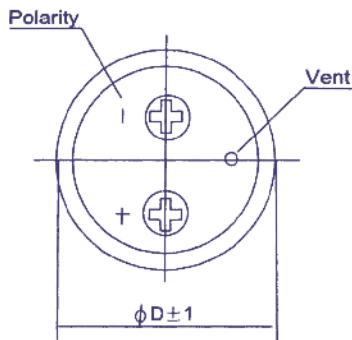
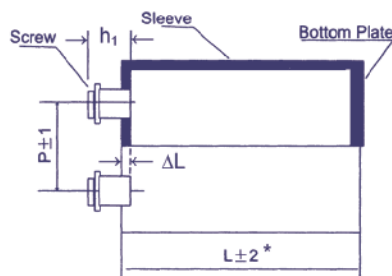
Bolt Housing

Order Code: B

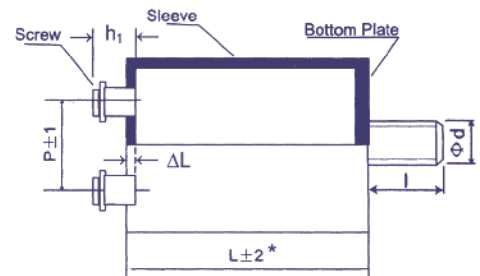
Bolt:

Ø D	Ø d	l
Ø 36	M8	12
≥ Ø 51	M12	16

in mm



* add 0,5 mm for Double Sleeve (½ length)
order code: (Y, I, D)



Δ L = 0,6 mm
h1 see Terminal Table below

Terminal Detail



Screw Definition

Hexagon-Head	M5x10
Hexagon-Head	M6x12
Hexagon-Head	M8x16

Code	ØD	Screw	Pitch P	d1	d2	h1	h2
A361	36	M5	12,7	8	11	6,8	1,8
A362	36	10 - 32	12,7	8	11	6,8	1,8
A511	51	M5	21,8	10	14	6,8	1,8
A512	51	10-32	21,8	8	11	2,5	0,5
D511	51	M5	21,8	10	13	5,5	0
A641	64	M5	28,2	10	15,5	7,3	2,3
A642	64	M5	28,2	15	20	7,3	3,5
A643	64	1/4 - 28	28,2	15	20	7,3	3,5
A644	64	M5	26,0	10	15,5	7,3	2,3
B641	64	1/4 - 28	28,2	17,2	0	6,4	0
C641	64	M5	28,5	13	0	7,3	0
D641	64	M5	28,2	13	15	7,14	0
E641	64	M5	28,2	10	15,5	6,8	1,8
A771	77	M5	31,4	10	15,5	6,3	1,3
A772	77	M6	31,4	10	15,5	6,3	1,3
B771	77	M6	31,4	17,2	0	3,17	0
B772	77	M6	31,4	17,2	0	6,4	0
B773	77	M8	31,4	17,2	0	3,17	0
B774	77	M5	31,4	17,2	0	6,4	0
B775	77	1/4-28	31,4	17,2	0	6,4	0
B778	77	M5	31,4	17,2	0	10,4/6,4	0

Code	ØD	Screw	Pitch P	d1	d2	h1	h2
C771	77	M5	31,4	17,2	0	3,5	0
C772	77	M6	31,4	17,2	0	3,5	0
C773	77	M5	31,4	17,2	0	5,5	0
C774	77	M5	31,4	17,2	0	6,4	0
C775	77	M6	31,4	17,2	0	6,4	0
C777	77	M6	31,4	17,2	0	6,4	0
D771	77	M5	31,4	13	15	6,4	0
F771	77	M6	31,4	13	15	6,4	0
F772	77	M5	31,4	13	15	6,4	0
A901	90	M5	31,4	10	15,5	6,3	1,3
A902	90	M6	31,4	10	15,5	6,3	1,3
B901	90	M6	31,4	17,2	0	6,4	0
B902	90	M5	31,4	17,2	0	6,4	0
B903	90	M5	31,4	17,2	0	10,4/6,4	0
C901	90	M5	31,4	17,2	0	6,4	0
C902	90	M6	31,4	17,2	0	6,4	0
D901	90	M5	31,4	10	13	5,5	0
E901	90	M6	31,4	15	17	8,6	2,4
F901	90	M6	31,4	13	15	6,4	0
A101	101	M8	41,5	17,2	21,5	11,0	6,0

preferred, other forms on request

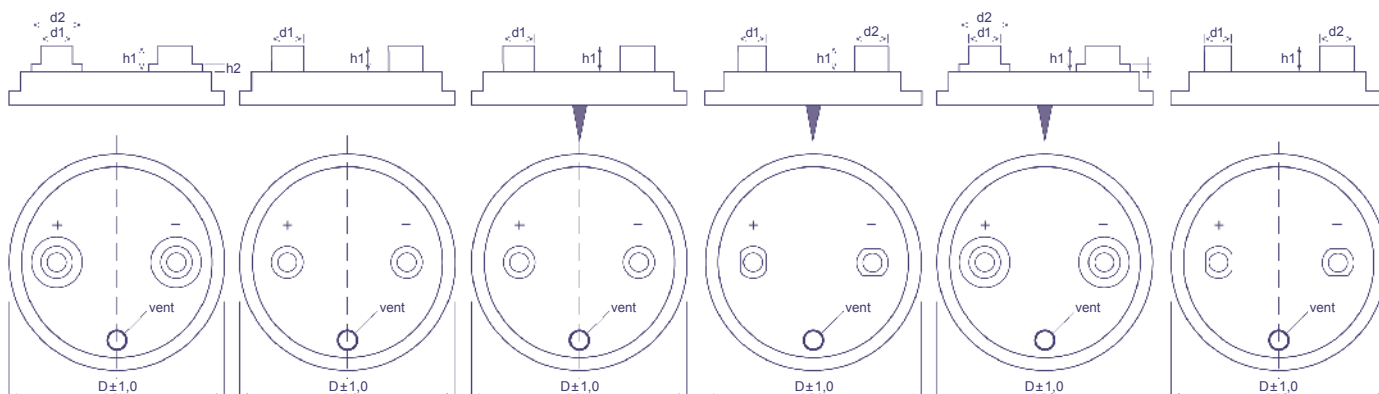
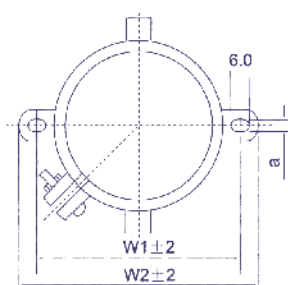
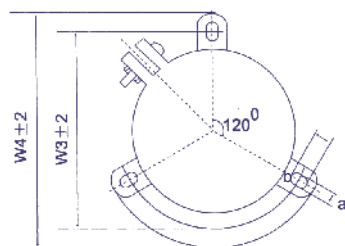
in mm

Terminal A101 = A991, B774 = B776

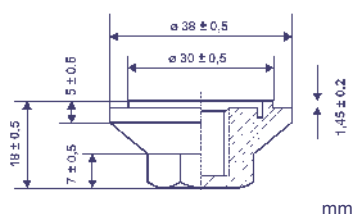
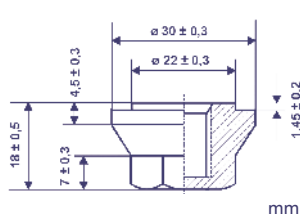
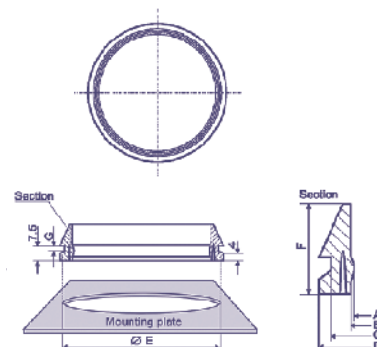
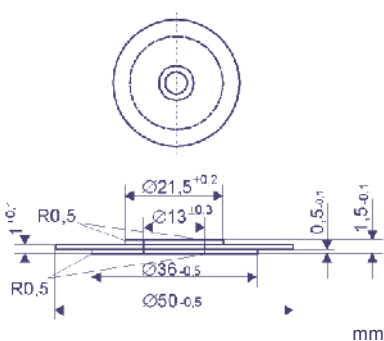
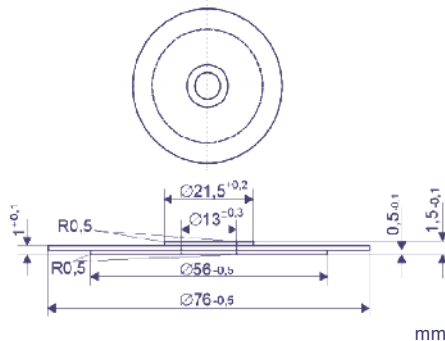
B778 and B903 have different lengths h1 of each terminal.

Terminal A, B and F include potting glue. Terminal C, D and E are without glue (middle pin).

Terminal F
Order Code: FXXX



Ø D	W1	W2	W3	W4	a	b	h
36	48,0	58,0	-	-	3,8	-	15
51	68,0	80,0	63,6	73,0	5	7,0	30
64	81,0	93,0	76,2	85,1	5	7,0	30
77	93,5	106,0	89	98,4	5	7,0	30
90	108,0	120,5	101,6	111,2	5	7,0	30
101	-	-	115,0	127,0	6	8,0	30



Ø Capacitor	64	77	90
A +0.3	62.3	74.8	88.0
B +0.3	64.1	77.0	90.0
C +0.3	70.5	84.5	97.9
D +0.3	74.5	88.6	102.0
E +0.2	71.2	85.5	98.6
F +0.2	18.0	20.0	23.5
G -0.25	3.0	2.4	3.0
Product Code Agree with RoHS	ACC PR164	ACC PR177	ACC PR190
Product Code Agree with RoHS and UL -94-V0	ACC PR464	ACC PR477	ACC PR490