

PHC

+85°C Metallized Polypropylene Capacitor



"NEW EXPANDED SELECTION"

Energized by ICEL

High frequency applications

FEATURES

■ Designed for SMPS, electronic ballasts, motor speed controls and motor run applications

■ Capacitance range: 0.15 μ F to 50 μ F
■ Little capacitance change vs. frequency and temperature

SPECIFICATIONS

Capacitance Tolerance	$\pm 10\%$ at 1 kHz, 25°C					
Operating Temperature Range	-40°C to +85°C					
Voltage Range	WVDC	250	400	630	700	850
	VAC	160	250	330	400	450
Dissipation Factor	C \leq 5 μ F, 0.05% @ 1kHz 5<C \leq 25 μ F, 0.1% @ 1kHz C>25 μ F, 0.12% @ 1kHz					
Insulation Resistance (100VDC for 1 minute)	$\geq 30000 \text{ M}\Omega \times \mu\text{F}$ not to exceed 30G Ω					
Load Life	1,000 hours, +85°C with 125% Rated WVDC					
	Capacitance Change	< $\pm 3\%$ maximum				
	Dissipation Factor Change	$\leq 0.1\%$ initial reading at 10 kHz @ +25°C for C \leq μ F				
		< 0.1% at 1 kHz for C > 1 μ F				
Insulation Resistance	$\geq 50\%$ of minimum initial limit @ +50°C					
dv/dt Range	20 to 300 v/ μ sec.					
Self-inductance	$\leq 1 \text{ nH/mm}$ along the capacitor body and leads					
Capacitance Drift Factor	$\leq 1.0\%$ up to 40°C (after 2 years)					

CONSTRUCTION

Type	Extended metallized film, internal series connection for WVDC=850VDC.
Dielectric	Polypropylene film
Electrodes	Vacuum deposited metal layers
Leads	Tinned copper wire (minimum lead content 5%)
Coating	Flame retardant polyester tape wrap (UL510) with epoxy end seals (UL94V-0).

PERFORMANCE RATING/TEST

WORKING VOLTAGE

IC Type PHC capacitors are designed to operate at the specified rated maximum DC Working Voltage over a temperature range of -40°C to +85°C.

Operating Temperature	Voltage Rating
+25°C	100%
+85°C	100%

The PHC capacitors can withstand on a limited basis the DC surge voltage ratings below.

WVDC Rated	DC Surge Voltage
250	400
400	600
600	800
700	1000
850	1200

RATED AC VOLTAGE (VAC)

IC Type PHC capacitors are designed to operate with non-sinusoidal AC voltage waveforms.

NOTE: The peak value of the AC voltage superimposed upon the DC voltage should not exceed the rated DC voltage.

DIELECTRIC STRENGTH

200% rated DC voltage is applied for 10 seconds at +25°C

COATING STRENGTH

Test voltage terminal to case (V_{TC})
3KV at 60 Hz for 60 seconds at 25 \pm 5°C

MAXIMUM dv/dt

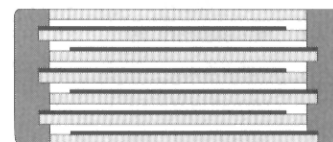
If the applied voltage VA is less than WVDC, the dv/dt value can be increased by the ratio WVDC/VA.

TYPICAL LIFE EXPECTANCY

$\geq 30,000$ hrs. @ VAC
 $\geq 100,000$ hrs. @ WVDC

FAILURE QUOTA

300/Billion component hours



Extended metallized film design



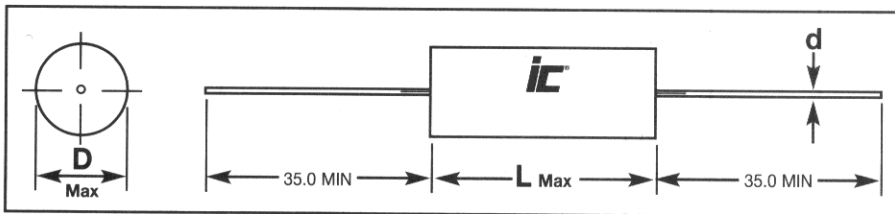
ILLINOIS CAPACITOR, INC. 3757 W. Touhy Ave., Lincolnwood, IL 60712 • (847) 675-1760 • Fax (847) 673-2850 • www.illcap.com

PHYSICAL DIMENSIONS

WVDC (VAC) μF	250 (160)	400 (250)	600 (330)	700 (400)	850 (450)
0.15					12x34
0.22					13.5x34
0.33					16x34
0.47		11x29	12.5x34	15.5x34	18.5x34
0.68		12x34, 13x29	14x34	17.5x34	18x46, 21.5x34
1	11x29	13x34	17.5x34	18x46, 21.5x34	21.5x46, 26x34
1.2				20x46, 24x34	
1.5	13x29	15.5x34	20x34	21.5x46	25.5x46
2	12.5x34, 15x29	17.5x34	20x46, 23x34	24.5x46	29x46
2.2	13x34	18.5x34	21x46	25.5x46	30x46
2.5	14x34	19x34	22x46	27x46	28x55, 32x46
3	15x34	21x34	24x46	29x46	30.5x55, 34.5x46
3.3	15.5x34	19x46, 22x34	25x46	30.5x46	32x55
4	17x34	20.5x46	27x46	29x55, 33.5x46	35x55
4.7		22x46	29x46	31x55	37x55
5	18.5x34	22.5x46	27x55	32x55	38x55
5			29.5x46		
5.6					40.5x55
6.8	21x34	26x46	30x55	37x55	
8.2				41x55	
10	20.5x46, 24x34	27x55, 31x46	35x55		
12.5			40.5x55		
15	25.5x46	33x55			
20	29x46	37x55			
25	32x46	41.5x55			
30	31x55				
40	36x55				
50	40x55				

Convert to inches, divide by 25.4

DxL(mm)



D	d
≤14	0.8
14<D≤17.5	0.9
17.5<D≤24	1.0
>24	1.2

PHC

+85°C Metallized
Polypropylene
Capacitors

STANDARD PART LISTING

Capacitance (µF)	WVDC	IC PART NUMBER	dv/dt (v/µs)	Typical ESR @100 kHz, +25°C IN mΩ	Maximum RMS Current @100 kHz, +70°C in Amps	Dimensions DxL (mm)
0.15	850	154PHC850K	300	10	300	12x34
0.22	850	224PHC850K	300	8.2	300	13.5x34
0.33	850	334PHC850K	300	5.7	300	16x34
0.47	400	474PHC400K	75	8.2	75	11x29
0.47	600	474PHC600K	75	6.5	75	12.5x34
0.47	700	474PHC700K	105	7.3	105	15.5x34
0.47	850	474PHC850K	300	5.0	300	18.5x34
0.68	400	684PHC400K	55	8.5	55	12x34
0.68	400	684PHC400KD13	75	6.2	75	13x29
0.68	600	684PHC600K	75	7.4	75	14x34
0.68	700	684PHC700K	105	5.7	105	17.5x34
0.68	850	684PHC850K	300	3.9	300	21.5x34
0.68	850	684PHC850KD18	200	5.2	200	18x46
1	250	105PHC250K	50	7.1	50	11x29
1	400	105PHC400K	55	6.4	55	13x34
1	600	105PHC600K	75	5.8	75	17.5x34
1	700	105PHC700K	105	4.3	105	21.5x34
1	700	105PHC700KD18	70	6.3	70	18x46
1	850	105PHC850K	200	4.2	200	21.5x46
1	850	105PHC850KD26	300	3.1	300	26x34
1.2	700	125PHC700KD20	70	6.0	70	20x46
1.2	700	125PHC700K	105	3.7	105	24x34
1.5	250	155PHC250K	50	5.4	50	13x29
1.5	400	155PHC400K	55	5.3	55	15.5x34
1.5	600	155PHC600K	75	4.7	75	20x34
1.5	700	155PHC700K	70	5.3	70	21.5x46
1.5	850	155PHC850K	200	3.4	200	25.5x46
2	250	205PHC250K	50	4.9	50	15x29
2	250	205PHC250KD13	40	5.7	40	12.5x34
2	400	205PHC400K	55	4.4	55	17.5x34
2	600	205PHC600K	55	5.0	55	20x46
2	600	205PHC600KD23	75	3.9	75	23x34
2	700	205PHC700K	70	4.6	70	24.5x46
2	850	205PHC850K	200	2.9	200	29x46
2.2	250	225PHC250K	40	5.4	40	13x34
2.2	400	225PHC400K	55	4.2	55	18.5x34
2.2	600	225PHC600K	55	4.6	55	21x46
2.2	700	225PHC700K	70	4.3	70	25.5x46
2.2	850	225PHC850K	200	2.8	200	30x46
2.5	250	255PHC250K	40	5.1	40	14x34
2.5	400	255PHC400K	55	4.0	55	19x34
2.5	600	255PHC600K	55	4.4	55	22x46
2.5	700	255PHC700K	70	4.0	70	27x46
2.5	850	255PHC850KD28	125	3.5	125	28x55
2.5	850	255PHC850K	200	2.8	200	32x46
3	250	305PHC250K	40	4.6	40	15x34
3	400	305PHC400K	55	3.6	55	21x34

Capacitance (µF)	WVDC	IC PART NUMBER	dv/dt (v/µs)	Typical ESR @100 kHz, +25°C IN mΩ	Maximum RMS Current @100 kHz, +70°C in Amps	Dimensions DxL (mm)
3	600	305PHC600K	55	4.0	24	24x46
3	700	305PHC700K	70	6.1	29	29x46
3	850	305PHC850KD31	125	3.1	30.5	30.5x55
3	850	305PHC850K	200	2.3	34.5	34.5x46
3.3	250	335PHC250K	40	4.2	15.5	15.5x34
3.3	400	335PHC400K	55	3.5	22	22x34
3.3	400	335PHC400KD19	40	4.1	19	19x46
3.3	600	335PHC600K	55	3.8	25	25x46
3.3	700	335PHC700K	70	5.9	30.5	30.5x46
3.3	850	335PHC850K	125	3.0	32	32x55
4	250	405PHC250K	40	3.6	17	17x34
4	400	405PHC400K	40	3.7	20.5	20.5x46
4	600	405PHC600K	55	3.3	27	27x46
4	700	405PHC700K	70	5.4	33.5	33.5x46
4	700	405PHC700KD29	60	6.7	29	29x55
4	850	405PHC850K	125	2.7	35	35x55
4.7	400	475PHC400K	40	6.6	22	22x46
4.7	600	475PHC600K	55	6.1	29	29x46
4.7	700	475PHC700K	60	6.1	31	31x55
4.7	850	475PHC850K	125	2.4	37	37x55
5	250	505PHC250K	40	3.2	18.5	18.5x34
5	400	505PHC400K	40	6.6	22.5	22.5x46
5	600	505PHC600KD30	55	7.3	29.5	29.5x46
5	600	505PHC600K	50	6.1	27	27x55
5	700	505PHC700K	60	5.8	32	32x55
5	850	505PHC850K	125	2.4	38	38x55
5.6	850	565PHC850K	125	2.1	40.5	40.5x55
6.8	250	685PHC250K	40	2.9	21	21x34
6.8	400	685PHC400K	40	5.6	26	26x46
6.8	600	685PHC600K	50	6.4	30	30x55
6.8	700	685PHC700K	60	5.1	37	37x55
8.2	700	825PHC700K	60	4.6	41	41x55
10	250	106PHC250K	40	2.4	24	24x34
10	250	106PHC250KD21	25	3.1	20.5	20.5x46
10	400	106PHC400K	30	5.7	27	27x55
10	400	106PHC400KD31	40	4.6	31	31x46
10	600	106PHC600K	50	5.4	35	35x55
12.5	600	126PHC600K	50	5.0	40.5	40.5x55
15	250	156PHC250K	25	2.5	25.5	25.5x46
15	400	156PHC400K	30	4.7	33	33x55
20	250	206PHC250K	25	2.3	29	29x46
20	400	206PHC400K	30	4.2	37	37x55
25	250	256PHC250K	25	2.2	32	32x46
25	400	256PHC400K	30	3.8	41.5	41.5x55
30	250	306PHC250K	20	4.2	31	31x55
40	250	406PHC250K	20	3.8	36	36x55
50	250	506PHC250K	20	3.5	40	40x55