K05 TYPE -40°C +105°C 5000H

RoHS Compliant
Directive 2002/95/EC

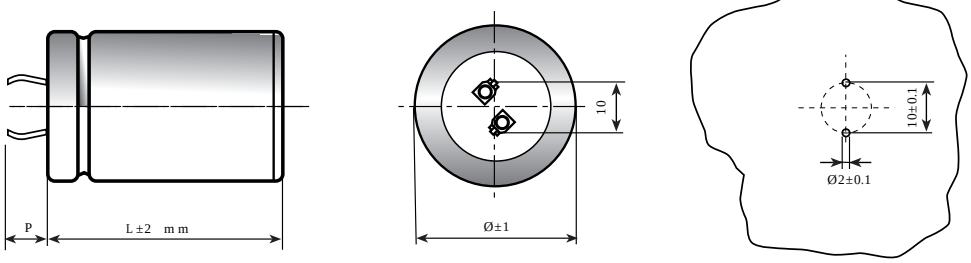
- Surge-proof capacitor in aluminium can with insulation sleeve
- Safety vent at bottom case or aside case.
- Snap in terminals for PCB mounting.
- Very high CV for unit volume with low ESR.
- High ripple current, in small dimensions case size.
- Extended temperature range with outstanding reliability.

APPLICATIONS

Professional switch mode power supplies. Professional power electronics.

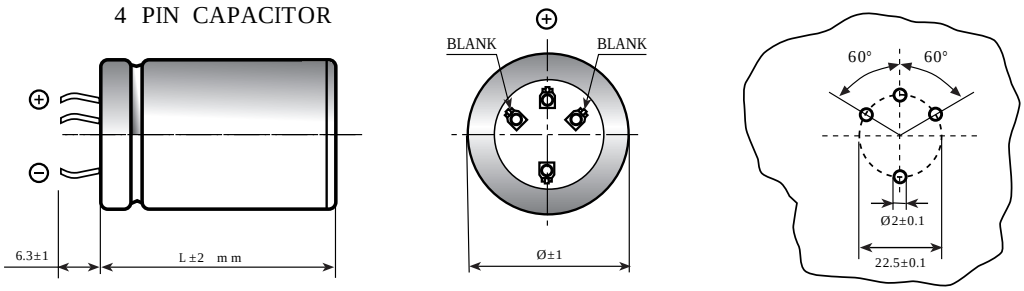
Dimensions in mm.

2 PIN CAPACITOR



PIN LENGTH
P 4.5 short pin
P 6.3 long pin (standard)

4 PIN CAPACITOR



Temperature Range	Operating: -40°C +105°C [Environmental classification 40/105/56 IEC-68] Storage : Preferably below +25°C, not exceeding +40°C
Rated Voltage Range (V_r)	from 16V to 450V DC
Surge Voltage (V_p)	V_p = 1.15 V_r ($V_r \leq$ 250V DC) V_p = 1.10 V_r ($V_r >$ 250V DC)
Rated Capacitance Range	from 68 µF to 47,000 µF
Capacitance Tolerance	±20% at 100 Hz, 20°C [M class IEC-62]
Leakage Current (I_L) (mA, 5 min, 20°C)	max I_L= 0.006 C_r V_r + 4 µA Kendeil product limit : I_L= 0.003 C_r V_r At 85°C max I_L = 0.02 C_r V_r µA
Ripple current (I_r)	Refer to table at 105°C and 100Hz. For different temperature and frequency multiplier must be used as follows:

FREQUENCY	50Hz	100Hz	500 Hz	1000Hz	>10kHz
MULTIPLIER (0-25V V_r DC)	0.91	1.0	1.15	1.15	1.2
MULTIPLIER (40-100V V_r DC)	0.88	1.0	1.35	1.40	1.45
MULTIPLIER (160-450V V_r DC)	0.88	1.0	1.45	1.50	1.55

AMBIENT TEMP.	35°C	45°C	55°C	65°C	75°C	85°C	95°C	105°C	110°C
MULTIPLIER	3.0	2.80	2.60	2.40	2.20	1.80	1.50	1.0	0.5

Maximum internal temperature 108°C

Insulation Resistance	At 100V DC for 1 min is >100 MΩ across insulating sleeve and terminals.
Vibration Resistance	Frequency range: 10 Hz to 500 Hz, amplitude 0.75 mm max acceleration 10g for 3x2 h
Life test	After 2,000 hours application of rated voltage at 105°C capacitors meet characteristics aside Cap change ≤ 20% tan δ ≤ 200% Leakage current (I_L) < initial limit Impedance (Z) ≤ 200%
Shelf life	After leaving capacitors under no load for 500 hours at 105°C, when restored at 20°C meet specifications aside Cap change ≤ ±15% tan δ ≤ 150% Leakage current (I_L) < initial limit
Useful life	250,000 h at 40°C 15,000 h at 85°C 5,000 h at 105°C
Failure percentage Failure rate	≤ 1% (during useful life) ≤ 40 fit (40 10^{-9}/h (V_r <=≤ 160V DC) 70 fit (Vr >160V DC)
Self inductance	Approx. 20 nH
Reference standards	CECC 30.301 - IEC 60384-4 LONG LIFE GRADE

K05 TYPE STANDARD RATINGS

Cap µF	Ø x L mm	Tan δ MAX 100 Hz 20°C	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 105°C	PART NUMBER termination digit excluded	RATED VOLTAGE VDC
6800	25x30	0.30	55	40	1.9	K05016682_PM0C030	**16V**
10000	25x40	0.40	45	35	2.0	K05016103_PM0C040	
10000	30x30	0.40	40	35	2.0	K05016103_PM0D030	
15000	25x40	0.45	40	35	2.6	K05016153_PM0C040	
15000	30x40	0.45	40	35	2.8	K05016153_PM0D040	
22000	30x40	0.60	35	24	3.1	K05016223_PM0D040	
22000	35x40	0.60	35	24	3.3	K05016223_PM0E040	
33000	35x50	0.70	25	20	3.6	K05016333_PM0E050	
47000	35x50	0.90	22	20	4.9	K05016473_PM0E050	

Cap µF	Ø x L mm	Tan δ MAX 100 Hz 20°C	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 105°C	PART NUMBER termination digit excluded	RATED VOLTAGE VDC
4700	25x30	0.25	53	45	1.8	K05025472_PM0C030	**25V**
6800	25x30	0.25	50	38	2.0	K05025682_PM0C030	
6800	30x30	0.30	50	38	2.2	K05025682_PM0D030	
10000	25x40	0.40	40	35	2.4	K05025103_PM0C040	
10000	30x30	0.40	40	35	2.3	K05025103_PM0D030	
15000	30x40	0.45	39	28	2.9	K05025153_PM0D040	
15000	35x40	0.45	39	28	3.2	K05025153_PM0E040	
22000	35x50	0.60	30	22	3.3	K05025223_PM0E050	
33000	35x50	0.70	22	18	4.3	K05025333_PM0E050	

Cap µF	Ø x L mm	Tan δ MAX 100 Hz 20°C	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 105°C	PART NUMBER termination digit excluded	RATED VOLTAGE VDC
3300	25x30	0.20	72	58	1.5	K05040332_PM0C030	**40V**
4700	25x30	0.20	50	38	1.8	K05040472_PM0C030	
4700	30x25	0.20	50	38	1.8	K05040472_PM0D025	
6800	25x40	0.30	48	33	2.3	K05040682_PM0C040	
6800	30x30	0.30	48	33	2.4	K05040682_PM0D030	
10000	30x40	0.40	39	28	2.8	K05040103_PM0D040	
10000	35x30	0.40	39	28	2.9	K05040103_PM0E030	
15000	30x40	0.45	32	22	2.8	K05040153_PM0D040	
15000	35x40	0.45	32	22	3.7	K05040153_PM0E040	
22000	35x50	0.55	28	20	5.4	K05040223_PM0E050	

K05 TYPE STANDARD RATINGS

Cap µF	Ø x L mm	Tan δ MAX 100 Hz 20°C	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 105°C	PART NUMBER termination digit excluded	RATED VOLTAGE VDC
2200	25x30	0.20	72	58	1.5	K05050222_PM0C030	**50V**
3300	25x30	0.20	48	38	1.6	K05050332_PM0C030	
4700	25x30	0.20	50	35	2.0	K05050472_PM0C030	
4700	30x25	0.20	50	35	2.0	K05050472_PM0D025	
4700	30x30	0.20	50	35	2.4	K05050472_PMOD030	
6800	30x30	0.30	46	28	2.9	K05050682_PM0D030	
6800	30x40	0.30	46	28	3.2	K05050682_PM0D040	
10000	30x40	0.35	31	22	3.4	K05050103_PM0D040	
10000	35x40	0.35	31	22	3.6	K05050103_PM0E040	
15000	35x50	0.45	26	18	4.7	K05050153_PM0E050	
22000	40x50	0.50	25	18	5.5	K05050223_PM0F050	

Cap µF	Ø x L mm	Tan δ MAX 100 Hz 20°C	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 105°C	PART NUMBER termination digit excluded	RATED VOLTAGE VDC
2200	25x30	0.15	79	60	1.5	K05063222_PM0C030	**63V**
3300	25x40	0.15	50	40	2.3	K05063332_PM0C040	
3300	30x30	0.15	50	40	2.1	K05063332_PM0D030	
4700	30x30	0.20	40	29	2.4	K05063472_PM0D030	
4700	30x40	0.20	40	29	2.8	K05063472_PM0D040	
6800	30x40	0.30	35	25	3.0	K05063682_PM0D040	
6800	35x40	0.30	35	25	4.4	K05063682_PM0E040	
10000	35x50	0.35	30	23	5.3	K05063103_PM0E050	

Cap µF	Ø x L mm	Tan δ MAX 100 Hz 20°C	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 105°C	PART NUMBER termination digit excluded	RATED VOLTAGE VDC
1000	25x30	0.10	127	100	1.7	K05100102_PM0C030	**100V**
1000	30x25	0.10	127	100	1.7	K05100102_PM0D025	
1500	25x40	0.12	105	82	2.0	K05100152_PM0C040	
1500	30x30	0.12	105	82	1.8	K05100152_PM0D030	
2200	30x30	0.15	71	60	2.7	K05100222_PM0D030	
2200	30x40	0.15	71	60	2.7	K05100222_PM0D040	
3300	30x50	0.15	48	39	3.0	K05100332_PM0D050	
3300	35x40	0.15	48	39	3.3	K05100332_PM0E040	
4700	35x40	0.15	42	30	3.6	K05100472_PM0E040	
4700	35x50	0.20	33	26	4.4	K05100472_PM0E050	
5600	40x50	0.20	33	24	4.8	K05100562_PM0F050	
6800	40x50	0.20	33	24	4.9	K05100682_PM0F050	

K05 TYPE STANDARD RATINGS

Cap µF	Ø x L mm	Tan δ MAX 100 Hz 20°C	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 105°C	PART NUMBER termination digit excluded	RATED VOLTAGE VDC
220	22x30	0.10	440	340	0.9	K05200221_PM0B030	**200V**
220	25x30	0.10	440	340	1.1	K05200221_PM0C030	
330	22x30	0.10	240	133	1.1	K05200331_PM0B030	
330	25x25	0.10	240	133	0.7	K05200331_PM0C025	
330	25x30	0.10	240	133	1.2	K05200331_PM0C030	
470	25x30	0.10	169	98	1.6	K05200471_PM0C030	
470	30x30	0.10	169	98	1.8	K05200471_PM0D030	
680	25x40	0.10	145	87	1.7	K05200681_PM0C040	
680	30x40	0.10	145	87	2.0	K05200681_PM0D040	
1000	30x40	0.10	95	63	2.1	K05200102_PM0D040	
1000	35x30	0.10	95	63	2.4	K05200102_PM0E030	
1500	30x50	0.10	70	41	2.4	K05200152_PM0D050	
1500	35x50	0.10	70	41	2.6	K05200152_PM0E050	
2200	35x50	0.12	45	33	2.8	K05200222_PM0E050	

Cap µF	Ø x L mm	Tan δ MAX 100 Hz 20°C	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 105°C	PART NUMBER termination digit excluded	RATED VOLTAGE VDC
100	25x30	0.10	950	730	0.7	K05250101_PM0C030	**250V**
150	25x30	0.10	530	290	0.7	K05250151_PM0C030	
220	25x30	0.10	370	240	0.9	K05250221_PM0C030	
330	30x30	0.10	260	153	1.2	K05250331_PM0D030	
470	25x40	0.10	180	110	1.5	K05250471_PM0C040	
470	30x30	0.10	180	110	1.5	K05250471_PM0D030	
680	35x40	0.10	145	95	1.8	K05250681_PM0E040	
1000	35x50	0.10	98	65	2.6	K05250102_PM0E050	
1500	35x50	0.12	75	43	2.8	K05250152_PM0E050	

K05 TYPE STANDARD RATINGS

Cap µF	Ø x L mm	Tan δ MAX 100 Hz 20°C	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 105°C	PART NUMBER termination digit excluded	RATED VOLTAGE VDC
68	25x30	0.10	1405	1050	0.5	K05400680_PM0C030	**400V**
100	22x30	0.10	796	550	0.5	K05400101_PM0B030	
100	25x30	0.10	796	550	0.5	K05400101_PM0C030	
150	25x30	0.10	530	380	0.6	K05400151_PM0C030	
150	30x30	0.10	530	380	0.8	K05400151_PM0D030	
220	25x40	0.10	360	250	1.0	K05400221_PM0C040	
220	30x30	0.10	360	250	1.1	K05400221_PM0D030	
270	25x40	0.10	320	199	1.2	K05400271_PM0C040	
330	25x45	0.10	249	170	1.3	K05400331_PM0C045	
330	30x40	0.10	240	170	1.4	K05400331_PM0D040	
330	35x30	0.10	240	170	1.4	K05400331_PM0E030	
330	35x40	0.10	240	170	1.6	K05400331_PM0E040	
470	30x50	0.10	170	125	1.9	K05400471_PM0D050	
470	35x40	0.10	170	125	1.7	K05400471_PM0E040	
470	35x50	0.10	170	125	2.0	K05400471_PM0E050	
680	35x50	0.10	158	110	1.9	K05400681_PM0E050	
680	40x50	0.10	158	110	2.2	K05400681_PM0F050	
820	35x60	0.10	110	95	2.5	K05400821_PM0E060	
1000	40x60	0.10	95	70	3.1	K05400102_PM0F060	
1500	40X97	0.10	99	68	5.8	K05400152_PM0F097	

Cap µF	Ø x L mm	Tan δ MAX 100 Hz 20°C	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 105°C	PART NUMBER termination digit excluded	RATED VOLTAGE VDC
68	25x30	0.10	1405	1050	0.5	K05450680_PM0C030	**450V**
100	25x30	0.10	796	710	0.5	K05450101_PM0C030	
100	30x25	0.10	796	550	0.7	K05450101_PM0D025	
100	30x30	0.10	796	550	0.8	K05450101_PM0D030	
150	25x40	0.10	660	490	0.9	K05450151_PM0C040	
150	30x30	0.10	530	380	0.8	K05450151_PM0D030	
150	30x40	0.10	530	380	1.0	K05450151_PM0D040	
220	25x50	0.10	380	310	1.1	K05450221_PM0C050	
220	30x40	0.10	360	250	1.1	K05450221_PM0D040	
220	35x30	0.10	360	250	1.1	K05450221_PM0E030	
330	30x50	0.10	240	170	1.4	K05450331_PM0D050	
330	35x40	0.10	240	170	1.4	K05450331_PM0E040	
330	35x50	0.10	240	170	1.8	K05450331_PM0E050	
470	35x50	0.10	170	125	1.8	K05450471_PM0E050	
680	35x50	0.15	252	182	1.5	K05450681_PM0E050	
680	35x60	0.12	158	110	2.2	K05450681_PM0E060	
820	40x60	0.13	125	100	2.3	K05450821_PM0F060	
1000	40x60	0.13	110	90	4.2	K05450102_PM0F060	
1500	40X97	0.15	90	80	5. 1	K05450152_PM0F097	