K02 TYPE -40°C +105°C 5000H

RoHS Compliant

- Surge-proof capacitor in aluminium can with insulation sleeve.
- Poles brought out to heavy duty screw terminals.
- To be mounted with ring clips or with threaded stud
- Very high CV for unit volume with low ESR and impedance.
- High ripple current capability. Extended temperature range.
- High level realiability with outstanding high frequency characteristics.

APPLICATIONS

High professional power supplies. Switch power supplies, power converters, filtering devices, motor drive.

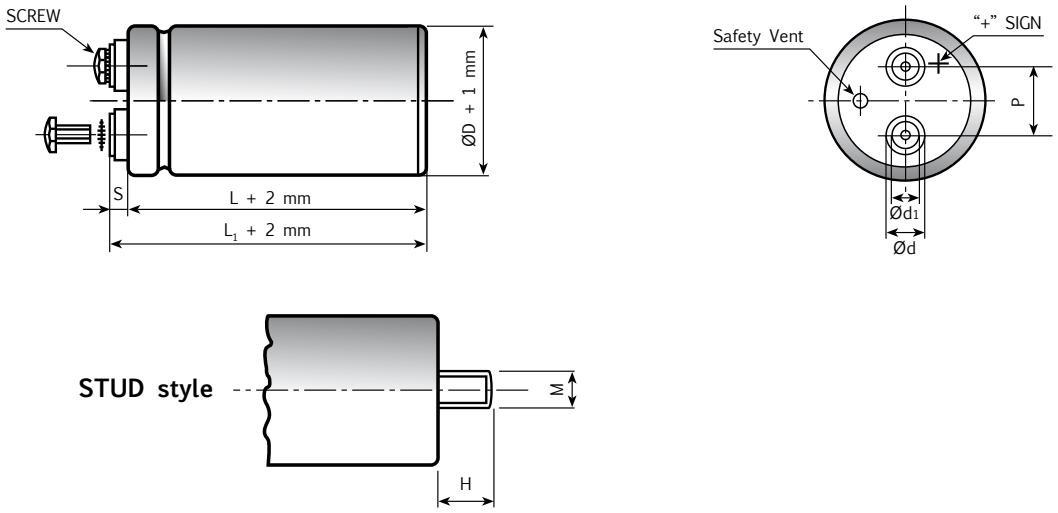


Diagram of dimensions (unit=mm)
Insert and screw threads: Metric (mm), UNF (inches)

ØD	d	d1	P	STUD M	STUD H	INSERT	SCREW	L_1 -L[-1+3]	S[-1+1]	INSERT STYLE CODE
35	11	7.9	12.7	M8	12	M5	5MA x 9.5	2.5	5	O
51	18.5	13	22.7	M12	16	M5	5MA x 9.5	2.5	5	H
63	18.5	13	28.6	M12	16	M5	5MA x 9.5	2.5	5	H
63	17.3	17.3	28.6	M12	16	UNF 1/4-28 Low Post	1/4-28 x 3/8"	3	4	W
63	17.3	17.3	28.6	M12	16	UNF 1/4-28 High Post	1/4-28 x 1/2"	6	7	R
63	7.9	7.9	28.6	M12	16	UNF 10-32 Low Post	10-32 x 1/4"	2	2.5	Z
63	12	7.9	28.6	M12	16	UNF 10-32 High Post	10-32 x 3/8"	6	7	U
76	18.5	13	31.8	M12	16	M5	5MA x 9.5	2.5	5	H
76	18.5	13	31.8	M12	16	M5	5MA x 9.5	2.5	7	L
76	23.2	17.7	31.8	M12	16	M6	6MA x 10	4.5	7	6
76	17.3	17.3	31.8	M12	16	UNF 1/4-28 Low Post	1/4-28 x 3/8"	3	4	W
76	17.3	17.3	31.8	M12	16	UNF 1/4-28 High Post	1/4-28 x 1/2"	6	7	R
76	7.9	7.9	31.8	M12	16	UNF 10-32 Low Post	10-32 x 1/4"	2	2.5	Z
76	12	7.9	31.8	M12	16	UNF 10-32 High Post	10-32 x 3/8"	6	7	U
90	23.2	17.7	31.8	M12	16	M6	6MA x 10	4.5	7	H

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 500V DC
Surge Voltage (V_p)	$V_p = 1.15\ V_r$ ($V_r \leq 250$V DC) $V_p = 1.10\ V_r$ ($V_r > 250$V DC)
Rated Capacitance Range	from 100 µF to 470,000 µF
Capacitance Tolerance	±20% at 100 Hz, 20°C [M class IEC-62] on request: -10% +30% at 100 Hz, 20°C [Q class IEC-62]
Leakage Current (I_L) (mA, 5 min, 20°C)	max $I_L = 0.003\ C_r\ V_r + 4$ µA 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 0.8 1.0 1.2 1.3 1.5 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 1.5 1.0 0.5 Maximum internal temperature 108°C Due to the current load capability of the contact elements, the following limits must not be exceeded: CAPACITOR DIAMETER 35mm 51mm 63mm 76mm 90mm Maximum current 20A 30A 40A 50A 70A
Insulation Resistance	At 100V DC for 1 min is >100 MΩ across insulating sleeve and terminals.
Vibration Resistance	Frequency range: 10 Hz to 55 Hz, amplitude 0.75 mm Capacitor length ≤ 143 : max acceleration 10g for 3x2 h Capacitor length > 143 : max acceleration 5g for 3x0.5 h
Life test	After 2,000 hours application of rated voltage at 105°C capacitors meet characteristics aside Cap change ≤ 10% tan δ ≤ 130% Leakage current (I_L) < initial limit Impedance (Z) ≤ 130%
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 (Vn, Temp rated I ripple applied)	250000 h at 40°C 5000 h at 105°C
Failure percentage Failure rate	≤ 1% (during useful life) ≤ 30 fit (30 10^{-9}/h) ($V_r \leq 160$V DC) ≤ 40 fit (40 10^{-9}/h) ($V_r > 160$V DC)
Self inductance	Approx. 20 nH
Reference standards	CECC 30.300 IEC 60384-4 LONG LIFE GRADE

K02 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 stud and insert style excluded	RATED VOLTAGE VDC
10000	35x60	0.25	25	24	3.3	K02016103__M0E060	16V
15000	35x60	0.30	16	16	3.5	K02016153__M0E060	
22000	35x60	0.35	12	12	4.4	K02016223__M0E060	
33000	35x60	0.40	12	12	4.6	K02016333__M0E060	
47000	35x79	0.55	9	10	7.5	K02016473__M0E079	
68000	51x79	0.60	8	8	11.9	K02016683__M0G079	
100000	51x105	0.80	8	8	12.3	K02016104__M0G105	
150000	63x105	1.10	7	7	15.4	K02016154__M0H105	
220000	76x105	1.50	7	7	18.8	K02016224__M0J105	
330000	76x105	1.90	7	7	19.7	K02016334__M0J105	
470000	76x143	2.00	6	6	22.5	K02016474__M0J143	

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 stud and insert style excluded	RATED VOLTAGE VDC
10000	35x60	0.20	23	18	3.8	K02025103__M0E060	25V
15000	35x60	0.25	16	12	4.8	K02025153__M0E060	
22000	35x60	0.30	12	12	7.0	K02025223__M0E060	
33000	51x79	0.35	10	10	8.9	K02025333__M0G079	
47000	51x79	0.40	9	9	11.6	K02025473__M0G079	
68000	51x105	0.50	8	8	13.0	K02025683__M0G105	
100000	63x105	0.60	8	8	15.8	K02025104__M0H105	
150000	76x105	0.90	7	7	18.3	K02025154__M0J105	
220000	76x143	1.30	7	7	21.6	K02025224__M0J143	
330000	76x143	2.00	7	7	23.8	K02025334__M0J143	

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 stud and insert style excluded	RATED VOLTAGE VDC
4700	35x60	0.20	31	29	3.3	K02040472__M0E060	40V
6800	35x60	0.20	23	20	3.9	K02040682__M0E060	
10000	35x79	0.20	16	12	4.8	K02040103__M0E079	
15000	35x79	0.20	12	10	5.4	K02040153__M0E079	
22000	51x79	0.25	10	10	8.9	K02040223__M0G079	
33000	51x105	0.35	10	10	11.2	K02040333__M0G105	
47000	51x105	0.45	9	9	13.8	K02040473__M0G105	
47000	63x105	0.45	9	9	14.5	K02040473__M0H105	
68000	63x105	0.60	7	7	15.0	K02040683__M0H105	
68000	76x105	0.60	7	7	15.9	K02040683__M0J105	
100000	76x105	0.90	7	7	19.1	K02040104__M0J105	
100000	76x143	0.90	7	7	21.0	K02040104__M0J143	
150000	76x143	1.30	7	7	25.9	K02040154__M0J143	

K02 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 stud and insert style excluded	RATED VOLTAGE VDC
2200	35x60	0.15	72	60	2.5	K02063222__M0E060	63V
3300	35x60	0.15	48	39	3.5	K02063332__M0E060	
4700	35x60	0.15	33	28	4.2	K02063472__M0E060	
6800	35x79	0.18	18	13	6.3	K02063682__M0E079	
10000	51x79	0.20	15	11	8.2	K02063103__M0G079	
15000	51x79	0.25	15	13	8.9	K02063153__M0G079	
15000	51x105	0.25	13	10	18.0	K02063153__M0G105	
22000	51x105	0.30	11	10	11.8	K02063223__M0G105	
22000	63x105	0.30	11	10	13.5	K02063223__M0H105	
33000	63x105	0.35	11	10	14.8	K02063333__M0H105	
33000	76x105	0.35	11	8	16.6	K02063333__M0J105	
47000	76x105	0.45	9	8	17.7	K02063473__M0J105	
47000	76x143	0.45	9	8	19.0	K02063473__M0J143	
68000	76x105	0.45	8	8	20.1	K02063683__M0J105	
68000	76x143	0.70	8	8	22.8	K02063683__M0J143	
100000	76x143	0.70	8	8	24.1	K02063104__M0J143	

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 stud and insert style excluded	RATED VOLTAGE VDC
1000	35x60	0.15	110	100	2.9	K02100102__M0E060	100V
1500	35x60	0.15	80	73	3.2	K02100152__M0E060	
2200	35x60	0.15	59	53	4.4	K02100222__M0E060	
3300	35x79	0.15	33	31	5.8	K02100332__M0E079	
4700	51x79	0.15	25	22	7.2	K02100472__M0G079	
6800	51x79	0.15	19	17	8.9	K02100682__M0G079	
6800	51x105	0.15	19	17	8.9	K02100682__M0G105	
10000	51x105	0.15	17	15	11.0	K02100103__M0G105	
10000	63x105	0.15	17	15	12.5	K02100103__M0H105	
15000	63x105	0.15	12	12	15.1	K02100153__M0H105	
22000	76x105	0.18	10	9	16.5	K02100223__M0J105	
33000	76x143	0.22	8	8	20.9	K02100333__M0J143	

K02 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 stud and insert style excluded	RATED VOLTAGE VDC
1000	35x79	0.11	105	90	3.3	K02160102__M0E079	160V
1500	51x79	0.11	65	60	4.1	K02160152__M0G079	
2200	51X105	0.11	46	43	4.8	K02160222__M0G105	
3300	63x105	0.11	32	30	6.8	K02160332__M0H105	
4700	63x105	0.11	27	25	8.5	K02160472__M0H105	
6800	76x105	0.13	23	20	11.3	K02160682__M0J105	
10000	76x105	0.14	22	20	14.2	K02160103__M0J105	
10000	76x143	0.15	17	16	14.9	K02160103__M0J143	
15000	76x143	0.20	16	12	17.2	K02160153__M0J143	
22000	76X214	0.20	11	10	19.0	K02160223__M0J214	

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 stud and insert style excluded	RATED VOLTAGE VDC
680	35X60	0.11	133	98	2.5	K02200681__M0E060	200V
1000	51x79	0.11	85	64	4.6	K02200102__M0G079	
1500	51x105	0.11	65	58	5.1	K02200152__M0G105	
2200	51x105	0.11	60	53	6.1	K02200222__M0G105	
3300	63x105	0.11	40	35	7.9	K02200332__M0H105	
4700	63x105	0.11	25	23	8.7	K02200472__M0H105	
5600	63x105	0.11	22	20	9.8	K02200562__M0H105	
6800	76X105	0.11	18	16	11.8	K02200682__M0J105	
8200	76X105	0.11	17	15	12.8	K02200822__M0J105	
10000	76x105	0.13	15	13	14.5	K02200103__M0J105	
10000	76x143	0.15	13	12	16.0	K02200103__M0J143	
15000	76x143	0.20	12	11	17.3	K02200153__M0J143	
22000	76x214	0.20	11	10	18.9	K02200223__M0J214	

K02 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 stud and insert style excluded	RATED VOLTAGE VDC
470	35x60	0.11	211	193	2.0	K02250471__M0E060	250V
680	35x79	0.11	130	98	2.2	K02250681__M0E079	
1000	51x79	0.11	110	85	4.1	K02250102__M0G079	
1500	51x105	0.11	74	65	5.4	K02250152__M0G105	
2200	51x105	0.11	41	39	6.8	K02250222__M0G105	
3300	63x105	0.11	30	26	8.2	K02250332__M0H105	
4700	76x105	0.11	18	17	11.9	K02250472__M0J105	
5600	76x105	0.11	17	16	13.2	K02250562__M0J105	
6800	76x143	0.15	15	14	14.3	K02250682__M0J143	
8200	76x143	0.15	14	14	15.2	K02250822__M0J143	
10000	76x143	0.20	14	13	16.0	K02250103__M0J143	
15000	76x214	0.20	12	10	17.4	K02250153__M0J214	

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 stud and insert style excluded	RATED VOLTAGE VDC
330	35x60	0.11	255	196	1.8	K02350331__M0E060	350V
470	35x79	0.11	170	141	2.1	K02350471__M0E079	
680	51x79	0.11	128	96	3.8	K02350681__M0G079	
1000	51x105	0.11	85	68	5.0	K02350102__M0G105	
1500	63x105	0.11	59	52	6.4	K02350152__M0H105	
2200	76x105	0.11	44	40	8.1	K02350222__M0J105	
3300	76x105	0.11	26	23	10.2	K02350332__M0J105	
4700	76x143	0.11	18	16	13.5	K02350472__M0J143	
5600	76x143	0.12	18	17	14.3	K02350562__M0J143	
6800	76x143	0.15	16	15	15.1	K02350682__M0J143	
8200	76x143	0.15	16	15	17.8	K02350822__M0J143	
10000	76x214	0.20	15	14	19.9	K02350103__M0J214	

K02 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 stud and insert style excluded	RATED VOLTAGE VDC
220	35x60	0.11	350	280	1.4	K02400221__M0E060	400V
330	35x60	0.11	250	210	2.2	K02400331__M0E060	
470	51x79	0.11	170	150	2.8	K02400471__M0G079	
680	51x79	0.11	110	100	3.2	K02400681__M0G079	
1000	51x105	0.11	95	82	4.1	K02400102__M0G105	
1500	63x105	0.11	64	53	5.8	K02400152__M0H105	
2200	63x105	0.11	45	53	6.0	K02400222__M0H105	
2200	76x105	0.11	45	39	7.3	K02400222__M0J105	
3300	76x143	0.11	28	25	11.1	K02400332__M0J143	
4700	76x143	0.11	24	23	12.8	K02400472__M0J143	
5600	76x143	0.12	21	17	12.9	K02400562__M0J143	
6800	76x214	0.15	19	15	15.5	K02400682__M0J214	
8200	76x214	0.15	18	16	18.0	K02400822__M0J214	
10000	90x220	0.20	16	14	22.5	K02400103__M0L220	

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 stud and insert style excluded	RATED VOLTAGE VDC
100	35x60	0.11	800	650	1.2	K02450101__M0E060	450V
150	35x60	0.11	550	490	1.6	K02450151__M0E060	
220	35x60	0.11	370	310	1.8	K02450221__M0E060	
330	35x79	0.11	240	210	2.4	K02450331__M0E079	
470	51x79	0.11	200	179	3.0	K02450471__M0G079	
680	51x105	0.11	140	128	4.2	K02450681__M0G105	
1000	51x105	0.11	100	88	4.4	K02450102__M0G105	
1000	63x105	0.11	100	88	5.3	K02450102__M0H105	
1500	63x105	0.11	63	57	5.7	K02450152__M0H105	
1500	76x105	0.11	63	57	6.6	K02450152__M0J105	
2200	76x143	0.11	60	47	8.8	K02450222__M0J143	
3300	76x143	0.15	35	30	10.4	K02450332__M0J143	
4700	76x143	0.15	28	25	10.9	K02450472__M0J143	
5600	76x143	0.15	21	17	11.2	K0245056 2__M0J143	
6800	76x214	0.15	21	16	15.5	K02450682__M0J214	
8200	76x214	0.15	18	16	19.2	K02450822__M0J214	
10000	90x220	0.20	16	14	22.5	K02450103__M0L220	

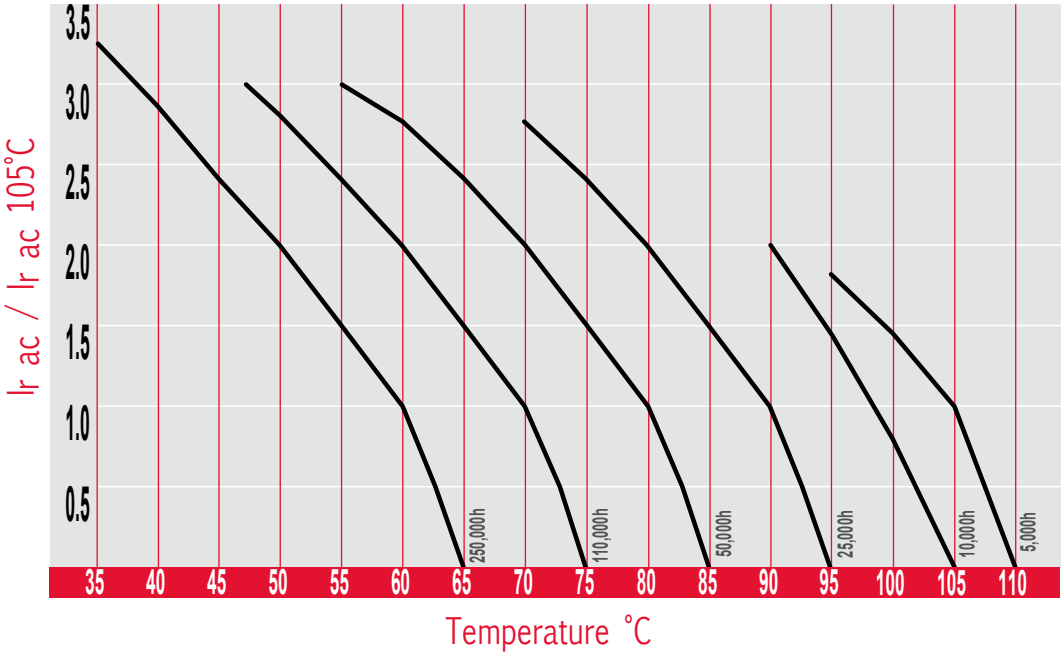
K02 TYPE STANDARD RATINGS

RATED VOLTAGE VDC

500V

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
1000	51x105	0.11	100	88	4.0	K02500102__HM0G105
1500	63x105	0.11	64	58	5.4	K02500152__HM0H105
1800	63x105	0.11	61	53	5.7	K02500182__HM0H105
2200	76x105	0.11	60	47	6.9	K02500222__HM0J105
2700	76x143	0.13	40	32	8.7	K02500272__HM0J143
3300	76x143	0.15	37	31	9.4	K02500332__HM0J143
3900	76x143	0.15	31	28	10.1	K02500392__HM0J143
4700	76x143	0.15	29	26	10.3	K02500472__HM0J143
5600	76x214	0.15	23	19	14.3	K02500562__HM0J214
6800	76x214	0.15	21	16	14.8	K02500682__HM0J214
6800	90x145	0.15	21	16	13.3	K02500682__HM0L145
8200	90x220	0.15	19	15	18.6	K02500822__HM0L220
10000	90x220	0.20	17	15	20.0	K02500103__HM0L220

USEFUL LIFE K02

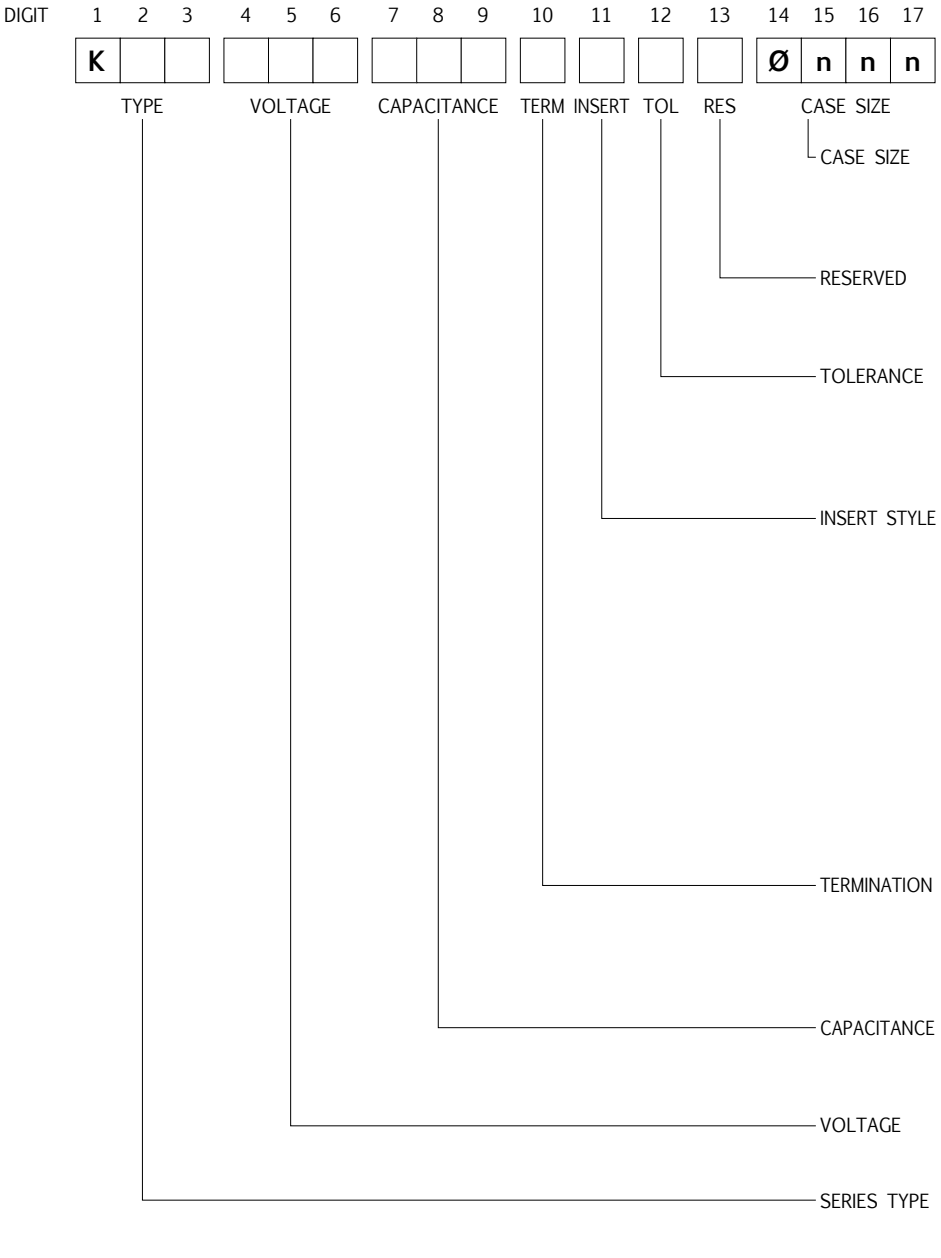


The graphs shows a typical trend of the standard capacitor load life.
For a more accurate calculation of the load life for a specific capacitor, please use our calculator on the website www.kendeil.com or enquiry our technical service.

PLEASE TO CONTACT OUR TECHNICAL SERVICE FOR MORE INFORMATION OR SPEC-IN ANALYSIS.

PART NUMBER SYSTEM
FOR SCREW TYPE CAPACITORS

New PART-NUMBER CODE in use since Sep 2010. Total length is 17 digits.
Please see examples below and have a reference code from the standard ratings capacitors pages.



CASE SIZE — Ø=DIAMETER code:
E=35 G=51 H=63 M=72 J=76 L=90
nnn=LENGTH (in mm)

RESERVED — 0 = standard ratings, 1= special, n= others
W = special design charge/discharge welding apps

TOLERANCE — tolerance range as IEC62
M= ±20%, Q= -10% +30%, X= custom
T= -10% +50%
U= -10% +75%

INSERT STYLE — insert type on decks
0= diam 35 small diameter M5
C= M6 small diameter insert
H= STD High Ripple:
diam 51-63-76 (M5), diam.90 (M6)
I= small diameter M5
L= M5 long insert style (*)
6= M6 diam 76 ONLY
K= M5 protection against polarity reversal
Q= M6 protection against polarity reversal
U= thread size 10-32 UNF High Post
R= 1/4 28 UNF High Post
Z= thread size 10-32 UNF Low Post
W= 1/4 28 UNF Low Post

TERMINATION — terminal as follows:
0= no stud,
M= M8x12 stud ONLY diam 35 mm
S= M12x16 stud for diam 51-63-72-76-90 mm

CAPACITANCE — [µF] - 2 significant digits plus multiplying factor
1= x10, 2= x100, 3= x1000, 4= x10000

VOLTAGE — DC rated voltage [V]

SERIES TYPE — Kendeil Aluminium Electrolytic Capacitor Type:
K01, K02, K03, K04, K07, K11, K21, K22,
K41, K42, K61, K71, K72, K91, K92

EXAMPLES

K 0 1 1 0 0 2 2 3 0 H M 0 H 1 0 5	K01 100V 22000µF, Hi ripple, -20%+20%, 63x105
K 0 1 0 6 3 2 2 3 S H Q 0 G 1 0 5	K01 63V 22000µF, stud M12x16, Hi rip. -10%+30%, 51x105
K 0 2 0 4 0 1 0 4 0 H M 0 J 1 4 3	K02 40V 100000µF, Hi ripple, -20%+20%, 76x143

Specifications subject to change without notice

(*) Note for INSERT STYLE

M5 long insert style dedicated to not insulated bus bar
(+2 mm height versus STD High Ripple code)

Kendeil™