

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 reliability with outstanding high frequency characteristics.

APPLICATIONS

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

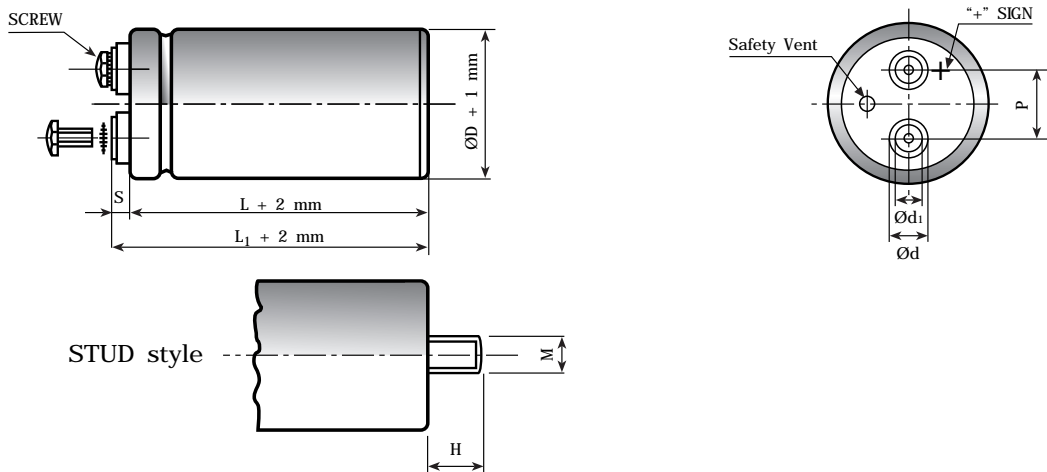


Diagram of dimensions (unit=mm)
Insert and screw threads: Metric (mm), UNF (inches)

ØD	d	d1	P	STUD M	H	INSERT	SCREW	L1	-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	5	0
51	18.5	13	22.7	M12	16	M5	5MA x 9.5	2.5	5	5	H
63	18.5	13	28.6	M12	16	M5	5MA x 9.5	2.5	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	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	7	R
63	7.9	7.9	28.6	M12	16	UNF 10-32 Low Post	10-32 x 1/4"	2	2.5	2.5	Z
63	12	7.9	28.6	M12	16	UNF 10-32 High Post	10-32 x 3/8"	6	7	7	U
76	18.5	13	31.8	M12	16	M5	5MA x 9.5	2.5	5	5	H
76	18.5	13	31.8	M12	16	M5	5MA x 9.5	2.5	7	7	L
76	23.2	17.7	31.8	M12	16	M6	6MA x 10	4.5	7	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	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	7	R
76	7.9	7.9	31.8	M12	16	UNF 10-32 Low Post	10-32 x 1/4"	2	2.5	2.5	Z
76	12	7.9	31.8	M12	16	UNF 10-32 High Post	10-32 x 3/8"	6	7	7	U
90	23.2	17.7	31.8	M12	16	M6	6MA x 10	4.5	7	7	H

SPECIFICATIONS

Temperature Range	Operating: -40°C +105°C Storage : Preferably below +25°C, not exceeding +40°C	[Environmental classification 40/105/56 IEC-68]																																																							
Rated Voltage Range (V _r)	from 16V to 500V DC																																																								
Surge Voltage (V _p)	V _p = 1.15 V _r (V _r ≤ 250V DC) V _p = 1.10 V _r (V _r > 250V 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:																																																								
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">FREQUENCY</td> <td>50Hz</td> <td>100Hz</td> <td>500 Hz</td> <td>1000Hz</td> <td>>10kHz</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left;">MULTIPLIER</td> <td>0.8</td> <td>1.0</td> <td>1.2</td> <td>1.3</td> <td>1.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left;">AMBIENT TEMP</td> <td>35°C</td> <td>45°C</td> <td>55°C</td> <td>65°C</td> <td>75°C</td> <td>85°C</td> <td>95°C</td> <td>105°C</td> <td>110°C</td> <td></td> </tr> <tr> <td style="text-align: left;">MULTIPLIER</td> <td>3.0</td> <td>2.80</td> <td>2.60</td> <td>2.40</td> <td>2.20</td> <td>1.80</td> <td>1.5</td> <td>1.0</td> <td>0.5</td> <td></td> </tr> <tr> <td style="text-align: left;">Maximum internal temperature</td> <td colspan="10">108°C</td> </tr> </table>		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									
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																																																
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	Due to the current load capability of the contact elements, the following limits must not be exceeded:																																																								
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">CAPACITOR DIAMETER</td> <td>35mm</td> <td>51mm</td> <td>63mm</td> <td>76mm</td> <td>90mm</td> </tr> <tr> <td style="text-align: left;">Maximum current</td> <td>20A</td> <td>30A</td> <td>40A</td> <td>50A</td> <td>70A</td> </tr> </table>		CAPACITOR DIAMETER	35mm	51mm	63mm	76mm	90mm	Maximum current	20A	30A	40A	50A	70A																																											
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 (V _n , 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 ≤ 160V DC) ≤ 40 fit (40 10 ⁻⁹ /h) (V _r > 160V DC)																																																								
Self inductance	Approx. 20 nH																																																								
Reference standards	CECC 30.300 IEC 60384-4 LONG LIFE GRADE																																																								

K02 TYPE STANDARD RATINGS

Cap μF	\varnothing 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
10000	35x60	0.25	25	24	3.3	K02016103__M0E060
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

RATED
VOLTAGE
VDC

16V

Cap μF	\varnothing 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
10000	35x60	0.20	23	18	3.8	K02025103__M0E060
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

RATED
VOLTAGE
VDC

25V

Cap μF	\varnothing x L mm	Tan δ MAX 100 Hz	ESR TYP m Ω 100 Hz 20°C	Z TYP m Ω 10 kHz 20°C	Ir a.c. A max 100 Hz 20°C	PART NUMBER stud and insert style excluded 105°C
4700	35x60	0.20	31	29	3.3	K02040472__M0E060
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

RATED
VOLTAGE
VDC

40V

K02 TYPE STANDARD RATINGS

Cap μF	$\varnothing \times L$ 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
2200	35x60	0.15	72	60	2.5	K02063222__M0E060
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

RATED
VOLTAGE
VDC

63V

Cap μF	$\varnothing \times L$ 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
1000	35x60	0.15	110	100	2.9	K02100102__M0E060
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

RATED
VOLTAGE
VDC

100V

K02 TYPE STANDARD RATINGS

Cap μF	\varnothing 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
1000	35x79	0.11	105	90	3.3	K02160102__M0E079
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

RATED
VOLTAGE
VDC

160V

Cap μF	\varnothing 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
680	35X60	0.11	133	98	2.5	K02200681__M0E060
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

RATED
VOLTAGE
VDC

200V

K02 TYPE STANDARD RATINGS

Cap μF	$\varnothing \times L$ 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
470	35x60	0.11	211	193	2.0	K02250471__M0E060
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

RATED
VOLTAGE
VDC

250V

Cap μF	$\varnothing \times L$ 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
330	35x60	0.11	255	196	1.8	K02350331__M0E060
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

RATED
VOLTAGE
VDC

350V

K02 TYPE STANDARD RATINGS

RATED
VOLTAGE
VDC

400V

Cap μF	\varnothing 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
220	35x60	0.11	350	280	1.4	K02400221__M0E060
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

RATED
VOLTAGE
VDC

450V

Cap μF	\varnothing 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
100	35x60	0.11	800	650	1.2	K02450101__M0E060
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	K02450562__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

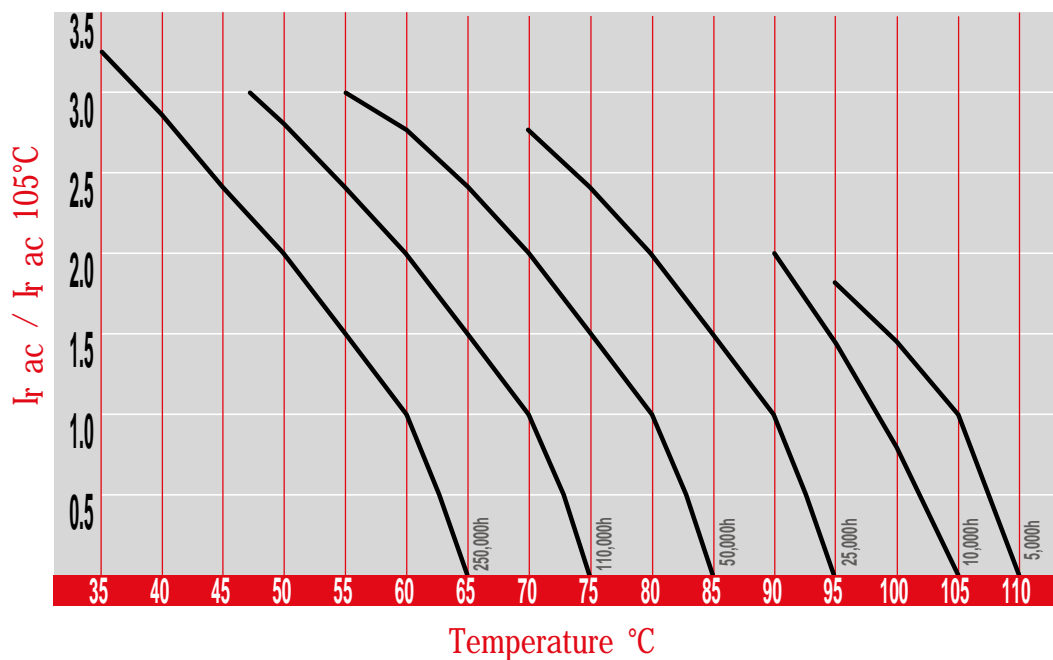
K02 TYPE STANDARD RATINGS

Cap μF	$\varnothing \times L$ 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__HMOG105
1500	63x105	0.11	64	58	5.4	K02500152__HMOH105
1800	63x105	0.11	61	53	5.7	K02500182__HMOH105
2200	76x105	0.11	60	47	6.9	K02500222__HMOJ105
2700	76x143	0.13	40	32	8.7	K02500272__HMOJ143
3300	76x143	0.15	37	31	9.4	K02500332__HMOJ143
3900	76x143	0.15	31	28	10.1	K02500392__HMOJ143
4700	76x143	0.15	29	26	10.3	K02500472__HMOJ143
5600	76x214	0.15	23	19	14.3	K02500562__HMOJ214
6800	76x214	0.15	21	16	14.8	K02500682__HMOJ214
6800	90x145	0.15	21	16	13.3	K02500682__HMOJ145
8200	90x220	0.15	19	15	18.6	K02500822__HMOJ220
10000	90x220	0.20	17	15	20.0	K02500103__HMOJ220

RATED
VOLTAGE
VDC

500V

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.