

- Metallized polycarbonate
- CECC approval, detail specification 30501-020
- According to CECC 30500, IEC 384-6

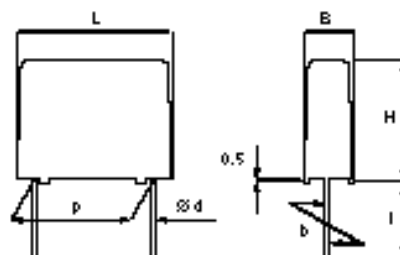


TYPICAL APPLICATIONS

Automotive and other applications in high ambient temperatures. Stable filters, oscillators and timing circuits.

CONSTRUCTION

Polycarbonate film capacitor with vacuum-evaporated aluminum electrodes. Radial leads of tinned wire are electrically welded to the contact metal layer on the ends of the capacitor winding. Encapsulation in self-extinguishing material meeting the requirements of UL 94V-0.



TECHNICAL DATA

Rated voltage U_R , VDC
Rated voltage U_R , VAC

63	100	250	400
40	63	160	200

Capacitance, μF CMK5

0.001	0.001	0.001
-0.68	-0.33	-0.1

CMK7.5-27.5

0.001	0.001	0.001	0.001
-15	-6.8	-3.3	-1.0

Capacitance tolerance

$\pm 20 \%$, $\pm 10 \%$, $\pm 5 \%$, $\pm 2.5 \%$.

Temperature range

-55 ... +125°C
Above +85°C DC and AC voltage derating is 1.25%/°C.

Climatic category

IEC 68-1, 55/125/56
DIN 40040, FKD
-55 ... +125°C
Average relative humidity $\leq 80 \%$
RH = 100% for 30 days per year.
RH = 90% for further days limited by average value per year.

Test voltage

$1.6 \times U_R$ VDC for 2 s

Reliability

Operational life > 200 000 h.
Failure rate < 6 FIT, $T = +40^\circ C$, $U = 0.5 \times U_R$.
Failure criteria according to DIN 44122.

Maximum pulse steepness:

dU/dt according to article table.
For peak to peak voltages lower than rated voltage ($U_{pp} < U_R$), the specified dU/dt can be multiplied by the factor U_R/U_{pp} .

Temperature coefficient

0 (± 100) ppm/°C (at 1 kHz)

Self-inductance

Approximately 6 nH/cm for the total length of capacitor winding and the leads.

p	d	std l	max l	b
5.0 ± 0.4	0.5	4+1	20	± 0.4
7.5 ± 0.4	0.6	4+1	20	± 0.4
10.0 ± 0.4	0.6	4+1	30	± 0.4
15.0 ± 0.4	0.8	4+1	30	± 0.4
22.5 ± 0.4	0.8	4+1	30	± 0.4
27.5 ± 0.4	0.8	4+1	30	± 0.4
37.5 ± 0.5	1.0	4+1	30	± 0.7

TECHNICAL DATA

Dissipation factor $\tan\delta$

Maximum values at +23°C

 $C \leq 0.1 \mu\text{F}$ $0.1 \mu\text{F} < C \leq 1.0 \mu\text{F}$ $C > 1.0 \mu\text{F}$

CMK5	1 kHz	0.3%	0.3%	0.3%
	10 kHz	0.5%	0.5%	
	100 kHz	0.8%	1.0%	
CMK7.5 ... 27.5	1 kHz	0.3%	0.3%	0.3%
	10 kHz	0.5%	0.5%	
	100 kHz	1.0%		

Insulation resistance

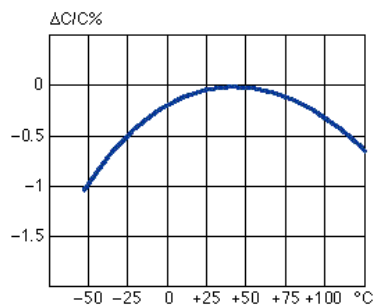
Minimum value between terminals

Measured at +20°C, according to IEC 384-6.

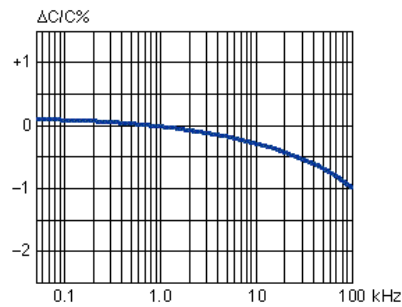
 $C \leq 0.33 \mu\text{F}$ $C > 0.33 \mu\text{F}$

$U_R \leq 100\text{V}$	15000 MW	5000 s
$U_R > 100\text{V}$	30000 MW	10000 s

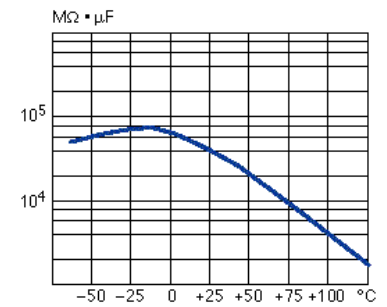
TYPICAL DATA



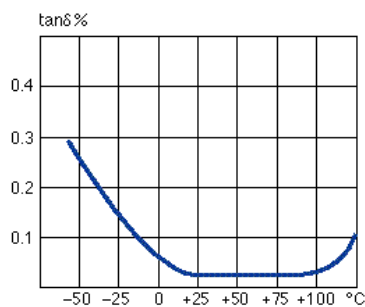
**Capacitance vs.
temperature (at 1 kHz)**



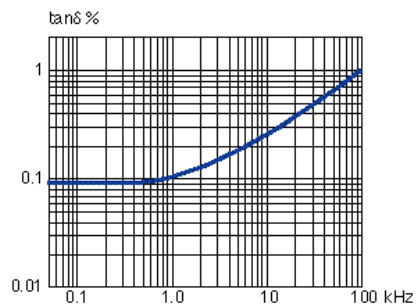
**Capacitance vs.
frequency (at +23°C)**



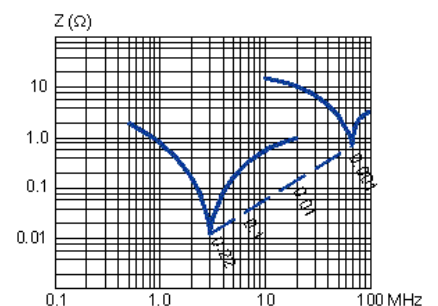
**Insulation resistance vs.
temperature**



**Dissipation factor vs.
temperature**

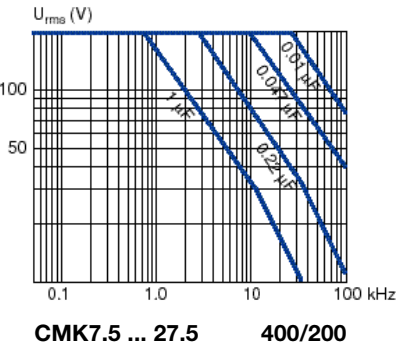
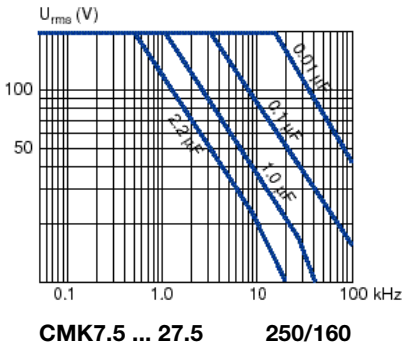
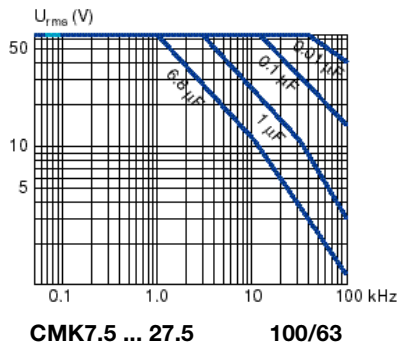
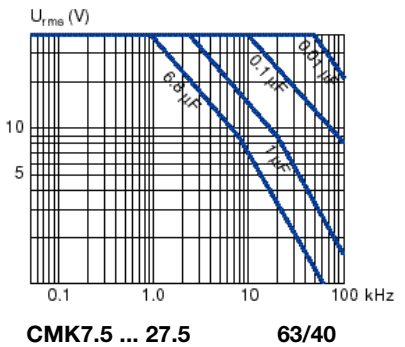
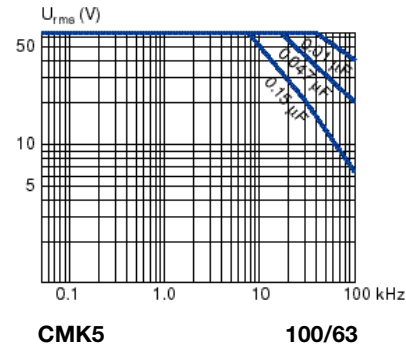
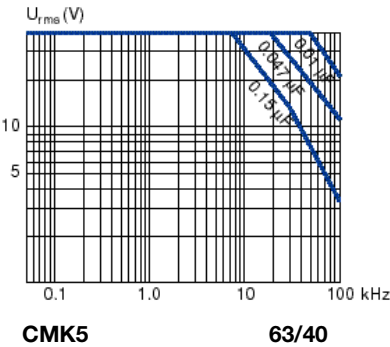


**Dissipation factor vs.
frequency (at +23°C)**



**Resonance frequencies
CMK 5**

RATED AC VOLTAGE VS. FREQUENCY



ENVIRONMENTAL TEST DATA

Damp heat test Test conditions: $T = +40^{\circ}\text{C}$, $\text{RH} = 93\%$, $t = 56$ days.
Test criteria: $D C/C \pm 3\%$,
 $D \tan\delta \leq 0.003$ (1kHz),
 $D \tan\delta \leq 0.005$ (10kHz),
 $\text{IR after test} \geq 0.5 \times \text{IR min.}$

Endurance test Test conditions: $T = +125^{\circ}\text{C}$, $U = 1.25 \times (0.5 \times U_R)$,
 $t = 2000$ h.
Test criteria: $DC/CE \pm 3\%$,
 $D \tan\delta \leq 0.002$ (1kHz)
 $D \tan\delta \leq 0.003$ (10kHz)
 $\text{IR after test} \geq 0.5 \times \text{IR min.}$

Capacitance drift Max. 2% after a 2 year storage period
at a temperature of $+10 \dots +40^{\circ}\text{C}$ and a
relative humidity of 40...60%.

MARKING

- Capacitance
- Tolerance code
- Rated voltage
- Capacitor family code CMK
- Manufacturing date code

ORDERING INFORMATION

See article table and page 20.
The standard quantity/reel is for 360 mm
reel. If 500 mm reel is required, it must be
specified when ordering and the quantity is
2 x the given quantity.

ARTICLE TABLE

Capacitance μF	Max dimensions in mm				Quantity per package				Max dU/dt V/μs	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
63 VDC/40 VAC										
LEAD SPACING 5 MM										
0.0010	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 102K63L4 BULK
0.0012	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 122K63L4 BULK
0.0015	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 152K63L4 BULK
0.0018	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 182K63L4 BULK
0.0022	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 222K63L4 BULK
0.0027	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 272K63L4 BULK
0.0033	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 332K63L4 BULK
0.0039	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 392K63L4 BULK
0.0047	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 472K63L4 BULK
0.0056	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 562K63L4 BULK
0.0068	2.5	6.5	7.5	5.0	2000		2500	3000	10	CMK5 682K63L4 BULK
0.0082	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 822K63L4 BULK
0.010	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 103K63L4 BULK
0.012	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 123K63L4 BULK
0.015	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 153K63L4 BULK
0.018	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 183K63L4 BULK
0.022	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 223K63L4 BULK
0.027	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 273K63L4 BULK
0.033	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 333K63L4 BULK
0.039	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 393K63L4 BULK
0.047	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 473K63L4 BULK
0.056	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 563K63L4 BULK
0.068	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 683K63L4 BULK
0.082	2.5	6.5	7.2	5.0	2000		2500	3000	10	CMK5 823K63L4 BULK
0.10	3.5	8.0	7.2	5.0	2000		2000	2000	10	CMK5 104K63L4 BULK
0.12	3.5	8.0	7.2	5.0	2000		2000	2000	10	CMK5 124K63L4 BULK
0.15	3.5	8.0	7.2	5.0	2000		2000	2000	10	CMK5 154K63L4 BULK
0.18	3.5	8.0	7.2	5.0	2000		2000	2000	10	CMK5 184K63L4 BULK
0.22	3.5	8.0	7.2	5.0	2000		2000	2000	10	CMK5 224K63L4 BULK
0.27	4.5	9.0	7.2	5.0	1000		1500	1700	10	CMK5 274K63L4 BULK
0.33	4.5	9.0	7.2	5.0	1000		1500	1700	10	CMK5 334K63L4 BULK
0.39	5.0	10.0	7.2	5.0	1000		1300	1500	10	CMK5 394K63L4 BULK
0.47	6.0	11.0	7.2	5.0	1000		1000	1200	10	CMK5 474K63L4 BULK
0.56	6.0	11.0	7.2	5.0	1000		1000	1200	10	CMK5 564K63L4 BULK
0.68	7.2	13.0	7.2	5.0	1000		800		10	CMK5 684K63L4 BULK
LEAD SPACING 7.5 MM										
0.0010	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 102K63L4 BULK
0.0012	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 122K63L4 BULK
0.0015	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 152K63L4 BULK
0.0018	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 182K63L4 BULK
0.0022	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 222K63L4 BULK
0.0027	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 272K63L4 BULK
0.0033	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 332K63L4 BULK
0.0039	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 392K63L4 BULK
0.0047	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 472K63L4 BULK
0.0056	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 562K63L4 BULK
0.0068	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 682K63L4 BULK
0.0082	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 822K63L4 BULK
0.010	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 103K63L4 BULK
0.012	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 123K63L4 BULK
0.015	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 153K63L4 BULK
0.018	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 183K63L4 BULK
0.022	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 223K63L4 BULK
0.027	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 273K63L4 BULK
0.033	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 333K63L4 BULK
0.039	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 393K63L4 BULK
0.056	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 563K63L4 BULK
0.068	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 683K63L4 BULK
0.082	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 823K63L4 BULK

ARTICLE TABLE

Capacitance μF	Max dimensions in mm				Quantity per package				Max dU/dt V/μs	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
63 VDC/40 VAC										
LEAD SPACING 7.5 MM										
0.10	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 104K63L4 BULK
0.12	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 124K63L4 BULK
0.15	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 154K63L4 BULK
0.18	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 184K63L4 BULK
0.22	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 224K63L4 BULK
0.27	4.0	8.0	10.5	7.5	1000		1700	1900	10	CMK7,5 274K63L4 BULK
0.33	5.0	11.0	10.5	7.5	1000		1300	1500	10	CMK7,5 334K63L4 BULK
0.39	5.0	11.0	10.5	7.5	1000		1300	1500	10	CMK7,5 394K63L4 BULK
0.47	5.0	11.0	10.5	7.5	1000		1300	1500	10	CMK7,5 474K63L4 BULK
0.56	5.0	11.0	10.5	7.5	1000		1300	1500	10	CMK7,5 564K63L4 BULK
0.68	6.0	12.0	10.5	7.5	1000		1000	1200	10	CMK7,5 684K63L4 BULK
LEAD SPACING 10 MM										
0.0027	4.0	9.0	13.0	10.0	1000		900		8	CMK10 272K63L4 BULK
0.0033	4.0	9.0	13.0	10.0	1000		900		8	CMK10 332K63L4 BULK
0.0039	4.0	9.0	13.0	10.0	1000		900		8	CMK10 392K63L4 BULK
0.0047	4.0	9.0	13.0	10.0	1000		900		8	CMK10 472K63L4 BULK
0.0056	4.0	9.0	13.0	10.0	1000		900		8	CMK10 562K63L4 BULK
0.0068	4.0	9.0	13.0	10.0	1000		900		8	CMK10 682K63L4 BULK
0.0082	4.0	9.0	13.0	10.0	1000		900		8	CMK10 822K63L4 BULK
0.010	4.0	9.0	13.0	10.0	1000		900		8	CMK10 103K63L4 BULK
0.012	4.0	9.0	13.0	10.0	1000		900		8	CMK10 123K63L4 BULK
0.015	4.0	9.0	13.0	10.0	1000		900		8	CMK10 153K63L4 BULK
0.018	4.0	9.0	13.0	10.0	1000		900		8	CMK10 183K63L4 BULK
0.022	4.0	9.0	13.0	10.0	1000		900		8	CMK10 223K63L4 BULK
0.027	4.0	9.0	13.0	10.0	1000		900		8	CMK10 273K63L4 BULK
0.033	4.0	9.0	13.0	10.0	1000		900		8	CMK10 333K63L4 BULK
0.039	4.0	9.0	13.0	10.0	1000		900		8	CMK10 393K63L4 BULK
0.047	4.0	9.0	13.0	10.0	1000		900		8	CMK10 473K63L4 BULK
0.056	4.0	9.0	13.0	10.0	1000		900		8	CMK10 563K63L4 BULK
0.068	4.0	9.0	13.0	10.0	1000		900		8	CMK10 683K63L4 BULK
0.082	4.0	9.0	13.0	10.0	1000		900		8	CMK10 823K63L4 BULK
0.10	4.0	9.0	13.0	10.0	1000		900		8	CMK10 104K63L4 BULK
0.12	4.0	9.0	13.0	10.0	1000		900		8	CMK10 124K63L4 BULK
0.15	4.0	9.0	13.0	10.0	1000		900		8	CMK10 154K63L4 BULK
0.18	4.0	9.0	13.0	10.0	1000		900		8	CMK10 184K63L4 BULK
0.22	4.0	9.0	13.0	10.0	1000		900		8	CMK10 224K63L4 BULK
0.27	4.0	9.0	13.0	10.0	1000		900		8	CMK10 274K63L4 BULK
0.33	4.0	9.0	13.0	10.0	1000		900		8	CMK10 334K63L4 BULK
0.39	4.0	9.0	13.0	10.0	1000		900		8	CMK10 394K63L4 BULK
0.47	4.5	10.5	13.0	10.0	1000		800		8	CMK10 474K63L4 BULK
0.56	5.0	11.0	13.0	10.0	800		700		8	CMK10 564K63L4 BULK
0.68	5.0	11.0	13.0	10.0	800		700		8	CMK10 684K63L4 BULK
LEAD SPACING 15 MM										
0.68	5.5	10.5	18.0	15.0	1000		600		6	CMK15 684K63L4 BULK
0.82	5.5	10.5	18.0	15.0	1000		600		6	CMK15 824K63L4 BULK
1.0	5.5	10.5	18.0	15.0	1000		600		6	CMK15 105K63L4 BULK
1.2	5.5	12.5	18.0	15.0	1000		600		6	CMK15 125K63L4 BULK
1.5	6.5	12.5	18.0	15.0	1000		500		6	CMK15 155K63L4 BULK
1.8	6.5	12.5	18.0	15.0	1000		500		6	CMK15 185K63L4 BULK
2.2	7.5	14.5	18.0	15.0	800		400		6	CMK15 225K63L4 BULK
2.7	8.0	15.0	18.0	15.0	800		400		6	CMK15 275K63L4 BULK
3.3	8.5	16.0	18.0	15.0	800		400		6	CMK15 335K63L4 BULK

ARTICLE TABLE

Capacitance μF	Max dimensions in mm				Quantity per package				Max dU/dt V/μs	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
63 VDC/40 VAC										
LEAD SPACING 22.5 MM										
2.7	6.5	14.5	26.0	22.5		234			3	CMK22,5 275K63L4 TRAY
3.3	6.5	14.5	26.0	22.5		234			3	CMK22,5 335K63L4 TRAY
3.9	7.0	16.5	26.0	22.5		216			3	CMK22,5 395K63L4 TRAY
4.7	7.0	16.5	26.0	22.5		216			3	CMK22,5 475K63L4 TRAY
5.6	9.0	18.5	26.0	22.5		168			3	CMK22,5 565K63L4 TRAY
6.8	9.0	18.5	26.0	22.5		168			3	CMK22,5 685K63L4 TRAY
8.2	10.5	19.0	26.0	22.5		144			3	CMK22,5 825K63L4 TRAY
10	11.0	21.5	26.0	22.5		138			3	CMK22,5 106K63L4 TRAY
LEAD SPACING 27.5 MM										
10	11.5	22.5	31.5	27.5		198			2	CMK27,5 106K63L4 TRAY
12	11.5	22.5	31.5	27.5		198			2	CMK27,5 126K63L4 TRAY
15	11.5	22.5	31.5	27.5		198			2	CMK27,5 156K63L4 TRAY
100 VDC/63 VAC										
LEAD SPACING 5 MM										
0.0010	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 102K100L4 BULK
0.0012	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 122K100L4 BULK
0.0015	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 152K100L4 BULK
0.0018	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 182K100L4 BULK
0.0022	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 222K100L4 BULK
0.0027	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 272K100L4 BULK
0.0033	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 332K100L4 BULK
0.0039	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 392K100L4 BULK
0.0047	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 472K100L4 BULK
0.0056	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 562K100L4 BULK
0.0068	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 682K100L4 BULK
0.0082	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 822K100L4 BULK
0.010	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 103K100L4 BULK
0.012	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 123K100L4 BULK
0.015	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 153K100L4 BULK
0.018	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 183K100L4 BULK
0.022	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 223K100L4 BULK
0.027	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 273K100L4 BULK
0.033	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 333K100L4 BULK
0.039	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 393K100L4 BULK
0.047	3.5	8.0	7.2	5.0	2000		2000	2000	15	CMK5 473K100L4 BULK
0.056	3.5	8.0	7.2	5.0	2000		2000	2000	15	CMK5 563K100L4 BULK
0.068	3.5	8.0	7.2	5.0	2000		2000	2000	15	CMK5 683K100L4 BULK
0.082	3.5	8.0	7.2	5.0	2000		2000	2000	15	CMK5 823K100L4 BULK
0.10	3.5	8.0	7.2	5.0	2000		2000	2000	15	CMK5 104K100L4 BULK
0.12	4.5	9.0	7.2	5.0	1000		1500	1700	15	CMK5 124K100L4 BULK
0.15	5.0	10.0	7.2	5.0	1000		1300	1500	15	CMK5 154K100L4 BULK
0.18	5.0	10.0	7.2	5.0	1000		1300	1500	15	CMK5 184K100L4 BULK
0.22	6.0	11.0	7.2	5.0	1000		1000	1200	15	CMK5 224K100L4 BULK
0.27	6.0	11.0	7.2	5.0	1000		1000	1200	15	CMK5 274K100L4 BULK
0.33	7.2	13.0	7.2	5.0	1000		800		15	CMK5 334K100L4 BULK
LEAD SPACING 7.5 MM										
0.0010	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 102K100L4 BULK
0.0012	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 122K100L4 BULK
0.0015	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 152K100L4 BULK
0.0018	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 182K100L4 BULK
0.0022	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 222K100L4 BULK
0.0027	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 272K100L4 BULK

ARTICLE TABLE

Capaci- tance μF	Max dimensions in mm				Quantity per package				Max dU/dt V/μs	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
100 VDC/63 VAC										
LEAD SPACING 7.5 MM										
0.0033	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 332K100L4 BULK
0.0039	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 392K100L4 BULK
0.0047	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 472K100L4 BULK
0.0056	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 562K100L4 BULK
0.0068	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 682K100L4 BULK
0.0082	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 822K100L4 BULK
0.010	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 103K100L4 BULK
0.012	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 123K100L4 BULK
0.015	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 153K100L4 BULK
0.018	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 183K100L4 BULK
0.022	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 223K100L4 BULK
0.027	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 273K100L4 BULK
0.033	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 333K100L4 BULK
0.039	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 393K100L4 BULK
0.047	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 473K100L4 BULK
0.056	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 563K100L4 BULK
0.068	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 683K100L4 BULK
0.082	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 823K100L4 BULK
0.10	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 104K100L4 BULK
0.12	4.0	8.0	10.5	7.5	1000		1700	1900	15	CMK7,5 124K100L4 BULK
0.15	5.0	11.0	10.5	7.5	1000		1300	1500	15	CMK7,5 154K100L4 BULK
0.18	5.0	11.0	10.5	7.5	1000		1300	1500	15	CMK7,5 184K100L4 BULK
0.22	5.0	11.0	10.5	7.5	1000		1300	1500	15	CMK7,5 224K100L4 BULK
0.27	6.0	12.0	10.5	7.5	1000		1000	1200	15	CMK7,5 274K100L4 BULK
0.33	6.0	12.0	10.5	7.5	1000		1000	1200	15	CMK7,5 334K100L4 BULK
LEAD SPACING 10 MM										
0.0027	4.0	9.0	13.0	10.0	1000		900		10	CMK10 272K100L4 BULK
0.0033	4.0	9.0	13.0	10.0	1000		900		10	CMK10 332K100L4 BULK
0.0039	4.0	9.0	13.0	10.0	1000		900		10	CMK10 392K100L4 BULK
0.0047	4.0	9.0	13.0	10.0	1000		900		10	CMK10 472K100L4 BULK
0.0056	4.0	9.0	13.0	10.0	1000		900		10	CMK10 562K100L4 BULK
0.0068	4.0	9.0	13.0	10.0	1000		900		10	CMK10 682K100L4 BULK
0.0082	4.0	9.0	13.0	10.0	1000		900		10	CMK10 822K100L4 BULK
0.010	4.0	9.0	13.0	10.0	1000		900		10	CMK10 103K100L4 BULK
0.012	4.0	9.0	13.0	10.0	1000		900		10	CMK10 123K100L4 BULK
0.015	4.0	9.0	13.0	10.0	1000		900		10	CMK10 153K100L4 BULK
0.018	4.0	9.0	13.0	10.0	1000		900		10	CMK10 183K100L4 BULK
0.022	4.0	9.0	13.0	10.0	1000		900		10	CMK10 223K100L4 BULK
0.027	4.0	9.0	13.0	10.0	1000		900		10	CMK10 273K100L4 BULK
0.033	4.0	9.0	13.0	10.0	1000		900		10	CMK10 333K100L4 BULK
0.039	4.0	9.0	13.0	10.0	1000		900		10	CMK10 393K100L4 BULK
0.047	4.0	9.0	13.0	10.0	1000		900		10	CMK10 473K100L4 BULK
0.056	4.0	9.0	13.0	10.0	1000		900		10	CMK10 563K100L4 BULK
0.068	4.0	9.0	13.0	10.0	1000		900		10	CMK10 683K100L4 BULK
0.082	4.0	9.0	13.0	10.0	1000		900		10	CMK10 823K100L4 BULK
0.10	4.0	9.0	13.0	10.0	1000		900		10	CMK10 104K100L4 BULK
0.12	4.0	9.0	13.0	10.0	1000		900		10	CMK10 124K100L4 BULK
0.15	4.0	9.0	13.0	10.0	1000		900		10	CMK10 154K100L4 BULK
0.18	4.0	9.0	13.0	10.0	1000		900		10	CMK10 184K100L4 BULK
0.22	4.5	10.5	13.0	10.0	1000		800		10	CMK10 224K100L4 BULK
0.27	5.0	11.0	13.0	10.0	800		700		10	CMK10 274K100L4 BULK
0.33	5.0	11.0	13.0	10.0	800		700		10	CMK10 334K100L4 BULK
LEAD SPACING 15 MM										
0.27	5.5	10.5	18.0	15.0	1000		600		8	CMK15 274K100L4 BULK
0.33	5.5	10.5	18.0	15.0	1000		600		8	CMK15 334K100L4 BULK
0.39	5.5	10.5	18.0	15.0	1000		600		8	CMK15 394K100L4 BULK
0.47	5.5	10.5	18.0	15.0	1000		600		8	CMK15 474K100L4 BULK

ARTICLE TABLE

Capacitance μF	Max dimensions in mm				Quantity per package				Max dU/dt V/μs	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
100 VDC/63 VAC										
LEAD SPACING 15 MM										
0.56	5.5	12.5	18.0	15.0	1000		600		8	CMK15 564K100L4 BULK
0.68	6.5	12.5	18.0	15.0	1000		500		8	CMK15 684K100L4 BULK
0.82	6.5	12.5	18.0	15.0	1000		500		8	CMK15 824K100L4 BULK
1.0	7.5	14.5	18.0	15.0	800		400		8	CMK15 105K100L4 BULK
1.2	7.5	14.5	18.0	15.0	800		400		8	CMK15 125K100L4 BULK
1.5	8.5	16.0	18.0	15.0	800		400		8	CMK15 155K100L4 BULK
LEAD SPACING 22.5 MM										
1.5	6.5	14.5	26.0	22.5		234			4	CMK22,5 155K100L4 TRAY
1.8	7.0	16.5	26.0	22.5		216			4	CMK22,5 185K100L4 TRAY
2.2	7.0	16.5	26.0	22.5		216			4	CMK22,5 225K100L4 TRAY
2.7	9.0	18.5	26.0	22.5		168			4	CMK22,5 275K100L4 TRAY
3.3	9.0	18.5	26.0	22.5		168			4	CMK22,5 335K100L4 TRAY
3.9	10.5	19.0	26.0	22.5		144			4	CMK22,5 395K100L4 TRAY
LEAD SPACING 27.5 MM										
4.7	10.5	20.5	31.5	27.5		216			3	CMK27,5 475K100L4 TRAY
5.6	10.5	20.5	31.5	27.5		216			3	CMK27,5 565K100L4 TRAY
6.8	11.5	22.5	31.5	27.5		198			3	CMK27,5 685K100L4 TRAY
250 VDC/160 VAC										
LEAD SPACING 5 MM										
0.0010	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 102K250L4 BULK
0.0012	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 122K250L4 BULK
0.0015	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 152K250L4 BULK
0.0018	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 182K250L4 BULK
0.0022	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 222K250L4 BULK
0.0027	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 272K250L4 BULK
0.0033	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 332K250L4 BULK
0.0039	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 392K250L4 BULK
0.0047	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 472K250L4 BULK
0.0056	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 562K250L4 BULK
0.0068	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 682K250L4 BULK
0.0082	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 822K250L4 BULK
0.010	2.5	6.5	7.2	5.0	2000		2500	3000	15	CMK5 103K250L4 BULK
0.012	3.5	8.0	7.2	5.0	2000		2000	2000	15	CMK5 123K250L4 BULK
0.015	3.5	8.0	7.2	5.0	2000		2000	2000	15	CMK5 153K250L4 BULK
0.018	3.5	8.0	7.2	5.0	2000		2000	2000	15	CMK5 183K250L4 BULK
0.022	3.5	8.0	7.2	5.0	2000		2000	2000	15	CMK5 223K250L4 BULK
0.027	3.5	8.0	7.2	5.0	2000		2000	2000	15	CMK5 273K250L4 BULK
0.033	4.5	9.0	7.2	5.0	1000		1500	1700	15	CMK5 333K250L4 BULK
0.039	4.5	9.0	7.2	5.0	1000		1500	1700	15	CMK5 393K250L4 BULK
0.047	4.5	9.0	7.2	5.0	1000		1500	1700	15	CMK5 473K250L4 BULK
0.056	5.0	10.0	7.2	5.0	1000		1300	1500	15	CMK5 563K250L4 BULK
0.068	5.0	10.0	7.2	5.0	1000		1300	1500	15	CMK5 683K250L4 BULK
0.082	6.0	11.0	7.2	5.0	1000		1000	1200	15	CMK5 823K250L4 BULK
0.10	6.0	11.0	7.2	5.0	1000		1000	1200	15	CMK5 104K250L4 BULK
LEAD SPACING 7.5 MM										
0.0010	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 102K250L4 BULK
0.0012	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 122K250L4 BULK
0.0015	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 152K250L4 BULK
0.0018	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 182K250L4 BULK

ARTICLE TABLE

Capaci- tance μF	Max dimensions in mm				Quantity per package				Max dU/dt V/μs	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
250 VDC/160 VAC										
LEAD SPACING 7.5 MM										
0.0022	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 222K250L4 BULK
0.0027	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 272K250L4 BULK
0.0033	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 332K250L4 BULK
0.0039	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 392K250L4 BULK
0.0047	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 472K250L4 BULK
0.0056	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 562K250L4 BULK
0.0068	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 682K250L4 BULK
0.0082	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 822K250L4 BULK
0.010	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 103K250L4 BULK
0.012	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 123K250L4 BULK
0.015	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 153K250L4 BULK
0.018	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 183K250L4 BULK
0.022	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 223K250L4 BULK
0.027	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 273K250L4 BULK
0.033	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 333K250L4 BULK
0.039	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 393K250L4 BULK
0.047	4.0	8.0	10.5	7.5	1000		1700	1900	20	CMK7,5 473K250L4 BULK
0.056	5.0	11.0	10.5	7.5	1000		1300	1500	20	CMK7,5 563K250L4 BULK
0.068	5.0	11.0	10.5	7.5	1000		1300	1500	20	CMK7,5 683K250L4 BULK
0.082	5.0	11.0	10.5	7.5	1000		1300	1500	20	CMK7,5 823K250L4 BULK
0.10	6.0	12.0	10.5	7.5	1000		1000	1200	20	CMK7,5 104K250L4 BULK
LEAD SPACING 10 MM										
0.0022	4.0	9.0	13.0	10.0	1000		900		15	CMK10 222K250L4 BULK
0.0027	4.0	9.0	13.0	10.0	1000		900		15	CMK10 272K250L4 BULK
0.0033	4.0	9.0	13.0	10.0	1000		900		15	CMK10 332K250L4 BULK
0.0039	4.0	9.0	13.0	10.0	1000		900		15	CMK10 392K250L4 BULK
0.0047	4.0	9.0	13.0	10.0	1000		900		15	CMK10 472K250L4 BULK
0.0056	4.0	9.0	13.0	10.0	1000		900		15	CMK10 562K250L4 BULK
0.0068	4.0	9.0	13.0	10.0	1000		900		15	CMK10 682K250L4 BULK
0.0082	4.0	9.0	13.0	10.0	1000		900		15	CMK10 822K250L4 BULK
0.010	4.0	9.0	13.0	10.0	1000		900		15	CMK10 103K250L4 BULK
0.012	4.0	9.0	13.0	10.0	1000		900		15	CMK10 123K250L4 BULK
0.015	4.0	9.0	13.0	10.0	1000		900		15	CMK10 153K250L4 BULK
0.018	4.0	9.0	13.0	10.0	1000		900		15	CMK10 183K250L4 BULK
0.022	4.0	9.0	13.0	10.0	1000		900		15	CMK10 223K250L4 BULK
0.027	4.0	9.0	13.0	10.0	1000		900		15	CMK10 273K250L4 BULK
0.033	4.0	9.0	13.0	10.0	1000		900		15	CMK10 333K250L4 BULK
0.039	4.0	9.0	13.0	10.0	1000		900		15	CMK10 393K250L4 BULK
0.047	4.0	9.0	13.0	10.0	1000		900		15	CMK10 473K250L4 BULK
0.056	4.0	9.0	13.0	10.0	1000		900		15	CMK10 563K250L4 BULK
0.068	4.5	10.5	13.0	10.0	1000		800		15	CMK10 683K250L4 BULK
0.082	4.5	10.5	13.0	10.0	1000		800		15	CMK10 823K250L4 BULK
0.10	5.0	11.0	13.0	10.0	800		700		15	CMK10 104K250L4 BULK
LEAD SPACING 15 MM										
0.10	5.5	10.5	18.0	15.0	1000		600		10	CMK15 104K250L4 BULK
0.12	5.5	10.5	18.0	15.0	1000		600		10	CMK15 124K250L4 BULK
0.15	5.5	10.5	18.0	15.0	1000		600		10	CMK15 154K250L4 BULK
0.18	5.5	10.5	18.0	15.0	1000		600		10	CMK15 184K250L4 BULK
0.22	5.5	12.5	18.0	15.0	1000		600		10	CMK15 224K250L4 BULK
0.27	6.5	12.5	18.0	15.0	1000		500		10	CMK15 274K250L4 BULK
0.33	7.5	14.5	18.0	15.0	800		400		10	CMK15 334K250L4 BULK
0.39	7.5	14.5	18.0	15.0	800		400		10	CMK15 394K250L4 BULK

ARTICLE TABLE

Capaci- tance μF	Max dimensions in mm				Quantity per package				Max dU/dt V/μs	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
250 VDC/160 VAC										
LEAD SPACING 22.5 MM										
0.47	6.5	14.5	26.0	22.5		234			8	CMK22,5 474K250L4 TRAY
0.56	6.5	14.5	26.0	22.5		234			8	CMK22,5 564K250L4 TRAY
0.68	7.0	16.5	26.0	22.5		216			8	CMK22,5 684K250L4 TRAY
0.82	7.0	16.5	26.0	22.5		216			8	CMK22,5 824K250L4 TRAY
1.0	9.0	18.5	26.0	22.5		168			8	CMK22,5 105K250L4 TRAY
1.2	9.0	18.5	26.0	22.5		168			8	CMK22,5 125K250L4 TRAY
1.5	9.0	18.5	26.0	22.5		168			8	CMK22,5 155K250L4 TRAY
1.8	11.0	21.5	26.0	22.5		138			8	CMK22,5 185K250L4 TRAY
2.2	11.0	21.5	26.0	22.5		138			8	CMK22,5 225K250L4 TRAY
LEAD SPACING 27.5 MM										
1.5	10.5	20.5	31.5	27.5		216			6	CMK27,5 155K250L4 TRAY
1.8	10.5	20.5	31.5	27.5		216			6	CMK27,5 185K250L4 TRAY
2.2	11.5	22.5	31.5	27.5		198			6	CMK27,5 225K250L4 TRAY
2.7	14.5	24.5	31.5	27.5		153			6	CMK27,5 275K250L4 TRAY
3.3	14.5	24.5	31.5	27.5		153			6	CMK27,5 335K250L4 TRAY
400 VDC/200 VAC										
LEAD SPACING 7.5 MM										
0.0010	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 102K400L4 BULK
0.0012	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 122K400L4 BULK
0.0015	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 152K400L4 BULK
0.0018	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 182K400L4 BULK
0.0022	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 222K400L4 BULK
0.0027	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 272K400L4 BULK
0.0033	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 332K400L4 BULK
0.0039	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 392K400L4 BULK
0.0047	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 472K400L4 BULK
0.0056	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 562K400L4 BULK
0.0068	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 682K400L4 BULK
0.0082	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 822K400L4 BULK
0.010	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 103K400L4 BULK
0.012	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 123K400L4 BULK
0.015	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 153K400L4 BULK
0.018	4.0	8.0	10.5	7.5	1000		1700	1900	30	CMK7,5 183K400L4 BULK
0.022	5.0	11.0	10.5	7.5	1000		1300	1500	30	CMK7,5 223K400L4 BULK
0.027	5.0	11.0	10.5	7.5	1000		1300	1500	30	CMK7,5 273K400L4 BULK
0.033	5.0	11.0	10.5	7.5	1000		1300	1500	30	CMK7,5 333K400L4 BULK
0.039	6.0	12.0	10.5	7.5	1000		1000	1200	30	CMK7,5 393K400L4 BULK
0.047	6.0	12.0	10.5	7.5	1000		1000	1200	30	CMK7,5 473K400L4 BULK
0.056	6.0	12.0	10.5	7.5	1000		1000	1200	30	CMK7,5 563K400L4 BULK
LEAD SPACING 10 MM										
0.0022	4.0	9.0	13.0	10.0	1000		900		25	CMK10 222K400L4 BULK
0.0027	4.0	9.0	13.0	10.0	1000		900		25	CMK10 272K400L4 BULK
0.0033	4.0	9.0	13.0	10.0	1000		900		25	CMK10 332K400L4 BULK
0.0039	4.0	9.0	13.0	10.0	1000		900		25	CMK10 392K400L4 BULK
0.0047	4.0	9.0	13.0	10.0	1000		900		25	CMK10 472K400L4 BULK
0.0056	4.0	9.0	13.0	10.0	1000		900		25	CMK10 562K400L4 BULK
0.0068	4.0	9.0	13.0	10.0	1000		900		25	CMK10 682K400L4 BULK
0.0082	4.0	9.0	13.0	10.0	1000		900		25	CMK10 822K400L4 BULK
0.010	4.0	9.0	13.0	10.0	1000		900		25	CMK10 103K400L4 BULK
0.012	4.0	9.0	13.0	10.0	1000		900		25	CMK10 123K400L4 BULK
0.015	4.0	9.0	13.0	10.0	1000		900		25	CMK10 153K400L4 BULK

ARTICLE TABLE

Capaci- tance μF	Max dimensions in mm				Quantity per package				Max dU/dt V/μs	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
400 VDC/200 VAC										
LEAD SPACING 10 MM										
0.018	4.0	9.0	13.0	10.0	1000		900		25	CMK10 183K400L4 BULK
0.022	4.0	9.0	13.0	10.0	1000		900		25	CMK10 223K400L4 BULK
0.027	4.5	10.5	13.0	10.0	1000		800		25	CMK10 273K400L4 BULK
0.033	5.0	11.0	13.0	10.0	800		700		25	CMK10 333K400L4 BULK
0.039	5.0	11.0	13.0	10.0	800		700		25	CMK10 393K400L4 BULK
LEAD SPACING 15 MM										
0.047	5.5	10.5	18.0	15.0	1000		600		15	CMK15 473K400L4 BULK
0.056	5.5	10.5	18.0	15.0	1000		600		15	CMK15 563K400L4 BULK
0.068	5.5	10.5	18.0	15.0	1000		600		15	CMK15 683K400L4 BULK
0.082	5.5	12.5	18.0	15.0	1000		600		15	CMK15 823K400L4 BULK
0.10	6.5	12.5	18.0	15.0	1000		500		15	CMK15 104K400L4 BULK
0.12	7.5	14.5	18.0	15.0	800		400		15	CMK15 124K400L4 BULK
0.15	7.5	14.5	18.0	15.0	800		400		15	CMK15 154K400L4 BULK
0.18	8.0	15.0	18.0	15.0	800		400		15	CMK15 184K400L4 BULK
LEAD SPACING 22.5 MM										
0.15	6.5	14.5	26.0	22.5		234			10	CMK22,5 154K400L4 TRAY
0.18	6.5	14.5	26.0	22.5		234			10	CMK22,5 184K400L4 TRAY
0.22	6.5	14.5	26.0	22.5		234			10	CMK22,5 224K400L4 TRAY
0.27	7.0	16.5	26.0	22.5		216			10	CMK22,5 274K400L4 TRAY
0.33	8.0	16.0	26.0	22.5		186			10	CMK22,5 334K400L4 TRAY
0.39	9.0	18.5	26.0	22.5		168			10	CMK22,5 394K400L4 TRAY
0.47	9.0	18.5	26.0	22.5		168			10	CMK22,5 474K400L4 TRAY
0.56	10.5	19.0	26.0	22.5		144			10	CMK22,5 564K400L4 TRAY
LEAD SPACING 27.5 MM										
0.47	10.5	20.5	31.5	27.5		216			8	CMK27,5 474K400L4 TRAY
0.56	10.5	20.5	31.5	27.5		216			8	CMK27,5 564K400L4 TRAY
0.68	10.5	20.5	31.5	27.5		216			8	CMK27,5 684K400L4 TRAY
0.82	10.5	20.5	31.5	27.5		216			8	CMK27,5 824K400L4 TRAY
1.0	11.5	22.5	31.5	27.5		198			8	CMK27,5 105K400L4 TRAY