2023

CAPACITORS

metallized Film

Excellence
in Capacitors

AIC EUROPE
Sales & Marketing in Europe of AIC Components

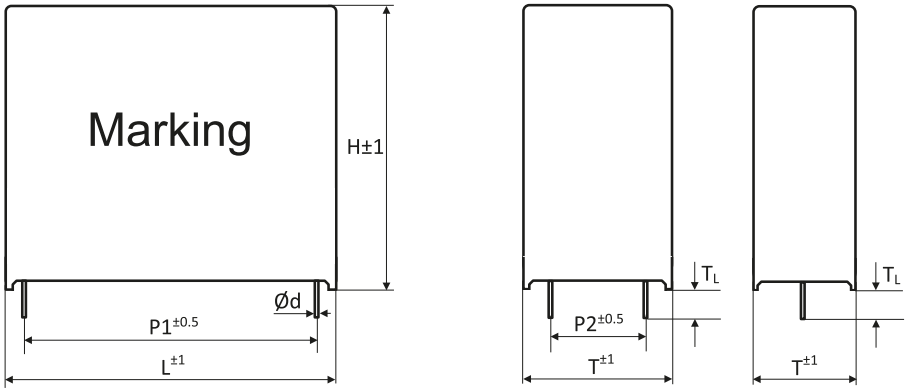
MKCHA · PCB mount · 105 °C

Resin-encased box type · Standard Performances

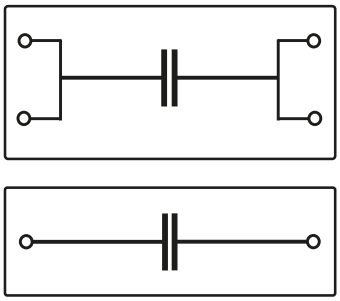
› Specifications · Spezifikationen

Items	Characteristics
Temperature range	-40 °C ~ +105 °C
	40/105/56 (IEC 61071)
Rated Voltage U_N	450 to 1.500 Vdc at 85 °C
	voltage derating when hotspot temp ≥ 85 °C
Voltage test between terminals U_{TT}	1.5 X U_N / 10 s
Maximum ripple Voltage U_{AC} peak to peak	0.2 X U_N 85 °C
Terminals	tinned wired leads
Life Time Test / Standard	IEC 61071:2007
Life Time Expectancy	117 000 hrs ($T_{HOTSPOT}$ 70 °C, 1.0 x U_N)
Failure Rate	<= 50 FIT = 50 x 10^{-9} Failures / hour
Dielectric	Polypropylene
Safety function	Self healing film
Case material	PBT conform to UL94V-0
Filling material	resin conform to UL94V-0
Product Compliance	RoHS, REACH, Conflict Minerals a.o. - refer to p.14 –15

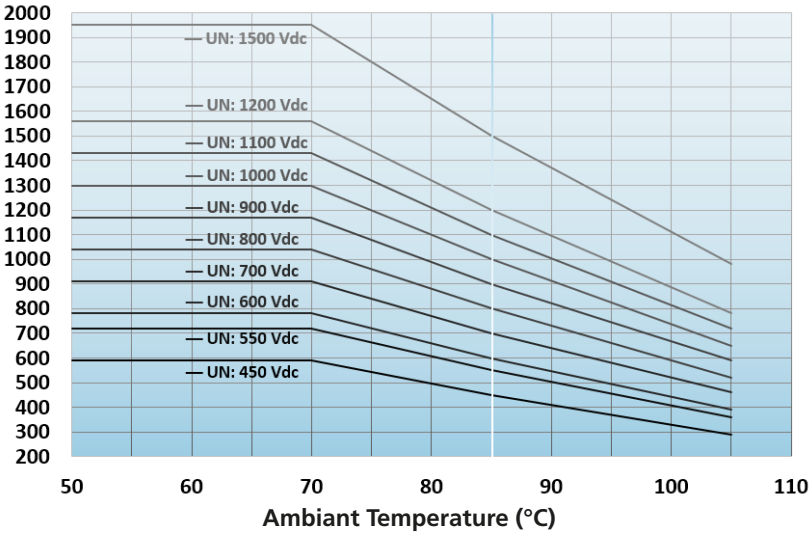
› Dimensions · Abmessungen



internal circuit



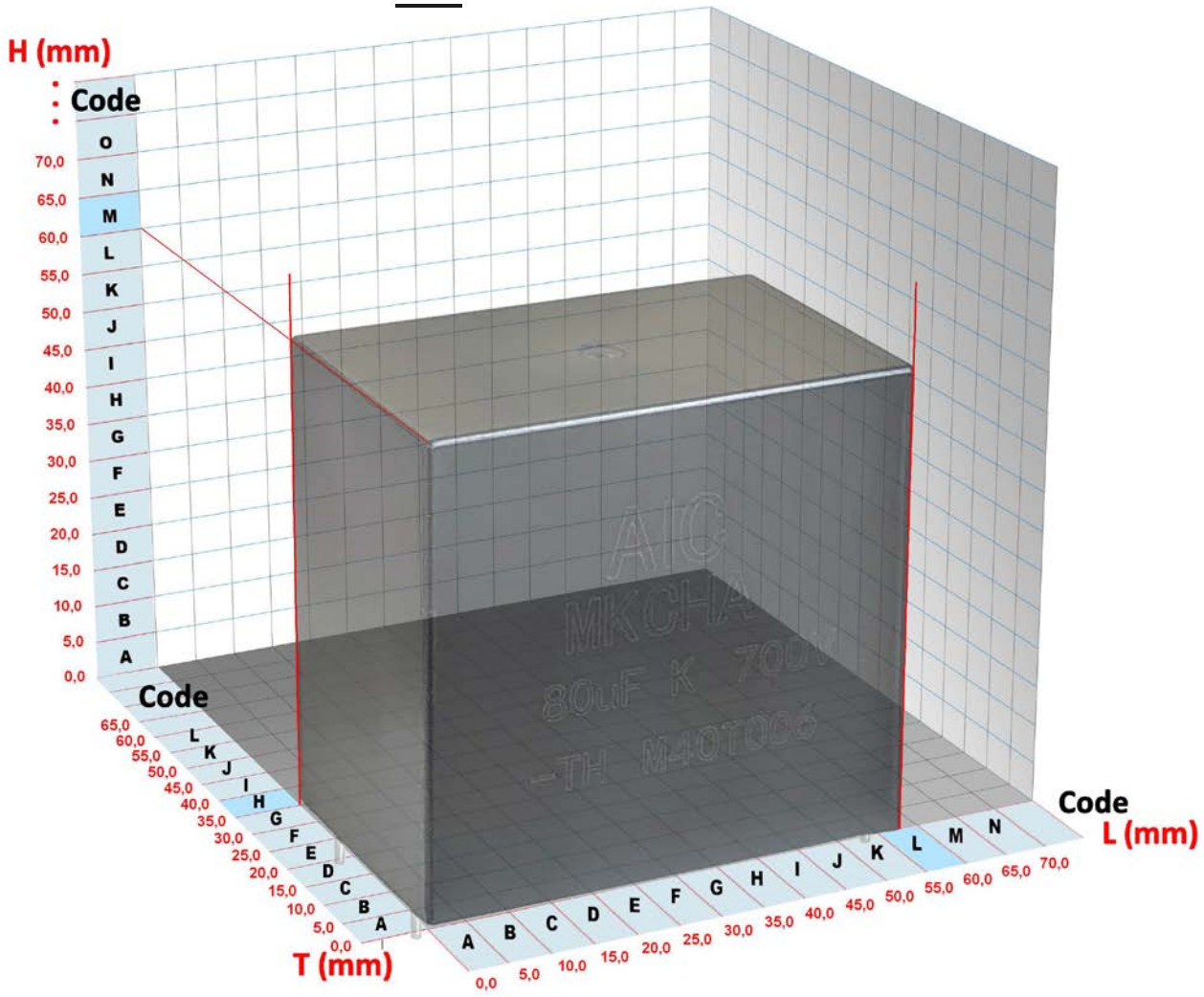
› Voltage derating · Spannung Abstufung



› Case Code · Gehäuse Codierung

Capacitor : MKCHA, 700V, 80µF±10%, T = 35.0 mm, H = 60.0 mm, L = 57.5 mm

Product Code : MKCHA-700V806K<u>HML</u>AD



Case dimension code	Case (mm)			Terminals (mm)	
	T	H	L	P1	P2
DGI	16.0	31.0	41.0	37.5	5.0
	18.0	32.0	42.0	37.5	10.2
ECG	20.0	14.0	31.5	27.5	5.0
EHI	21.5	38.5	43.0	37.5	10.2
EGI	23.0	34.0	43.0	37.5	10.2
EII	24.0	44.0	42.0	37.5	10.2
FJL	25.0	45.0	57.5	52.5	10.2
FEI	27.0	21.0	42.0	37.5	10.2
FHI	27.0	36.0	41.0	37.5	10.2
FII	28.0	42.5	42.0	37.5	10.2
	29.0	44.0	41.0	37.5	15.0
GJI	30.0	45.0	42.0	37.5	20.3
GJL	30.0	45.0	57.5	52.5	20.3
GLI	30.0	55.0	42.0	37.5	20.3

Case dimension code	Case (mm)			Terminals (mm)	
	T	H	L	P1	P2
HEL	35.0	24.0	57.5	52.5	20.3
HKL	35.0	50.0	57.5	52.5	20.3
HML	35.0	60.0	57.5	52.5	20.3
HNL	35.0	65.0	57.5	52.5	20.3
HQL	35.0	80.0	57.5	52.5	20.3
HEL	39.0	24.0	57.5	52.5	20.3
IEL	43.0	22.0	57.5	52.5	20.3
JEI	45.0	21.0	42.0	37.5	20.3
JLL	45.0	57.0	57.5	52.5	20.3
JNL	45.0	65.0	57.5	52.5	20.3
MJL	60.0	45.0	57.5	52.5	20.3

Additional designs on request · Weitere Designs auf Anfrage

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Product Code · Bestellbezeichnung

Example: Series MKCHA · 900 V · 50 µF +/-10 % · T = 35 mm · H = 50 mm · L = 57.5 mm · 4 pins Ø1.2 x 5.0 mm

MKCHA- 900 V 506 K HKL A D

- **Type of series**
- **Rated voltage xxxV**
- **Capacitance code**
  The first two digits are significant. The last digit indicates the number of following zeros in pF.
- **Capacitance tolerance**
  K : ± 10 %
  J : -± 5 %
- **Case Code**

Pin style

Type	Code
4 x 8mm	K
4 x 5mm	A
4 x 4.5mm	L
4 x 4mm	S
4 x 3.5mm	J
2 x 20mm	C
2 x 5mm	B
2 x 4.5mm	T
2 x 4mm	M
2 x 3.5mm	U
2 x 3.2mm	V

Wire diam. (mm)

Ød	Code
0.6	A
0.8	B
1.0	C
1.2	D

Rated DC Voltage U_N derating Voltage test between terminals U_{TT}	Nominal Capacitance C_N [µF]	Ripple Current at 70 °C 1 k–10 kHz I_r [A RMS]	Peak Current Maximum value $\hat{I}$ [A]	ESR ESR [mΩ]	Thermal Resist. R_{th} [K/W]	dv/dt [V/µs]	Dimensions Case Size L x H x T [mm]	Terminals P1 [mm]	Terminals P2 [mm]	Terminals Ød [mm]	Product Code
450 Vdc at 85°C 500 Vdc at 70 °C 300 Vdc at 105 °C U_{TT} 675 Vdc / 10 s	1	2.5	50	54	29.6	50	32 x 18 x 9	27.5	\	0.8	MKCHA-450V105KBDGBB
	2	3	100	34	32.7	50	32 x 18 x 9	27.5	\	0.8	MKCHA-450V205KBDGBB
	3	4	150	23	27.2	50	32 x 20 x 11	27.5	\	0.8	MKCHA-450V305KCEGBB
	4	4	200	20.5	30.5	50	32 x 20 x 11	27.5	\	0.8	MKCHA-450V405KCEGBB
	5	5	250	15	26.7	50	32 x 20 x 11	27.5	\	0.8	MKCHA-450V505KCEGBB
		5.5	250	14	23.6	50	32 x 22 x 13	27.5	\	0.8	MKCHA-450V505KCEGBB
	10	7.5	500	8.5	20.9	50	32 x 28 x 14	27.5	\	0.8	MKCHA-450V106KCFGBB
		9	500	8	15.4	50	32 x 28 x 18	27.5	\	0.8	MKCHA-450V106KDFGBB
	12	10	600	7	14.3	50	32 x 33 x 18	27.5	\	0.8	MKCHA-450V126KDGGBB
	15	11.5	750	6	12.6	50	32 x 37 x 22	27.5	\	0.8	MKCHA-450V156KEHGBB
		9.5	450	8.5	13	30	42.5 x 18 x 24	37.5	\	1	MKCHA-450V156KEDIBC
	18	11	900	6	13.8	50	32 x 37 x 22	27.5	\	0.8	MKCHA-450V186KEHGBB
	20	12	1000	5	12.8	50	32 x 37 x 22	27.5	\	0.8	MKCHA-450V206KEHGBB
	22	12	1100	5	12.8	50	32 x 37 x 22	27.5	\	0.8	MKCHA-450V226KEHGBB
	25	12.5	750	5.5	11.6	30	42.5 x 37 x 22	37.5	10.2	1	MKCHA-450V256KEHIAC
	30	12	900	6	11.6	30	42.5 x 40 x 20	37.5	10.2	1	MKCHA-450V306KEIIAC
	40	14	1200	5.5	9.3	30	42.5 x 37 x 28	37.5	10.2	1	MKCHA-450V406KFHIAC
		15	1200	5.2	8.5	30	42.5 x 44 x 24	37.5	10.2	1	MKCHA-450V406KEIIAC
	50	15	1500	4	11.1	30	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-450V506KGJIAD
	55	15.5	1650	5	8.3	30	57.5 x 45 x 30	37.5	20.3	1.2	MKCHA-450V556KGJLAD
	60	16.5	1800	4.5	8.2	30	57.5 x 45 x 30	37.5	20.3	1.2	MKCHA-450V606KGJLAD
		16.5	1800	4.5	8.2	30	57.5 x 45 x 30	37.5	20.3	1.2	MKCHA-450V606KGJLAD
	80	16	1200	4	9.8	15	57.5 x 45 x 30	52.5	20.3	1.2	MKCHA-450V806KGJLAD
	100	18	1500	3.8	8.1	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-450V107KHKLAD
	130	22	1950	3.5	5.9	15	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-450V137KHMLAD
	140	24	2100	3.4	5.1	15	57.5 x 65 x 35	52.5	20.3	1.2	MKCHA-450V147KHNLAD
	150	26	2250	3.2	4.6	15	57.5 x 70 x 35	52.5	20.3	1.2	MKCHA-450V157KHOLAD
	160	28	2400	3.1	4.1	15	57.5 x 80 x 35	52.5	20.3	1.2	MKCHA-450V167KHQLAD
	170	30	2550	3	3.7	15	57.5 x 80 x 35	52.5	20.3	1.2	MKCHA-450V177KHQLAD

Rated DC Voltage U_N derating Voltage test between terminals U_{TT}	Nominal Capacitance C_N [µF]	Ripple Current at 70°C 1 k–10 kHz I_r [A RMS]	Peak Current Maximum value $\hat{I}$ [A]	ESR ESR [mΩ]	Thermal Resist. R_{th} [K/W]	dv/dt [V/µs]	Dimensions Case Size L x H x T [mm]	Terminals P1 [mm]	Terminals P2 [mm]	Terminals Ød [mm]	Product Code
550 Vdc at 85°C 720 Vdc at 70 °C 360 Vdc at 105 °C U_{TT} 825 Vdc / 10 s	3	4	150	28	22.3	50	32 x 20 x 11	27.5	\	0.8	MKCHA-550V305KCEGBB
	5	6	250	14	19.8	50	32 x 22 x 13	27.5	\	0.8	MKCHA-550V505KCEGBB
	8	8.5	400	12.5	11.1	50	32 x 28 x 14	27.5	\	0.8	MKCHA-550V805KCFGBB
	10	10	500	8	12.5	50	32 x 33 x 18	27.5	\	0.8	MKCHA-550V106KDGGBB
	15	12	750	6.5	10.7	50	32 x 37 x 22	27.5	\	0.8	MKCHA-550V156KEHGBB
		13	750	5.5	10.8	50	32 x 37 x 22	27.5	10.2	0.8	MKCHA-550V156KEHGAB
	20	12.5	600	6.5	9.8	30	42.5 x 40 x 20	37.5	10.2	1	MKCHA-550V206KEIIAC
	22	13.5	660	6.5	8.4	30	42.5 x 40 x 20	37.5	10.2	1	MKCHA-550V226KEIIAC
	25	14.5	750	6.5	7.3	30	42.5 x 40 x 20	37.5	10.2	1	MKCHA-550V256KEIIAC
	30	16	900	6	6.5	30	42.5 x 44 x 24	37.5	10.2	1	MKCHA-550V306KEIIAC
	35	18	1050	6	5.1	30	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-550V356KGJIAD
	40	18	1200	5.5	5.6	30	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-550V406KGJIAD
	50	20	1500	5	5	30	42.5 x 50 x 35	37.5	20.3	1.2	MKCHA-550V506KHKIAD
	60	18	900	4.8	6.4	15	57.5 x 45 x 30	37.5	20.3	1.2	MKCHA-550V606KGJLAD
	75	20	1125	5	5	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-550V756KHKLAD
	100	24	1500	4.5	3.9	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-550V107KJLLAD
	110	26	1650	4	3.7	15	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-550V117KKKLAD
	130	23	1950	3.4	5.6	15	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-550V137KHMLAD
	140	25	2100	3.3	4.8	15	57.5 x 65 x 35	52.5	20.3	1.2	MKCHA-550V147KHNLAD
	150	27	2250	3.1	4.4	15	57.5 x 70 x 35	52.5	20.3	1.2	MKCHA-550V157KHOLAD
	160	29	2400	3	4	15	57.5 x 80 x 35	52.5	20.3	1.2	MKCHA-550V167KHQLAD
	170	32	2550	2.8	3.5	15	57.5 x 80 x 35	52.5	20.3	1.2	MKCHA-550V177KHQLAD
600 Vdc at 85°C 780 Vdc at 70 °C 390 Vdc at 105 °C U_{TT} 900 Vdc / 10 s	3	4	150	28	22.3	50	32 x 20 x 11	27.5	\	0.8	MKCHA-600V305KCEGBB
	4	5	200	26	15.4	50	32 x 20 x 11	27.5	\	0.8	MKCHA-600V405KCEGBB
	5	6	250	14.5	19.2	50	32 x 28 x 14	27.5	\	0.8	MKCHA-600V505KCFGBB
	8	7.5	400	12	14.8	50	32 x 28 x 14	27.5	\	0.8	MKCHA-600V805KCFGBB
	10	8.5	500	7.5	18.5	50	32 x 33 x 18	27.5	\	0.8	MKCHA-600V106KDGGBB
	12	9.5	600	7.5	14.8	50	32 x 33 x 18	27.5	\	0.8	MKCHA-600V126KDGGBB
		8	360	9.5	16.4	30	42.5 x 18 x 24	37.5	\	1	MKCHA-600V126KEDIBC
	15	10.5	750	7.5	12.1	50	32 x 37 x 22	27.5	\	0.8	MKCHA-600V156KEHGBB
		12	750	6	11.6	50	42.5 x 18 x 24	37.5	\	1	MKCHA-600V156KEDIBC
	20	11	600	6	13.8	30	42.5 x 40 x 20	37.5	10.2	1	MKCHA-600V206KEIIAC
	30	13	900	5.5	10.8	30	42.5 x 37 x 28	37.5	10.2	1	MKCHA-600V306KFHIAC
	35	16.5	1050	5	7.3	30	42.5 x 44 x 24	37.5	10.2	1	MKCHA-600V356KEIIAC
	40	18	1200	4	7.7	30	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-600V406KGJIAD
	50	14	750	6.5	7.8	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-600V506KHKLAD
	60	16	900	5	7.8	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-600V606KHKLAD
	70	18	1050	5	6.2	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-600V706KHKLAD
	80	20	1200	4	6.3	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-600V806KJLLAD
	90	24	1350	4	4.3	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-600V906KJLLAD
	100	26	1500	4	3.7	15	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-600V107KKKLAD
	110	28	1650	3.5	3.6	15	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-600V117KKKLAD
	120	30	1800	3.4	3.3	15	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-600V127KHMLAD
	130	32	1950	3.3	3	15	57.5 x 65 x 35	52.5	20.3	1.2	MKCHA-600V137KHNLAD
	140	34	2100	3.2	2.7	15	57.5 x 70 x 35	52.5	20.3	1.2	MKCHA-600V147KHOLAD
		34	2100	3.2	2.7	15	57.5 x 65 x 45	52.5	20.3	1.2	MKCHA-600V147KJNLAD
	150	36	2250	3	2.6	15	57.5 x 80 x 35	52.5	20.3	1.2	MKCHA-600V157KHQLAD

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Rated DC Voltage U_N derating Voltage test between terminals U_{TT}	Nominal Capacitance C_N [µF]	Ripple Current at 70°C 1 k–10 kHz I_r [A RMS]	Peak Current Maximum value $\hat{I}$ [A]	ESR ESR [mΩ]	Thermal Resist. R_{th} [K/W]	dv/dt [V/µs]	Dimensions Case Size L x H x T [mm]	Terminals P1 [mm]	P2 [mm]	Ød [mm]	Product Code
700 Vdc at 85°C 910 Vdc at 70 °C 460 Vdc at 105 °C U_{TT} 1050 Vdc / 10 s	1	2.5	75	54	29.6	75	32 x 18 x 9	27.5	\	0.8	MKCHA-700V105KBDGBB
	2	3	150	35	31.7	75	32 x 18 x 9	27.5	\	0.8	MKCHA-700V205KBDGBB
	3	4.5	150	28	17.6	50	32 x 20 x 11	27.5	\	0.8	MKCHA-700V305KCEGBB
	3,3	5.5	165	26	12.7	50	32 x 28 x 14	27.5	\	0.8	MKCHA-700V335KCFGBB
	5	6	250	14	19.8	50	32 x 28 x 14	27.5	\	0.8	MKCHA-700V505KCFGBB
	6	6	450	14	19.8	75	32 x 28 x 18	27.5	\	0.8	MKCHA-700V605KDFGBB
	8	9	400	10	12.3	50	32 x 33 x 18	27.5	\	0.8	MKCHA-700V805KDGGBB
	10	10	500	7	14.3	50	32 x 33 x 18	27.5	\	0.8	MKCHA-700V106KDGGBB
		12	500	6.5	10.7	50	32 x 37 x 22	27.5	\	0.8	MKCHA-700V106KEHGBB
		11.5	300	7.5	10.1	30	42.5 x 18 x 24	37.5	\	1	MKCHA-700V106KEDIBC
	12	12	600	6	10.7	50	32 x 37 x 22	27.5	\	0.8	MKCHA-700V126KEHGBB
		12	360	7	9.9	30	42.5 x 18 x 24	37.5	\	1	MKCHA-700V126KEDIBC
	15	9	450	9	13.7	30	42.5 x 33.5 x 22	37.5	\	1	MKCHA-700V156KEGIBC
		10	450	8	12.5	30	42.5 x 33.5 x 22	37.5	10.2	1	MKCHA-700V156KEGIAC
		10	450	8	12.5	30	42.5 x 40 x 20	37.5	10.2	1	MKCHA-700V156KEIIAC
	20	12	600	7.5	9.3	30	42.5 x 37 x 28	37.5	10.2	1	MKCHA-700V206KFHIAC
	22	14	660	6.5	7.8	30	42.5 x 44 x 24	37.5	10.2	1	MKCHA-700V226KEIIAC
	25	16	750	6	6.5	30	42.5 x 44 x 24	37.5	10.2	1	MKCHA-700V256KEIIAC
	30	16	900	5.8	6.7	30	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-700V306KGJIAD
	35	20	1050	5.5	4.5	30	42.5 x 50 x 35	37.5	20.3	1.2	MKCHA-700V356KHKIAD
	40	14	600	5	10.2	15	57.5 x 45 x 30	52.5	20.3	1.2	MKCHA-700V406KGJLAD
	45	15.5	675	5	8.3	15	57.5 x 45 x 30	52.5	20.3	1.2	MKCHA-700V456KGJLAD
	50	15	750	4.8	9.3	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-700V506KHKLAD
	55	16	825	4.5	8.7	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-700V556KHKLAD
	60	18	900	4	7.7	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-700V606KHKLAD
	65	20	975	4	6.3	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-700V656KJLLAD
	70	20	1050	3.8	6.6	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-700V706KJLLAD
	75	20	1125	3.8	6.6	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-700V756KJLLAD
	80	22	1200	3.5	5.9	15	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-700V806KKKLAD
		23	1200	3.4	5.6	15	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-700V806KHMLAD
	90	24	1350	3.5	5	15	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-700V906KKKLAD
		24	1350	3.5	5	15	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-700V906KHMLAD
	100	26	1500	3.5	4.2	15	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-700V107KKKLAD
		26	1500	3.5	4.2	15	57.5 x 65 x 35	52.5	20.3	1.2	MKCHA-700V107KHNLAD
	110	28	1650	3.4	3.8	15	57.5 x 70 x 35	52.5	20.3	1.2	MKCHA-700V117KHOLAD
	120	30	1800	3	3.7	15	57.5 x 80 x 35	52.5	20.3	1.2	MKCHA-700V127KHQLAD
	130	32	1950	2.8	3.5	15	57.5 x 65 x 45	52.5	20.3	1.2	MKCHA-700V137KJNLAD
800 Vdc at 85°C 1040 Vdc at 70 °C 520 Vdc at 105 °C U_{TT} 1200 Vdc / 10 s	1	2	75	62	40.3	75	32 x 18 x 9	27.5	\	0.8	MKCHA-800V105KBDGBB
	2	3.5	150	31	26.3	75	32 x 20 x 11	27.5	\	0.8	MKCHA-800V205KCEGBB
	3	4.5	225	21	23.5	75	32 x 22 x 13	27.5	\	0.8	MKCHA-800V305KCEGBB
	3,3	4	165	25	25	50	32 x 28 x 14	27.5	\	0.8	MKCHA-800V335KCFGBB
	5	6	250	12	23.1	50	32 x 28 x 14	27.5	\	0.8	MKCHA-800V505KCFGBB
	6	7.5	450	10.5	16.9	75	32 x 28 x 18	27.5	\	0.8	MKCHA-800V605KDFGBB
	8	9.5	176	9.5	11.7	22	32 x 33 x 18	27.5	\	0.8	MKCHA-800V805KDGGBB
	9	10	198	8.5	11.8	22	32 x 33 x 18	27.5	\	0.8	MKCHA-800V905KDGGBB
	10	11.5	220	9.5	8	22	32 x 37 x 22	27.5	\	0.8	MKCHA-800V106KEHGBB
		8	300	12.5	12.5	30	42.5 x 32 x 19	37.5	\	1	MKCHA-800V106KDGIBC
	15	10	450	8	12.5	30	42.5 x 40 x 20	37.5	10.2	1	MKCHA-800V156KEIIAC
	20	12	600	7	9.9	30	42.5 x 37 x 28	37.5	10.2	1	MKCHA-800V206KFHIAC

Rated DC Voltage U_N derating Voltage test between terminals U_{TT}	Nominal Capacitance C_N [µF]	Ripple Current at 70°C 1k–10kHz I_r [A RMS]	Peak Current Maximum value ↑ [A]	ESR ESR [mΩ]	Thermal Resist. R_{th} [K/W]	dv/dt [V/µs]	Dimensions Case Size L x H x T [mm]	Terminals P1 [mm]	Terminals P2 [mm]	Terminals Ød [mm]	Product Code
800 Vdc at 85°C 1040 Vdc at 70 °C 520 Vdc at 105 °C U_{TT} 1200 Vdc / 10 s	20	13.5	600	6.5	8.4	30	42.5 x 44 x 24	37.5	10.2	1	MKCHA-800V206KEIIAC
	22	14	660	6	8.5	30	42.5 x 44 x 24	37.5	10.2	1	MKCHA-800V226KEIIAC
	25	14	425	5.5	9.3	17	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-800V256KGJIAD
	30	16	900	4.5	8.7	30	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-800V306KGJIAD
	35	14.2	420	6.5	7.6	12	57.5 x 45 x 30	52.5	20.3	1.2	MKCHA-800V356KGJLAD
	40	14	600	6	8.5	15	57.5 x 45 x 30	52.5	20.3	1.2	MKCHA-800V406KGJLAD
	45	15.5	675	5.5	7.6	15	57.5 x 45 x 30	52.5	20.3	1.2	MKCHA-800V456KGJLAD
	47	17.5	564	5	6.5	12	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-800V476KHKLAD
	50	16	600	5	7.8	12	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-800V506KHKLAD
	55	17	660	4.6	7.5	12	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-800V556KHKLAD
	65	19	780	4	6.9	12	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-800V656KHMLAD
		20	975	4	6.3	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-800V656KJLLAD
	70	20	1050	3.8	6.6	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-800V706KJLLAD
		20	1050	3.8	6.6	15	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-800V706KHMLAD
	75	22	1125	3.8	5.4	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-800V756KJLLAD
		22	1125	3.8	5.4	15	57.5 x 65 x 35	52.5	20.3	1.2	MKCHA-800V756KHNLAD
	80	23	1200	3.5	5.4	15	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-800V806KKKLAD
		23	1200	3.5	5.4	15	57.5 x 70 x 35	52.5	20.3	1.2	MKCHA-800V806KHOLAD
	90	25	1350	3.3	4.8	15	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-800V906KKKLAD
		25	1350	3.3	4.8	15	57.5 x 80 x 35	52.5	20.3	1.2	MKCHA-800V906KHQLAD
	100	28	1500	3.2	4	15	57.5 x 65 x 45	52.5	20.3	1.2	MKCHA-800V107KJNLAD
900 Vdc at 85°C 1170 Vdc at 70 °C 590 Vdc at 105 °C U_{TT} 1350 Vdc / 10 s	1	2	60	63	39.7	60	32 x 18 x 9	27.5	\	0.8	MKCHA-900V105KBDGBB
	2	3	120	25	44.4	60	32 x 20 x 11	27.5	\	0.8	MKCHA-900V205KCEGBB
	3	5	180	18.5	21.6	60	32 x 22 x 13	27.5	\	0.8	MKCHA-900V305KCEGBB
	3,3	5	198	18.5	21.6	60	32 x 24.5 x 15	27.5	\	0.8	MKCHA-900V335KDEGBB
	5	7	300	12.5	16.3	60	32 x 28 x 18	27.5	\	0.8	MKCHA-900V505KDFGBB
	6	8	360	11	14.2	60	32 x 33 x 18	27.5	\	0.8	MKCHA-900V605KDGGBB
	8	10.5	480	10	9.1	60	32 x 37 x 22	27.5	\	0.8	MKCHA-900V805KEHGBB
	10	12	600	10	6.9	60	32 x 37 x 22	27.5	\	0.8	MKCHA-900V106KEHGBB
		8.5	350	12	11.5	35	42.5 x 40 x 20	37.5	\	1	MKCHA-900V106KEIIBC
		9.5	350	11.5	9.6	35	42.5 x 40 x 20	37.5	10.2	1	MKCHA-900V106KEIIAC
	15	10.5	525	8	11.3	35	42.5 x 44 x 24	37.5	\	1	MKCHA-900V156KEIIBC
	18	10.5	630	8	11.3	35	42.5 x 44 x 24	37.5	\	1	MKCHA-900V186KEIIBC
		12	630	7.5	9.3	35	42.5 x 44 x 24	37.5	10.2	1	MKCHA-900V186KEIIAC
	20	14	700	6	8.5	35	42.5 x 45 x 30	37.5	\	1	MKCHA-900V206KGJIBC
		15	700	5.5	8.1	35	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-900V206KGJIAD
	25	17	875	5.5	6.3	35	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-900V256KGJIAD
	30	19	1050	5	5.5	35	42.5 x 50 x 35	37.5	20.3	1.2	MKCHA-900V306KHKIAD
		15	450	5.5	8.1	15	57.5 x 45 x 30	52.5	20.3	1.2	MKCHA-900V306KGJLAD
	35	15.5	525	5.5	7.6	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-900V356KHKLAD
	40	16	600	6.5	6	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-900V406KHKLAD
	50	18	750	3.6	8.6	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-900V506KHKLAD
	55	19	825	3.5	7.9	15	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-900V556KHMLAD
		20	825	3.4	7.4	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-900V556KJLLAD
	60	20	900	3.4	7.4	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-900V606KJLLAD
		20	900	3.4	7.4	15	57.5 x 65 x 35	52.5	20.3	1.2	MKCHA-900V606KHNLAD
	65	22	975	3.3	6.3	15	57.5 x 70 x 35	52.5	20.3	1.2	MKCHA-900V656KHOLAD
	70	24	1050	3.2	5.4	15	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-900V706KKKLAD
		24	1050	3.2	5.4	15	57.5 x 80 x 35	52.5	20.3	1.2	MKCHA-900V706KHQLAD
	80	25	1200	3.2	5	15	57.5 x 65 x 45	52.5	20.3	1.2	MKCHA-900V806KJNLAD

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Rated DC Voltage U_N derating Voltage test between terminals U_{TT}	Nominal Capacitance C_N [µF]	Ripple Current at 70°C 1 k–10 kHz I_r [A RMS]	Peak Current Maximum value $\hat{I}$ [A]	ESR ESR [mΩ]	Thermal Resist. R_{th} [K/W]	dv/dt [V/µs]	Dimensions Case Size L x H x T [mm]	Terminals P1 [mm]	Terminals P2 [mm]	Terminals Ød [mm]	Product Code
1000 Vdc at 85°C 1300 Vdc at 70 °C 650 Vdc at 105 °C U_{TT} 1500 Vdc / 10 s	1	2.5	70	45	35.6	70	32 x 20 x 11	27.5	\	0.8	MKCHA-1000V105KCEGBB
	2	3.5	120	30	27.2	60	32 x 22 x 13	27.5	\	0.8	MKCHA-1000V205KCEGBB
	3	5	180	25	16	60	32 x 24.5 x 15	27.5	\	0.8	MKCHA-1000V305KDEGBB
	5	8	300	14	11.2	60	32 x 33 x 18	27.5	\	0.8	MKCHA-1000V505KDGGBB
	8	10	480	12	8.3	60	32 x 37 x 22	27.5	\	0.8	MKCHA-1000V805KEHGBB
	10	8.5	350	12	11.5	35	42.5 x 40 x 20	37.5	\	1	MKCHA-1000V106KEIIBC
		9.5	350	11.5	9.6	35	42.5 x 40 x 20	37.5	10.2	1	MKCHA-1000V106KEIIAC
	12	10.5	420	9	10.1	35	42.5 x 44 x 24	37.5	10.2	1	MKCHA-1000V126KEIIAC
	15	10.5	525	8	11.3	35	42.5 x 44 x 24	37.5	\	1	MKCHA-1000V156KEIIBC
		12	525	7.5	9.3	35	42.5 x 44 x 24	37.5	10.2	1	MKCHA-1000V156KEIIAC
		14	525	7.5	6.8	35	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-1000V156KGJIAD
	20	15	700	6.5	6.8	35	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-1000V206KGJIAD
	25	18	875	5.5	5.6	35	42.5 x 50 x 35	37.5	20.3	1.2	MKCHA-1000V256KHKIAD
	30	15	450	5.5	8.1	15	57.5 x 45 x 30	52.5	20.3	1.2	MKCHA-1000V306KGJLAD
	35	16	525	5.5	7.1	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-1000V356KHKLAD
	40	16	600	5	7.8	15	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-1000V406KHKLAD
		17	600	5	6.9	15	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-1000V406KHMLAD
	50	19	750	4.5	6.2	15	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-1000V506KJLLAD
		19	750	4.5	6.2	15	57.5 x 65 x 35	52.5	20.3	1.2	MKCHA-1000V506KHNLAD
	55	20	825	4.4	5.7	15	57.5 x 70 x 35	52.5	20.3	1.2	MKCHA-1000V556KHOLAD
	60	22	900	4	5.2	15	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-1000V606KKKLAD
		22	900	4	5.2	15	57.5 x 80 x 35	52.5	20.3	1.2	MKCHA-1000V606KHQLAD
		22	900	4	5.2	15	57.5 x 65 x 45	52.5	20.3	1.2	MKCHA-1000V606KJNLAD
1100 Vdc at 85°C 1430 Vdc at 70 °C 720 Vdc at 105 °C U_{TT} 1650 Vdc / 10 s	1	2.5	70	45	35.6	70	32 x 20 x 11	27.5	\	0.8	MKCHA-1100V105KCEGBB
	1,5	3.5	105	30	27.2	70	32 x 22 x 13	27.5	\	0.8	MKCHA-1100V155KCEGBB
	2	4	140	25	25	70	32 x 24.5 x 15	27.5	\	0.8	MKCHA-1100V205KDEGBB
	2,2	5	154	16.5	24.2	70	32 x 28 x 14	27.5	\	0.8	MKCHA-1100V225KCFGBB
	3,3	6.5	231	11.5	20.6	70	32 x 28 x 18	27.5	\	0.8	MKCHA-1100V335KDFGBB
	4	8	280	10.5	14.9	70	32 x 33 x 18	27.5	\	0.8	MKCHA-1100V405KDGGBB
	5	8.5	350	9.5	14.6	70	32 x 37 x 22	27.5	\	0.8	MKCHA-1100V505KEHGBB
	6,8	12	272	13.5	5.1	40	42.5 x 33.5 x 22	37.5	10.2	1	MKCHA-1100V685KEGIAC
	8	10.5	320	14	6.5	40	42.5 x 40 x 20	37.5	\	1	MKCHA-1100V805KEIIBC
		12.5	320	12.5	5.1	40	42.5 x 40 x 20	37.5	10.2	1	MKCHA-1100V805KEIIAC
		12.5	320	12.5	5.1	40	42.5 x 37 x 22	37.5	10.2	1	MKCHA-1100V805KEHIAC
	9	12.8	360	12.2	5	40	42.5 x 37 x 22	37.5	10.2	1	MKCHA-1100V905KEHIAC
	10	14	400	9	5.7	40	42.5 x 44 x 24	37.5	\	1	MKCHA-1100V106KEIIBC
		15	400	8.5	5.2	40	42.5 x 44 x 24	37.5	10.2	1	MKCHA-1100V106KEIIAC
	12	15.5	480	7.5	5.5	40	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-1100V126KGJIAD
	15	16	600	7	5.6	40	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-1100V156KGJIAD
	18	15.5	720	7.5	5.5	40	42.5 x 50 x 35	37.5	20.3	1.2	MKCHA-1100V186KHKIAD
	20	16.5	400	7.2	5.1	20	42.5 x 50 x 35	37.5	20.3	1.2	MKCHA-1100V206KHKIAD
		12	400	8.5	8.2	20	57.5 x 45 x 30	52.5	20.3	1.2	MKCHA-1100V206KGJLAD
	25	13	500	8.2	7.2	20	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-1100V256KHKLAD
	30	15	600	5	8.9	20	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-1100V306KHKLAD
	35	16	700	4.9	8	20	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-1100V356KHMLAD
	40	17	800	5.5	6.3	20	57.5 x 65 x 35	52.5	20.3	1.2	MKCHA-1100V406KHNLAD
		17	800	5.5	6.3	20	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-1100V406KJLLAD
	45	18	900	5.4	5.7	20	57.5 x 70 x 35	52.5	20.3	1.2	MKCHA-1100V456KHOLAD
	50	19.5	1000	5.2	5.1	20	57.5 x 65 x 45	52.5	20.3	1.2	MKCHA-1100V506KJNLAD
		20	1000	4.5	5.6	20	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-1100V506KKKLAD

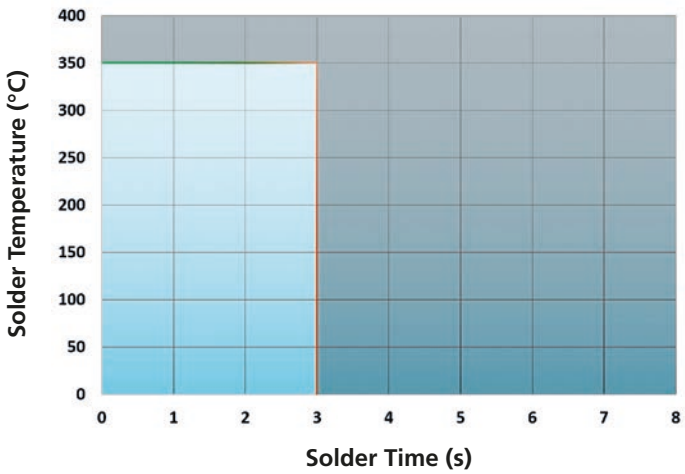
Rated DC Voltage U_N derating Voltage test between terminals U_{TT}	Nominal Capacitance C_N [µF]	Ripple Current at 70°C 1 k–10 kHz I_r [A RMS]	Peak Current Maximum value $\hat{I}$ [A]	ESR ESR [mΩ]	Thermal Resist. R_{th} [K/W]	dv/dt [V/µs]	Dimensions Case Size L x H x T [mm]	Terminals P1 [mm]	P2 [mm]	Ød [mm]	Product Code
1200 Vdc at 85°C 1560 Vdc at 70 °C 780 Vdc at 105 °C U_{TT} 1800 Vdc / 10 s	1	4.5	80	32.5	15.2	80	32 x 20 x 11	27.5	\	0.8	MKCHA-1200V105KCEGBB
	2	5	160	32.5	12.3	80	32 x 24.5 x 15	27.5	\	0.8	MKCHA-1200V205KDEGBB
	2,2	5.5	176	17	19.4	80	32 x 28 x 18	27.5	\	0.8	MKCHA-1200V225KDFGBB
	3	7	240	16	12.8	80	32 x 28 x 18	27.5	\	0.8	MKCHA-1200V305KDFGBB
	3,3	8	264	13.5	11.6	80	32 x 33 x 18	27.5	\	0.8	MKCHA-1200V335KDGGBB
	5	10	400	12	8.3	80	32 x 37 x 22	27.5	\	0.8	MKCHA-1200V505KEHGBB
		7.5	225	15.5	11.5	45	42.5 x 33.5 x 22	37.5	\	1	MKCHA-1200V505KEGIBC
	6	7.5	270	15.5	11.5	45	42.5 x 40 x 20	37.5	\	1	MKCHA-1200V605KEIIBC
	7	8	315	15.2	10.3	45	42.5 x 37 x 22	37.5	10.2	1	MKCHA-1200V705KEHIAC
	8	9	360	12.5	9.9	45	42.5 x 44 x 24	37.5	10.2	1	MKCHA-1200V805KEIIAC
	10	10	450	10.5	9.5	45	42.5 x 44 x 24	37.5	10.2	1	MKCHA-1200V106KEIIAC
		12	450	8	8.7	45	42.5 x 45 x 30	37.5	20.3	1.2	MKCHA-1200V106KGJIAD
	15	15	675	6.5	6.8	45	42.5 x 50 x 35	37.5	20.3	1.2	MKCHA-1200V156KHKIAD
	20	13	500	8.5	7	25	57.5 x 45 x 30	52.5	20.3	1.2	MKCHA-1200V206KGJLAD
	25	15	625	6.5	6.8	25	57.5 x 50 x 35	52.5	20.3	1.2	MKCHA-1200V256KHKLAD
	30	17	750	5.5	6.3	25	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-1200V306KJLLAD
		17	750	5.5	6.3	25	57.5 x 60 x 35	52.5	20.3	1.2	MKCHA-1200V306KHMLAD
	35	18	875	5	6.2	25	57.5 x 55 x 45	52.5	20.3	1.2	MKCHA-1200V356KJLLAD
		18	875	5	6.2	25	57.5 x 70 x 35	52.5	20.3	1.2	MKCHA-1200V356KHOLAD
	40	20	1000	4.5	5.6	25	57.5 x 53 x 50	52.5	20.3	1.2	MKCHA-1200V406KKKLAD
	45	22	1125	4.3	4.8	25	57.5 x 65 x 45	52.5	20.3	1.2	MKCHA-1200V456KJNLAD
1500 Vdc at 85°C 1950 Vdc at 70 °C 980 Vdc at 105 °C U_{TT} 2250 Vdc / 10 s	6,5	12	293	10.5	6.6	45	42 x 42 x 28	37.5	10.3	1	MKCHA-1500V655KFIIAC
	11	20	71	6.5	3.8	30	42 x 50 x 35	37.5	20.3	1.2	MKCHA-1500V116KHKIAD

Additional designs on request · Weitere Designs auf Anfrage

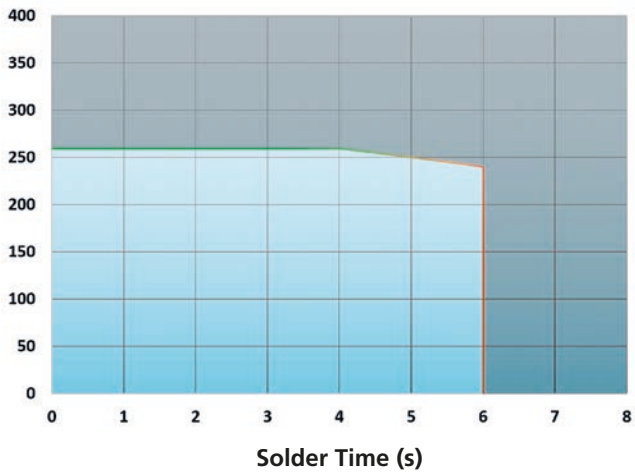
› Soldering Parameters · Lötparameter

· Manual with soldering iron · Lötkolben: **Max. 350 °C / 3 s**
· Wave soldering · Wellenlöten: **Max. 260 °C / 4 s or 250 °C / 6 s**

Manual with soldering iron



Wave soldering



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› Life Time Table · Brauchbarkeitsdauer – Tabelle

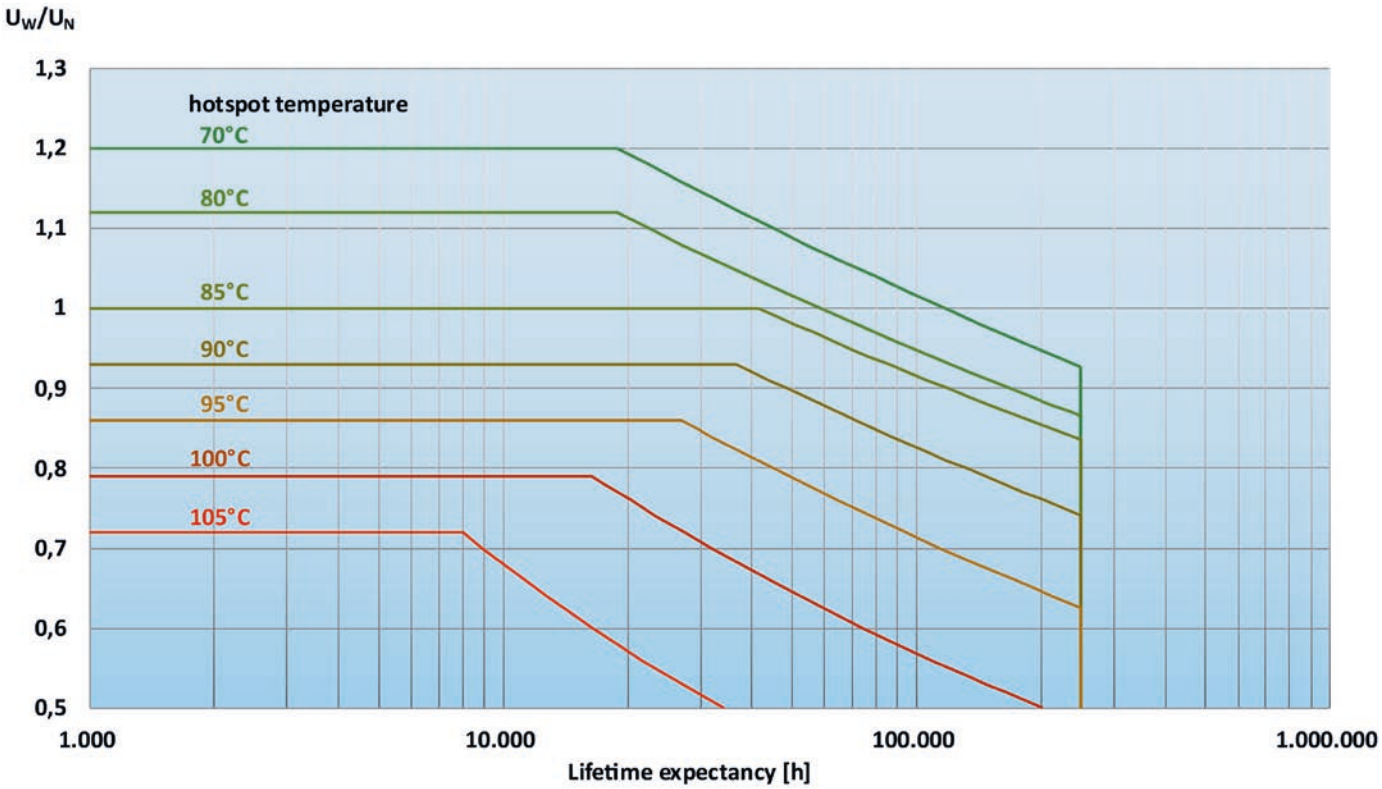
Lifetime as function of ratio between the effective working voltage Uw and the rated DC voltage U_N													
$T_{HOTSPOT}$	x 0.5	x 0.6	x 0.7	x 0.75	x 0.8	x 0.85	x 0.9	x 0.95	x 1.0	x 1.05	x 1.1	x 1.15	x 1.20
50 °C	250	250	250	250	250	250	250	250	250	250	181	116	76
60 °C	250	250	250	250	250	250	250	250	234	144	91	58	38
70 °C	250	250	250	250	250	250	250	196	117	72	45	29	19
75 °C	250	250	250	250	250	250	238	138	83	51	32	21	
80 °C	250	250	250	250	250	250	168	98	59	36	23		
85 °C	250	250	250	250	250	210	119	69	42				
90 °C	250	250	250	228	132	79	48	30					
95 °C	250	250	114	70	45	30							
100 °C	200	75	32	22	16								
105 °C	34	17	9										

khrs value limited to 250 000 hours.

› Life Time Graph · Brauchbarkeitsdauer – Diagramm

Lifetime expectancy depending on hotspot temperature $T_{HOTSPOT}$ versus ratio between the effective working voltage U_W and the rated DC voltage U_N

Lebenserwartung in Abhängigkeit von der hotspot Temperatur $T_{HOTSPOT}$ und dem Verhältnis der tatsächlich anliegenden Spannung zur DC Nennspannung U_N



$$T_{HOTSPOT} = T_a + I^2 \times ESR \times R_{th}$$

Rated capacitance C_N
Capacitance value rated at 20 °C / rated frequency.

Rated Voltage U_N
The maximum or peak voltage of either polarity of a reversing or non-reversing type wave form for which the capacitor has been designed and rated (unlike other standards for AC capacitors, the rated voltage is not the rms value).

Non repetitive peak (surge) voltage U_S
Voltages beyond the rated voltage induced by switching or faults of the system or any part of it. Maximum count 1000 times with a duration of not more than 50 ms each.

Ripple voltage U_r
The peak-to-peak alternating component of the unidirectional voltage.

Voltage test between terminals U_{TT}
Routine test of all capacitors conducted at room temperature, prior to delivery. A further test with 80 % of the test voltage stated in the data sheet may be carried out once at the user's location.

Voltage test between terminals and case U_{TC}
Routine test of all capacitors between shortcircuited terminals and case, conducted at room temperature. May be repeated at the user's location.

Rated current I_r
rms value of permissible ripple current in continuous operation and frequencies between 1 kHz and 10 kHz when U_N is applied at the rated temperature.

Maximum current I_{max}
Maximum rms value of permissible current in continuous operation. The values given in the data sheets are related to either the specified maximum power dissipation or to the terminals current limits.

Peak current Î
Maximum permitted repetitive current amplitude during continuous operation.

Non-repetitive peak current (surge) I_S
Maximum current that may occur non-repetitively and briefly in the event of a fault. Maximum count 1000 times with a duration of not more than 50 ms each.

Nennkapazität C_N
Nennkapazitätswert bei 20 °C / Nennfrequenz.

Nennspannung U_N
Die Höchst- oder Spitzenspannung jeder Polarität einer umkehrbaren oder nicht umkehrbaren Wellenform, für die der Kondensator ausgelegt und bemessen wurde (im Gegensatz zu anderen Normen für Wechselstrom-kondensatoren ist die Nennspannung nicht die rms Spannung).

Nicht repetitive Überspannungsspitze U_S
durch Schaltvorgänge oder Fehler des Systems verursachte Spannungen oberhalb der Nennspannung. Maximal 1000-mal mit einer Dauer von jeweils bis zu 50 ms.

Ripple Spannung U_r
Die Spitze-zu-Spitze-Wechselkomponente der uni-direktionalen Spannung.

Spannungsprüfung zwischen den Anschlüssen U_{TT}
Routineprüfung aller Kondensatoren bei Raumtemperatur vor der Auslieferung. Eine weitere Prüfung mit 80 % der im Datenblatt angegebenen Prüfspannung kann einmalig beim Anwender durchgeführt werden.

Spannungstest zwischen Anschlüssen und Gehäuse U_{TC}
Routineprüfung bei Raumtemperatur aller Kondensatoren zwischen kurzgeschlossenen Anschlüssen und Gehäuse, Kann beim Anwender vor Ort wiederholt werden.

Nennstrom I_r
RMS Effektivwert des zulässigen Ripple Stroms im Dauerbetrieb und für den Frequenzbereich 1 kHz bis 10 kHz wenn die Nennspannung ansteht und bei Nenntemperatur.

Maximaler Strom I_{max}
Maximaler RMS Effektivwert des zulässigen Stroms im Dauerbetrieb. Die in den Datenblättern angegebenen Werte beziehen sich entweder auf die angegebene maximale Verlustleistung oder auf das Limit der Anschlussklemmen.

Spitzenstrom Î
Maximal zulässige wiederholbare Stromamplitude im Dauerbetrieb.

Nicht repetitiver Spitzenstrom (Surge) I_S
Maximaler Strom, der im Fehlerfall nicht wiederkehrend und kurzzeitig auftreten darf. Maximal 1000-mal mit einer Dauer von jeweils bis zu 50 ms.

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Dielectric dissipation factor tanδ_0
Constant dissipation factor of the dielectric material for all capacitors in their rated frequency.

Thermal resistance R_{th}
The thermal resistance indicates by how many degrees the capacitor temperature at the hotspot rises in relation to the dissipation losses.

Maximum power dissipation P_{max}
Maximum permitted power dissipation for the capacitor's operation at a certain ambient temperature.

Ambient temperature T_a
Temperature of the surrounding air, measured 10 cm away and at 2/3 of the case height of the capacitor.

Lower category temperature T_{min}
Lowest permissible ambient temperature at which a capacitor may be used.

Upper category temperature T_{max}
Highest permissible capacitor temperature during operation, i.e. temperature at the hottest point of the case.

Hotspot temperature $T_{HOTSPOT}$
Temperature at the hottest spot inside the capacitor.

Rated energy contents E_N
Energy stored in the capacitor when charged at rated voltage.

Clearance in air L
The shortest distance between conducting parts of the terminals or between terminals and case.

Creepage distance K
The shortest distance along an insulated surface between conducting parts of the terminals or between terminals and case

Resonant frequency f_{res}
The capacitance and self-inductance of any capacitor form a series resonant circuit. Above the resonant frequency, the inductive part of this LC-circuit prevails. The capacitor would then behave as an inductor.

Dielektrischer Verlustfaktor tanδ_0
Konstanter Verlustfaktor des dielektrischen Materials für alle Kondensatoren bei ihrer Nennfrequenz.

Thermischer Widerstand R_{th}
Der Wärmewiderstand gibt an, um wie viel Grad die Temperatur des Kondensators im Hotspot im Verhältnis zu den Verlusten ansteigt.

Maximale Verlustleistung P_{max}
Maximal zulässige Verlustleistung für den Betrieb des Kondensators bei einer bestimmten Umgebungstemperatur.

Umgebungstemperatur T_a
Temperatur der Umgebungsluft, gemessen in 10 cm Entfernung und auf 2/3 der Gehäusehöhe des Kondensators.

Untere Betriebstemperatur T_{min}
Niedrigste zulässige Umgebungstemperatur für den Betrieb des Kondensator.

Obere Betriebstemperatur T_{max}
Höchste zulässige Kondensatortemperatur während des Betriebs, d. h. Temperatur an der heißesten Stelle des Gehäuses.

Hotspot-Temperatur $T_{HOTSPOT}$
Temperatur an der heißesten Stelle im Inneren des Kondensators.

Nenn-Energiewert E_N
Im Kondensator gespeicherte Energie bei Aufladung mit Nennspannung.

Sicherheitsabstand L
Der kürzeste Abstand zwischen den leitenden Teilen der Anschlüsse oder zwischen Anschlüssen und Gehäuse.

Kriechstrecke K
Der kürzeste Abstand entlang einer isolierten Fläche zwischen leitenden Teilen der Anschlüsse oder zwischen Anschlüssen und Gehäuse

Resonanzfrequenz f_{res}
Die Kapazität und die Selbstinduktivität eines jeden Kondensators bilden einen Reihenschwingkreis. Oberhalb der Resonanzfrequenz überwiegt der induktive Teil dieses LC-Kreises. Der Kondensator würde sich dann wie eine Induktivität verhalten.

Compliance statement
Compliance Erklärung

As a well-established European supplier of electronic components, we are aware of our responsibilities and obligations in regards to the laws and regulations concerning the safety, health and welfare at work of every single person working along our supply chain as well as of the people who come into contact with our components.

This leads AIC Europe to exclusively work with manufacturers who share our respect for human rights, ethics and the protection of the environment and in particular to take due diligence, that their parts entirely complies with the applicable regulations.

Products and accessories from this catalog comply among other with the following regulations and directives at the beginning of 2023:

Als langjähriger europäischer Lieferant von elektronischen Bauteilen sind wir uns unserer Verantwortung und Verpflichtung gegenüber den Gesetzen und Vorschriften in Bezug auf die Sicherheit, die Gesundheit und das Wohlergehen jedes einzelnen Mitarbeiters in unserer Lieferkette sowie der Menschen, die mit unseren Bauteilen in Berührung kommen, bewusst.

Dies veranlasst AIC Europe, ausschließlich mit Herstellern zusammenzuarbeiten, die unsere Achtung der Menschenrechte, der Ethik und des Umweltschutzes teilen und insbesondere darauf zu achten, dass ihre Erzeugnisse den geltenden Vorschriften vollständig entsprechen.

Produkte und Zubehör aus diesem Katalog erfüllen zu Beginn 2023 unter anderen folgende Vorschriften:

- Restriction of Hazardous Substances Directive **RoHS** 2011/65/EU & amendment (EU)2015/863
- Regulation (EC) No 1907/2006 **REACH**
  Registration, Evaluation, Authorisation and Restriction of Chemicals based on the SVHC candidate list updated by 2023, January 17th
- OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas by providing for all our products
  - a Conflict Minerals Reporting Template **(CMRT)** in accordance with the Dodd-Frank Wall Street Reform and Consumer Protection Act, Section 1502 on conflict minerals
  - an Extended Minerals Reporting Template **(EMRT)** for further conflict minerals
- Regulation/Verordnung (EU) 2019/1021 on persistent organic pollutants – **POP** ammended by delegated Regulation (EU) 2021/277
- Safe Drinking Water and Toxic Enforcement Act of 1986 (California's Proposition **CP65**) Chemicals known to the State to cause cancer or reproductive toxicity (as of Dec 8, 2020)
- Toxic Substances Control Act 1976 EPA **TSCA** 6 (h)

AIC EUROPE

AIC EUROPE remain committed to

- continiously collect relevant information with our reasonably best available effort from our suppliers and provide our best available information to our customers
- provide updated information timely to the customers when we receive modified or added information from our suppliers
- strive to spread this approach along our supply chains to ensure that, in the end, our customers too comply with the relevant regulations

AIC EUROPE verpflichten sich weiterhin

- kontinuierlich und nach bestem Wissen und Gewissen relevante Informationen von ihren Lieferanten zu sammeln und ihren Kunden die besten verfügbaren Informationen zur Verfügung zu stellen.
- ihren Kunden rechtzeitig aktualisierte Informationen zur Verfügung zu stellen, wenn wir geänderte oder zusätzliche Informationen von unseren Lieferanten erhalten
- sich zu bemühen, diesen Ansatz entlang unserer Lieferketten zu verbreiten, um sicherzustellen, dass am Ende auch unsere Kunden die relevanten Vorschriften einhalten.

Handling Cautions

NOTES TO USERS OF PP FILM CAPACITORS

Before using the products, please read the notes for proper use.

1. Operating environment

- Water, salt water, oil, and other electro conductive liquid adhered to the capacitors may cause capacitor failure.
- Capacitors wetted with liquid must never not be operated.
- Capacitors must never be stored or operated in corrosive atmospheres, particularly not where chlorides, sulfides, acids, alkalis, salts, organic solvents or similar substances are present.
- Capacitors must not be operated in ozone or where ultra violet radiation or radioactive rays are irradiating.
- In dust and dirt-prone environments, regular checks and maintenance (particularly of the terminals and insulators) are absolutely necessary to prevent creation of creepage distances between live parts and/or the protective conductor/ground. Dust and dirt shall be cleaned with paper or towel wetted with ethanol, not detergent.
- Excessive vibration and/or shock may cause capacitor failure.

2. Operating conditions

2.1. Operating temperature, ripple current

- Capacitors must be operated according to the specification in catalog and/or data sheets.
- Overvoltage or thermal overload may cause rupture, ignition, and internal faults. When the highest temperature in capacitor is higher than 70 °C, voltage derating has to be applied. For MLC and MLC2 series, permissible ripple current can be calculated from ambient temperature, operating voltage and information in data sheet or catalog.
  - Even if operating current is lower than permissible value, the current over permissible terminal current may cause excessive terminal heat generation.
- Ambient temperature is measured at point a point approximately 0.1 m away from the capacitor housing and at two-third of
  - the height from its base.
- It has to be noted that capacitors themselves generate heat.
- Permissible current decrease with the increase of ambient temperature. Therefore, it should be considered that capacitors must be selected by considering the operation at maximum ambient temperature.
- Frequency may affect electric load. Capacitors have to be selected by considering the effect of frequency.
- It should be noted that resonance by inductance of external circuit may affect capacitor's performance.
- It should be noted that parallel connection may cause current unbalance because of the difference of circuit impedance.
- Harmonics current may cause excessive heat generation because of dielectric loss at low frequency, or skin effect at high frequency. When harmonics current includes frequencies under 50 Hz and/or over 10 kHz components, the inner temperature of capacitors must be verified.
  - We recommend to check the following characteristics before proceeding evaluation. Please consult us for individual support if any of the following conditions apply.
  - Total current harmonic distortion based on the data computed exceed 200 %
  - Ratio between total current power losses and total dielectric power losses exceed 150 %
  - Capacitors with thermos sensor are not for endurance test, just for testing inner temperature rise. After the test, please scrap them.
  - The internal temperature should be measured after the inner temperature reached saturation (approx. five hours).

2.2. Applied voltage and other operating conditions

- Dielectric breakdown may cause severe internal fault such as short circuit, ignition and rupture. Capacitors must be operated inside the specified range specified in catalog and/or data sheets. For overvoltage within short period may not shorten service life time of capacitors.
- Capacitors must be operated under rated voltage. Surge voltage specified in data sheet is just for capacitor evaluation, and does not guarantee the continuous operation of capacitors.
- Inrush current may cause internal faults.
- Film capacitors have finite service life.
- DC capacitors must not be operated under AC condition. When ripple voltage over 20 % of rated voltage is applied to DC capacitors, it may cause capacitor failure. In this case, please contact us.

2.3. Cooling

- Give at least 40mm for cylindrical series or 20 mm for the others of clearance between the capacitors for natural or forced ventilation for effective heat dissipation of capacitors.

3. Before installation

3.1. Discharge

- AIC Europe GmbH and AIC tech Inc. does not accept responsibility for whatever damage may arise out of a non-observance, or caused by capacitors without agreement on detail of use condition, evaluation condition etc.
- In any event, the poles of the capacitors must be discharged with 1 kOhm or larger resistance before being touched.
- Note that capacitors with nominal voltages above 750 Vac or 2,000 Vdc in particular may regenerate new voltage at their terminals after having been short-circuited just for short periods. This condition will be avoided by storing them permanently short circuited.

3.2. Earthing

- Capacitors with a metal case must be earthed at the metal part or by means of a separate metal strap or clamp.

4. Mounting Location

4.1. Precaution

- Mechanically or electrically damaged, leaky or otherwise damaged capacitors may not be used or continue to be used.
- Do not place the capacitors directly above or nest to heat sources such as detuning or tuning reactors, bus bars, etc.
- Enough creepage distances and air clearance have to be kept when connecting capacitors, bus bars and housings.

4.2. Mounting

- Keep the torque described in catalog or data sheet. Toothed washer has to be used for fixing stud bolt.
- Three terminal type capacitors are equipped with Torx (T20). Use of improper screwdrivers may damage the screws and impair reliable fixation.
- Improper connection may cause local heat generation, and rupture and ignite. Don´t apply excessive stress to terminals and stud bolt.
- The useful life of a capacitor may be reduced dramatically if exposed at excessive heat.
- The permitted max temperature of the capacitor must not be exceeded even under the most critical ambient circumstances.
- The inner temperature of capacitors must be verified not to exceed the maximum operating temperature specified in the data sheet at the worst operating condition.

  Capacitors with thermos couple (PT100) are available depending of requests. Under force cooled condition, current over value specified in data sheet could be applied to capacitor. Please contact us when bus bars have high temperature and/or capacitors are placed with narrow space between them. They may cause increase in temperature of capacitors.
- It should be noted that the internal heat balance of large capacitors is only reached after a couple of hours when verifying inner temperature rise of capacitors.
- Capacitors with liquid or viscous filling shall be installed upright with terminals facing upwards. Capacitors with gas or solid resin filling can be mounted in any position without restriction.

4.3. Vibration / Shock

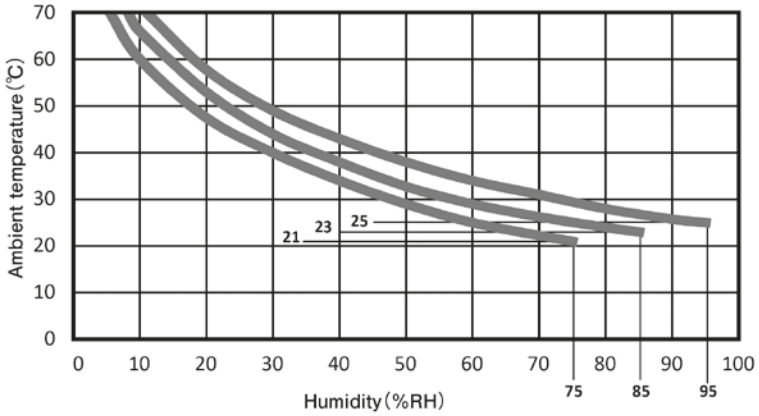
- Vibration and shock mainly affect fixing materials and terminals. It is important to measure the degree of vibration and shock at mounting location.
- The capacitors comply with test standard (IEC60068-2-6) as follows.

series	capacitor weight	test duration	frequency range	max. acceleration	max. displacement amplitude
MKCHA	< 3 kg	10 cycles per each axis	10 to 55Hz	50m/s^2	± 0.35 mm

5 Storage

5.1. Storage environment

- Ambient temperature : -40 °C to +35 °C
- Humidity : max. RH 75 % annual means
  max. RH 95 % 30 days/year
- Capacitors may not be stored or operated outside the specified humidity ranges. Condensation is not permitted



5.2. Storage limitation

- 2 years without any verifications
- When storage term is over two years, please confirm before usage that electric characteristics are within specifications, capacitor case is not covered with stains, and terminals are not covered with oxide layer.

6 Safety of self-healing type film capacitors

- In the event of a voltage breakdown the metal layers around the breakdown channel are evaporated by the temperature of the electric arc that forms between the electrodes. An insulation area is formed which is reliably resistive and voltage proof for all operating requirements of the capacitor. The capacitor remains fully functional during and after the breakdown.
- Surge voltages and surge currents within rated values induced by switching or faults of the system or any part of it are also permitted.

7 Mind hazards of explosion and fire

- Capacitors consist mainly of polypropylene, i.e. their energy content is relatively high. They may rupture and ignite as a result of internal faults or external overload (e.g. temperature, overvoltage, harmonic distortion).
- It must therefore be ensured, by appropriate measures, that they do not form any hazard to their environment in the event of failure or malfunction of the safety device.

8 Fumigation treatment

- Fumigation treatment may be performed during transportation for insect proofing.
- Halide such as methyl bromide may cause corrosion inside capacitors, and lead to failure. Insecticide also may cause capacitor failure.

9 Disposal

- We recommend disposing of the capacitors through professional recycling centers for electric/electronic waste.
- After incineration of capacitors, metal parts such as terminal, aluminum case, lid and internal wirings will be remained.
- Please consider that disposed capacitors should not put on the market.

10 Others

- In case of fire, dried powder, carbon dioxide or foam fire extinguishing agent has to be used.
- Please comply with transportation and exporting regulation in each nation.
- Capacitors usually have design life of approx. 15 to 20 years under proper operating condition. In order to maintain the reliability of equipment, it is recommended to replace the capacitors after ten years operation.

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