MUECAP Bauelemente GmbH
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MWS

• MKT • axial terminals • very high voltage

Main applications
High DC voltage applications, voltage multipliers, medical equipments

Dielectric
Polyester

Electrodes
Vacuum deposited metal layers

Coating
UL 510 / CSA TIL I-26 polyester tape wrapping; UL 94 V-0 resin end fill (flame retardant execution)

Construction
Extended metallized film (refer to general technical information) with internal series connection. Non inductive type

Terminals
Tinned copper wire (lead-free)

Reference standard
IEC 60384/16, IEC 60068, RoHS compliant

Climatic category
55/100/56 (IEC 60068/1), FMD (DIN 40040)

Operating temperature range (case)
-55°...+105°C

Nominal Capacitance (Cn) µF
1500pF to 0,56µF, in compliance with IEC 60063, E6 series. Refer to article table

Capacitance tolerance (at 1kHz)
±10% (code=K), ±5% (code=J), ±20% (code=M). Other tolerances upon request

Capacitance temperature coefficient
Refer to General Technical Information

Long term stability (at 1kHz)
Capacitance variation ≤ ±2% after a period of 2 years at standard environmental conditions

Rated voltage (Ur) (Vdc) at 85°C
2500, 4000, 6300, 10000 Vdc

Max. DC voltage up to +70°C
2750, 4400, 7000, 11500 Vdc

Permissible AC voltage at 60Hz (Vac)
500, 750, 1200, 1600 Vac

Category voltage (Uc)
Uc=Ur at +85°C; Uc=0,8xUr at +100°C

Temperature derated voltage
For T > +85°C, Ur must be decreased 1,25% for every °C exceeding +85°C

Self inductance
≤ 1nH/mm of capacitor and leads length used for connection

Maximum pulse rise time V/µs
Refer to article table. The pulse characteristic Ko depends on the voltage waveform.In any case the value given in the article table must not be exceeded

Dissipation factor (DF), max.
tgδ x10^{-4}, measured at 25 ±5°C

Freq.	Cn ≤ 0.1 µF	Cn > 0.1 µF
1kHz	80	80
10kHz	150	150
100kHz	300	-

Insulation resistance (R_{INS})
Measured between terminals, at 25±°C, after 1 minute of electrification at 100Vdc
R_{INS} ≥ 100 GΩ

Test voltage between terminals (Ut)
1,6xUr (DC) applied for 2s at 25±5°C (1 minute for type test)

Damp heat test (steady state)
List of admitted high humidity and temperature tests (please refer to paragraph C10 of the GTI)

Test ID	Reference	Permissible
a	Damp heat test (steady state) not biased - IEC60068	YES
b	Damp heat test (steady state) biased - AEC Q-200 cockpit	NO
c	Robustness under high humidity, Grade II - IEC 60384-17:2019	NO
d	High robustness under high humidity, Grade III - IEC 60384-17:2019	NO
e	Damp heat test (steady state) biased - 70/70/1000	NO
f	Humidity load test, Test Cy, Severity II - IEC 60068-2-67	NO
g	Humidity load test, Test Cy, Severity III - IEC 60068-2-67 and 85/85/1000 Level 1 - AEC Q-200	NO

Performance:
Capacitance change ≤ ±5%
DF change ≤ 0.0050 at 1kHz
R_{INS} ≥ 50% of initial limit value

Endurance test

Test conditions:
Temperature= +85±2°C
Test duration= 2000h
Voltage applied=1,25xUr(DC)

Performance:
Capacitance change ≤ ±5%
DF change ≤ 0.0030 at 10kHz
R_{INS}≥ 50% of initial limit value

Resistance to soldering heat test

Test conditions:
Solder bath temperature= +260±5°C
Dipping time (with heat screen)= 10±1s

Performance:
Capacitance change ≤ ±2%
DF change ≤ 0.0030 at 10kHz
R_{INS}≥ 50% of initial limit value

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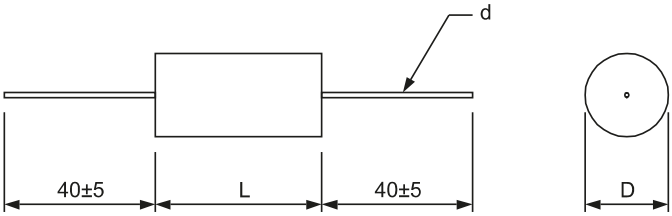

Dimensional tolerances (mm)

L	L±	D±
27.0	2.0	2.0
32.0	2.0	2.0
38.0	2.5	2.5
44.0	2.5	2.5
47.0	2.5	2.5
60.0	3.0	3.0

MWS article table (different values available upon request)

Voltage at +85°C		Cn	Dimensions (mm)			du/dt	K_0	ICEL CODE[1]
Ur (Vdc)	Urms (Vac) [2]	µF	D	L	d	V/µs	V^2/µs	-
2500	500	0,0047	6,5	27	0,6	200	1000000	MWS2251470*G
2500	500	0,0068	7,5	27	0,8	200	1000000	MWS2251680*G
2500	500	0,01	9	27	0,8	200	1000000	MWS2252100*G
2500	500	0,015	11	27	0,8	200	1000000	MWS2252150*G
2500	500	0,022	12,5	27	0,8	200	1000000	MWS2252220*G
2500	500	0,033	12,5	32	0,8	125	625000	MWS2252330*J
2500	500	0,047	15	32	0,8	125	625000	MWS2252470*J
2500	500	0,068	18	32	1	125	625000	MWS2252680*J
2500	500	0,1	16	47	1	70	350000	MWS2253100*O
2500	500	0,15	19	47	1	70	350000	MWS2253150*O
2500	500	0,22	23	47	1	70	350000	MWS2253220*O
2500	500	0,33	28,5	47	1	70	350000	MWS2253330*O
2500	500	0,47	35	47	1	70	350000	MWS2253470*O
2500	500	0,56	38,5	47	1,2	70	350000	MWS2253560*O
4000	750	0,0015	6,5	27	0,6	550	4400000	MWS2401150*G
4000	750	0,0022	7,5	27	0,8	550	4400000	MWS2401220*G
4000	750	0,0033	9	27	0,8	550	4400000	MWS2401330*G
4000	750	0,0047	10,5	27	0,8	550	4400000	MWS2401470*G
4000	750	0,0068	12,5	27	0,8	550	4400000	MWS2401680*G
4000	750	0,01	15	27	0,8	550	4400000	MWS2402100*G
4000	750	0,015	13	32	0,8	300	2400000	MWS2402150*J
4000	750	0,022	16,5	32	1	300	2400000	MWS2402220*J
4000	750	0,033	20	32	1	300	2400000	MWS2402330*J
4000	750	0,047	17,5	44	1	175	1400000	MWS2402470*N
4000	750	0,068	20,5	44	1	175	1400000	MWS2402680*N
4000	750	0,1	25	44	1	175	1400000	MWS2403100*N
4000	750	0,15	31	44	1	175	1400000	MWS2403150*N
4000	750	0,22	38,5	44	1,2	175	1400000	MWS2403220*N
6300	1200	0,0015	8,5	38	0,8	800	10000000	MWS2631150*L
6300	1200	0,0022	10,5	38	0,8	800	10000000	MWS2631220*L
6300	1200	0,0033	12,5	38	0,8	800	10000000	MWS2631330*L
6300	1200	0,0047	14,5	38	0,8	800	10000000	MWS2631470*L
6300	1200	0,0068	12	44	0,8	550	6900000	MWS2631680*N
6300	1200	0,01	14,5	44	1	550	6900000	MWS2632100*N
6300	1200	0,015	17,5	44	1	550	6900000	MWS2632150*N
6300	1200	0,022	21	44	1	550	6900000	MWS2632220*N
6300	1200	0,033	25,5	44	1	550	6900000	MWS2632330*N
6300	1200	0,047	30	44	1	550	6900000	MWS2632470*N
6300	1200	0,068	35,5	44	1,2	550	6900000	MWS2632680*N
6300	1200	0.082	39	44	1,2	550	6900000	MWS2632820*N

[1] Change the * symbol with the needed capacitance tolerance code: J=±5%, K=±10%, M=±20%
[2] Not suitable for across the line application

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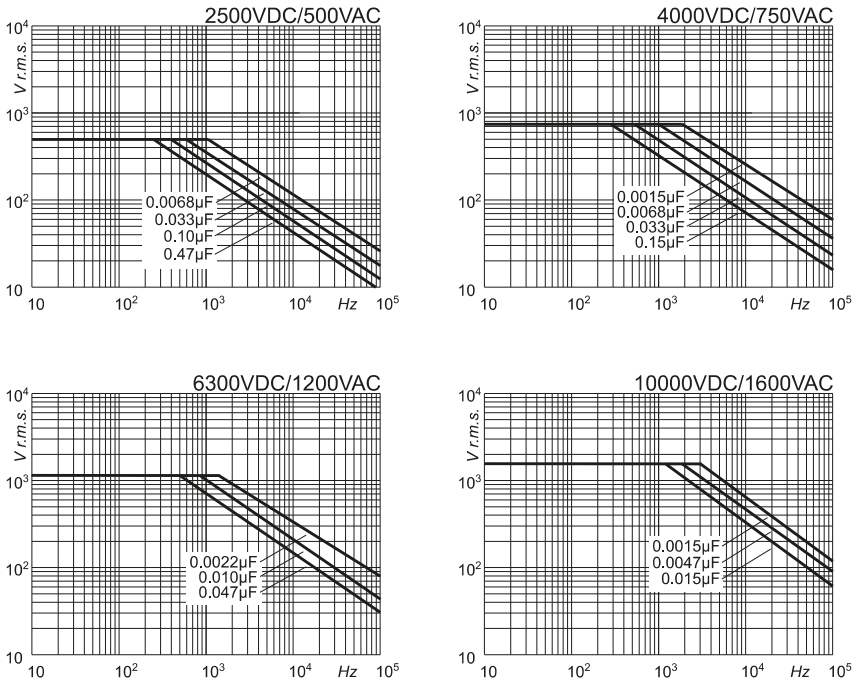
Voltage at +85°C		Cn	Dimensions (mm)			du/dt	K_0	ICEL CODE[1]
Ur (Vdc)	Urms (Vac) [2]	µF	D	L	d	V/µs	V^2/µs	-
10000	1600	0,0015	12,5	60	0,8	1200	24000000	MWS3101150*T
10000	1600	0,0022	14,5	60	0,8	1200	24000000	MWS3101220*T
10000	1600	0,0033	19	60	1	1200	24000000	MWS3101330*T
10000	1600	0,0047	22	60	1	1200	24000000	MWS3101470*T
10000	1600	0,0068	25,5	60	1	1200	24000000	MWS3101680*T
10000	1600	0,01	30	60	1	1200	24000000	MWS3102100*T
10000	1600	0,015	36	60	1	1200	24000000	MWS3102150*T
10000	1600	0,018	40	60	1	1200	24000000	MWS3102180*T

[1] Change the * symbol with the needed capacitance tolerance code: J=±5%, K=±10%, M=±20%
[2] Not suitable for across the line application

Permissible AC voltage versus frequency (sinusoidal waveform) for ΔT=+10°C
Referred to the largest length execution among available ones



Warning: this specification must be completed with the data given in the "General technical information" chapter