MTR

• MKT • axial terminals • small size • general purpose

Main applications
Blocking, filtering, bypassing, timing, coupling, decoupling, general applications in electronics. Low AC voltage motor running. Low pulse operation

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). Internal series connection for U≥1000Vdc. Non inductive type

Terminals
Tinned copper wire (Lead free)

Reference standard
IEC 60384/2, IEC 60068, RoHS compliant

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

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

Nominal Capacitance (Cn) µF
0,01µF to 150µF, 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% for Cn>0,1µF; ≤ ±3% for Cn≤0,1µF after a period of 2 years at standard environmental conditions

Rated voltage (Ur)
63, 100, 250, 400, 630, 1000 Vdc

Permissible AC voltage at 60Hz (Vac)
40, 63, 160, 200, 220, 400 Vac

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

Temperature derated voltage
For T>+85° 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	0.1 µF < Cn ≤ 1 µF	1 µF < Cn ≤ 68 µF	Cn > 68 µF
1kHz	80	80	100	110
10kHz	150	150	-	-
100kHz	300	-	-	-

Insulation resistance (R_{INS})
Measured between terminals, at 25±°C, after 1 minute of electrification at 100Vdc for Ur≥100Vdc and 50Vdc for Ur<100Vdc

Ur	Cn	R_{INS}
≤ 100	≤ 0.33 µF	≥ 3750 MΩ
> 100	≤ 0.33 µF	≥ 30000 MΩ
≤ 100	> 0.33 µF	≥ 1250 s
> 100	> 0.33 µF	≥ 10000 s

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)
Test conditions:
Temperature = +40 ±2°C
Relative humidity =93 ±2%
Test duration = 56 days
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 ≤ 0.0050 at 10kHz for Cn ≤ 1µF
DF change ≤ 0.0030 at 1kHz for Cn > 1µF
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 ≤ 0.0050 at 10kHz for Cn ≤ 1µF
DF change ≤ 0.0030 at 1kHz for Cn > 1µF
R_{INS}≥ 50% of initial limit value

Reliability (MIL HDB 217)
Application conditions:
Applied voltage= 0,5 x Ur(DC)
Temperature= +40±2°C
Failure rate: (1FIT=1x10^{-9} failures/components x hours)
≤ 5FIT for all the values
Failure criteria (DIN44122):
Capacitance change > ±10%
DF change > 2 x initial value
R_{INS}< 0,005 x initial limit value
Short or open circuit

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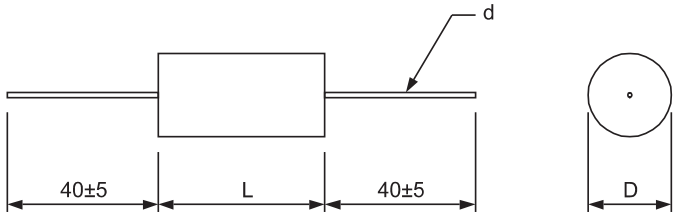

Dimensional tolerances (mm)

L	L±	D±
10.5	1.0	1.0
13.0	1.5	1.0
19.0	1.5	1.5
27.0	2.0	2.0
32.0	2.0	2.0
44.0	2.5	2.5

MTR 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)	µF	D	L	d	V/µs	$V^2/\mu s$	-
63	40	0,68	5	13	0,6	6	756	MTR0633680*B
63	40	1	6	13	0,6	6	756	MTR0634100*B
63	40	1,5	7	13	0,6	6	756	MTR0634150*B
63	40	2,2	6,5	19	0,6	3	380	MTR0634220*D
63	40	3,3	8	19	0,8	3	380	MTR0634330*D
63	40	4,7	9,5	19	0,8	3	380	MTR0634470*D
63	40	6,8	11	19	0,8	3	380	MTR0634680*D
63	40	10	10,5	27	0,8	2	252	MTR0635100*G
63	40	15	13	27	0,8	2	252	MTR0635150*G
63	40	22	15,5	27	0,8	2	252	MTR0635220*G
63	40	33	17,5	32	1	1	125	MTR0635330*J
63	40	47	20,5	32	1	1	125	MTR0635470*J
63	40	68	20,5	44	1	1	125	MTR0635680*N
63	40	100	25	44	1	1	125	MTR0636100*N
63	40	150	30,5	44	1	1	125	MTR0636150*N
100	63	0,68	6	13	0,6	9	1800	MTR1103680*B
100	63	1	7	13	0,6	9	1800	MTR1104100*B
100	63	1,5	8,5	13	0,8	9	1800	MTR1104150*B
100	63	1,5	6,5	19	0,6	5	1000	MTR1104150*D
100	63	2,2	8	19	0,8	5	1000	MTR1104220*D
100	63	3,3	9,5	19	0,8	5	1000	MTR1104330*D
100	63	4,7	11,5	19	0,8	5	1000	MTR1104470*D
100	63	6,8	11	27	0,8	3	600	MTR1104680*G
100	63	10	13,5	27	0,8	3	600	MTR1105100*G
100	63	10	12	32	0,8	2	400	MTR1105100*J
100	63	15	14,5	32	0,8	2	400	MTR1105150*J
100	63	22	17,5	32	1	2	400	MTR1105220*J
100	63	33	21	32	1	2	400	MTR1105330*J
100	63	47	25	32	1	2	400	MTR1105470*J
100	63	47	21	44	1	1	200	MTR1105470*N
100	63	68	25,5	44	1	1	200	MTR1105680*N
100	63	100	30,5	44	1	1	200	MTR1106100*N
100	63	120	33,5	44	1	1	200	MTR1106120*N
250	160	0,22	6	13	0,6	20	10000	MTR1253220*B
250	160	0,33	7	13	0,6	20	10000	MTR1253330*B
250	160	0,47	8,5	13	0,8	20	10000	MTR1253470*B
250	160	0,47	6,5	19	0,6	12	6000	MTR1253470*D
250	160	0,68	7,5	19	0,8	12	6000	MTR1253680*D
250	160	1	9	19	0,8	12	6000	MTR1254100*D
250	160	1,5	11	19	0,8	12	6000	MTR1254150*D

[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)	µF	D	L	d	V/µs	$V^2/\mu s$	-
250	160	2,2	13	19	0,8	12	6000	MTR1254220*D
250	160	2,2	10,5	27	0,8	8	4000	MTR1254220*G
250	160	3,3	12,5	27	0,8	8	4000	MTR1254330*G
250	160	4,7	15	27	0,8	8	4000	MTR1254470*G
250	160	4,7	13	32	0,8	5	2500	MTR1254470*J
250	160	6,8	15,5	32	0,8	5	2500	MTR1254680*J
250	160	10	19	32	1	5	2500	MTR1255100*J
250	160	15	23	32	1	5	2500	MTR1255150*J
250	160	15	19,5	44	1	3,5	1750	MTR1255150*N
250	160	22	23	44	1	3,5	1750	MTR1255220*N
250	160	33	28,5	44	1	3,5	1750	MTR1255330*N
250	160	47	33,5	44	1	3,5	1750	MTR1255470*N
400	200	0,1	6	13	0,6	30	24000	MTR1403100*B
400	200	0,15	7	13	0,6	30	24000	MTR1403150*B
400	200	0,22	8,5	13	0,8	30	24000	MTR1403220*B
400	200	0,22	6,5	19	0,6	20	16000	MTR1403220*D
400	200	0,33	8	19	0,8	20	16000	MTR1403330*D
400	200	0,47	9,5	19	0,8	20	16000	MTR1403470*D
400	200	0,68	11,5	19	0,8	20	16000	MTR1403680*D
400	200	1	13	19	0,8	20	16000	MTR1404100*D
400	200	1	10,5	27	0,8	13	10400	MTR1404100*G
400	200	1,5	12,5	27	0,8	13	10400	MTR1404150*G
400	200	2,2	15	27	0,8	13	10400	MTR1404220*G
400	200	2,2	13,5	32	0,8	8,5	6800	MTR1404220*J
400	200	3,3	16	32	0,8	8,5	6800	MTR1404330*J
400	200	4,7	19,5	32	1	8,5	6800	MTR1404470*J
400	200	6,8	23,5	32	1	8,5	6800	MTR1404680*J
400	200	6,8	19,5	44	1	6	4800	MTR1404680*N
400	200	10	23,5	44	1	6	4800	MTR1405100*N
400	200	15	29	44	1	6	4800	MTR1405150*N
400	200	22	34,5	44	1	6	4800	MTR1405220*N
630	220 [2]	0,022	5,5	13	0,6	40	50400	MTR1632220*B
630	220 [2]	0,033	6	13	0,6	40	50400	MTR1632330*B
630	220 [2]	0,047	7	13	0,6	40	50400	MTR1632470*B
630	220 [2]	0,068	8,5	13	0,8	40	50400	MTR1632680*B
630	220 [2]	0,068	6,5	19	0,6	25	31500	MTR1632680*D
630	220 [2]	0,1	7,5	19	0,8	25	31500	MTR1633100*D
630	220 [2]	0,15	9	19	0,8	25	31500	MTR1633150*D
630	220 [2]	0,22	11	19	0,8	25	31500	MTR1633220*D
630	220 [2]	0,33	10,5	27	0,8	15	18900	MTR1633330*G
630	220 [2]	0,47	12	27	0,8	15	18900	MTR1633470*G
630	220 [2]	0,68	14,5	27	0,8	15	18900	MTR1633680*G
630	220 [2]	0,68	13	32	0,8	10	12600	MTR1633680*J
630	220 [2]	1	15,5	32	0,8	10	12600	MTR1634100*J
630	220 [2]	1,5	19	32	1	10	12600	MTR1634150*J
630	220 [2]	2,2	23	32	1	10	12600	MTR1634220*J
630	220 [2]	2,2	19	44	1	8	10080	MTR1634220*N
630	220 [2]	3,3	23	44	1	8	10080	MTR1634330*N
630	220 [2]	4,7	27,5	44	1	8	10080	MTR1634470*N
630	220 [2]	6,8	32,5	44	1	8	10080	MTR1634680*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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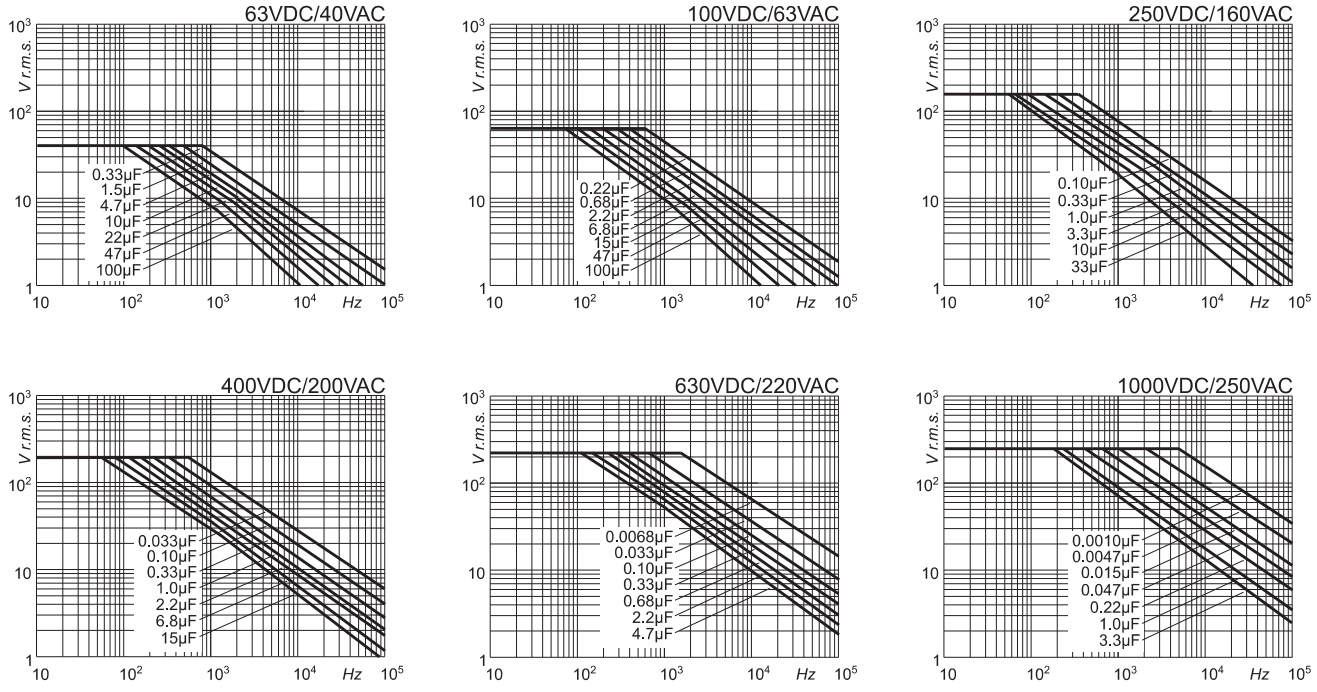
Voltage at +85°C		Cn	Dimensions (mm)			du/dt	K_0	ICEL CODE[1]
Ur (Vdc)	Urms (Vac)	µF	D	L	d	V/µs	V²/µs	-
1000	400 [2]	0,01	5,5	13	0,6	80	160000	MTR2102100*B
1000	400 [2]	0,015	6,5	13	0,6	80	160000	MTR2102150*B
1000	400 [2]	0,022	7	13	0,6	80	160000	MTR2102220*B
1000	400 [2]	0,033	8,5	13	0,8	80	160000	MTR2102330*B
1000	400 [2]	0,033	6,5	19	0,6	40	80000	MTR2102330*D
1000	400 [2]	0,047	7,5	19	0,8	40	80000	MTR2102470*D
1000	400 [2]	0,068	9	19	0,8	40	80000	MTR2102680*D
1000	400 [2]	0,1	11	19	0,8	40	80000	MTR2103100*D
1000	400 [2]	0,15	10	27	0,8	33	66000	MTR2103150*G
1000	400 [2]	0,22	12	27	0,8	33	66000	MTR2103220*G
1000	400 [2]	0,33	15	27	0,8	33	66000	MTR2103330*G
1000	400 [2]	0,33	13	32	0,8	20	40000	MTR2103330*J
1000	400 [2]	0,47	15	32	0,8	20	40000	MTR2103470*J
1000	400 [2]	0,68	18,5	32	1	20	40000	MTR2103680*J
1000	400 [2]	1	22	32	1	20	40000	MTR2104100*J
1000	400 [2]	1,5	22	44	1	15	30000	MTR2104150*N
1000	400 [2]	2,2	26,5	44	1	15	30000	MTR2104220*N
1000	400 [2]	3,3	32,5	44	1	15	30000	MTR2104330*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

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