

capacitors



MCO SERIES

METALLIZED POLYCARBONATE
WRAP & FILL TUBULAR CONFIGURATION

specifically designed for low-drift, tight tolerance applications

- AVAILABLE OFF-THE-SHELF
- 1% CAPACITOR TOLERANCE
- DUAL MOISTURE SEAL CONSTRUCTION
- SUPERIOR PROTECTION AGAINST HOSTILE ENVIRONMENTS
- MANUFACTURED TO MIL STANDARDS

The **MCO SERIES** is a new polycarbonate, film capacitor developed by Electronic Concepts to meet the ever changing, more demanding requirements of circuit designers. Although not called for, it is built to MIL-PRF-55514 to maximize reliability.

The **MCO SERIES** is specifically designed for low-drift, tight tolerance applications that require voltage to 400VDC, a continuous operating temperature to 125°C and capacitance tolerance as low as 1%. There is also a temperature coefficient of ± 100 ppm and a dissipation factor $< 0.3\%$.



Importantly, the **MCO SERIES** features a unique dual moisture seal construction (versus the single seal method of others). Dual sealing ensures greater overall electrical integrity with long term stability — and imparts the ability to accommodate adverse environments normally associated with the electronic industry.

With the introduction of the **MCO SERIES**, the designer can now build in more performance with greater reliability and operating protection. Plus overall system cost savings can often be realized.

Offers unmatched long term stability and operating reliability!

SAMPLES FOR EVALUATION AND TESTING AVAILABLE TO QUALIFIED OEMs

electronic concepts, inc.



specifications



Construction

Extended metallized Polycarbonate film (non-inductive).

Humidity Resistance

Will exceed requirements of MIL-STD-202, Method 103.

Reliability

Capacitors are tested 100% for:

- CAPACITANCE TOLERANCE
- DISSIPATION FACTOR
- DIELECTRIC WITHSTANDING VOLTAGE
- INSULATION RESISTANCE

Process and inspection data is maintained on file and is available on special request.

Capacitors can meet or exceed all requirements of MIL-PRF-55514.

See page four for electrical characteristics

Marking

All capacitors shall be marked with E.C. and/or E.C. trademarks, the type (MCO), capacitance, tolerance, the rated D.C. working voltage and date code.

Date Code

The first two digits represent the year, the second two digits represent the week, ie: 0152 is the 52nd week of 2001, 0208 is the 8th week of 2002.

Quality Assurance

Emphasis is placed on quality assurance. The areas of raw material inspection, manufacturing process inspection and final product inspection are under constant surveillance by our Quality Control Department. Complete quality control procedures are described in our quality control manual. E.C.I. will continue its progression by the use of advanced technology, ultra-miniature capacitor designs and established reliability programs.

In the construction of the components described, the full intent of the specification will be met. Electronic Concepts, Inc., however, reserves the right to make from time to time, such departures from the detail specifications as may be required to permit improvements in the design of its products. Components made under military approvals will be in accordance with the approval requirements.

The information included herein is believed to be accurate and reliable. However, Electronic Concepts, Inc. assumes no responsibility for its use; nor for any infringements of patents or other rights of third parties which may result from its use.

how to specify

MCO2 106

VOLTAGE

B = 50VDC

D = 100VDC

F = 200VDC

J = 400VDC

TOLERANCE

K = ±10%

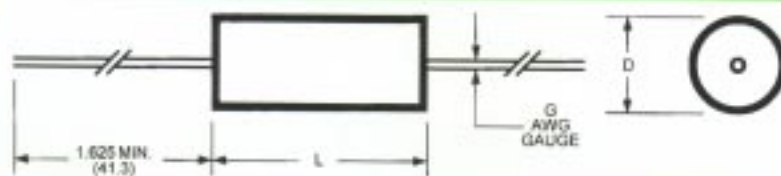
G = ±2%

J = ±5%

F = ±1%

dimensional data

EC Part No.	MFD	50VDC			100VDC			200VDC			400VDC		
		D	L	G	D	L	G	D	L	G	D	L	G
MC02-102	.0010	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24
MC02-122	.0012	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24
MC02-152	.0015	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24
MC02-182	.0018	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24
MC02-122	.0022	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24
MC02-272	.0027	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24
MC02-332	.0033	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24
MC02-392	.0039	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.160 (4.1)	.400 (10.2)	24
MC02-472	.0047	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.170 (4.3)	.400 (10.2)	24
MC02-562	.0056	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.530 (13.5)	24
MC02-682	.0068	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.530 (13.5)	24
MC02-822	.0082	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.530 (13.5)	24
MC02-103	.010	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.170 (4.3)	.530 (13.5)	24
MC02-123	.012	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.180 (4.6)	.530 (13.5)	24
MC02-153	.015	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.200 (5.1)	.530 (13.5)	24
MC02-183	.018	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.160 (4.1)	.400 (10.2)	24	.220 (5.6)	.530 (13.5)	24
MC02-223	.022	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.170 (4.3)	.400 (10.2)	24	.240 (6.1)	.530 (13.5)	24
MC02-273	.027	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.530 (13.5)	24	.270 (6.9)	.530 (13.5)	24
MC02-333	.033	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.530 (13.5)	24	.290 (7.4)	.530 (13.5)	24
MC02-393	.039	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.160 (4.1)	.530 (13.5)	24	.270 (6.9)	.680 (17.3)	24
MC02-473	.047	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.400 (10.2)	24	.180 (4.6)	.530 (13.5)	24	.300 (7.6)	.680 (17.3)	24
MC02-563	.056	.150 (3.8)	.400 (10.2)	24	.160 (4.1)	.400 (10.2)	24	.190 (4.8)	.530 (13.5)	24	.330 (8.4)	.680 (17.3)	24
MC02-683	.068	.150 (3.8)	.400 (10.2)	24	.180 (4.6)	.400 (10.2)	24	.210 (5.3)	.530 (13.5)	24	.320 (8.1)	.780 (19.8)	24
MC02-823	.082	.150 (3.8)	.400 (10.2)	24	.150 (3.8)	.530 (13.5)	24	.230 (5.8)	.530 (13.5)	24	.350 (8.9)	.780 (19.8)	22
MC02-104	.10	.150 (3.8)	.400 (10.2)	24	.160 (4.1)	.530 (13.5)	24	.250 (6.4)	.530 (13.5)	24	.380 (9.7)	.780 (19.8)	22
MC02-124	.12	.150 (3.8)	.400 (10.2)	24	.170 (4.3)	.530 (13.5)	24	.270 (6.9)	.530 (13.5)	24	.410 (10.4)	.780 (19.8)	22
MC02-154	.15	.160 (4.1)	.400 (10.2)	24	.190 (4.8)	.530 (13.5)	24	.310 (7.9)	.530 (13.5)	24	.400 (10.2)	.950 (24.1)	22
MC02-184	.18	.150 (3.8)	.530 (13.5)	24	.200 (5.1)	.530 (13.5)	24	.290 (7.4)	.680 (17.3)	24	.440 (11.2)	.950 (24.1)	22
MC02-224	.22	.150 (3.8)	.530 (13.5)	24	.220 (5.6)	.530 (13.5)	24	.320 (8.1)	.680 (17.3)	24	.410 (10.4)	1.170 (29.7)	22
MC02-274	.27	.160 (4.1)	.530 (13.5)	24	.240 (6.1)	.530 (13.5)	24	.320 (8.1)	.780 (19.8)	24	.450 (11.4)	1.170 (29.7)	20
MC02-334	.33	.180 (4.6)	.530 (13.5)	24	.260 (6.6)	.530 (13.5)	24	.350 (8.9)	.780 (19.8)	22	.500 (12.7)	1.170 (29.7)	20
MC02-394	.39	.190 (4.8)	.530 (13.5)	24	.290 (7.4)	.530 (13.5)	24	.380 (9.7)	.780 (19.8)	22	.540 (13.7)	1.170 (29.7)	20
MC02-474	.47	.200 (5.1)	.530 (13.5)	24	.260 (6.6)	.680 (17.3)	24	.410 (10.4)	.780 (19.8)	22	.590 (15.0)	1.170 (29.7)	20
MC02-564	.56	.220 (5.6)	.530 (13.5)	24	.290 (7.4)	.680 (17.3)	24	.390 (9.9)	.950 (24.1)	22	.640 (16.3)	1.170 (29.7)	20
MC02-684	.68	.240 (6.1)	.530 (13.5)	24	.290 (7.4)	.780 (19.8)	24	.360 (9.1)	1.170 (29.7)	22	.650 (16.5)	1.450 (36.8)	20
MC02-824	.82	.260 (6.6)	.530 (13.5)	24	.310 (7.9)	.780 (19.8)	24	.390 (9.9)	1.170 (29.7)	22	.630 (16.0)	1.700 (43.2)	20
MC02-105	1.0	.280 (7.1)	.530 (13.5)	24	.340 (8.6)	.780 (19.8)	24	.440 (11.2)	1.170 (29.7)	22	.660 (16.8)	1.900 (48.3)	20
MC02-125	1.2	.260 (6.6)	.680 (17.3)	24	.370 (9.4)	.780 (19.8)	22	.480 (12.2)	1.170 (29.7)	20	.720 (18.3)	1.900 (48.3)	20
MC02-155	1.5	.280 (7.1)	.680 (17.3)	24	.370 (9.4)	.950 (24.1)	22	.530 (13.5)	1.170 (29.7)	20	.800 (20.3)	1.900 (48.3)	20
MC02-185	1.8	.290 (7.4)	.780 (19.8)	24	.400 (10.2)	.950 (24.1)	22	.580 (14.7)	1.170 (29.7)	20	.870 (22.1)	1.900 (48.3)	20
MC02-205	2.0	.300 (7.6)	.780 (19.8)	24	.380 (9.7)	1.170 (29.7)	22	.610 (15.5)	1.170 (29.7)	20	.920 (23.4)	1.900 (48.3)	20
MC02-255	2.5	.340 (8.6)	.780 (19.8)	24	.420 (10.7)	1.170 (29.7)	22	.620 (15.7)	1.450 (36.8)	20			
MC02-305	3.0	.370 (9.4)	.780 (19.8)	22	.450 (11.4)	1.170 (29.7)	22	.610 (15.5)	1.700 (43.2)	20			
MC02-355	3.5	.400 (10.2)	.780 (19.8)	22	.480 (12.2)	1.170 (29.7)	20	.660 (16.8)	1.700 (43.2)	20			
MC02-405	4.0	.370 (9.4)	.950 (24.1)	22	.520 (13.2)	1.170 (29.7)	20	.660 (16.8)	1.900 (48.3)	20			
MC02-455	4.5	.390 (9.9)	.950 (24.1)	22	.550 (14.0)	1.170 (29.7)	20	.700 (17.8)	1.900 (48.3)	20			
MC02-505	5.0	.360 (9.1)	1.170 (29.7)	22	.580 (14.7)	1.170 (29.7)	20	.730 (18.5)	1.900 (48.3)	20			
MC02-605	6.0	.390 (9.9)	1.170 (29.7)	22	.620 (15.7)	1.170 (29.7)	20	.800 (20.3)	1.900 (48.3)	20			
MC02-805	8.0	.450 (11.4)	1.170 (29.7)	22	.630 (16.0)	1.450 (36.8)	20	.920 (23.4)	1.900 (48.3)	20			
MC02-106	10.0	.500 (12.7)	1.170 (29.7)	20	.640 (16.3)	1.700 (43.2)	20	1.020 (25.9)	1.900 (48.3)	20			
MC02-126	12.0	.540 (13.7)	1.170 (29.7)	20	.650 (16.5)	1.900 (48.3)	20						
MC02-156	15.0	.600 (15.2)	1.170 (29.7)	20	.720 (18.3)	1.900 (48.3)	20						
MC02-186	18.0	.580 (14.7)	1.450 (36.8)	20	.780 (19.8)	1.900 (48.3)	20						
MC02-206	20.0	.610 (15.5)	1.450 (36.8)	20	.820 (20.8)	1.900 (48.3)	20						



All dimensions are in inches
(metric in parenthesis)

Tolerance on L and D dimensions is ± 0.050 (1.3 mm)

performance CHARACTERISTICS

OPERATING TEMPERATURE RANGE

From -55°C to +125°C.

INSULATION RESISTANCE

When measured at the applicable temperature, and rated voltage, the insulation resistance shall equal or exceed the following values:

Temperature	25°C	85°C	125°C
Megohms X Microfarads	50,000	5,000	500
Insulation resistance in Megohms need not exceed:	100,000	50,000	5,000

DISSIPATION FACTOR

When measured at 1 kHz, the dissipation factor shall not exceed 0.3% from +25°C to +125°C.

CAPACITANCE CHANGE

The capacitance change vs. temperature for these capacitors shall not exceed the following:

Temperature Degrees C	-55	+25	+85	+125
Percent Change	-2.5	0	±1.0	±2.0

DIELECTRIC STRENGTH

Capacitors shall withstand a DC potential of 200% rated voltage for two (2) minutes without damage or breakdown. Test voltage must be applied and discharged through a resistance of 1 OHM per volt, minimum and at 25°C.

VOLTAGE RATING

DC working voltage ratings at +125°C, are 50VDC, 100VDC, 200VDC and 400VDC.

CAPACITANCE RANGE (See table)

Capacitance shall be measured at 25°C and at or referred to a frequency of 1 kHz.

CAPACITANCE TOLERANCE

Standard tolerance is: ±1%, ±2%, ±5%, ±10%

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New Jersey
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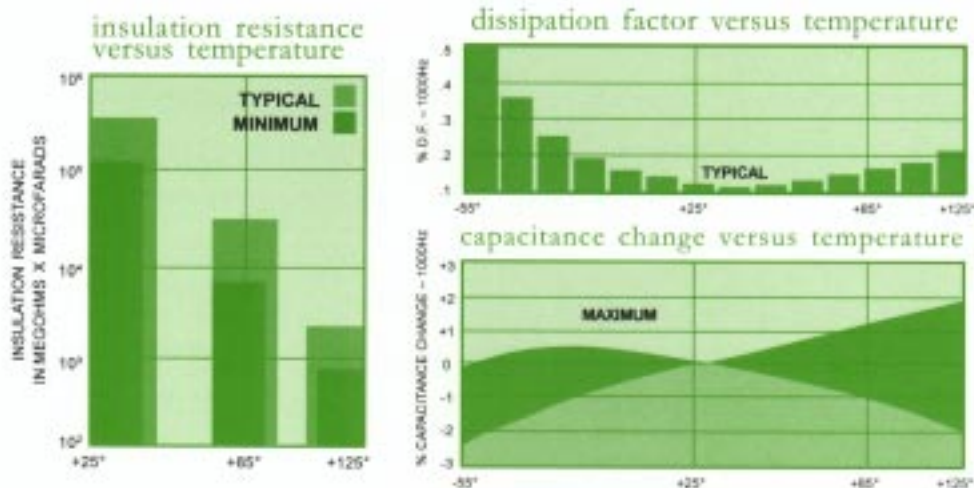
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electrical characteristics vs. temperature (centigrade)



electronic concepts, inc.



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