Capacitors

Metallized Polycarbonate Capacitors

Type MC12 Wrap and Fill Tubular Configuration

Type MC12 is a versatile metallized polycarbonate capacitor offered in a wrap and fill tubular configuration with axial leads, designed for the following typical applications:

- Analog circuits
- Timing circuits
- High frequency
- Filter networks

Outstanding features are:

- Small size
- Low temperature coefficient
- High insulation resistance
- Operating temperature range: -55 to +125°C
- Dissipation factor less than 0.3%
- Voltage range 30 to 400 V.D.C.
- Excellent retrace

electronic concepts, inc.

CAT. NO. L84-111 REV. 4
P/N 161011110

Specifications

Construction
Extended metallized polycarbonate film (non-inductive).

Life Test
All capacitors shall withstand a potential of 140% of rated voltage at +125°C between terminals for a minimum of 250 hours, with not more than one failure in each group of 18 tested. Failure is defined as a permanent short or open circuit.

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

Pull Test
Capacitors shall withstand a steady pull of 5 pounds applied axially to leads for ten seconds.

Lead Bending Test
Leads shall be bent without breakage about the point of egress from the capacitors first 90° in one direction, then back to the original position and then 90° in the opposite direction.

High Frequency Vibration
These capacitors will meet the 2000 cycle vibration test in accordance with method 204 of MIL-STD-202A, condition B. The vibration shall be for 4 hours in each of 2 directions, parallel and perpendicular to the major axis. Rated voltage shall be applied during measurement. A cathode ray oscilloscope or other comparable means shall be used as an indicating device in determining the electrical intermittency during test.

Capacitors shall be rigidly mounted by suitable mounting means other than the lead wires. It is recommended that capacitors of this type be encapsulated in epoxy blocks when subjected to this test.

As a result of the tests specified, there shall be no mechanical damage and the measurement shall show no evidence of intermittent contacts or open or short circuiting.

Lead Material
Copper-clad steel wire
Solder coated

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-C-55514.

See page 4 for Electrical Characteristics.

Marking
All capacitors shall be marked with E.C. and/or E.C. trademarks, the type (MC12), capacitance, tolerance, the rated D.C. working voltage and date code.

Date Code
The first two digits represents the year, the second two digits represents the week. ie: 8352 is the 52nd week of 1983. 8408 is the 8th week of 1984.

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, ultraminiature 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.

Catalog Numbering System

MC 12 B 106 K

METALLIZED POLYCARBONATE DIELECTRIC

STYLE
Wrap and Fill
Axial Leads

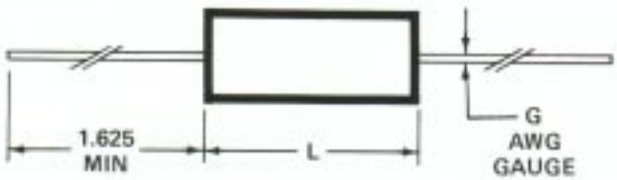
VOLTAGE
A – 30 vdc
B – 50 vdc
D – 100 vdc
F – 200 vdc
J – 400 vdc

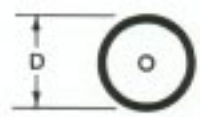
CAPACITANCE
Expressed in Picofarads, the first two digits are significant figures. The third is the number of zeros. (e.g., 106 equals 10,000,000 pF)

TOLERANCE
K = ±10% J = ±5%
G = ±2% F = ±1%

		30 VDC			50 VDC			100 VDC			200 VDC			400 VDC		
EC Part No.	MFD	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G
MC12-102-	.0010	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.400	24
MC12-122-	.0012	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.400	24
MC12-152-	.0015	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.400	24
MC12-182-	.0018	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.400	24
MC12-222-	.0022	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.400	24
MC12-272-	.0027	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.400	24
MC12-332-	.0033	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.400	24
MC12-392-	.0039	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.400	24
MC12-472-	.0047	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.160	.400	24
MC12-562-	.0056	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.170	.400	24
MC12-682-	.0068	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.530	24
MC12-822-	.0082	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.530	24
MC12-103-	.010	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.150	.530	24
MC12-123-	.012	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.170	.530	24
MC12-153-	.015	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.180	.530	24
MC12-183-	.018	—	—	—	.150	.400	24	.150	.400	24	.150	.400	24	.200	.530	24
MC12-223-	.022	—	—	—	.150	.400	24	.150	.400	24	.160	.400	24	.220	.530	24
MC12-273-	.027	—	—	—	.150	.400	24	.150	.400	24	.170	.400	24	.240	.530	24
MC12-333-	.033	—	—	—	.150	.400	24	.150	.400	24	.150	.530	24	.270	.530	24
MC12-393-	.039	—	—	—	.150	.400	24	.150	.400	24	.150	.530	24	.290	.530	24
MC12-473-	.047	—	—	—	.150	.400	24	.150	.400	24	.160	.530	24	.270	.680	24
MC12-563-	.056	—	—	—	.150	.400	24	.160	.400	24	.180	.530	24	.300	.680	24
MC12-683-	.068	—	—	—	.150	.400	24	.180	.400	24	.190	.530	24	.330	.680	24
MC12-823-	.082	—	—	—	.150	.400	24	.150	.530	24	.210	.530	24	.320	.780	24
MC12-104-	.10	—	—	—	.150	.400	24	.160	.530	24	.230	.530	24	.350	.780	22
MC12-124-	.12	—	—	—	.150	.400	24	.170	.530	24	.250	.530	24	.380	.780	22
MC12-154-	.15	—	—	—	.160	.400	24	.190	.530	24	.270	.530	24	.410	.780	22
MC12-184-	.18	—	—	—	.150	.530	24	.200	.530	24	.310	.530	24	.400	.950	22
MC12-224-	.22	—	—	—	.150	.530	24	.220	.530	24	.290	.680	24	.440	.950	22
MC12-274-	.27	—	—	—	.160	.530	24	.240	.530	24	.320	.680	24	.410	1.170	22
MC12-334-	.33	—	—	—	.180	.530	24	.260	.530	24	.320	.780	24	.450	1.170	20
MC12-394-	.39	—	—	—	.190	.530	24	.290	.530	24	.350	.780	22	.500	1.170	20
MC12-474-	.47	.200	.400	22	.200	.530	24	.260	.680	24	.380	.780	22	.540	1.170	20
MC12-564-	.56	.200	.400	22	.220	.530	24	.290	.680	24	.410	.780	22	.590	1.170	20
MC12-684-	.68	.230	.400	22	.240	.530	24	.290	.780	24	.390	.950	22	.640	1.170	20
MC12-824-	.82	.260	.400	22	.260	.530	24	.310	.780	24	.360	1.170	22	.650	1.450	20
MC12-105-	1.0	.280	.400	22	.280	.530	24	.340	.780	24	.390	1.170	22	.630	1.700	20
MC12-125-	1.2	.250	.500	22	.260	.680	24	.370	.780	22	.440	1.170	22	.660	1.900	20
MC12-155-	1.5	.280	.500	22	.280	.680	24	.370	.950	22	.480	1.170	20	.720	1.900	20
MC12-185-	1.8	.290	.531	22	.290	.780	24	.400	.950	22	.530	1.170	20	.800	1.900	20
MC12-205-	2.0	.300	.531	22	.300	.780	24	.380	1.170	22	.580	1.170	20	.870	1.900	20
MC12-255-	2.5	.320	.531	22	.340	.780	24	.420	1.170	22	.610	1.170	20	.920	1.900	20
MC12-305-	3.0	.350	.531	22	.370	.780	22	.450	1.170	22	.620	1.450	20			
MC12-355-	3.5	.380	.531	22	.400	.780	22	.480	1.170	20	.610	1.700	20			
MC12-405-	4.0	.350	.625	22	.370	.950	22	.520	1.170	20	.660	1.700	20			
MC12-455-	4.5	.360	.625	22	.390	.950	22	.550	1.170	20	.660	1.900	20			
MC12-505-	5.0	.360	.687	22	.360	1.170	22	.580	1.170	20	.700	1.900	20			
MC12-605-	6.0	.380	.687	22	.390	1.170	22	.620	1.170	20	.730	1.900	20			
MC12-805-	8.0	.450	.687	20	.450	1.170	22	.630	1.450	20	.800	1.900	20			
MC12-106-	10.0	.490	.687	20	.500	1.170	20	.640	1.700	20	.920	1.900	20			
MC12-126-	12.0	.470	.937	20	.540	1.170	20	.650	1.900	20	1.020	1.900	20			
MC12-156	15.0	.530	.937	20	.600	1.170	20	.720	1.900	20						
MC12-186-	18.0	.580	.937	20	.580	1.450	20	.780	1.900	20						
MC12-206-	20.0	.600	.937	20	.610	1.450	20	.820	1.900	20						

Dimensional Data





All dimensions are in inches
Tolerance on L and D dimensions is ±.050

Characteristics

OPERATING TEMPERATURE RANGE

-55°C + 125°C

INSULATION RESISTANCE

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

	25°C	85°C	125°C
Megohm x Microfarads	50,000	5,000	500
Except the 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, 30 VDC, 50 VDC, 100 VDC, 200 VDC and 400 VDC.

CAPACITANCE RANGE

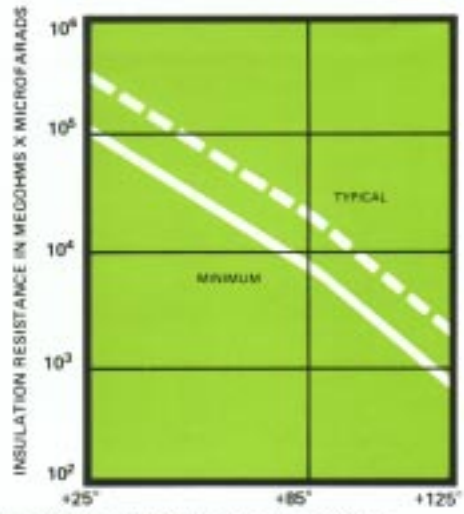
See Table

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

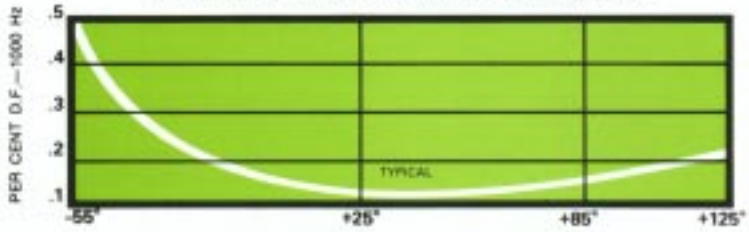
ELECTRICAL CHARACTERISTICS VS. TEMPERATURE

TEMPERATURE IN DEGREES CENTIGRADE

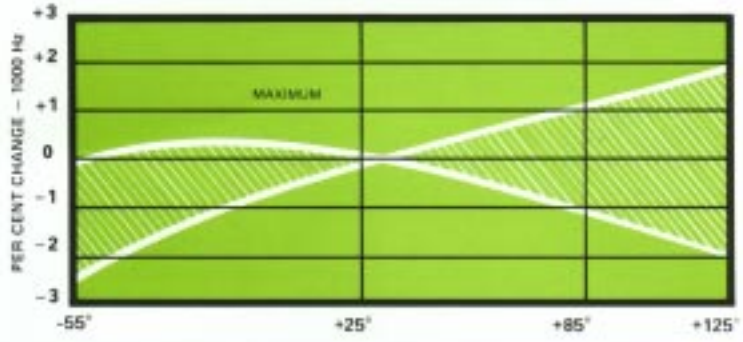
INSULATION RESISTANCE VS. TEMPERATURE



DISSIPATION FACTOR VERSUS TEMPERATURE



CAPACITANCE CHANGE VERSUS TEMPERATURE



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Printed in U.S.A.