



# Specifications

**INTERNAL CONSTRUCTION**  
Extended foil winding (non-inductive)

**ENCLOSURE**  
Mylar tape outerwrap

**TERMINAL STRENGTH**  
There shall be no mechanical damage to the capacitor or terminals when tested in accordance with paragraph 4.7.14 of MIL-C-55514.

**SOLDERABILITY**  
Capacitors shall be tested in accordance with method 208 of MIL-STD-202 and shall conform to the solid-wire termination criteria thereof.

- The following details shall apply:
- A. Number of terminations of each capacitor to be tested – 2.
  - B. Depth of immersion in flux and solder—both terminals shall be immersed to within 0.125 inch of the capacitor body.

**ENVIRONMENTAL**  
These capacitors shall meet or exceed the requirements of MIL-C-55514 for all the following:

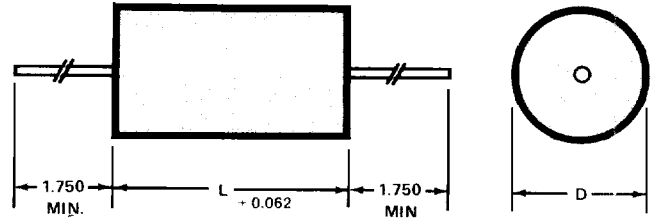
Vibration	(Para. 3.16)
Immersion	(Para. 3.21)
Shock	(Para. 3.17)
Moisture Resistance	(Para. 3.22)
Life	(Para. 3.23)

Electronic Concepts, Inc. is qualified as a supplier for the MIL versions CFR13 and CFR14 capacitors. These capacitors are manufactured to meet the requirements of MIL-C-55514/9. MIL designations are shown in the table at right. The last two characters of the MIL designations (CFR13ALB106K) specify capacitance tolerance and failure rate respectively (CFR13ALB106KM).

Capacitance tolerance: M = 20%, K = 10% and J = 5%.

Failure rate level: M, P, R or S.

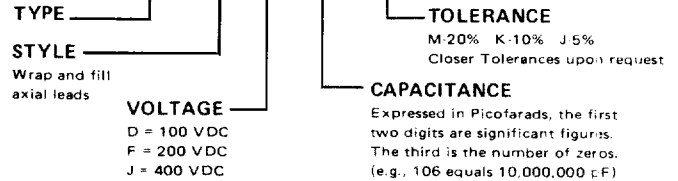
## EC Type 5MP12 Military Style CFR13



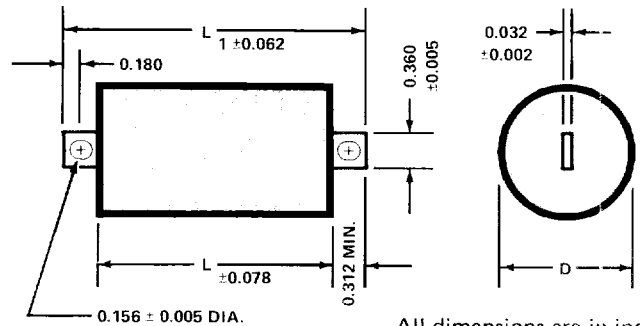
All dimensions are in inches.

### Catalog Numbering System

**5MP 12 D 106 K**



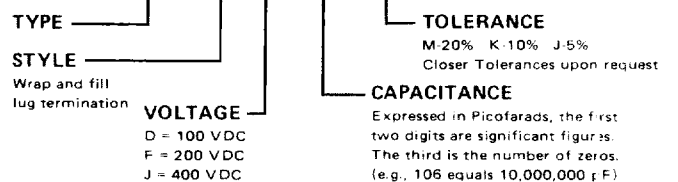
## EC Type 5MP16 Military Style CFR14



All dimensions are in inches.

### Catalog Numbering System

**5MP 16 D 106 K**



100 VDC

200 VDC

400 VDC

100 VDC

200 VDC

400 VDC

Commercial EC Part Number	Equivalent Military Designation	Capacitance nominal in MFD	D Diameter	L Length	Lead Dia.	ESR Ohms 20-100 kHz Max	Maximum ripple current (AMPS RMS) 20-100 kHz case temperature							Resonant Frequency in kHz	I PEAK	DVDT
							+25°C	+35°C	+45°C	+55°C	+65°C	+75°C	+85°C			
5MP12D105-	CFR13ALB105-	1.0	.469 ± .062	.750	.032	.015	9.2	8.5	7.8	7.0	6.0	4.9	4.5	1065	407	407
5MP12D205-	CFR13ALB205-	2.0	.534 ± .062	.938	.032	.012	10.8	10.0	9.1	8.2	7.0	5.8	5.3	703	528	264
5MP12D305-	CFR13ALB305-	3.0	.624 ± .093	.938	.040	.011	12.1	11.2	10.3	9.2	8.0	6.5	5.9	574	790	263
5MP12D505-	CFR13ALB505-	5.0	.640 ± .093	1.250	.040	.010	13.8	12.7	11.6	10.4	9.0	7.4	6.7	385	828	166
5MP12D106-	CFR13ALB106-	10.0	.805 ± .093	1.500	.040	.009	15.0	15.0	14.2	12.7	11.0	9.0	8.2	248	1280	128
5MP12D206-	CFR13ALB206-	20.0	.875 ± .125	2.250	.040	.008	15.0	15.0	15.0	15.0	13.6	11.1	10.0	141	1517	76
5MP12D306-	CFR13ALB306-	30.0	1.075 ± .125	2.250	.040	.006	15.0	15.0	15.0	15.0	15.0	12.4	11.4	115	2277	76
5MP12D506-	CFR13ALB506- (Not available)	50.0	1.375 ± .125	2.250	.040	.004	15.0	15.0	15.0	15.0	15.0	13.6	12.4	89	3795	76
5MP12F105-	CFR13ALC105-	1.0	.450 ± .062	1.250	.032	.020	7.3	7.3	7.3	7.3	7.2	5.9	5.4	861	250	250
5MP12F205-	CFR13ALC205-	2.0	.605 ± .093	1.250	.032	.015	12.0	12.0	11.3	10.1	8.7	7.1	6.5	609	498	249
5MP12F305-	CFR13ALC305-	3.0	.654 ± .093	1.500	.040	.013	15.0	13.8	12.6	11.3	9.8	8.0	7.3	452	576	192
5MP12F505-	CFR13ALC505-	5.0	.769 ± .093	1.750	.040	.011	15.0	15.0	14.7	13.1	11.4	9.3	8.5	323	782	156
5MP12F106-	CFR13ALC106-	10.0	.905 ± .125	2.250	.040	.009	15.0	15.0	15.0	15.0	13.8	11.3	10.3	200	1139	114
5MP12F206-	CFR13ALC206-	20.0	1.315 ± .125	2.250	.040	.006	15.0	15.0	15.0	15.0	15.0	14.1	12.8	141	2277	114
5MP12J105-	CFR13ALE105-	1.0	.620 ± .093	1.500	.040	.019	9.5	9.5	9.5	9.5	9.5	7.8	7.1	784	319	319
5MP12J205-	CFR13ALE205-	2.0	.802 ± .093	1.750	.040	.015	15.0	15.0	15.0	13.4	11.6	9.5	8.7	511	521	260
5MP12J305-	CFR13ALE305-	3.0	.961 ± .125	1.750	.040	.012	15.0	15.0	15.0	15.0	13.1	10.7	9.8	417	781	260
5MP12J505-	CFR13ALE505-	5.0	1.067 ± .125	2.250	.040	.010	15.0	15.0	15.0	15.0	15.0	12.5	11.4	283	950	190
5MP12J106-	CFR13ALE106-	10.0	1.543 ± .125	2.250	.040	.006	15.0	15.0	15.0	15.0	15.0	15.0	14.1	200	1898	190

Commercial EC Part Number	Equivalent Military Designation	Capacitance nominal in MFD	D Diameter	L Length	L <sub>1</sub>	ESR Ohms 20-100 kHz Max	Maximum ripple current (AMPS RMS) 20-100 kHz case temperature							Resonant Frequency in kHz	I PEAK	DVDT
							+25°C	+35°C	+45°C	+55°C	+65°C	+75°C	+85°C			
5MP16D105-	CFR14LLB105-	1.0	.469 ± .062	.922	1.640	.015	10.3	9.5	8.7	7.8	6.7	5.5	5.0	949	407	407
5MP16D205-	CFR14LLB205-	2.0	.534 ± .062	1.110	1.828	.012	12.0	11.0	10.0	8.9	7.8	6.3	5.8	617	528	264
5MP16D305-	CFR14LLB305-	3.0	.624 ± .093	1.110	1.828	.011	13.3	12.3	11.2	10.0	8.7	7.1	6.5	504	790	263
5MP16D505-	CFR14LLB505-	5.0	.640 ± .093	1.422	2.140	.010	14.8	13.7	12.5	11.2	9.7	7.9	7.2	347	828	166
5MP16D106-	CFR14LLB106-	10.0	.805 ± .093	1.672	2.390	.009	17.8	16.5	15.0	13.5	11.7	9.5	8.7	227	1280	128
5MP16D206-	CFR14LLB206-	20.0	.875 ± .125	2.422	3.140	.008	21.6	20.0	18.3	16.4	14.2	11.6	10.6	133	1517	76
5MP16D306-	CFR14LLB306-	30.0	1.075 ± .125	2.422	3.140	.006	24.3	22.5	20.5	18.4	15.9	13.0	11.9	108	2277	76
5MP16D506-	CFR14LLB506- (Not available)	50.0	1.375 ± .125	2.422	3.140	.004	29.6	27.3	25.5	23.6	20.6	20.0	19.7	84	3795	76
5MP16F105-	CFR14LLC105-	1.0	.450 ± .062	1.422	2.140	.020	7.3	7.3	7.3	7.3	7.3	6.4	5.8	776	250	250
5MP16F205-	CFR14LLC205-	2.0	.605 ± .093	1.422	2.140	.015	14.3	13.3	12.1	10.8	9.4	7.7	7.0	548	498	249
5MP16F305-	CFR14LLC305-	3.0	.654 ± .093	1.672	2.390	.013	15.9	14.7	13.5	12.0	10.4	8.5	7.8	414	576	192
5MP16F505-	CFR14LLC505-	5.0	.769 ± .093	1.922	2.640	.011	18.3	17.0	15.5	13.9	12.0	9.8	8.9	299	782	156
5MP16F106-	CFR14LLC106-	10.0	.905 ± .125	2.422	3.140	.009	22.4	20.7	18.9	16.9	14.6	12.0	10.9	188	1139	114
5MP16F206-	CFR14LLC206-	20.0	1.315 ± .125	2.422	3.140	.006	27.4	25.4	23.2	20.7	17.9	14.7	13.4	133	2277	114
5MP16J105-	CFR14LLE105-	1.0	.620 ± .093	1.672	2.390	.019	9.5	9.5	9.5	9.5	9.5	8.3	7.5	716	319	319
5MP16J205-	CFR14LLE205-	2.0	.802 ± .093	1.922	2.640	.015	15.0	15.0	15.0	14.2	12.3	10.0	9.1	472	521	260
5MP16J305-	CFR14LLE305-	3.0	.961 ± .125	1.922	2.640	.012	21.1	19.5	17.8	15.9	13.8	11.3	10.3	386	781	260
5MP16J505-	CFR14LLE505-	5.0	1.067 ± .125	2.422	3.140	.010	24.4	22.6	20.6	18.5	16.0	13.1	11.9	265	950	190
5MP16J106-	CFR14LLE106-	10.0	1.543 ± .125	2.422	3.140	.006	30.0	27.8	25.4	22.7	19.7	16.1	14.7	188	1898	190

# Characteristics

## OPERATING TEMPERATURE RANGE

-55°C to +105°C without derating.

## INSULATION RESISTANCE

When measured at the applicable test temperature, and rated voltage, after 2 minutes electrification, the insulation resistance shall equal or exceed the following values:

Megohm X	+25°C	+85°C	+105°C
Microfarads	300,000	30,000	3,000

Except the Insulation resistance in megohms need not exceed

500,000	50,000	5,000
---------	--------	-------

## DISSIPATION FACTOR

When measured at the frequency specified for capacitance measurement, the dissipation factor shall not exceed 0.1%.

## CAPACITANCE CHANGE

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

Temperature Degrees C.	-55	+25	+105
Percent Change	+2.0	0	-4.0
Typical	+1.6	0	-2.2

## DIELECTRIC STRENGTH

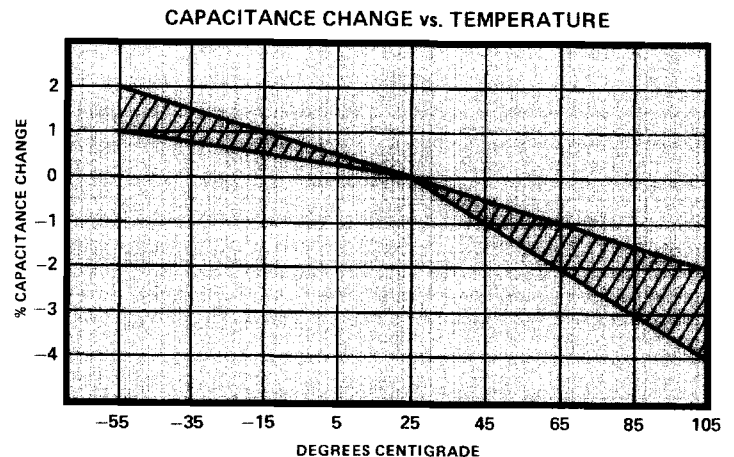
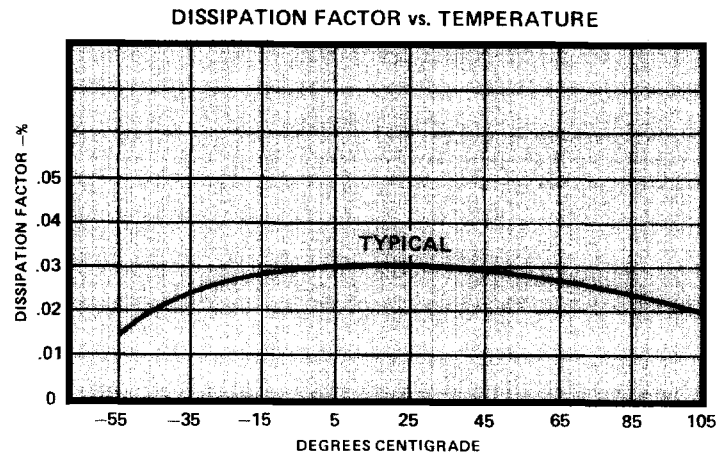
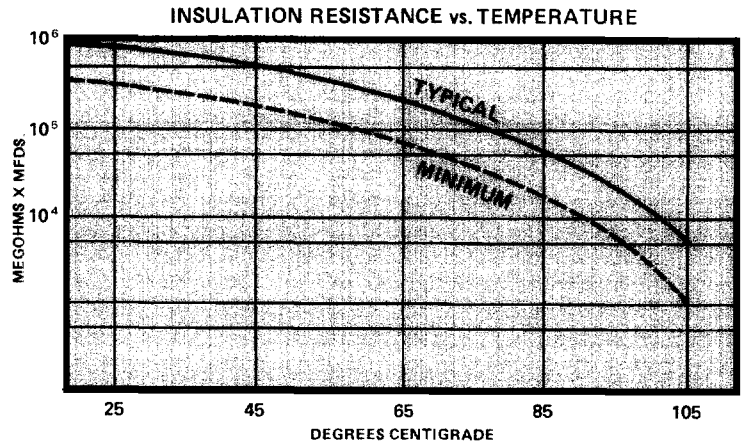
Capacitors shall withstand a DC potential of twice rated voltage for one minute through a limiting resistance of 100 ohms/volt without damage or breakdown.

## CAPACITANCE TOLERANCE

Standard tolerance is  $\pm 10\%$ . Tolerances of  $\pm 20\%$  and  $\pm 5\%$  are available.

**NOTE:** Capacitance shall be measured at 25°C, and at or referred to a frequency of 1 KHZ for all values.

## ELECTRICAL CHARACTERISTICS VS TEMPERATURE



## FOR ADDITIONAL INFORMATION, PLEASE CONTACT ONE OF OUR REGIONAL OFFICES

### United States

**Eastern**  
New Jersey  
732-542-7880  
**Central**  
Illinois  
630-668-8747  
**Western**  
California  
805-582-9501

### Europe

**Ireland**  
Electronic Concepts, Ltd.  
I.D.A. Estate  
Oughterard,  
Co. Galway, Ireland  
Tel: (91)-552432, 552385  
Fax: (91)-552387  
E-MAIL: ecicaps@iol.ie

### Middle East

**Israel**  
Elind, Ltd.  
P.O. Box 1615  
Even-Yehuda 40500, Israel  
Tel: 972-9899-1838  
Fax: 972-9899-1822

### US National Distribution Center

**Elcon Sales**  
470 Clifton Ave.  
Clifton, New Jersey 07011  
Tel: 973-546-5022  
Fax: 973-546-5523

### Headquarters

**Electronic Concepts, Inc.**  
P.O. Box 1278  
Eatontown, New Jersey  
07724  
Tel: 732-542-7880  
Fax: 732-542-0524  
sales@eci-capacitors.com  
http://www.eci-capacitors.com

ELECTRONIC CONCEPTS.®

