Electronic Concepts
Film Capacitor Innovation Without Limits

5MC SERIES

Metallized Polycarbonate

Miniature Metallized Polycarbonate Switch-Mode Power Supply Capacitors

Most capacitor ratings and styles are approved to MIL-C-55514/11, styles CFR26 & CFR27; and MIL-C-55514/12, style CFR29.

FEATURES
- Miniature configuration
- Low ESR
- Excellent Ripple Capability
- High Resonant Frequency

STANDARD CONFIGURATION
- 5MC22 /axial lead termination
- 5MC26 /tab terminations/low profile
- 5MC27 /tab terminations/high profile
- 5MC28 /internal coaxial leads
- 5MC29 /internal coaxial leads with grounded copper shielding

Specification Summary

Capacitance Range
1.0µF to 50.0µF

Capacitance Tolerance
M=±20%, K=±10%, J=±5%. Closer tolerances available on request.

Operating Temperature Range
-55°C to +125°C

Enclosure/ Construction
Mylar tape outer wrap with specially formulated, conductive epoxy end fill to maximize heat exchange.

Voltage Rating
DC working voltage ratings at +85°C, 50VDC, 75VDC and 100 VDC. Voltage derating of 1.25% per degree C is necessary to +125°C.

Quality Control
Capacitors are tested 100% for:
o Capacitance
o Tolerance
o Dissipation Factor
o Dielectric withstanding Voltage
o Insulation Resistance
o Equivalent Series Resistance

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

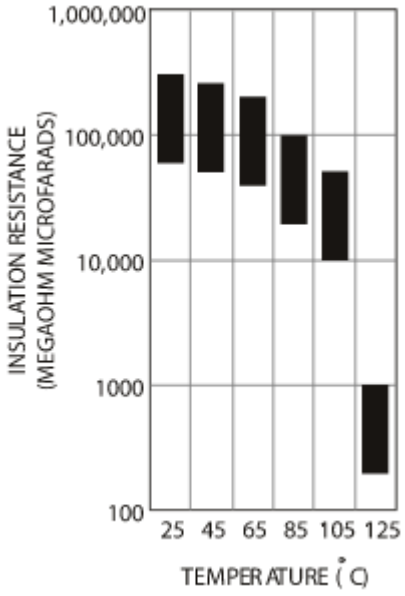
Environmental

Parameter	Method	Condition
Vibration	204	D
Immersion	104	B
Shock	213	I
Humidity	103	B
Thermal Shock	107	A
Life	108	F
Reference MIL-STD-202		

Characteristics

Insulation Resistance

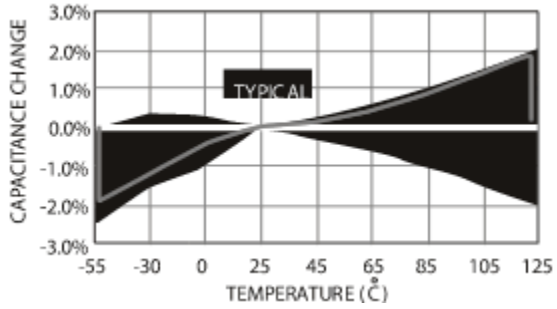
Temperature(°C)	25	85	125	
Megohmsx Microfarads	50,000	5,000	500	
Insulation Resistance				



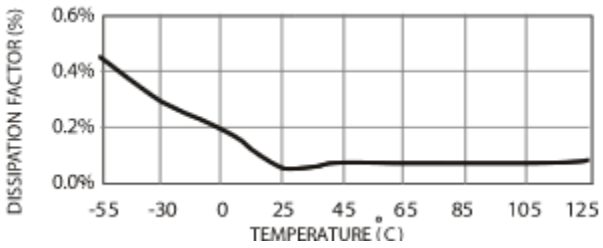
Dielectric Strength
Capacitors withstand a DC potential of 150% rated voltage for two (2) minutes without damage or breakdown. Test voltage is applied and discharged through a resistance of 1 OHM per volt minimum, and at 25°C.

Capacitance Change

Temperature(°C)	-55	25	85	125
PercentageChange (typical)	-2.5%	0%	±1.0%	±2.0%
CapacitanceChange				



Dissipation Factor
When measured at 1000 Hz, the dissipation factor will not exceed 0.3% from +25°C to +125°C.



Electronic Concepts

DIMENSIONAL DATA

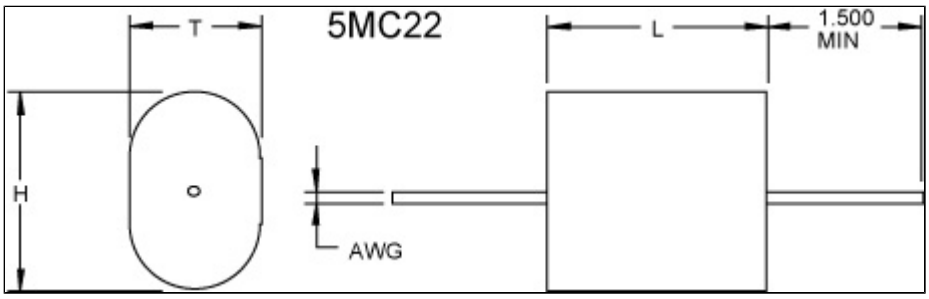
CAPACITANCE IN MFD		AXIAL LEADS 5MC22				LOW PROFILE 5MC26			HIGH PROFILE 5MC27			COAXIAL LEADS 5MC28 - 5MC29		
		T	W	L	LEADS AWG	T	H	L	T	H	L	T	W	L
50 VDC	1	0.250	0.343	0.687	20	-	-	-	-	-	-	-	-	-
	3	0.406	0.593	0.687	16	-	-	-	-	-	-	-	-	-
	5	0.406	0.593	0.812	16	-	-	-	-	-	-	-	-	-
	10	0.562	0.812	0.812	16	0.812	0.562	0.750	0.562	0.812	0.750	0.562	0.862	0.750
	20	0.718	0.968	0.937	16	0.968	0.718	0.875	0.718	0.968	0.875	0.718	0.968	0.875
	50	1.000	1.375	1.062	16	1.375	1.000	1.000	1.000	1.375	1.000	1.000	1.375	1.000
75 VDC	1	0.281	0.375	0.812	20	-	-	-	-	-	-	-	-	-
	3	0.468	0.718	0.812	16	-	-	-	-	-	-	0.468	0.718	0.750
	5	0.500	0.750	0.937	16	-	-	-	0.500	0.750	0.875	0.500	0.750	0.875
	10	0.718	1.031	0.937	16	1.031	0.718	0.875	0.718	1.031	0.875	0.718	1.031	0.875
	20	0.937	1.312	1.062	16	1.312	0.937	1.000	0.937	1.312	1.000	0.937	1.312	1.000
	50	1.312	1.687	1.312	16	1.687	1.312	1.250	1.312	1.687	1.250	1.312	1.687	1.250
100 VDC	1	0.281	0.375	0.937	20	-	-	-	-	-	-	-	-	-
	3	0.437	0.750	0.937	16	-	-	-	-	-	-	0.437	0.750	0.875
	5	0.593	0.906	0.937	16	0.906	0.593	0.875	0.593	0.906	0.875	0.593	0.906	0.875
	10	0.781	1.093	1.062	16	1.093	0.781	1.000	0.781	1.093	1.000	0.781	1.093	1.000
	20	0.906	1.281	1.312	16	1.281	0.906	1.250	0.906	1.281	1.250	0.906	1.281	1.250
	50	1.437	1.812	1.437	16	1.812	1.437	1.375	1.437	1.812	1.375	1.437	1.812	1.375

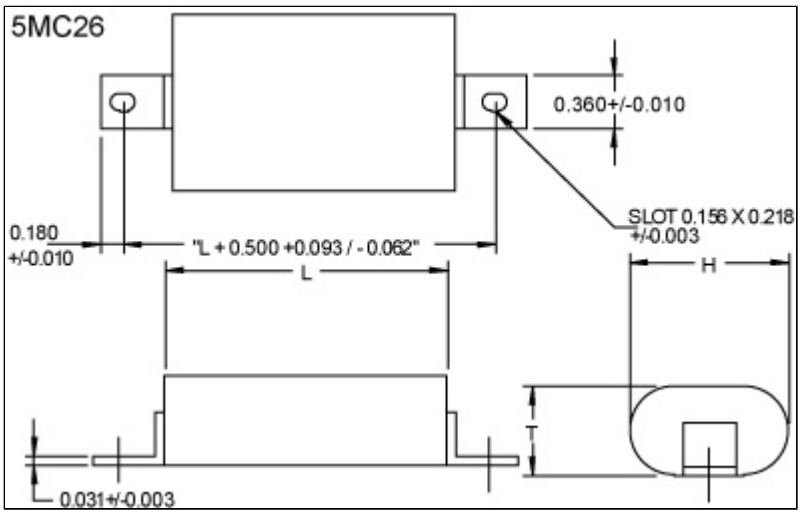
CAPACITANCE IN MFD		ESR mOHMS 100kHz	Maximum Ripple Current in AMPS 20kHz to 100kHz					I PEAK	DV / DT	Resonant Frequency kHz 5MC22 5MC26 5MC27	Resonant Frequency kHz 5MC28 5MC29
			Case Temperatures								
			25°C	50°C	85°C	105°C	125°C				
50 VDC	1	18	7.8	5.1	4.0	1.9	1.0	383	383	890	-
	3	15	9.8	6.4	4.8	2.3	1.2	1148	383	550	-
	5	13	10.6	6.9	5.1	2.8	1.3	1221	244	375	-
	10	11	12.6	8.2	5.9	3.1	1.4	2441	244	265	318
	20	10	14.8	9.6	6.8	3.3	1.8	3583	179	178	214
	50	6	23.5	14.9	10.7	4.4	2.1	7067	141	108	130
75 VDC	1	19	7.9	5.1	3.8	1.9	1.0	575	575	840	-
	3	15	10.3	6.7	4.9	2.5	1.2	1098	366	560	672
	5	13	11.6	7.5	5.6	2.8	1.4	1343	269	356	427
	10	12	13.5	8.8	6.5	3.2	1.6	2686	269	251	301
	20	11	16.5	10.7	7.9	4.0	2.0	4243	212	171	205
	50	6	24.2	15.7	11.6	4.6	2.2	7462	149	100	120
100 VDC	1	20	8.0	5.2	3.8	1.9	1.0	671	671	780	-
	3	15	10.6	6.9	5.1	2.5	1.3	941	314	570	684
	5	13	12.4	8.1	6.0	3.0	1.5	1567	313	356	427
	10	12	14.6	9.5	7.0	3.5	1.8	2208	221	242	290
	20	11	17.1	11.1	8.2	4.1	2.1	3483	174	160	192
	50	6	23.6	15.3	11.3	4.5	2.2	7584	152	96	115

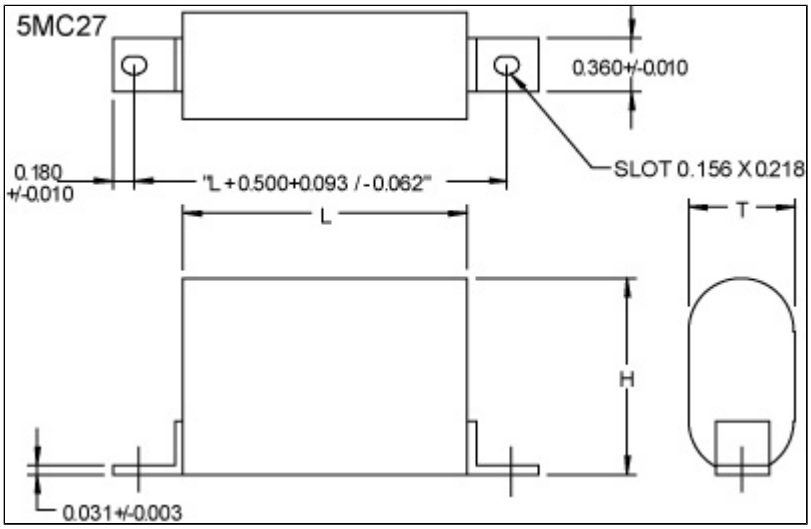
Electronic Concepts

Rev. 2

MECHANICAL DATA

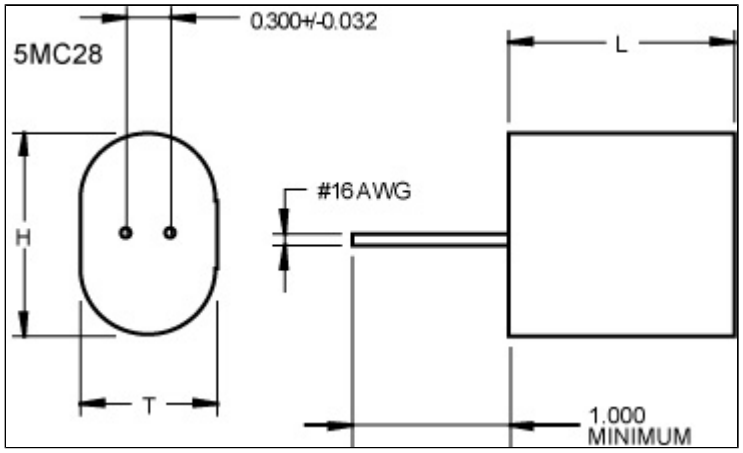


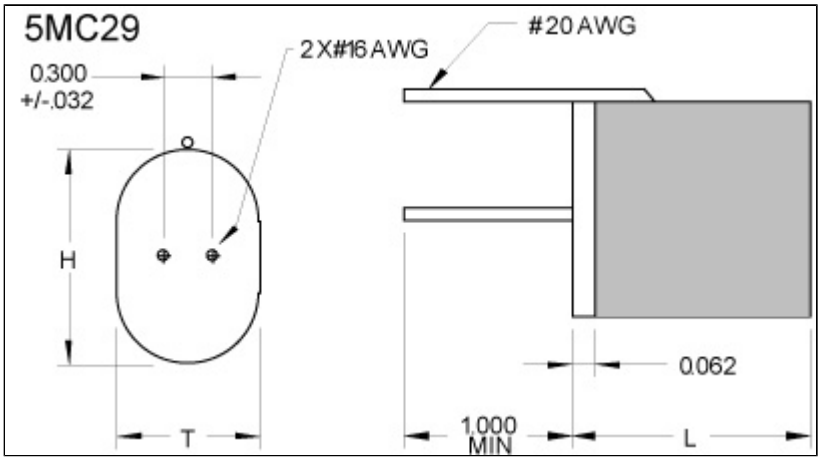




Electronic Concepts

Rev. 2





Electronic Concepts

ADDITIONAL INFORMATION

The type 5MC is a new miniature polycarbonate film capacitor that is designed specifically for switch-mode power converters. It is the first of a series developed by Electronic Concepts for switch-mode applications that offers a miniature configuration to conserve printed circuit board space, with low ESR, excellent ripple capacity, and high resonant frequency.

HOW TO ORDER

TYPE Metallized Polycarbonate	5MC
STYLE / VOLTAGE Radial leaded tabs--low profile / B=50VDC; C=75VDC; etc.	26 B
CAPACITANCE IN PICOFARADS The first two digits are significant, the third represents the number of zeros (e.g. 106=10,000,000 pF)	106
TOLERANCE M=±20% K=±10% J=±5% (Closer tolerances available on request)	K

Marking And Date Code
All capacitors are marked with company initials "EC", corporate logo or EC trademark—in addition to type 5MC, capacitance, tolerance, rated DC working voltage and date code. The first two digits of the date code represent the year, the second two digits the week, i.e., 0952 is the 52nd week of 2009, 0902 is the second week of 2009.

Quality Assurance
Major emphasis is placed on quality assurance. EC is an ISO 9001-2000 and AS9100:2004 Certified Company. Raw material inspection and the use of SPC manufacturing procedures assure the highest quality standards. Procedures are fully described in the EC Quality Control Manual. Electronic Concepts will continue to advance the state-of-the-art by utilizing leading edge technology, compact capacitor designs and establishing reliability procedures.

Sales Offices

United States

Eastern:
Headquarters
P.O. Box 1278
Eatontown,NJ 07724
Tel: 732-542-7880
Fax: 732-542-0524

Central:
Illinois 630-668-8747

email: sales@ecicaps.com
website:www.ecicaps.com

Europe

Ireland
Electronic ConceptsEurope LTD
IDA Estate, Oughterad
Co. Galway, Ireland
Tel: +353-91-552385,552432
Fax: +353-91-552387
email: sales@ecicaps.ie
website:www.electronicconcepts.ie

Electronic Concepts