TYPE CMP HIGH VOLTAGE FILTER CAPACITORS

GENERAL DESCRIPTION

TYPE CMP CAPACITORS offer superior electrical characteristics coupled with small size. They are designed to meet or exceed the requirements of MIL-C-19978/3E.

TYPE CMP CAPACITORS are designed for wide range of uses including filter, spark suppression, bypass, coupling applications (in the low audio frequency range), energy storage, laser discharge, power factor correction, etc. The CQ72-style case and internal construction permit operation in any position. Glazed ceramic bushings are used, and the threaded stud terminal is supplied with a nut, lock washer and/or solder lug. The entire assembly is hermetical sealed.

SPECIFICATIONS

TEMPERATURE RANGE: -55 TO + 85 °C.

CAPACITANCE: 0.001 uF. To 100 uF.

RATED VOLTAGE: 600 VDC to 50,000 VDC

TOLERANCE: ±10% standard.

IMPREGNATION: Type CMP capacitors are impregnated and filled with silicone oil and hermetically sealed.

CASE: Tern Plate Steel.

FINISH: Military Gray Synthetic Enamel.

TERMINAL: All metallized hermetic terminals are used to insure perfect seals. Terminals meet L5 requirements of MIL-I-10 specifications. For voltages > 30kV, a single bushing with a threaded ground stud is employed to assure safety and stability.

DIELECTRIC: Polyester Resin film and the finest grade Kraft Paper impregnated with silicone oil.

BRACKETS: Footed Mounting Brackets are available and are not included with the capacitor.

MOUNTING POSITION: All type CMP capacitors will operate satisfactorily mounted in any position.

TEST VOLTAGE: For capacitors rated ≤20kV, 200% rated voltage applied terminal-to-terminal for one minute at room temperature. For rated voltages between 20 kV and 50 kV, 150% rated voltage for two minutes at room temperature. For terminal to case, rating is same above plus 1 kV. Test voltage shall be applied and discharged through a resistance of at least 1 Ω/rated volt to maximum of 5 kΩ.

FLASHOVER: For rated voltages ≤5kV, capacitor terminal will with stand 125 %rated voltage at a pressure of 12 kPa, (1.7 psia or 0.12 bar), equivalent to 50,000 feet altitude. For rated voltage of ≥6 kV, terminals will with stand 125% rated voltage at a pressure of 68kPa (10 psia), equivalent to 10,000 feet altitude.

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APPLICATION NOTES

SIZE: The case sizes listed below are not necessarily the smallest possible for a given capacitor. If a custom size and shape are required by your application, CCC will be pleased to work with you to optimize to your needs. CCC stocks a wide range of can sizes in several styles. If the revised design employs a stock can, no cost penalty should be incurred. If a custom can is required, cost depends heavily on quantity.

IMPREGNANT: CMP capacitors are premium products impregnated with silicone dielectric fluid, which is about ten times more expensive than high grade mineral oil. The use of mineral oil in CMP designs results in substantial cost reductions, at the expense of operating temperature range and flammability. Should your design allow the use of mineral oil impregnated, CCC will be pleased to quote on mineral oil impregnated design.

CONTAINER: At the highest voltages, the large ceramic terminals required become a substantial portion of material costs. Capacitor cost can be reduced by either specifying only one terminal (with the other grounded to the case) or one terminal rated for the full voltage with the other rated for a much lower voltage (for example, when one terminal will be connected to neutral). While CMP capacitors can be fabricated to any voltage level, above 50kV, CCC's BAM capacitors tend to be much more cost effective. These capacitors are fabricated in an insulating tubular container with the terminal at each end. The case, therefore, becomes the insulation between the terminals. For further detail, see CCC's BAM catalog.

WINDING DESIGN: Capacitors can be constructed in a range of winding designs (e.g., extended foil, tab constructions, etc.) and can be fabricated from a wide range of dielectric materials including polypropylene, polyester ("Mylar"), polycarbonate, etc. with varying layers and configurations of paper. Each combination of construction and material has its advantages and disadvantages. Your successful application of any high technology capacitor depends on matching the capacitor design to your requirements. Using its computerized design programs, CCC will work with you to determine your requirements and customize the design gives the greatest current carrying capability and lowest ESR at the expense of a somewhat higher inductance than can be achieved with tab design. The inductance and ESR in tab designs depends on the number of tabs. Increasing the number of tabs in a winding increases the time required in manufacture, and, therefore, the cost to the customer. Mylar is a good general-purpose dielectric with a relatively high dielectric constant which results in a smaller capacitor than polypropylene; however, polypropylene has much better high frequency characteristics. The proper use of fluid-impregnated paper layers is important in capacitors which see frequent and wide swings in voltage (ac, pulse discharge, etc.), as it provides a medium with greater tolerance to electron injection in highly stressed regions of the capacitor.

Chicago Condenser Corporation Manufactures a wide variety of impregnated plastic film and paper dielectric capacitors in many styles, including metal cans, non-conducting cases, "wrap-and-fill" with axial leads, and capacitor bypass feedthroughs. Some MIL Spec product lines (e.g., CP53 "bathtubs" and CQ72) are available. During our sixty years in business, we count many of the world's largest corporations among our customers in the fields of lasers, military electronics, scientific apparatus, etc. While CCC has standard product line, such as that represented in this catalog, it manufactures essentially all products to order, typically with eight to ten weeks delivery. As a result of this semi-custom manufacture, product characteristics can be customized through alterations in winding type, winding materials, etc. to optimize the product for the user's application. For this reason, CCC maintains expert engineering staff ready to help customers determine their needs. The brief applications information on the next page introduces some of the relevant criteria.

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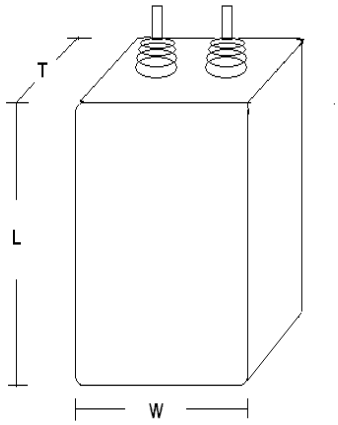

Inches

Part Number	Volt	uF	W	T	L
CMP-104-6C	600	0.1	1.75	1	2.13
CMP-254-6C	600	0.25	1.75	1	2.13
CMP-504-6C	600	0.5	1.75	1	2.13
CMP-105-6C	600	1	1.75	1	2.13
CMP-205-6C	600	2	1.75	1	3.25
CMP-405-6C	600	4	1.75	1	4.75
CMP-605-6C	600	6	2.5	1.19	4.5
CMP-805-6C	600	8	2.5	1.19	5.5
CMP-106-6C	600	10	3.75	1.25	4.5
CMP-126-6C	600	12	3.75	1.25	4.75
CMP-156-6C	600	15	3.75	1.25	4.75
CMP-206-6C	600	20	3.75	1.75	4.75
CMP-256-6C	600	25	3.75	2.25	5.75
CMP-306-6C	600	30	3.75	3.19	4.75
CMP-104-1M	1,000	0.1	1.75	1	2.13
CMP-254-1M	1,000	0.25	1.75	1	2.13
CMP-504-1M	1,000	0.5	1.75	1	2.13
CMP-105-lM	1,000	1	1.75	1	2.13
CMP-205-1M	1,000	2	1.75	1	3.5
CMP-405-1M	1,000	4	2.5	1.19	3.75
CMP-605-1M	1,000	6	2.5	1.19	4.75
CMP-805-1M	1,000	8	2.5	1.19	4.75
CMP-106-1M	1,000	10	3.75	1.25	4.5
CMP-126-1M	1,000	12	3.75	1.75	4.75
CMP-156-lM	1,000	15	3.75	1.75	4.75
CMP-206-1M	1,000	20	3.75	2.25	4.75
CMP-256-1M	1,000	25	3.75	2.25	6.25
CMP-306-1M	1,000	30	4.57	3.75	4
CMP-104-2M	2,000	0.1	1.75	1	2.13
CMP-254-2M	2,000	0.25	1.75	1	2.13
CMP-504-2M	2,000	0.5	1.75	1	2.13
CMP-105-2M	2,000	1	2.5	1.19	3.5
CMP-205-2M	2,000	2	2.5	1.19	3.5
CMP-405-2M	2,000	4	2.5	1.19	4.75
CMP-605-2M	2,000	6	3.75	1.25	4.75
CMP-805-2M	2,000	8	3.75	1.75	4.75
CMP-106-2M	2,000	10	3.75	2.5	5.25
CMP-126-2M	2,000	12	3.75	2.25	4.75
CMP-156-2M	2,000	15	3.75	2.25	6
CMP-206-2M	2,000	20	3.75	3.19	5.75
CMP-256-2M	2,000	25	4.57	3.75	5.5
CMP-306-2M	2,000	30	4.57	3.75	5.75

Part Number	Volt	uF	W	T	L
CMP-104-3M	3,000	0.1	1.75	1	2.13
CMP-254-3M	3,000	0.25	2.5	1.19	2.5
CMP-504-3M	3,000	0.5	1.75	1	3.25
CMP-105-3M	3,000	1	1.75	1	4.75
CMP-205-3M	3,000	2	3.75	1.25	4.25
CMP-405-3M	3,0003	4	3.75	2.25	4.25
CMP-605-3M	,000	6	3.75	1.75	4.75
CMP-805-3M	3,000	8	437	3.75	4.75
CMP-106-3M	3,000	10	4.57	3.75	5
CMP-126-3M	3,000	12	3.75	3.19	6.75
CMP-156-3M	3,000	15	4.57	3.75	6
CMP-206-3M	3,000	20	4.57	3.75	10
CMP-256-3M	3,000	25	8	4	9.25
CMP-306-3M	3,000	30	8	4	9.25
CMP-503-4M	4,000	0.05	1.75	1	2.13
CMP-104-4M	4,000	0.1	1.75	1	2.13
CMP-254-4M	4,000	0.25	1.75	1	2.25
CMP-504-4M	4,000	0.5	1.75	1	4
CMP-105-4M	4,000	1	2.5	1.19	4
CMP-205-4M	4,000	2	3.75	1.25	4.75
CMP-405-4M	4,000	4	3.75	2.25	4.75
CMP-605-4M	4,000	6	3.75	2.25	6.5
CMP-805-4M	4,000	8	3.75	3.19	6
CMP-106-4M	4,000	10	4.57	3.75	5.5
CMP-126-4M	4,000	12	4.57	3.75	6.5
CMP-156-4M	4,000	15	4.57	3.75	8.5
CMP-206-4M	4,000	20	4.57	3.75	10.5
CMP-256-4M	4,000	25	8	4	11
CMP-306-4M	4,000	30	13.5	4.13	7
CMP-503-5M	5,000	0.05	1.75	1	2.13
CMP-l04-5M	5,000	0.1	1.75	1	2.13
CMP-254-5M	5,000	0.25	1.75	1	3
CMP-504-5M	5,000	0.5	1.75	1	4.75
CMP-105-5M	5,000	1	2.5	1.19	4.75
CMP-205-5M	5,000	2	3.75	2.25	4.75
CMP-405-5M	5,000	4	4.57	3.75	3.75
CMP-60-5M	5,000	6	4.57	3.75	4.75
CMP-805-5M	5,000	8	4.57	3.75	6.25
CMP-106-5M	5,000	10	4.57	3.75	7.5
CMP-126-5M	5,000	12	4.57	3.75	9.5
CMP-156-5M	5,000	15	8	4	9.25
CMP-206-5M	5,000	20	8	4	11
CMP-256-5M	5,000	25	13.5	4.13	9.25
CMP-306-5M	5,000	30	13.5	4.13	9.25
CMP-104-6M	6,000	0.1	3.75	1.25	2.25
CMP-254-6M	6,000	0.25	3.75	1.25	2.5
CMP-504-6M	6,000	0.5	3.75	1.25	3.75
CMP-105-6M	6,000	1	3.75	1.75	4.5
CMP-205-6M	6,000	2	3.75	2.25	5.75
CMP-405-6M	6,000	4	4.57	3.75	6
CMP-605-6M	6,000	6	4.57	3.75	8.25
CMP-805-6M	6,000	8	4.57	3.75	10.25
CMP-106-6M	6,000	10	8	4	9.25
CMP-126-6M	6,000	12	8	4	11
CMP-156-6M	6,000	15	13.5	4.13	7
CMP-206-6M	6,000	20	13.5	4.13	9.25
CMP-256-6M	6,000	25	13.5	4.13	11
CMP-306-6M	6,000	30	13.5	5	12.875
CMP-104-8M	8,000	0.1	2.5	1.19	3
CMP-254-8M	8,000	0.25	2.5	1.19	4.75

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Part Number	Volt	uF	W	T	L
CMP-504-8M	8,000	0.5	3.75	2.25	4
CMP-105-8M	8,000	1	3.75	2.25	4.75
CMP-205-8M	8,000	2	3.75	3.19	6.875
CMP-405-8M	8,000	4	4.57	3.75	9
CMP-605-8M	8,000	6	8	4	11
CMP-805-8M	8,000	8	13.5	4.13	9
CMP-l06-8M	8,000	10	13.5	4.13	9.25
CMP-126-8M	8,000	12	13.5	4.13	9.25
CMP-156-8M	8,000	15	13.5	4.13	13.13
CMP-206-8M	8,000	20	13.5	5.13	12.875
CMP-104-10M	10,000	0.1	3.75	1.75	3.25
CMP-254-10M	10,000	0.25	3.75	1.75	4
CMP-504-10M	10,000	0.5	3.75	1.75	4.75
CMP-105-10M	10,000	1	3.75	2.25	7.25
CMP-205-10M	10,000	2	4.57	3.75	6.5
CMP-405-10M	10,000	4	8	4	9.25
CMP-605-10M	10,000	6	13.5	4.13	7
CMP-805-10M	10,000	8	13.5	4.13	9.25
CMP-106-10M	10,000	10	13.5	4.13	11
CMP-126-10M	10,000	12	13.5	4.13	13.13
CMP-156-10M	10,000	15	13.5	5.13	12.875
CMP-503-12.5M	12.500	0.05	3.75	1.75	3
CMP-104-12.5M	12.500	0.1	3.75	1.75	3.625
CMP-254-12.5M	12.500	0.25	3.75	1.75	4.75
CMP-504-12.5M	12.500	0.5	3.75	3.19	4.625
CMP-105-12.5M	12.500	1	4.57	3.75	5.5
CMP-205-12.5M	12.500	2	4.57	3.75	10
CMP-405-12.5M	12.500	4	13.5	4.13	9.25
CMP-605-12.5M	12.500	6	13.5	4.13	11
CMP-805-12.5M	12.500	8	13.5	5.13	12.875
CMP-106-12.5M	12.500	10	13.5	5.13	13.75
CMP-103-15M	15,000	.01	3.75	1.75	3.25
CMP-203-15M	15,000	0.02	3.75	1.75	31

Part Number	Volt	uF	W	T	L
CMP-503-15M	15,000	0.05	3.75	1.75	3.5
CMP-104-15M	15,000	0.1	3.75	1.75	3.75
CMP-254-15M	15,000	015	3.75	3.19	5
CMP-504-15M	15,000	0.5	3.75	3.19	6.5
CMP-105-15M	15,000	1	4.57	3.75	8
CMP-205-15M	15,000	2	8	4	11
CMP-405-15M	15,000	4	13.5	4.13	11
CMP-103-20M	20,000	0.01	3.75	2.25	3.25
CMP-203-20M	20,000	0.02	3.75	215	315
CMP-503-20M	20,000	0.05	3.75	215	3.75
CMP-104-20M	20,000	0.1	3.75	2.25	3.75
CMP-254-20M	20,000	015	3.75	3.19	6
CMP-504-20M	20,000	0.5	4.57	3.75	6
CMP-105-20M	20,000	1	8	4	815
CMP-205-20M	20,000	2	13.5	4.13	9.5
CMP-103-25M*	25,000	0.01	3.75	3.19	3.5
CMP-203-25M*	25,000	0.02	3.75	3.19	3.5
CMP-503-25M*	25,000	0.05	3.75	3.19	4
CMP-104-25M*	25,000	0.1	3.75	3.19	4.75
CMP-254-25M*	25,000	0.25	4.57	3.75	6.5
CMP-504-25M*	25,000	0.5	4.57	3.75	10.5
CMP-105-25M	25,000	1	8	4	8
CMP-103-30M*	30,000	0.01	3.75	3.19	2.5
CMP-203-30M*	30,000	0.02	3.75	3.19	2.5
CMP-503-30M*	30,000	0.05	3.75	3.19	4.5
CMP-104-30M*	30,000	0.1	4.57	3.75	4
CMP-254-30M*	30,000	0.25	4.57	3.75	7.5
CMP-504-30M	30,000	0.5	13.5	4.13	7
CMP-105-30M	30,000	1	13.5	4.13	13.13
CMP-502-40M*	40,000	0.005	4.57	3.75	5
CMP-103-40M*	40,000	0.01	4.57	3.75	5
CMP-203-40M*	40,000	0.02	4.57	3.75	5
CMP-503-40M*	40,000	0.05	4.57	3.75	5.5
CMP-104-40M*	40,000	0.1	4.57	3-.75	9
CMP-254-40M	40,000	0.25	13.5	4.13	9.25
CMP-504-40M	40,000	0.5	13.5	5.13	12.875
CMP-203-50M*	50,000	0.02	4.57	3.75	7.5
CMP-503-50M*	50,000	0.05	4.57	3.75	9.5
CMP-104-50M	50,000	0.1	8	4	9.25
CMP-254-50M	50,000	0.25	13.5	4.13	13.75
CMP-504-50M	50,000	0.5	13.5	5.13	

WARNING: HIGH VOLTAGE

Many of the products in this catalog can store lethal voltages and energies. Utmost care should be exercised in the use of these products to assure that voltage or power source is disconnected and that the capacitor is discharged, grounded, and shorted before servicing equipment into which a capacitor has been installed. Installation should comply with all federal, state, and local electrical code requirements.

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