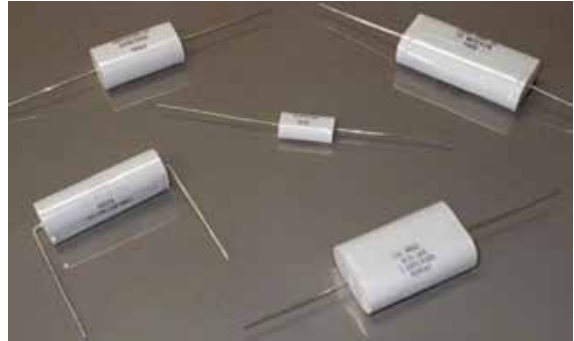


Type 461M

Metallized Polyester Film Capacitors

Type 461M Axial Lead Pressed/Oval Profile Metallized Polyester Film Capacitors



Specifications

Capacitance Range:

0.027 to 100.0 μF

Capacitance Tolerance:

+5% and +10%, standard
(other tolerances available
upon request)

Voltage Ratings:

63 to 400 VDC

Operating Temperature:

Units may be operated at full-rated
voltage from -55°C to $+85^{\circ}\text{C}$.

Voltage De-rating above $+85^{\circ}\text{C}$:

Units may be operated up to a
maximum of 125°C provided the
voltage is de-rated linearly to 50%
of rated voltage of $+125^{\circ}\text{C}$.

Dissipation Factor:

1.0% maximum @ 1 KHz, $+25^{\circ}\text{C}$

Insulation Resistance:

At $+25^{\circ}\text{C}$: 10,000 $\text{M}\Omega$ for $C \leq 1.0 \mu\text{F}$
10,000 $\text{M}\Omega\text{-}\mu\text{F}$ for $C > 1.0 \mu\text{F}$
At $+85^{\circ}\text{C}$: 1,000 $\text{M}\Omega$ for $C \leq 1.0 \mu\text{F}$
1,000 $\text{M}\Omega\text{-}\mu\text{F}$ for $C > 1.0 \mu\text{F}$

Encapsulation:

Wrapped with flame retardant polyester
tape (meets UL510 specifications) and
potted with flame retardant epoxy (meets
UL94V-0 specifications).

Lead Wire:

Tinned copper-clad steel for wire sizes:
0.020 (0.5) diameter (#24 AWG)
0.025 (0.6) diameter (#22 AWG)
0.032 (0.8) diameter (#20 AWG)

Tinned copper for wire sizes:
0.040 (1.0) diameter (#18 AWG)

Dielectric/Construction:

Metallized polyester film, single section
design. Non-inductively wound.

In addition to the information provided here, CDE also offers complete design and manufacturing of specific capacitance values, custom form factors, special lead terminations, etc.

Dimensions are in inches, millimeters are in parenthesis.

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General Specifications

The 461M series is designed and manufactured for use in many demanding applications. They are non-inductively wound using the most reliable metallized polyester film available today. A wide range of capacitance values, voltage ratings, lead terminations and sizes offer the designer an array of options to best meet the form, fit and function requirements specified.

Operating Temperature Range:

Standard operating temperature range is -55°C to $+85^{\circ}\text{C}$. Units may be operated at the full rated voltage within this temperature range.

The 461M series may be operated up to a maximum temperature of $+125^{\circ}\text{C}$, however the voltage must be linearly de-rated to 50% of the full rated voltage at $+125^{\circ}\text{C}$.

Dielectric Withstanding Voltage:

Units shall withstand a DC potential of 150% of rated voltage applied between terminals for not more than 2 minutes.

Lead Bend Test:

After 3 consecutive 180° bends. No damage.

Lead Pull Test:

5 pounds (2.3 Kg) for one minute on lead axis. No damage.

Humidity Testing:

Units subjected to 95% relative humidity for 250 hours with no voltage applied at $+40^{\circ}\text{C}$. After 4 hours of drying, minimum product of insulation resistance and capacitance shall be $5,000 \text{ M}\Omega\text{-}\mu\text{F}$, but need not exceed $5,000 \text{ M}\Omega$.

DC Voltage Life Test:

500 hours at $+85^{\circ}\text{C}$ at 125% of rated voltage. After test; capacitance shall not have changed by more than $\pm 10\%$ of initial value, insulation resistance shall not have decreased by more than 50% of initial value and dissipation factor shall not have increased to more than 1.25%. In addition, there shall be no open or short circuits, and no sign of visible damage.

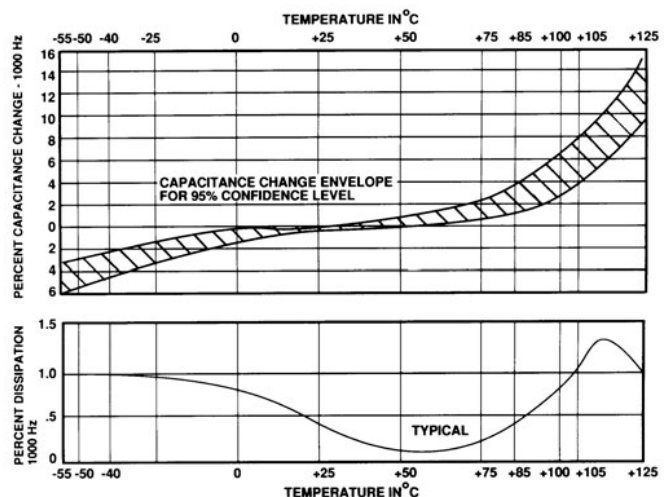
Dielectric Material/Construction:

The 461M series is manufactured using metallized polyester film as the dielectric. The capacitor element is non-inductively wound in a single section design.

Metallized polyester film utilizes a base film of polyester with a thin layer of aluminum vacuum deposited directly on the film as the electrode.

Metallized film exhibits a characteristic called “self-healing” or “self-clearing”, which is the ability to remove a fault or short circuit in the dielectric film by vaporizing (from high current density) the metallization near the defect. The metallization is so thin that negligible film damage occurs during the clearing process. The vaporized metal oxidizes over time, aiding in the isolation of a fault area.

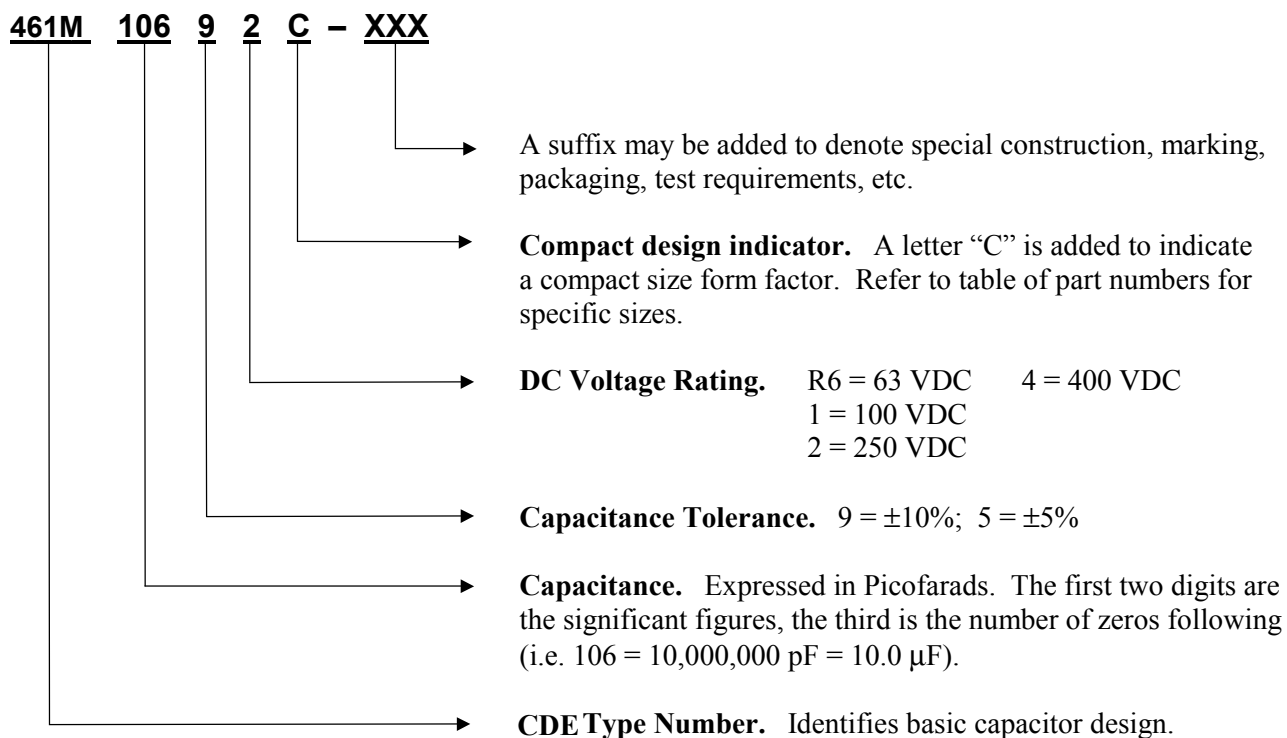
Typical Temperature Characteristics:



Type 461M

Metallized Polyester Film Capacitors

Ordering/Part Number Information



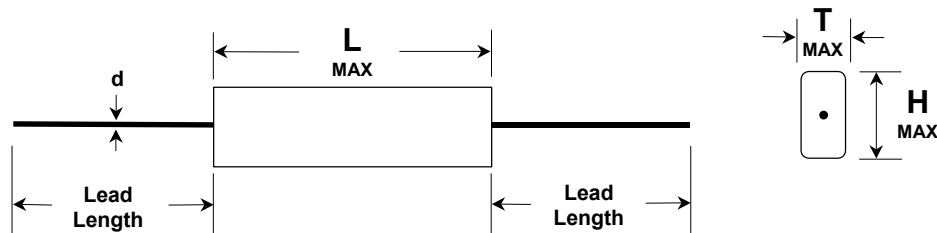
Standard Marking Format

Sample Marking on unit	Description	Tolerance codes per EIA standards
CDE 461M(C)	CDE - CDE Identification	
106K 250V	461M - Type Number. 460MC indicates compact design.	J $\pm 5\%$
0824	250V - DC Voltage Rating	K $\pm 10\%$
	106K - Capacitance and Tolerance Code	
	0824 - Weekly Date Code (i.e. 24th week of 2008)	

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Dimension Outline



Lead Length Table

L MAX dimension	Lead Length (Typical)
0.61 (15.5)	2.00 (50.8)
0.79 (20.1)	1.90 (48.3)
0.99 (25.1)	1.80 (45.7)
1.25 (31.8)	1.65 (41.9)
1.50 (38.1)	1.50 (38.1)
1.74 (44.2)	1.40 (35.6)
2.21 (56.1)	1.25 (31.8)

In all cases a MINIMUM lead length of 1.25 (31.8) will be met.

Lead Wire Size and Additional Termination Options

Standard lead wire sizes used in manufacturing range from 0.020 (0.5) diameter (#24 AWG) to 0.040 (1.0) diameter (#18 AWG). We can also provide a variety of other wire sizes and material (i.e. heavier gauges, insulated wire, tinned copper in smaller gauges, etc.). If the wire size or material listed on our standard items doesn't meet your requirements please contact us. We can accommodate your needs. We can also provide lug/tab terminations upon request. Please contact us with your specific requirements.

