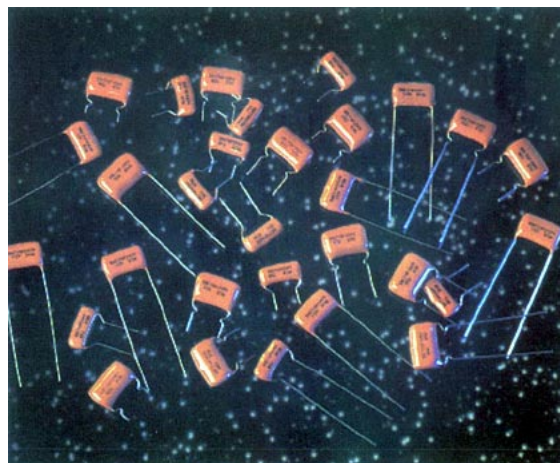


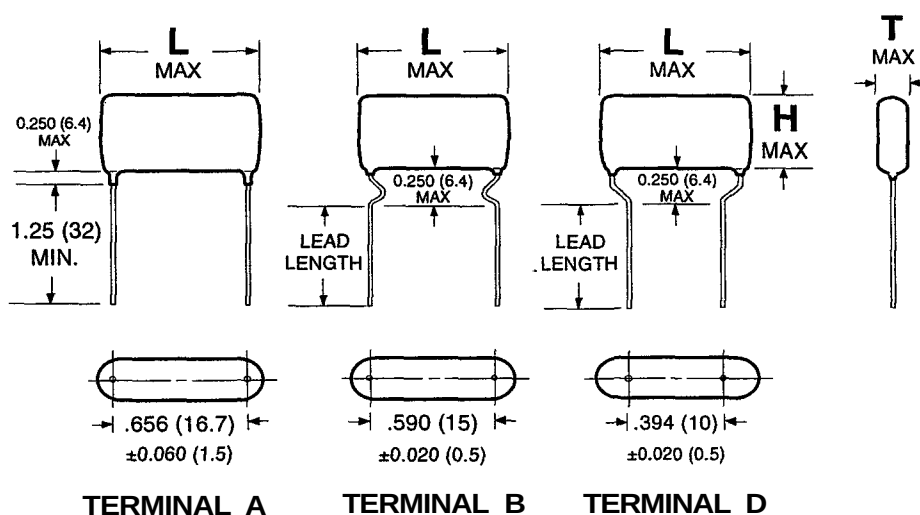
# Type 716P HV, Orange Drop<sup>®</sup>, Polypropylene Film/Foil Capacitors

High Performance

**Type 716P Orange Drop<sup>®</sup>**  
**High Voltage, Compact Design**  
**High Performance**  
**Polypropylene Film/Foil**  
**Capacitors**



## Standard Lead Styles/Lead Spacings



## Additional Specifications

### Lead Wire:

Tinned Copper; #20 AWG, .032 (0.8)

### Construction/Dielectric:

Non-inductively wound with extended foil. Series-section design with polypropylene film; utilizes a floating common of metallized polypropylene, which provides self-healing characteristics.

### Maximum Dissipation Factor (%):

|           | @20KHz | @100KHz |
|-----------|--------|---------|
| 1000VDC:  | .032   | .054    |
| 2000 VDC: | .029   | .040    |

### Corona Start Voltage (typical):

1000VDC: 600 Volts RMS  
2000 VDC: 650 Volts RMS

Dimensions in inches, metric (mm) in parenthesis.

# Type 716P HV, Orange Drop,<sup>®</sup> Polypropylene Film/Foil Capacitors

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High Performance

## General Specifications

The 715P and 716P series are manufactured with polypropylene film and extended foil. Polypropylene has a very low dissipation factor, low dielectric absorption and exhibits excellent capacitance stability. These characteristics combined with the direct connection of the lead wire to the extended foil electrode makes the 715P and 716P series ideal for high current, high pulse applications.

The 715P series has a round profile and is available in tolerances as close as  $\pm 1\%$ . The 716P series has a pressed profile and, in addition, is designed with copper leads, thus adding to its performance in high frequency, high pulse current applications.

Other specifications are listed below and on the following pages.

### **Operating Temperature Range:**

The standard operating temperature range for polypropylene film is  $-55^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ . The 715P and 716P may be operated up to  $+105^{\circ}\text{C}$  provided the DC working voltage is reduced by 50%.

For specific derating of the AC voltage when operating above  $+85^{\circ}\text{C}$  please contact our design engineering department.

The maximum operating temperature for 715P and 716P polypropylene film capacitors is  $+105^{\circ}\text{C}$ .

### **Dielectric Withstanding Voltage:**

Units rated below 800 VDC shall withstand a DC potential of 250% of rated voltage applied between terminals for not more than 5 seconds; units rated 800 VDC and above shall withstand 200% of rated voltage.

### **Construction:**

Units rated 100 through 600 VDC are single section designs constructed of plain polypropylene film with extended foil. Units rated 800 VDC and above are series-section designs with extended foil and incorporate a floating common of metallized polypropylene. All units are non-inductively wound.

### **Temperature Coefficient:**

The typical temperature coefficient is  $-180 \text{ ppm}/^{\circ}\text{C}$  over the temperature range of  $-55^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .

### **Humidity Testing:**

Units subjected to 95% relative humidity for 72 hours with no voltage applied at  $+75^{\circ}\text{C}$ . After 4 hours of drying minimum product of insulation resistance and capacitance shall be 50,000 megohm-microfarads.

### **DC Voltage Life Test:**

Minimum of 500 hours at  $+85^{\circ}\text{C}$  at 150% of rated voltage. After test, capacitance shall not have changed by more than 3%, insulation resistance shall not have decreased by more than 25% and dissipation factor shall not have changed by more than 0.03%. Measurements made at 1 KHz.

### **AC Voltage Life Test:**

Minimum of 500 hours at  $+85^{\circ}\text{C}$  at 60 Hz. AC test voltage applied at 110% of AC rating. After test, capacitance shall not have changed by more than 3%, insulation resistance shall not have decreased by more than 25%, and dissipation factor shall not have changed by more than 0.03%. Measurements made at 1 KHz.

### **Additional notes on Life Testing:**

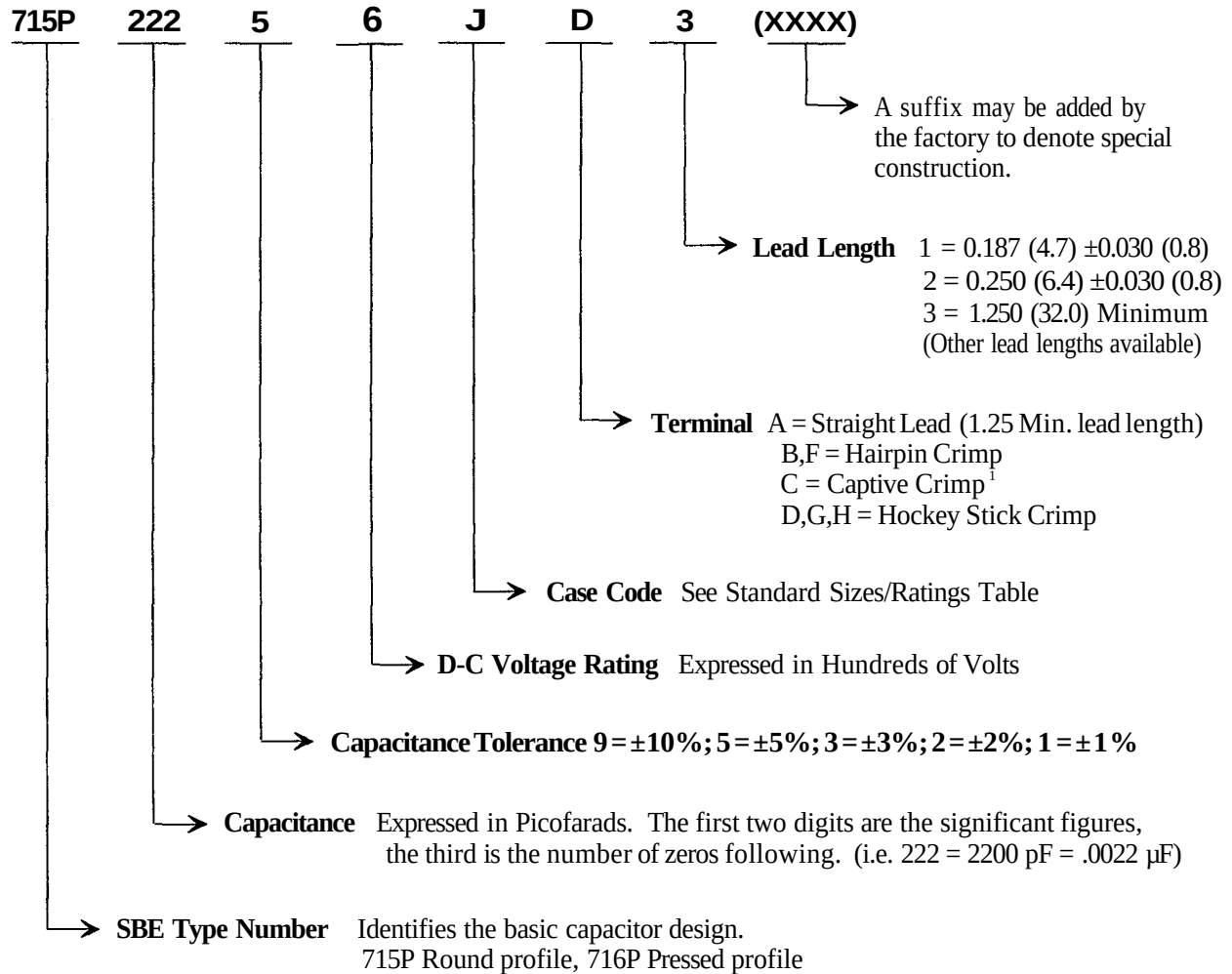
SBE performs standard 500 hour accelerated life tests, both DC and line frequency AC, to monitor process control over our wide range of products.

We also perform longer term life testing, typically 2000 hours, during development of most products. In addition we do accelerated life testing at 10-250 KHz for our High Performance AC products. For additional life test information please contact us.

# Type 716P HV, Orange Drop,<sup>®</sup> Polypropylene Film/Foil Capacitors

High Performance

## Ordering/Part Number Information



<sup>†</sup> Terminal C has a fixed lead length of 0.156 (4.0)  $\pm 0.020$  (0.5), therefore it is not necessary to indicate the lead length digit when ordering. Available for "L" case code parts only

### Please note:

While it is not possible to list every capacitance value, tolerance, or design/size variation available, our flexibility in design and manufacturing gives us the ability to quickly, and cost effectively, provide you with the capacitor you require. Please contact us today with your specific needs!

Dimensions in inches, metric (mm) in parenthesis.

# Type 716P HV, Orange Drop®, Polypropylene Film/Foil Capacitors

High Performance

## Standard Sizes/Ratings

| Value (μF)                 | Part Number <sup>1</sup> | L MAX      | T MAX      | H MAX      | Max dV/dt<br>(Volts/μsec) |
|----------------------------|--------------------------|------------|------------|------------|---------------------------|
| <b>1000 VDC / 450 VAC*</b> |                          |            |            |            |                           |
| .00082                     | 716P821910K              | .85 (21.6) | .25 (6.4)  | .34 (8.6)  | 47500                     |
| .001                       | 716P102910K              | .85 (21.6) | .25 (6.4)  | .36 (9.1)  | 43000                     |
| .0012                      | 716P122910K              | .85 (21.6) | .26 (6.6)  | .36 (9.1)  | 39300                     |
| .0015                      | 716P152910K              | .85 (21.6) | .25 (6.4)  | .37 (9.4)  | 35100                     |
| .0018                      | 716P182910K              | .85 (21.6) | .24 (6.4)  | .37 (9.4)  | 32100                     |
| .0022                      | 716P222910K              | .85 (21.6) | .25 (6.6)  | .38 (9.7)  | 29000                     |
| .0027                      | 716P272910K              | .85 (21.6) | .27 (6.9)  | .40 (10.2) | 26200                     |
| .0033                      | 716P332910K              | .85 (21.6) | .26 (6.6)  | .46 (11.7) | 23700                     |
| .0039                      | 716P392910K              | .85 (21.6) | .27 (6.9)  | .48 (12.2) | 21800                     |
| .0047                      | 716P472910K              | .85 (21.6) | .29 (7.4)  | .50 (12.7) | 19900                     |
| .0056                      | 716P562910K              | .85 (21.6) | .31 (7.9)  | .52 (13.2) | 18200                     |
| .0068                      | 716P682910K              | .85 (21.6) | .34 (8.6)  | .55 (14.0) | 16500                     |
| .0082                      | 716P822910K              | .85 (21.6) | .34 (8.6)  | .58 (14.7) | 15000                     |
| .01                        | 716P103910K              | .85 (21.6) | .35 (8.9)  | .64 (16.3) | 13600                     |
| .012                       | 716P123910K              | .85 (21.6) | .38 (9.7)  | .67 (17.0) | 12400                     |
| .015                       | 716P153910K              | .85 (21.6) | .43 (10.9) | .72 (18.3) | 11100                     |
| .018                       | 716P183910K              | .85 (21.6) | .47 (11.9) | .77 (19.6) | 10100                     |
| .022                       | 716P223910K              | .85 (21.6) | .49 (12.4) | .84 (21.3) | 9200                      |
| .027                       | 716P273910K              | .85 (21.6) | .55 (14.0) | .90 (22.9) | 8300                      |
| .033                       | 716P333910K              | .85 (21.6) | .62 (15.7) | .97 (24.6) | 7500                      |
| <b>2000 VDC / 500 VAC*</b> |                          |            |            |            |                           |
| .00022                     | 716P221920K              | .85 (21.6) | .25 (6.4)  | .38 (9.7)  | 102000                    |
| .00027                     | 716P271920K              | .85 (21.6) | .26 (6.6)  | .39 (9.9)  | 92100                     |
| .00033                     | 716P331920K              | .85 (21.6) | .25 (6.4)  | .39 (9.9)  | 83300                     |
| .00039                     | 716P391920K              | .85 (21.6) | .26 (6.6)  | .39 (9.9)  | 76600                     |
| .00047                     | 716P471920K              | .85 (21.6) | .26 (6.6)  | .39 (9.9)  | 69600                     |
| .00056                     | 716P561920K              | .85 (21.6) | .27 (6.9)  | .40 (10.2) | 63900                     |
| .00068                     | 716P681920K              | .85 (21.6) | .28 (7.1)  | .41 (10.4) | 58000                     |
| .00082                     | 716P821920K              | .85 (21.6) | .27 (6.9)  | .48 (12.2) | 52800                     |
| .001                       | 716P102920K              | .85 (21.6) | .29 (7.4)  | .50 (12.7) | 47800                     |
| .0015                      | 716P152920K              | .85 (21.6) | .33 (8.4)  | .54 (13.7) | 39100                     |
| .0018                      | 716P182920K              | .85 (21.6) | .35 (8.9)  | .56 (14.2) | 35700                     |
| .0022                      | 716P222920K              | .85 (21.6) | .38 (9.7)  | .59 (15.0) | 32200                     |
| .0027                      | 716P272920K              | .85 (21.6) | .38 (9.7)  | .62 (15.7) | 29100                     |
| .0033                      | 716P332920K              | .85 (21.6) | .39 (9.9)  | .68 (17.3) | 26300                     |
| .0039                      | 716P392920K              | .85 (21.6) | .42 (10.7) | .71 (18.0) | 24200                     |
| .0047                      | 716P472920K              | .85 (21.6) | .46 (11.7) | .75 (19.1) | 22100                     |
| .0056                      | 716P562920K              | .85 (21.6) | .47 (11.9) | .82 (20.8) | 20200                     |
| .0068                      | 716P682920K              | .85 (21.6) | .52 (13.2) | .87 (22.1) | 18300                     |
| .0082                      | 716P822920K              | .85 (21.6) | .57 (14.5) | .92 (23.4) | 16700                     |
| .01                        | 716P103920K              | .85 (21.6) | .63 (16.0) | .98 (24.9) | 15100                     |

\* Please refer to performance curves for RMS Voltage vs. Frequency characteristic.

<sup>1</sup> To complete part number for proper tolerance, terminal style and lead length please refer to the Ordering/Part Number Information page.

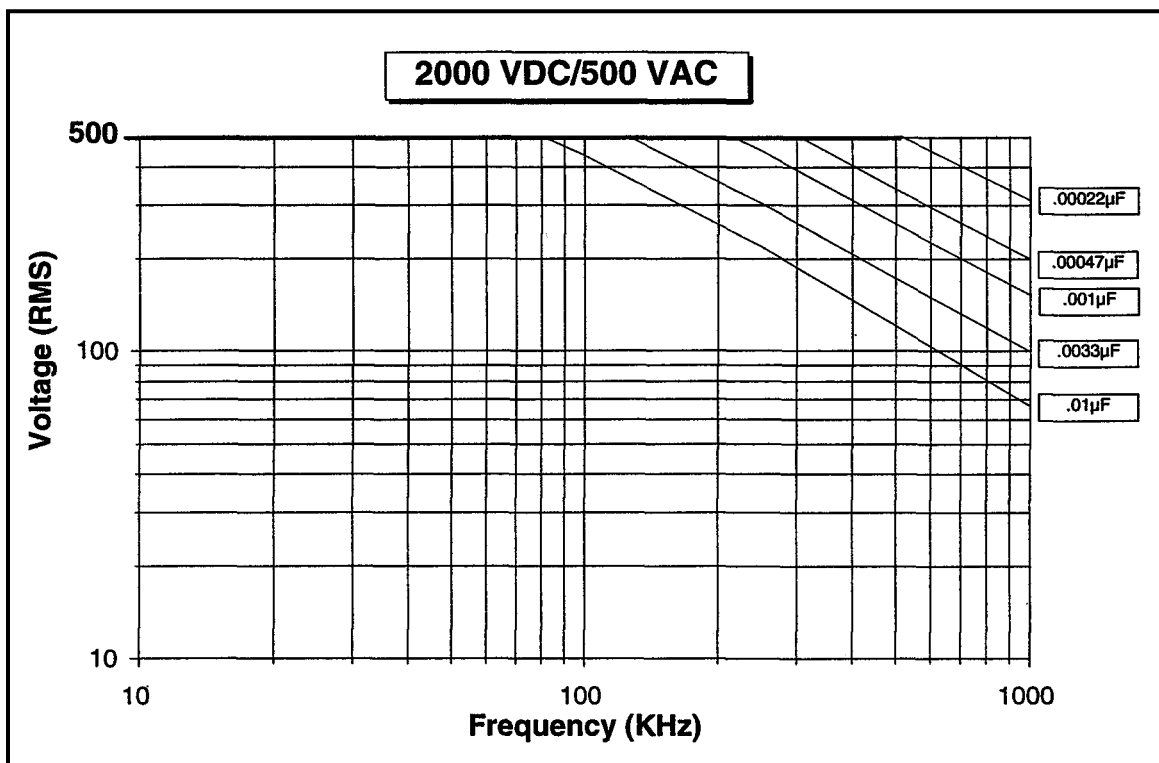
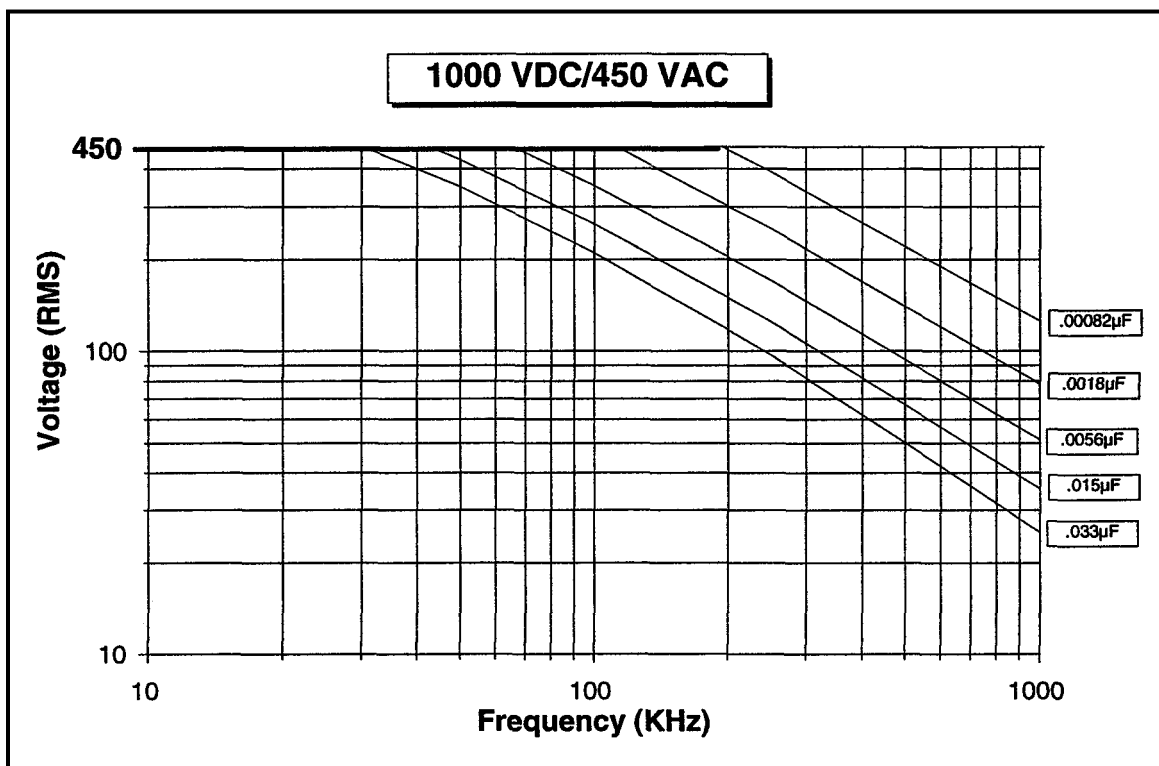
Note: dV/dt ratings based on measurements made at junction of the wire leads and capacitor body.

Dimensions in inches, metric (mm) in parenthesis.

# Type 716P HV, Orange Drop®, Polypropylene Film/Foil Capacitors

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## RMS Voltage vs. Frequency @ +85°C

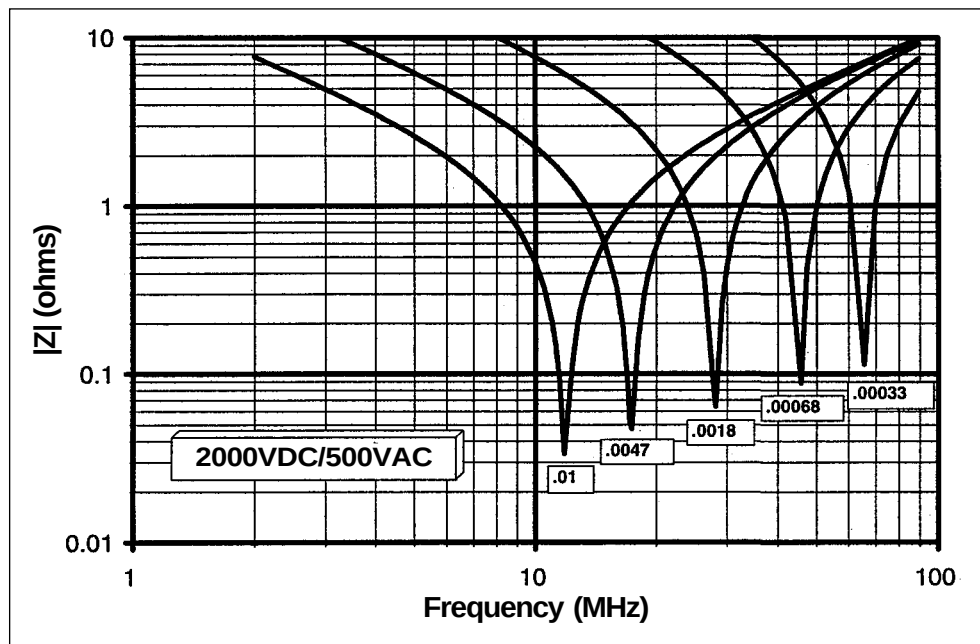
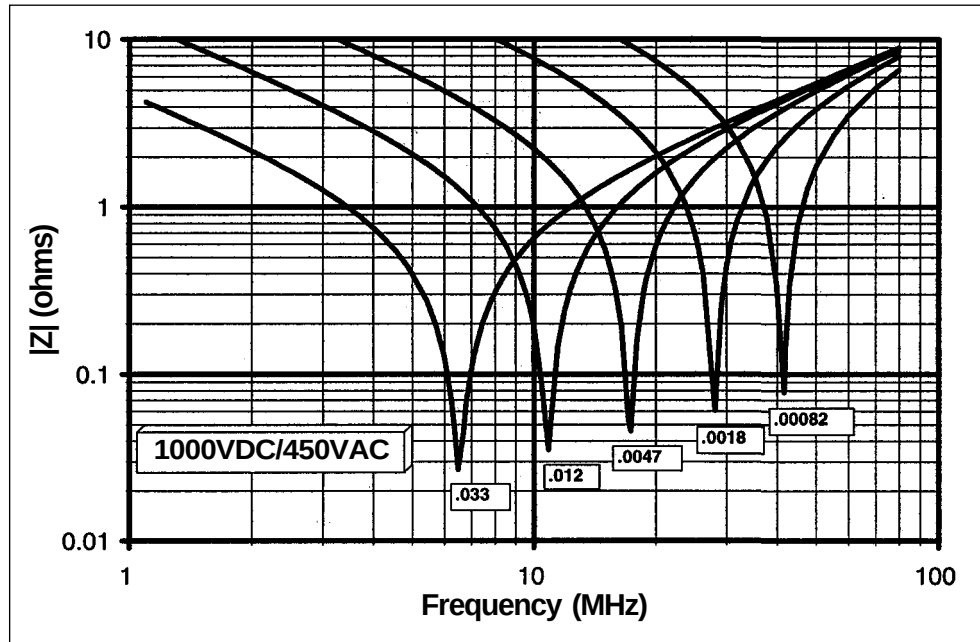


Dimensions in inches, metric (mm) in parenthesis.

# Type 716P HV, Orange Drop<sup>®</sup> Polypropylene Film/Foil Capacitors

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## Typical Impedance vs. Frequency



Please note: Capacitance values above are in  $\mu\text{F}$ . The resonant frequency and impedance shown above apply to units with a 0.250 (6.4) lead length and are typical values only. Please contact us for additional data.

Dimensions in inches, metric (mm) in parenthesis.