

# Type 942, Polypropylene Capacitors, for High Pulse, Snubber

## Very High dV/dt for Snubber Applications



Type 942 round, axial film capacitors utilize a hybrid section design of polypropylene film, metal foils and metallized polypropylene dielectric to achieve both high peak current as well as superior rms current ratings. This series is ideal for high pulse operation and high peak current circuits.

### Highlights

- Very high dV/dt
- Very high pulse current
- Low inductance
- Self Healing

### Specifications

|                                               |                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------------------|
| Capacitance Range                             | 0.01 to 2.5 $\mu$ F                                                                         |
| Capacitance Tolerance                         | $\pm 10\%$ (K) Standard; $\pm 5\%$ (J) Optional                                             |
| Rated Voltage                                 | 600 to 2000 Vdc (300 to 500 Vac, 60 Hz)                                                     |
| Operating Temperature Range                   | -55 °C to 105 °C*<br>*Full rated voltage at 85 °C - derated linearly to 50% rated at 105 °C |
| Maximum rms Current                           | Check tables for values                                                                     |
| Insulation Resistance                         | > 100,000 M $\Omega$ x $\mu$ F                                                              |
| Test Voltage between Terminals @ 25°C         | 150% rated DC voltage for 60 s                                                              |
| Test Voltage between Terminals & Case @ 25 °C | 3 kVac @ 50/60 Hz for 60 s                                                                  |
| Life Test                                     | 2,000 h @ 85 °C, 125% rated DC voltage                                                      |
| Life Expectancy                               | 60,000 h @ rated Vdc, 70 °C<br>30,000 h @ rated Vac, 70 °C                                  |
| Regulatory Information                        |                                                                                             |

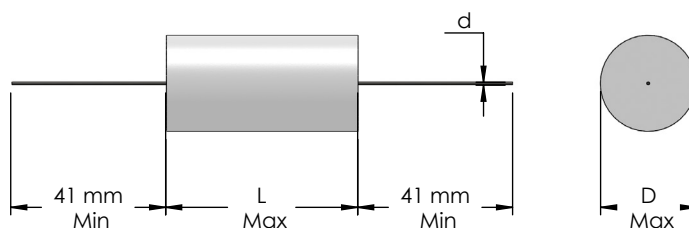
### Dimensions

#### Construction Diagram



#### Construction Details

|                   |                           |
|-------------------|---------------------------|
| Case Material     | UL510 Polyester Tape Wrap |
| Resin Material    | UL94V-0 Epoxy Fill        |
| Terminal Material | Tin Plated Copper         |



# Type 942, Polypropylene Capacitors, for High Pulse, Snubber

## Very High dV/dt for Snubber Applications

### Part Numbering System

|        |                             |               |               |                                   |                |                     |
|--------|-----------------------------|---------------|---------------|-----------------------------------|----------------|---------------------|
| 942    | C                           | 6             | P             | 22                                | K              | -F                  |
|        |                             |               |               |                                   |                |                     |
|        | Termination                 |               | Capacitance   | Capacitance                       | Tolerance      | RoHS                |
| Series | Code                        | Voltage Code  | Decimal Point | Significant Figures $\mu\text{F}$ | Code           | Compliant Indicator |
| 942    | C = Tinned Copper Wire      | 6 = 600 Vdc   | 12 = 1200 Vdc | S = 0.0                           | K = $\pm 10\%$ |                     |
|        | F = Insulated Stranded Wire | 8 = 850 Vdc   | 16 = 1600 Vdc | P = 0.                            | J = $\pm 5\%$  |                     |
|        |                             | 10 = 1000 Vdc | 20 = 2000 Vdc | W = No decimal point              |                |                     |
|        | H = Copper Lugs             |               |               |                                   |                |                     |

### Ratings

**NOTE:** Other ratings, sizes and performance specifications are available. Contact us.

| Cap.<br>( $\mu\text{F}$ ) | Catalog<br>Part Number | D<br>mm | L<br>mm | d<br>mm | Typical<br>ESR<br>(m $\Omega$ ) | Typical<br>ESL<br>(nH) | dV/dt<br>(V/ $\mu\text{s}$ ) | I <sub>PEAK</sub><br>(A) | I <sub>RMS</sub><br>70 °C<br>100 kHz<br>(A) |
|---------------------------|------------------------|---------|---------|---------|---------------------------------|------------------------|------------------------------|--------------------------|---------------------------------------------|
| <b>600 Vdc (300 Vac)</b>  |                        |         |         |         |                                 |                        |                              |                          |                                             |
| .15                       | 942C6P15K-F            | 14.0    | 34.0    | 1.0     | 5                               | 21                     | 1427                         | 214                      | 7.7                                         |
| .22                       | 942C6P22K-F            | 16.0    | 34.0    | 1.0     | 7                               | 22                     | 1427                         | 314                      | 7.0                                         |
| .33                       | 942C6P33K-F            | 19.0    | 34.0    | 1.0     | 6                               | 23                     | 1427                         | 471                      | 8.4                                         |
| .47                       | 942C6P47K-F            | 22.0    | 34.0    | 1.0     | 5                               | 24                     | 1427                         | 671                      | 10.1                                        |
| .68                       | 942C6P68K-F            | 25.6    | 34.0    | 1.2     | 4                               | 26                     | 1427                         | 970                      | 12.4                                        |
| 1.00                      | 942C6W1K-F             | 23.5    | 46.0    | 1.2     | 5                               | 30                     | 800                          | 800                      | 11.8                                        |
| 1.50                      | 942C6W1P5K-F           | 28.5    | 46.0    | 1.2     | 4                               | 32                     | 800                          | 1200                     | 14.8                                        |
| 2.00                      | 942C6W2K-F             | 28.5    | 54.0    | 1.2     | 3                               | 36                     | 628                          | 1256                     | 18.2                                        |
| 2.20                      | 942C6W2P2K-F           | 30.0    | 54.0    | 1.2     | 3                               | 36                     | 628                          | 1382                     | 18.8                                        |
| 2.50                      | 942C6W2P5K-F           | 32.0    | 54.0    | 1.2     | 3                               | 37                     | 628                          | 1570                     | 19.5                                        |
| <b>850 Vdc (360 Vac)</b>  |                        |         |         |         |                                 |                        |                              |                          |                                             |
| .15                       | 942C8P15K-F            | 15.5    | 34.0    | 1.0     | 5                               | 22                     | 1712                         | 257                      | 8.1                                         |
| .22                       | 942C8P22K-F            | 18.0    | 34.0    | 1.0     | 7                               | 23                     | 1712                         | 377                      | 7.5                                         |
| .33                       | 942C8P33K-F            | 21.5    | 34.0    | 1.0     | 6                               | 24                     | 1712                         | 565                      | 7.7                                         |
| .47                       | 942C8P47K-F            | 25.0    | 34.0    | 1.2     | 5                               | 26                     | 1712                         | 805                      | 10.9                                        |
| .68                       | 942C8P68K-F            | 29.5    | 34.0    | 1.2     | 4                               | 27                     | 1712                         | 1164                     | 13.6                                        |
| 1.00                      | 942C8W1K-F             | 28.0    | 46.0    | 1.2     | 5                               | 32                     | 960                          | 960                      | 13.1                                        |
| 1.50                      | 942C8W1P5K-F           | 29.0    | 54.0    | 1.2     | 4                               | 36                     | 754                          | 1131                     | 15.9                                        |
| 2.00                      | 942C8W2K-F             | 29.5    | 64.0    | 1.2     | 3                               | 41                     | 574                          | 1148                     | 19.9                                        |
| <b>1000 Vdc (400 Vac)</b> |                        |         |         |         |                                 |                        |                              |                          |                                             |
| .10                       | 942C10P1K-F            | 16.0    | 34.0    | 1.0     | 8                               | 22                     | 2283                         | 228                      | 6.6                                         |
| .15                       | 942C10P15K-F           | 19.0    | 34.0    | 1.0     | 7                               | 23                     | 2283                         | 342                      | 7.8                                         |
| .22                       | 942C10P22K-F           | 22.5    | 34.0    | 1.0     | 6                               | 24                     | 2283                         | 502                      | 9.3                                         |
| .33                       | 942C10P33K-F           | 21.0    | 46.0    | 1.0     | 5                               | 29                     | 1280                         | 422                      | 11.0                                        |
| .47                       | 942C10P47K-F           | 24.0    | 46.0    | 1.2     | 5                               | 30                     | 1280                         | 601                      | 11.9                                        |
| .68                       | 942C10P68K-F           | 28.5    | 46.0    | 1.2     | 5                               | 32                     | 1280                         | 870                      | 13.3                                        |
| 1.00                      | 942C10W1K-F            | 30.0    | 54.0    | 1.2     | 5                               | 37                     | 1005                         | 1005                     | 14.6                                        |
| 1.40                      | 942C10W1P4K-F          | 31.5    | 64.0    | 1.2     | 4                               | 41                     | 765                          | 1071                     | 17.9                                        |

# Type 942, Polypropylene Capacitors, for High Pulse, Snubber

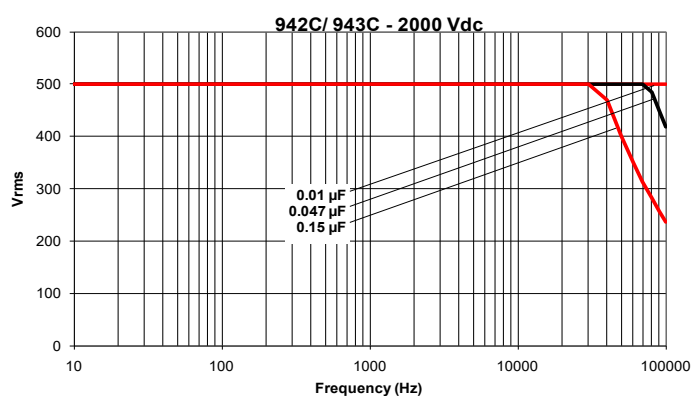
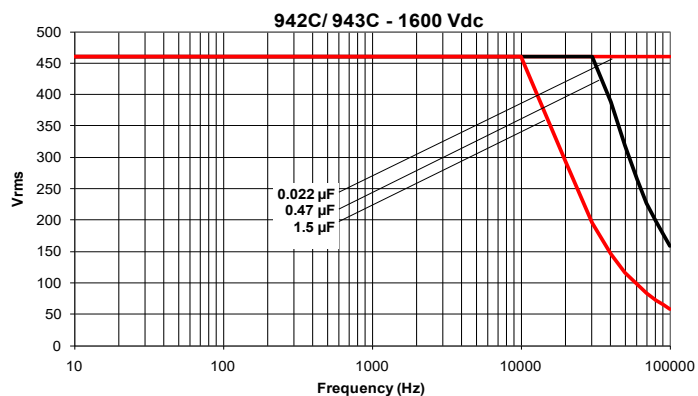
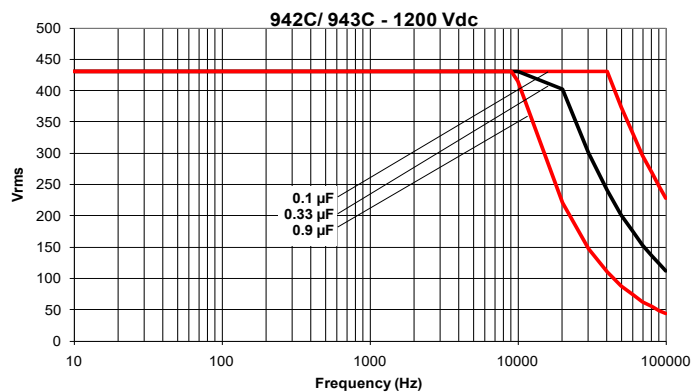
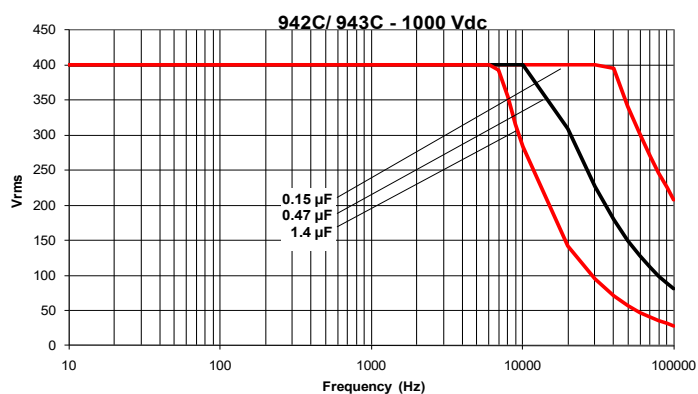
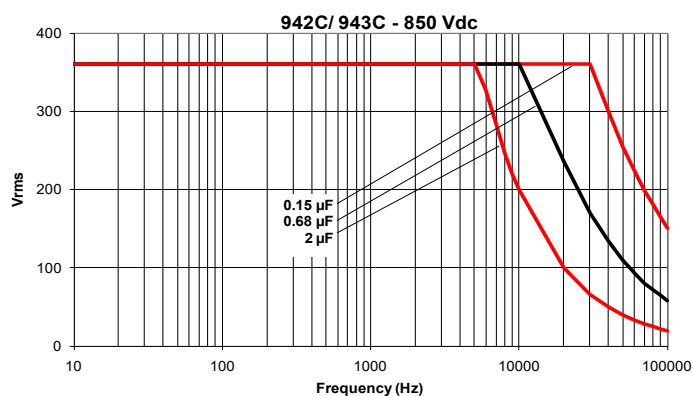
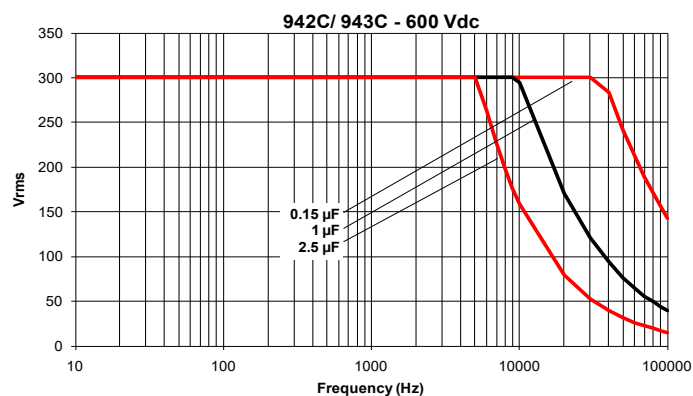
## Very High dV/dt for Snubber Applications

| Cap.<br>( $\mu$ F)        | Catalog<br>Part Number | D<br>mm | L<br>mm | d<br>mm | Typical<br>ESR<br>(m $\Omega$ ) | Typical<br>ESL<br>(nH) | dV/dt<br>(V/ $\mu$ s) | I <sub>PEAK</sub><br>(A) | I <sub>RMS</sub><br>70 °C<br>100 kHz<br>(A) |
|---------------------------|------------------------|---------|---------|---------|---------------------------------|------------------------|-----------------------|--------------------------|---------------------------------------------|
| <b>1200 Vdc (430 Vac)</b> |                        |         |         |         |                                 |                        |                       |                          |                                             |
| .10                       | 942C12P1K-F            | 19.0    | 34.0    | 1.0     | 5                               | 23                     | 2854                  | 285                      | 9.2                                         |
| .15                       | 942C12P15K-F           | 22.5    | 34.0    | 1.0     | 5                               | 24                     | 2854                  | 428                      | 10.2                                        |
| .22                       | 942C12P22K-F           | 26.5    | 34.0    | 1.2     | 6                               | 26                     | 2854                  | 628                      | 10.3                                        |
| .33                       | 942C12P33K-F           | 24.5    | 46.0    | 1.2     | 6                               | 31                     | 1600                  | 528                      | 11.0                                        |
| .47                       | 942C12P47K-F           | 29.0    | 46.0    | 1.2     | 5                               | 32                     | 1600                  | 752                      | 13.4                                        |
| .68                       | 942C12P68K-F           | 30.5    | 54.0    | 1.2     | 5                               | 37                     | 1256                  | 854                      | 14.7                                        |
| .90                       | 942C12P9K-F            | 31.0    | 64.0    | 1.2     | 5                               | 41                     | 957                   | 861                      | 15.9                                        |
| <b>1600 Vdc (460 Vac)</b> |                        |         |         |         |                                 |                        |                       |                          |                                             |
| .022                      | 942C16S22K-F           | 12.0    | 34.0    | 1.0     | 27                              | 20                     | 3425                  | 75                       | 3.0                                         |
| .033                      | 942C16S33K-F           | 14.5    | 34.0    | 1.0     | 14                              | 21                     | 3425                  | 113                      | 4.7                                         |
| .047                      | 942C16S47K-F           | 16.5    | 34.0    | 1.0     | 8                               | 22                     | 3425                  | 161                      | 6.7                                         |
| .068                      | 942C16S68K-F           | 19.0    | 34.0    | 1.0     | 6                               | 23                     | 3425                  | 233                      | 8.4                                         |
| .10                       | 942C16P1K-F            | 22.5    | 34.0    | 1.0     | 4                               | 24                     | 3425                  | 342                      | 11.4                                        |
| .15                       | 942C16P15K-F           | 20.5    | 46.0    | 1.0     | 5                               | 29                     | 1919                  | 288                      | 10.9                                        |
| .22                       | 942C16P22K-F           | 23.5    | 46.0    | 1.0     | 5                               | 68                     | 1919                  | 422                      | 11.8                                        |
| .33                       | 942C16P33K-F           | 28.5    | 46.0    | 1.2     | 5                               | 32                     | 1919                  | 633                      | 13.3                                        |
| .47                       | 942C16P47K-F           | 30.0    | 54.0    | 1.2     | 5                               | 36                     | 1507                  | 708                      | 14.6                                        |
| .56                       | 942C16P56K-F           | 28.5    | 64.0    | 1.2     | 5                               | 40                     | 1148                  | 643                      | 15.1                                        |
| .68                       | 942C16P68K-F           | 31.5    | 64.0    | 1.2     | 5                               | 42                     | 1148                  | 781                      | 16.0                                        |
| <b>2000 Vdc (500 Vac)</b> |                        |         |         |         |                                 |                        |                       |                          |                                             |
| .01                       | 942C20S1K-F            | 12.0    | 34.0    | 1.0     | 50                              | 20                     | 5137                  | 51                       | 2.2                                         |
| .015                      | 942C20S15K-F           | 14.5    | 34.0    | 1.0     | 40                              | 21                     | 5137                  | 77                       | 2.8                                         |
| .022                      | 942C20S22K-F           | 16.5    | 34.0    | 1.0     | 20                              | 22                     | 5137                  | 113                      | 4.2                                         |
| .033                      | 942C20S33K-F           | 19.5    | 34.0    | 1.0     | 12                              | 23                     | 5137                  | 170                      | 6.0                                         |
| .047                      | 942C20S47K-F           | 18.0    | 46.0    | 1.0     | 10                              | 28                     | 2879                  | 135                      | 7.1                                         |
| .068                      | 942C20S68K-F           | 20.5    | 46.0    | 1.0     | 6                               | 29                     | 2879                  | 196                      | 9.9                                         |
| .10                       | 942C20P1K-F            | 24.5    | 46.0    | 1.2     | 5                               | 30                     | 2879                  | 288                      | 12.1                                        |
| .15                       | 942C20P15K-F           | 29.5    | 46.0    | 1.2     | 5                               | 32                     | 2879                  | 432                      | 13.5                                        |

# Type 942, Polypropylene Capacitors, for High Pulse, Snubber

## Very High dV/dt for Snubber Applications

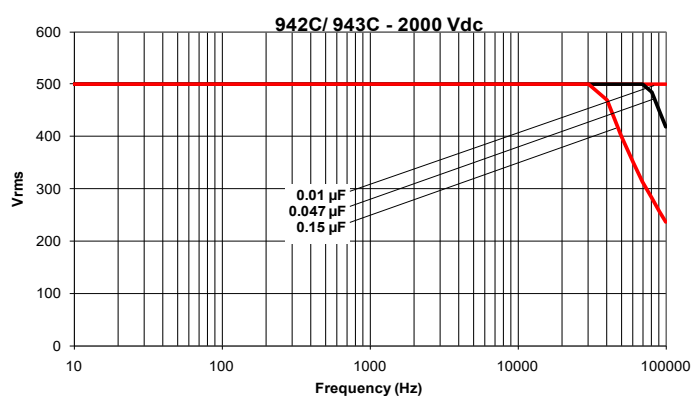
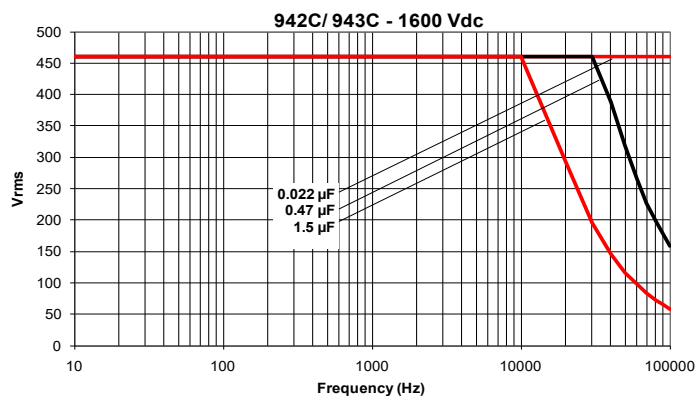
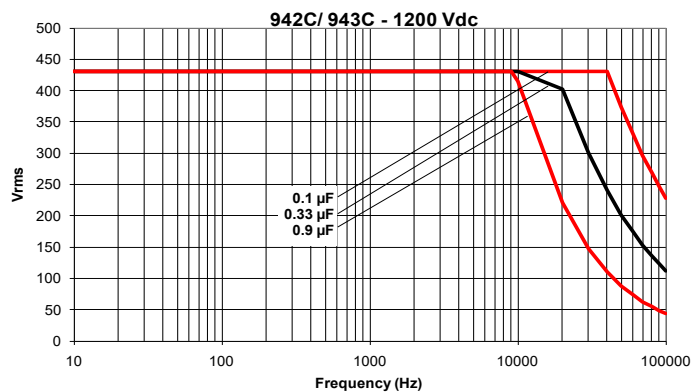
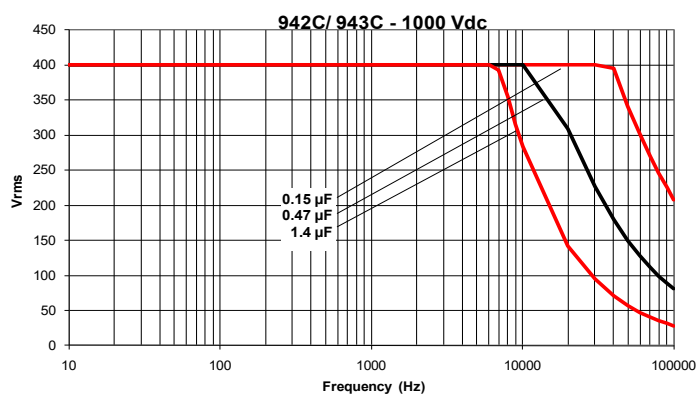
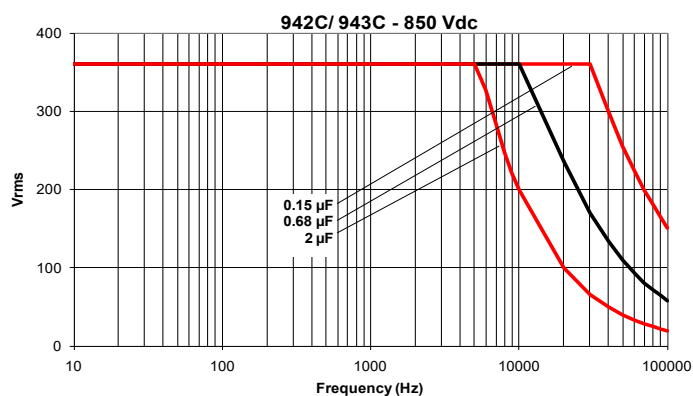
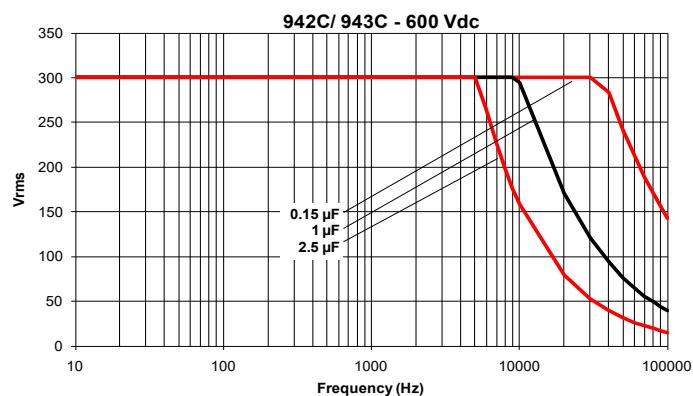
### RMS Voltage vs Frequency @ 25 °C



# Type 942, Polypropylene Capacitors, for High Pulse, Snubber

## Very High dV/dt for Snubber Applications

### RMS Voltage vs Frequency @ 25 °C



**Notice and Disclaimer:** All product drawings, descriptions, specifications, statements, information and data (collectively, the “Information”) in this datasheet or other publication are subject to change. The customer is responsible for checking, confirming and verifying the extent to which the Information contained in this datasheet or other publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without any guarantee, warranty, representation or responsibility of any kind, expressed or implied. Statements of suitability for certain applications are based on the knowledge that the Cornell Dubilier company providing such statements (“Cornell Dubilier”) has of operating conditions that such Cornell Dubilier company regards as typical for such applications, but are not intended to constitute any guarantee, warranty or representation regarding any such matter – and Cornell Dubilier specifically and expressly disclaims any guarantee, warranty or representation concerning the suitability for a specific customer application, use, storage, transportation, or operating environment. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by Cornell Dubilier with reference to the use of any Cornell Dubilier products is given gratis (unless otherwise specified by Cornell Dubilier), and Cornell Dubilier assumes no obligation or liability for the advice given or results obtained. Although Cornell Dubilier strives to apply the most stringent quality and safety standards regarding the design and manufacturing of its products, in light of the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies or other appropriate protective measures) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage. Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated in such warnings, cautions and notes, or that other safety measures may not be required.