

# Type 947D Polypropylene, High Energy Density, DC Link Capacitors

## High Current, High Capacitance for Inverter Applications



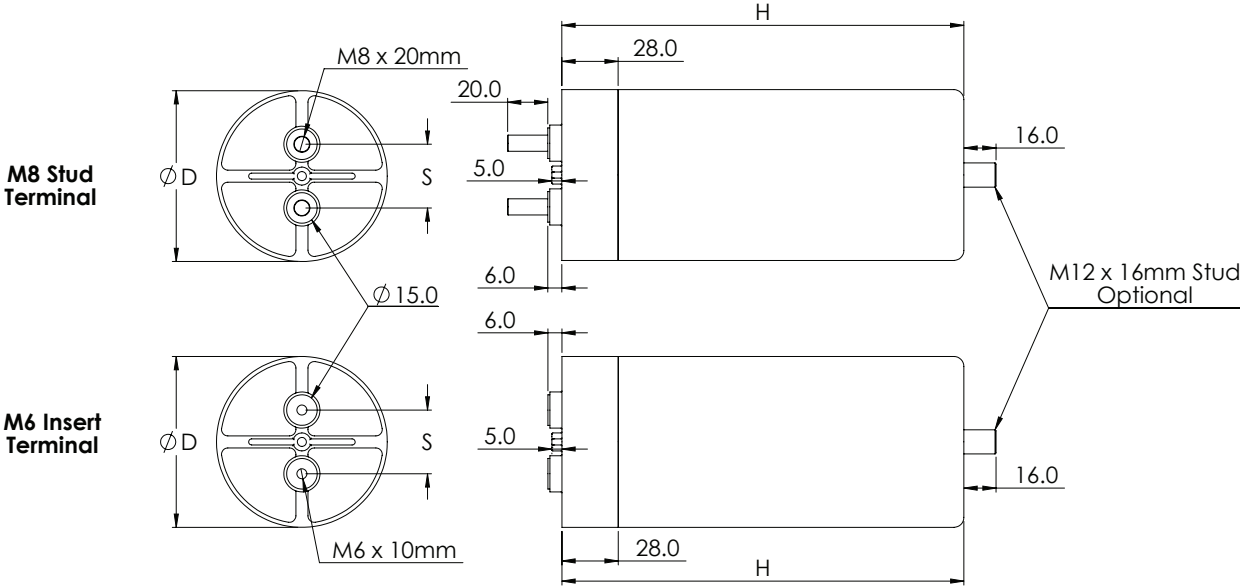
Type 947D series uses the most advanced metallized film technology for long life and high reliability in DC Link applications. This series combines high capacitance and very high ripple current capability needed for today’s inverter designs for wind, solar, fuel cells, UPS systems and more.

### Specifications

|                                                |                                       |
|------------------------------------------------|---------------------------------------|
| Capacitance Range                              | 130 to 1500 $\mu$ F                   |
| Capacitance Tolerance                          | $\pm$ 10% standard                    |
| Rated Voltage                                  | 900 to 1300 Vdc                       |
| Operating Temperature Range                    | -45 °C to 85 °C (ambient)             |
| Maximum rms Current                            | see data tables                       |
| Maximum rms Voltage                            | 230 Vac                               |
| Test Voltage between Terminals @ 25 °C         | 150% rated DC voltage for 10 s        |
| Test Voltage between Terminals and Case @ 25°C | 4 kVac @ 50/60 Hz for 10 s            |
| Life Test                                      | 7000 h @ 85 °C, rated voltage         |
| Life Expectancy                                | 350,000 h @ 60 °C Core, rated voltage |
| RoHS Compliant                                 |                                       |

### Dimensions

| Construction Details   |                       |
|------------------------|-----------------------|
| Case Material          | Aluminum Can          |
| Resin Material         | Dry Resin UL94V-0     |
| Terminal Material      | Tin Plated Brass      |
| Insulator Cap Material | Polypropylene UL94V-0 |



All dimensions have a  $\pm 1$  mm tolerance  
Consult factory for mounting options

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### Part Numbering System

| 947D | 391                           | K         | 112                                                                                   | C                                                  | E                                                                                                          | R                                                                                                                                            | S                              | N                              |
|------|-------------------------------|-----------|---------------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|
| Type | Capacitance                   | Tolerance | Voltage                                                                               | Diameter ±1mm                                      | Height ±1mm                                                                                                | Terminal                                                                                                                                     | Mounting                       | Sleeve                         |
| 947D | 391 = 390 µF<br>152 = 1500 µF | K = ±10%  | 901 = 900 Vdc<br>102 = 1000 Vdc<br>112 = 1100 Vdc<br>122 = 1200 Vdc<br>132 = 1300 Vdc | A = 85 mm<br>B = 90 mm<br>C = 100 mm<br>D = 116 mm | C = 75 mm<br>D = 87 mm<br>E = 100 mm<br>F = 112 mm<br>G = 126 mm<br>H = 136 mm<br>J = 150 mm<br>L = 162 mm | G = M6 Insert (32 mm)<br>N = M8 Stud (32 mm)<br>J = M8 Stud (45 mm)<br>M = M6 Insert (45 mm)<br>P = M8 Stud (50 mm)<br>R = M6 Insert (50 mm) | F = Flat Base<br>S = Stud Base | N = No Sleeve<br>S = Black PVC |

### Ratings

|                  | Rated | Can                | Can      | Lead   | Current |                    | Thermal               |      |      |                 |                 |      |
|------------------|-------|--------------------|----------|--------|---------|--------------------|-----------------------|------|------|-----------------|-----------------|------|
|                  | Cap   | Voltage            | Diameter | Height | Spacing | Case               | T <sub>A</sub> =55 °C | Typ  | Typ  | Resistance      |                 | Max  |
| PartNumber       | C     | V <sub>R</sub>     | D        | H      | S       | Area               | I <sub>rms</sub>      | ESR  | ESL  | Θ <sub>cc</sub> | Θ <sub>ca</sub> | Mass |
|                  | (µF)  | (V <sub>DC</sub> ) | (mm)     | (mm)   | (mm)    | (mm <sup>2</sup> ) | (A)                   | (mΩ) | (nH) | (°C/W)          | (°C/W)          | (kg) |
| 947D311K901ACGSN | 310   | 900                | 85       | 75     | 32      | 31400              | 67                    | 1.4  | 30   | 1.4             | 3.8             | 0.5  |
| 947D351K901BCMSN | 350   | 900                | 90       | 75     | 45      | 33900              | 73                    | 1.2  | 30   | 1.3             | 3.5             | 0.6  |
| 947D371K901ADGSN | 370   | 900                | 85       | 87     | 32      | 34600              | 66                    | 1.5  | 34   | 1.3             | 3.5             | 0.6  |
| 947D421K901BDMSN | 420   | 900                | 90       | 87     | 45      | 37300              | 75                    | 1.2  | 33   | 1.3             | 3.2             | 0.6  |
| 947D441K901AEGSN | 440   | 900                | 85       | 100    | 32      | 38100              | 65                    | 1.7  | 38   | 1.2             | 3.2             | 0.6  |
| 947D441K901CCRSN | 440   | 900                | 100      | 75     | 50      | 39300              | 85                    | 1.0  | 30   | 1.1             | 3.1             | 0.7  |
| 947D501K901BEMSN | 500   | 900                | 90       | 100    | 45      | 41000              | 74                    | 1.3  | 37   | 1.3             | 2.9             | 0.7  |
| 947D511K901AFGSN | 510   | 900                | 85       | 112    | 32      | 41300              | 64                    | 1.9  | 42   | 1.2             | 2.9             | 0.7  |
| 947D541K901CDRSN | 540   | 900                | 100      | 87     | 50      | 43000              | 83                    | 1.2  | 34   | 1.1             | 2.8             | 0.8  |
| 947D571K901AGGSN | 570   | 900                | 85       | 126    | 32      | 45000              | 63                    | 2.1  | 46   | 1.1             | 2.7             | 0.8  |
| 947D581K901BFMSN | 580   | 900                | 90       | 112    | 45      | 44400              | 72                    | 1.5  | 41   | 1.3             | 2.7             | 0.8  |
| 947D601K901DCRSN | 600   | 900                | 116      | 75     | 50      | 48500              | 102                   | 0.9  | 35   | 0.8             | 2.5             | 0.9  |
| 947D631K901CERSN | 630   | 900                | 100      | 100    | 50      | 47100              | 82                    | 1.3  | 38   | 1.0             | 2.5             | 0.9  |
| 947D641K901AHGSN | 640   | 900                | 85       | 136    | 32      | 47700              | 62                    | 2.3  | 50   | 1.1             | 2.5             | 0.8  |
| 947D651K901BGMSN | 650   | 900                | 90       | 126    | 45      | 48300              | 71                    | 1.6  | 45   | 1.2             | 2.5             | 0.9  |
| 947D711K901AJGSN | 710   | 900                | 85       | 150    | 32      | 51400              | 62                    | 2.5  | 54   | 1.1             | 2.3             | 0.9  |
| 947D731K901BHMSN | 730   | 900                | 90       | 136    | 45      | 51200              | 69                    | 1.8  | 49   | 1.2             | 2.3             | 0.9  |
| 947D731K901CFRSN | 730   | 900                | 100      | 112    | 50      | 50900              | 81                    | 1.4  | 42   | 1.0             | 2.4             | 1.0  |
| 947D731K901DDRSN | 730   | 900                | 116      | 87     | 50      | 52800              | 101                   | 1.0  | 40   | 0.8             | 2.3             | 1.1  |
| 947D781K901ALGSN | 780   | 900                | 85       | 162    | 32      | 54600              | 61                    | 2.7  | 59   | 1.0             | 2.2             | 1.0  |
| 947D811K901BJMSN | 810   | 900                | 90       | 150    | 45      | 55100              | 68                    | 1.9  | 53   | 1.2             | 2.2             | 1.0  |
| 947D821K901CGRSN | 820   | 900                | 100      | 126    | 50      | 55300              | 80                    | 1.6  | 46   | 1.0             | 2.2             | 1.1  |
| 947D861K901DERSN | 860   | 900                | 116      | 100    | 50      | 57600              | 100                   | 1.1  | 45   | 0.8             | 2.1             | 1.2  |
| 947D881K901BLMSN | 880   | 900                | 90       | 162    | 45      | 58500              | 67                    | 2.1  | 58   | 1.2             | 2.1             | 1.1  |
| 947D921K901CHRSN | 920   | 900                | 100      | 136    | 50      | 58400              | 79                    | 1.7  | 50   | 1.0             | 2.1             | 1.2  |
| 947D991K901DFRSN | 990   | 900                | 116      | 112    | 50      | 62000              | 99                    | 1.2  | 50   | 0.8             | 1.9             | 1.3  |
| 947D102K901CJRSN | 1000  | 900                | 100      | 150    | 50      | 62800              | 78                    | 1.9  | 54   | 0.9             | 1.9             | 1.3  |
| 947D112K901CLRSN | 1100  | 900                | 100      | 162    | 50      | 66600              | 77                    | 2.0  | 59   | 0.9             | 1.8             | 1.4  |
| 947D112K901DGRSN | 1100  | 900                | 116      | 126    | 50      | 67100              | 98                    | 1.3  | 55   | 0.8             | 1.8             | 1.5  |
| 947D122K901DHRSN | 1200  | 900                | 116      | 136    | 50      | 70700              | 96                    | 1.4  | 60   | 0.8             | 1.7             | 1.6  |
| 947D132K901DJRSN | 1300  | 900                | 116      | 150    | 50      | 75800              | 95                    | 1.5  | 65   | 0.8             | 1.6             | 1.7  |
| 947D152K901DLRSN | 1500  | 900                | 116      | 162    | 50      | 80200              | 94                    | 1.6  | 70   | 0.7             | 1.5             | 1.8  |
| 947D241K102ACGSN | 240   | 1000               | 85       | 75     | 32      | 31400              | 63                    | 1.5  | 30   | 1.4             | 3.8             | 0.5  |

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|                  | Rated | Can                | Can  | Lead   | Current |                    | Thermal               |      |      |                 |                 |      |
|------------------|-------|--------------------|------|--------|---------|--------------------|-----------------------|------|------|-----------------|-----------------|------|
|                  | Cap   | Voltage            | Dia  | Height | Spacing | Case               | T <sub>A</sub> =55 °C | Typ  | Typ  | Resistance      |                 | Max  |
| PartNumber       | C     | V <sub>R</sub>     | D    | H      | S       | Area               | I <sub>rms</sub>      | ESR  | ESL  | Θ <sub>cc</sub> | Θ <sub>ca</sub> | Mass |
|                  | (μF)  | (V <sub>DC</sub> ) | (mm) | (mm)   | (mm)    | (mm <sup>2</sup> ) | (A)                   | (mΩ) | (nH) | (°C/W)          | (°C/W)          | (kg) |
| 947D271K102BCMSN | 270   | 1000               | 90   | 75     | 45      | 33900              | 69                    | 1.3  | 30   | 1.3             | 3.5             | 0.6  |
| 947D291K102ADGSN | 290   | 1000               | 85   | 87     | 32      | 34600              | 62                    | 1.7  | 34   | 1.4             | 3.5             | 0.6  |
| 947D331K102BDMSN | 330   | 1000               | 90   | 87     | 45      | 37300              | 71                    | 1.3  | 33   | 1.3             | 3.2             | 0.6  |
| 947D341K102AEGSN | 340   | 1000               | 85   | 100    | 32      | 38100              | 61                    | 1.9  | 38   | 1.3             | 3.2             | 0.6  |
| 947D341K102CCRSN | 340   | 1000               | 100  | 75     | 50      | 39300              | 81                    | 1.1  | 30   | 1.2             | 3.1             | 0.7  |
| 947D391K102BEMSN | 390   | 1000               | 90   | 100    | 45      | 41000              | 70                    | 1.5  | 37   | 1.2             | 2.9             | 0.7  |
| 947D401K102AFGSN | 400   | 1000               | 85   | 112    | 32      | 41300              | 60                    | 2.1  | 42   | 1.2             | 2.9             | 0.7  |
| 947D421K102CDRSN | 420   | 1000               | 100  | 87     | 50      | 43000              | 79                    | 1.3  | 34   | 1.1             | 2.8             | 0.8  |
| 947D451K102AGGSN | 450   | 1000               | 85   | 126    | 32      | 45000              | 60                    | 2.3  | 46   | 1.2             | 2.7             | 0.8  |
| 947D451K102BFMSN | 450   | 1000               | 90   | 112    | 45      | 44400              | 68                    | 1.7  | 41   | 1.2             | 2.7             | 0.8  |
| 947D471K102DCRSN | 470   | 1000               | 116  | 75     | 50      | 48500              | 98                    | 0.9  | 35   | 0.9             | 2.5             | 0.9  |
| 947D491K102CERSN | 490   | 1000               | 100  | 100    | 50      | 47100              | 78                    | 1.4  | 38   | 1.1             | 2.5             | 0.9  |
| 947D501K102AHGSN | 500   | 1000               | 85   | 136    | 32      | 47700              | 58                    | 2.5  | 50   | 1.1             | 2.5             | 0.8  |
| 947D511K102BGMSN | 510   | 1000               | 90   | 126    | 45      | 48300              | 67                    | 1.8  | 45   | 1.2             | 2.5             | 0.9  |
| 947D551K102AJGSN | 550   | 1000               | 85   | 150    | 32      | 51400              | 58                    | 2.7  | 54   | 1.1             | 2.3             | 0.9  |
| 947D571K102BHMSN | 570   | 1000               | 90   | 136    | 45      | 51200              | 66                    | 2.0  | 49   | 1.2             | 2.3             | 0.9  |
| 947D571K102CFRSN | 570   | 1000               | 100  | 112    | 50      | 50900              | 77                    | 1.6  | 42   | 1.0             | 2.4             | 1.0  |
| 947D571K102DDRSN | 570   | 1000               | 116  | 87     | 50      | 52800              | 96                    | 1.0  | 40   | 0.8             | 2.3             | 1.1  |
| 947D601K102ALGSN | 600   | 1000               | 85   | 162    | 32      | 54600              | 57                    | 3.0  | 59   | 1.1             | 2.2             | 1.0  |
| 947D631K102BJMSN | 630   | 1000               | 90   | 150    | 45      | 55100              | 65                    | 2.2  | 53   | 1.1             | 2.2             | 1.0  |
| 947D641K102CGRSN | 640   | 1000               | 100  | 126    | 50      | 55300              | 76                    | 1.7  | 46   | 1.0             | 2.2             | 1.1  |
| 947D671K102DERSN | 670   | 1000               | 116  | 100    | 50      | 57600              | 95                    | 1.2  | 45   | 0.8             | 2.1             | 1.2  |
| 947D691K102BLMSN | 690   | 1000               | 90   | 162    | 45      | 58500              | 64                    | 2.3  | 58   | 1.1             | 2.1             | 1.1  |
| 947D721K102CHRSN | 720   | 1000               | 100  | 136    | 50      | 58400              | 74                    | 1.9  | 50   | 1.0             | 2.1             | 1.2  |
| 947D771K102DFRSN | 770   | 1000               | 116  | 112    | 50      | 62000              | 94                    | 1.3  | 50   | 0.8             | 1.9             | 1.3  |
| 947D791K102CJRSN | 790   | 1000               | 100  | 150    | 50      | 62800              | 74                    | 2.1  | 54   | 1.0             | 1.9             | 1.3  |
| 947D871K102CLRSN | 870   | 1000               | 100  | 162    | 50      | 66600              | 73                    | 2.2  | 59   | 0.9             | 1.8             | 1.4  |
| 947D871K102DGRSN | 870   | 1000               | 116  | 126    | 50      | 67100              | 93                    | 1.4  | 55   | 0.8             | 1.8             | 1.5  |
| 947D971K102DHRSN | 970   | 1000               | 116  | 136    | 50      | 70700              | 91                    | 1.5  | 60   | 0.8             | 1.7             | 1.6  |
| 947D102K102DJRSN | 1000  | 1000               | 116  | 150    | 50      | 75800              | 90                    | 1.7  | 65   | 0.8             | 1.6             | 1.7  |
| 947D112K102DLRSN | 1100  | 1000               | 116  | 162    | 50      | 80200              | 89                    | 1.8  | 70   | 0.8             | 1.5             | 1.8  |
| 947D191K112ACGSN | 190   | 1100               | 85   | 75     | 32      | 31400              | 60                    | 1.6  | 30   | 1.5             | 3.8             | 0.5  |
| 947D221K112BCMSN | 220   | 1100               | 90   | 75     | 45      | 33900              | 65                    | 1.5  | 30   | 1.4             | 3.5             | 0.6  |
| 947D231K112ADGSN | 230   | 1100               | 85   | 87     | 32      | 34600              | 59                    | 1.9  | 34   | 1.4             | 3.5             | 0.6  |
| 947D261K112BDMSN | 260   | 1100               | 90   | 87     | 45      | 37300              | 68                    | 1.5  | 33   | 1.2             | 3.2             | 0.6  |
| 947D271K112AEGSN | 270   | 1100               | 85   | 100    | 32      | 38100              | 58                    | 2.1  | 38   | 1.3             | 3.2             | 0.6  |
| 947D271K112CCRSN | 270   | 1100               | 100  | 75     | 50      | 39300              | 77                    | 1.2  | 30   | 1.2             | 3.1             | 0.7  |
| 947D311K112BEMSN | 310   | 1100               | 90   | 100    | 45      | 41000              | 67                    | 1.7  | 37   | 1.2             | 2.9             | 0.7  |
| 947D321K112AFGSN | 320   | 1100               | 85   | 112    | 32      | 41300              | 57                    | 2.3  | 42   | 1.3             | 2.9             | 0.7  |
| 947D331K112CDRSN | 330   | 1100               | 100  | 87     | 50      | 43000              | 75                    | 1.4  | 34   | 1.1             | 2.8             | 0.8  |
| 947D361K112AGGSN | 360   | 1100               | 85   | 126    | 32      | 45000              | 56                    | 2.5  | 46   | 1.2             | 2.7             | 0.8  |
| 947D361K112BFMSN | 360   | 1100               | 90   | 112    | 45      | 44400              | 65                    | 1.8  | 41   | 1.2             | 2.7             | 0.8  |

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|                  | Rated | Can                | Can  | Lead   | Current |                    |                       | Thermal |      |                 |                 |      |
|------------------|-------|--------------------|------|--------|---------|--------------------|-----------------------|---------|------|-----------------|-----------------|------|
|                  | Cap   | Voltage            | Dia  | Height | Spacing | Case               | T <sub>A</sub> =55 °C | Typ     | Typ  | Resistance      | Max             |      |
| PartNumber       | C     | V <sub>R</sub>     | D    | H      | S       | Area               | I <sub>rms</sub>      | ESR     | ESL  | Θ <sub>cc</sub> | Θ <sub>ca</sub> | Mass |
|                  | (μF)  | (V <sub>DC</sub> ) | (mm) | (mm)   | (mm)    | (mm <sup>2</sup> ) | (A)                   | (mΩ)    | (nH) | (°C/W)          | (°C/W)          | (kg) |
| 947D371K112DCRSN | 370   | 1100               | 116  | 75     | 50      | 48500              | 94                    | 1.0     | 35   | 0.9             | 2.5             | 0.9  |
| 947D391K112CERSN | 390   | 1100               | 100  | 100    | 50      | 47100              | 74                    | 1.6     | 38   | 1.1             | 2.5             | 0.9  |
| 947D411K112BGMSN | 410   | 1100               | 90   | 126    | 45      | 48300              | 64                    | 2.0     | 45   | 1.1             | 2.5             | 0.9  |
| 947D421K112AHGSN | 420   | 1100               | 85   | 136    | 32      | 47700              | 55                    | 2.8     | 50   | 1.2             | 2.5             | 0.8  |
| 947D441K112AJGSN | 440   | 1100               | 85   | 150    | 32      | 51400              | 55                    | 3.0     | 54   | 1.1             | 2.3             | 0.9  |
| 947D451K112CFRSN | 450   | 1100               | 100  | 112    | 50      | 50900              | 73                    | 1.7     | 42   | 1.1             | 2.4             | 1.0  |
| 947D451K112DDRSN | 450   | 1100               | 116  | 87     | 50      | 52800              | 92                    | 1.1     | 40   | 0.9             | 2.3             | 1.1  |
| 947D461K112BHMSN | 460   | 1100               | 90   | 136    | 45      | 51200              | 63                    | 2.2     | 49   | 1.1             | 2.3             | 0.9  |
| 947D481K112ALGSN | 480   | 1100               | 85   | 162    | 32      | 54600              | 54                    | 3.2     | 59   | 1.1             | 2.2             | 1.0  |
| 947D501K112BJMSN | 500   | 1100               | 90   | 150    | 45      | 55100              | 62                    | 2.4     | 53   | 1.1             | 2.2             | 1.0  |
| 947D521K112CGRSN | 520   | 1100               | 100  | 126    | 50      | 55300              | 72                    | 1.9     | 46   | 1.0             | 2.2             | 1.1  |
| 947D541K112DERSN | 540   | 1100               | 116  | 100    | 50      | 57600              | 91                    | 1.3     | 45   | 0.8             | 2.1             | 1.2  |
| 947D551K112BLMSN | 550   | 1100               | 90   | 162    | 45      | 58500              | 61                    | 2.6     | 58   | 1.1             | 2.1             | 1.1  |
| 947D581K112CHRSN | 580   | 1100               | 100  | 136    | 50      | 58400              | 71                    | 2.1     | 50   | 1.0             | 2.1             | 1.2  |
| 947D621K112DFRSN | 620   | 1100               | 116  | 112    | 50      | 62000              | 90                    | 1.4     | 50   | 0.8             | 1.9             | 1.3  |
| 947D641K112CJRSN | 640   | 1100               | 100  | 150    | 50      | 62800              | 70                    | 2.2     | 54   | 1.0             | 1.9             | 1.3  |
| 947D701K112CLRSN | 700   | 1100               | 100  | 162    | 50      | 66600              | 69                    | 2.4     | 59   | 1.0             | 1.8             | 1.4  |
| 947D701K112DGRSN | 700   | 1100               | 116  | 126    | 50      | 67100              | 89                    | 1.5     | 55   | 0.8             | 1.8             | 1.5  |
| 947D781K112DHRSN | 780   | 1100               | 116  | 136    | 50      | 70700              | 87                    | 1.7     | 60   | 0.8             | 1.7             | 1.6  |
| 947D861K112DJRSN | 860   | 1100               | 116  | 150    | 50      | 75800              | 86                    | 1.8     | 65   | 0.8             | 1.6             | 1.7  |
| 947D941K112DLRSN | 940   | 1100               | 116  | 162    | 50      | 80200              | 85                    | 1.9     | 70   | 0.8             | 1.5             | 1.8  |
| 947D151K122ACGSN | 150   | 1200               | 85   | 75     | 32      | 31400              | 57                    | 1.8     | 30   | 1.5             | 3.8             | 0.5  |
| 947D181K122BCMSN | 180   | 1200               | 90   | 75     | 45      | 33900              | 62                    | 1.6     | 30   | 1.4             | 3.5             | 0.6  |
| 947D191K122ADGSN | 190   | 1200               | 85   | 87     | 32      | 34600              | 56                    | 2.0     | 34   | 1.4             | 3.5             | 0.6  |
| 947D221K122AEGSN | 220   | 1200               | 85   | 100    | 32      | 38100              | 55                    | 2.3     | 38   | 1.4             | 3.2             | 0.6  |
| 947D221K122BDMSN | 220   | 1200               | 90   | 87     | 45      | 37300              | 65                    | 1.6     | 33   | 1.2             | 3.2             | 0.6  |
| 947D221K122CCRSN | 220   | 1200               | 100  | 75     | 50      | 39300              | 73                    | 1.3     | 30   | 1.2             | 3.1             | 0.7  |
| 947D251K122BEMSN | 250   | 1200               | 90   | 100    | 45      | 41000              | 64                    | 1.8     | 37   | 1.1             | 2.9             | 0.7  |
| 947D261K122AFGSN | 260   | 1200               | 85   | 112    | 32      | 41300              | 54                    | 2.5     | 42   | 1.3             | 2.9             | 0.7  |
| 947D271K122CDRSN | 270   | 1200               | 100  | 87     | 50      | 43000              | 72                    | 1.5     | 34   | 1.2             | 2.8             | 0.8  |
| 947D291K122AGGSN | 290   | 1200               | 85   | 126    | 32      | 45000              | 54                    | 2.8     | 46   | 1.2             | 2.7             | 0.8  |
| 947D291K122BFMSN | 290   | 1200               | 90   | 112    | 45      | 44400              | 62                    | 2.0     | 41   | 1.1             | 2.7             | 0.8  |
| 947D311K122DCRSN | 310   | 1200               | 116  | 75     | 50      | 48500              | 90                    | 1.1     | 35   | 0.9             | 2.5             | 0.9  |
| 947D321K122CERSN | 320   | 1200               | 100  | 100    | 50      | 47100              | 71                    | 1.7     | 38   | 1.1             | 2.5             | 0.9  |
| 947D331K122AHGSN | 330   | 1200               | 85   | 136    | 32      | 47700              | 53                    | 3.0     | 50   | 1.2             | 2.5             | 0.8  |
| 947D331K122BGMSN | 330   | 1200               | 90   | 126    | 45      | 48300              | 61                    | 2.2     | 45   | 1.1             | 2.5             | 0.9  |
| 947D361K122AJGSN | 360   | 1200               | 85   | 150    | 32      | 51400              | 52                    | 3.3     | 54   | 1.2             | 2.3             | 0.9  |
| 947D371K122BHMSN | 370   | 1200               | 90   | 136    | 45      | 51200              | 60                    | 2.4     | 49   | 1.1             | 2.3             | 0.9  |
| 947D371K122CFRSN | 370   | 1200               | 100  | 112    | 50      | 50900              | 69                    | 1.9     | 42   | 1.1             | 2.4             | 1.0  |
| 947D371K122DDRSN | 370   | 1200               | 116  | 87     | 50      | 52800              | 88                    | 1.2     | 40   | 0.9             | 2.3             | 1.1  |
| 947D401K122ALGSN | 400   | 1200               | 85   | 162    | 32      | 54600              | 52                    | 3.5     | 59   | 1.1             | 2.2             | 1.0  |
| 947D411K122BJMSN | 410   | 1200               | 90   | 150    | 45      | 55100              | 59                    | 2.6     | 53   | 1.1             | 2.2             | 1.0  |

# Type 947D Polypropylene, High Energy Density, DC Link Capacitors

## High Current, High Capacitance for Inverter Applications

| PartNumber       | Cap  | Rated              | Can  | Can    | Lead    | Current |                       |      |      | Thermal         |                 |      |
|------------------|------|--------------------|------|--------|---------|---------|-----------------------|------|------|-----------------|-----------------|------|
|                  | C    | Voltage            | Dia  | Height | Spacing | Case    | T <sub>A</sub> =55 °C | Typ  | Typ  | Resistance      |                 | Max  |
|                  | μF   | V <sub>R</sub>     | D    | H      | S       | Area    | I <sub>rms</sub>      | ESR  | ESL  | Θ <sub>cc</sub> | Θ <sub>ca</sub> | Mass |
|                  | (μF) | (V <sub>DC</sub> ) | (mm) | (mm)   | (mm)    | (mm²)   | (A)                   | (mΩ) | (nH) | (°C/W)          | (°C/W)          | (kg) |
| 947D421K122CGRSN | 420  | 1200               | 100  | 126    | 50      | 55300   | 69                    | 2.1  | 46   | 1.1             | 2.2             | 1.1  |
| 947D441K122DERSN | 440  | 1200               | 116  | 100    | 50      | 57600   | 87                    | 1.4  | 45   | 0.9             | 2.1             | 1.2  |
| 947D451K122BLMSN | 450  | 1200               | 90   | 162    | 45      | 58500   | 58                    | 2.8  | 58   | 1.0             | 2.1             | 1.1  |
| 947D471K122CHRSN | 470  | 1200               | 100  | 136    | 50      | 58400   | 67                    | 2.2  | 50   | 1.0             | 2.1             | 1.2  |
| 947D511K122DFRSN | 510  | 1200               | 116  | 112    | 50      | 62000   | 86                    | 1.5  | 50   | 0.8             | 1.9             | 1.3  |
| 947D521K122CJRSN | 520  | 1200               | 100  | 150    | 50      | 62800   | 67                    | 2.4  | 54   | 1.0             | 1.9             | 1.3  |
| 947D571K122CLRSN | 570  | 1200               | 100  | 162    | 50      | 66600   | 66                    | 2.6  | 59   | 1.0             | 1.8             | 1.4  |
| 947D571K122DGRSN | 570  | 1200               | 116  | 126    | 50      | 67100   | 85                    | 1.6  | 55   | 0.8             | 1.8             | 1.5  |
| 947D641K122DHRSN | 640  | 1200               | 116  | 136    | 50      | 70700   | 83                    | 1.8  | 60   | 0.8             | 1.7             | 1.6  |
| 947D711K122DJRSN | 710  | 1200               | 116  | 150    | 50      | 75800   | 82                    | 1.9  | 65   | 0.8             | 1.6             | 1.7  |
| 947D771K122DLRSN | 770  | 1200               | 116  | 162    | 50      | 80200   | 81                    | 2.1  | 70   | 0.8             | 1.5             | 1.8  |
| 947D131K132ACGSN | 130  | 1300               | 85   | 75     | 32      | 31400   | 54                    | 1.9  | 30   | 1.6             | 3.8             | 0.5  |
| 947D151K132BCMSN | 150  | 1300               | 90   | 75     | 45      | 33900   | 60                    | 1.7  | 30   | 1.5             | 3.5             | 0.6  |
| 947D161K132ADGSN | 160  | 1300               | 85   | 87     | 32      | 34600   | 53                    | 2.2  | 34   | 1.5             | 3.5             | 0.6  |
| 947D181K132BDMSN | 180  | 1300               | 90   | 87     | 45      | 37300   | 62                    | 1.8  | 33   | 1.1             | 3.2             | 0.6  |
| 947D191K132AEGSN | 190  | 1300               | 85   | 100    | 32      | 38100   | 53                    | 2.5  | 38   | 1.4             | 3.2             | 0.6  |
| 947D191K132CCRSN | 190  | 1300               | 100  | 75     | 50      | 39300   | 70                    | 1.4  | 30   | 1.2             | 3.1             | 0.7  |
| 947D211K132AFGSN | 210  | 1300               | 85   | 112    | 32      | 41300   | 52                    | 2.7  | 42   | 1.3             | 2.9             | 0.7  |
| 947D211K132BEMSN | 210  | 1300               | 90   | 100    | 45      | 41000   | 61                    | 2.0  | 37   | 1.1             | 2.9             | 0.7  |
| 947D231K132CDRSN | 230  | 1300               | 100  | 87     | 50      | 43000   | 69                    | 1.6  | 34   | 1.2             | 2.8             | 0.8  |
| 947D241K132AGGSN | 240  | 1300               | 85   | 126    | 32      | 45000   | 51                    | 3.0  | 46   | 1.3             | 2.7             | 0.8  |
| 947D241K132BFMSN | 240  | 1300               | 90   | 112    | 45      | 44400   | 60                    | 2.2  | 41   | 1.1             | 2.7             | 0.8  |
| 947D251K132DCRSN | 250  | 1300               | 116  | 75     | 50      | 48500   | 87                    | 1.2  | 35   | 0.9             | 2.5             | 0.9  |
| 947D271K132AHGSN | 270  | 1300               | 85   | 136    | 32      | 47700   | 50                    | 3.3  | 50   | 1.2             | 2.5             | 0.8  |
| 947D271K132CERSN | 270  | 1300               | 100  | 100    | 50      | 47100   | 68                    | 1.8  | 38   | 1.2             | 2.5             | 0.9  |
| 947D281K132BGMSN | 280  | 1300               | 90   | 126    | 45      | 48300   | 59                    | 2.4  | 45   | 1.0             | 2.5             | 0.9  |
| 947D301K132AJGSN | 300  | 1300               | 85   | 150    | 32      | 51400   | 50                    | 3.5  | 54   | 1.2             | 2.3             | 0.9  |
| 947D311K132BHMSN | 310  | 1300               | 90   | 136    | 45      | 51200   | 58                    | 2.7  | 49   | 1.0             | 2.3             | 0.9  |
| 947D311K132CFRSN | 310  | 1300               | 100  | 112    | 50      | 50900   | 66                    | 2.0  | 42   | 1.1             | 2.4             | 1.0  |
| 947D311K132DDRSN | 310  | 1300               | 116  | 87     | 50      | 52800   | 85                    | 1.3  | 40   | 0.9             | 2.3             | 1.1  |
| 947D331K132ALGSN | 330  | 1300               | 85   | 162    | 32      | 54600   | 49                    | 3.8  | 59   | 1.2             | 2.2             | 1.0  |
| 947D341K132BJMSN | 340  | 1300               | 90   | 150    | 45      | 55100   | 57                    | 2.9  | 53   | 1.0             | 2.2             | 1.0  |
| 947D351K132CGRSN | 350  | 1300               | 100  | 126    | 50      | 55300   | 66                    | 2.2  | 46   | 1.1             | 2.2             | 1.1  |
| 947D371K132DERSN | 370  | 1300               | 116  | 100    | 50      | 57600   | 84                    | 1.5  | 45   | 0.9             | 2.1             | 1.2  |
| 947D381K132BLMSN | 380  | 1300               | 90   | 162    | 45      | 58500   | 56                    | 3.1  | 58   | 1.0             | 2.1             | 1.1  |
| 947D391K132CHRSN | 390  | 1300               | 100  | 136    | 50      | 58400   | 64                    | 2.4  | 50   | 1.1             | 2.1             | 1.2  |
| 947D421K132DFRSN | 420  | 1300               | 116  | 112    | 50      | 62000   | 82                    | 1.6  | 50   | 0.9             | 1.9             | 1.3  |
| 947D431K132CJRSN | 430  | 1300               | 100  | 150    | 50      | 62800   | 64                    | 2.6  | 54   | 1.0             | 1.9             | 1.3  |
| 947D471K132CLRSN | 470  | 1300               | 100  | 162    | 50      | 66600   | 63                    | 2.8  | 59   | 1.0             | 1.8             | 1.4  |
| 947D481K132DGRSN | 480  | 1300               | 116  | 126    | 50      | 67100   | 82                    | 1.8  | 55   | 0.9             | 1.8             | 1.5  |
| 947D531K132DHRSN | 530  | 1300               | 116  | 136    | 50      | 70700   | 80                    | 1.9  | 60   | 0.8             | 1.7             | 1.6  |
| 947D591K132DJRSN | 590  | 1300               | 116  | 150    | 50      | 75800   | 79                    | 2.1  | 65   | 0.8             | 1.6             | 1.7  |
| 947D641K132DLRSN | 640  | 1300               | 116  | 162    | 50      | 80200   | 78                    | 2.2  | 70   | 0.8             | 1.5             | 1.8  |

# Type 947D Polypropylene, High Energy Density, DC Link Capacitors

## High Current, High Capacitance for Inverter Applications

### Expected Lifetime Predictions

Capacitance:  $C$  ( $\mu\text{F}$ )  
Equivalent Series Resistance:  $\text{ESR}$  ( $\text{m}\Omega$ )  
Frequency:  $f$  ( $\text{kHz}$ )  
Ripple Current:  $I$  ( $\text{A}_{\text{rms}}$ )  
Ambient Temperature:  $T_A$  ( $^{\circ}\text{C}$ )  
Core Temperature:  $T_C$  ( $^{\circ}\text{C}$ )  
Total Thermal Resistance:  $\Theta$  ( $^{\circ}\text{C}/\text{W}$ )  
Thermal Resistance case-to-ambient:  $\Theta_{\text{CA}}$  ( $^{\circ}\text{C}/\text{W}$ )  
Thermal Resistance core-to-case:  $\Theta_{\text{CC}}$  ( $^{\circ}\text{C}/\text{W}$ )  
Airflow Speed:  $v$  ( $\text{m/s}$ )  
Applied Voltage:  $V_A$  ( $\text{V}_{\text{DC}}$ )  
Rated Voltage:  $V_R$  ( $\text{V}_{\text{DC}}$ )

Use the 10 kHz ESR from the ratings tables.

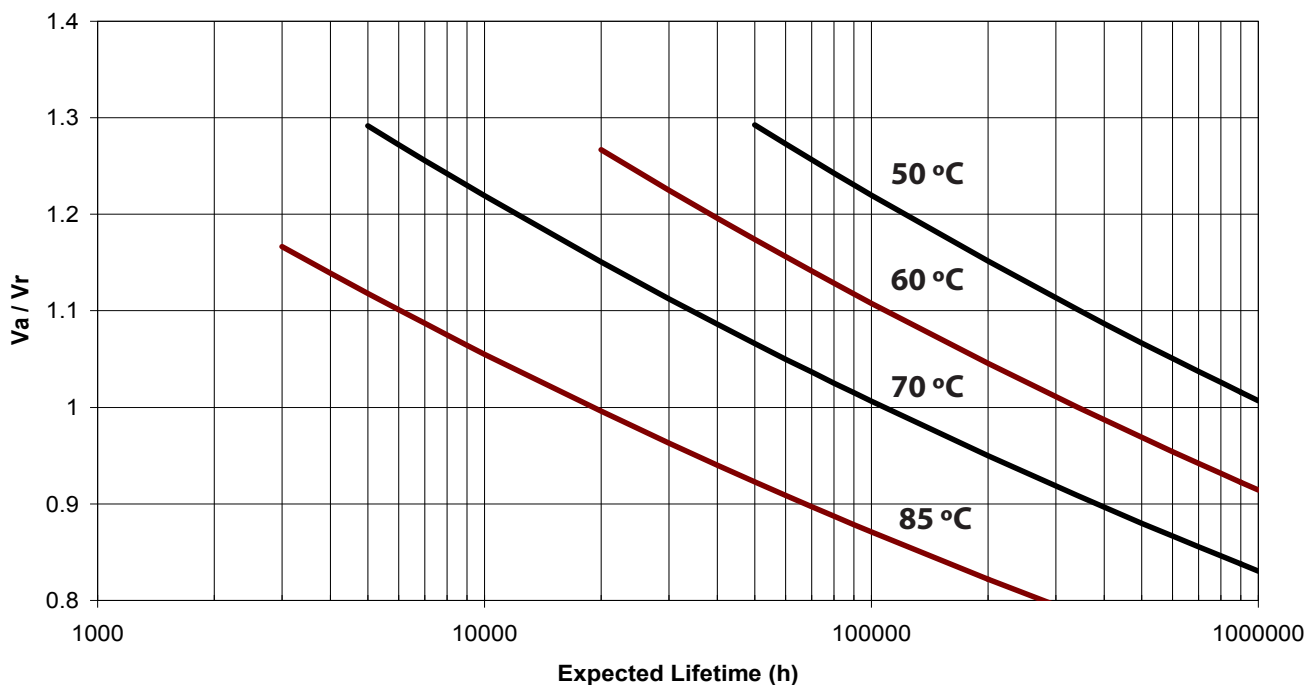
For operation below 10 kHz, the ESR will need to be adjusted using the following equation:  $\text{ESR} - 31.83 / (10C) + 31.83 / (fC)$ .

Compute  $\Theta = \Theta_{\text{CC}} + \Theta_{\text{CA}}$ . In the ratings tables,  $\Theta_{\text{CA}}$  is for still air. For moving air use the capacitor surface area  $A$  and airflow speed  $v$  to calculate  $\theta_{\text{ca}} = 1 / [A(5 + 17(v + 0.1)^{0.66})]$ .

Look up Expected Lifetime on the graph using  $V_A / V_R$  and  $T_C = T_A + I^2 (\text{ESR} / 1000) \Theta$

The maximum allowed temperature rise is  $40^{\circ}\text{C}$  and the maximum allowed core temperature is  $95^{\circ}\text{C}$ .

**Expected Lifetime vs Core Temperature and Applied DC Voltage**

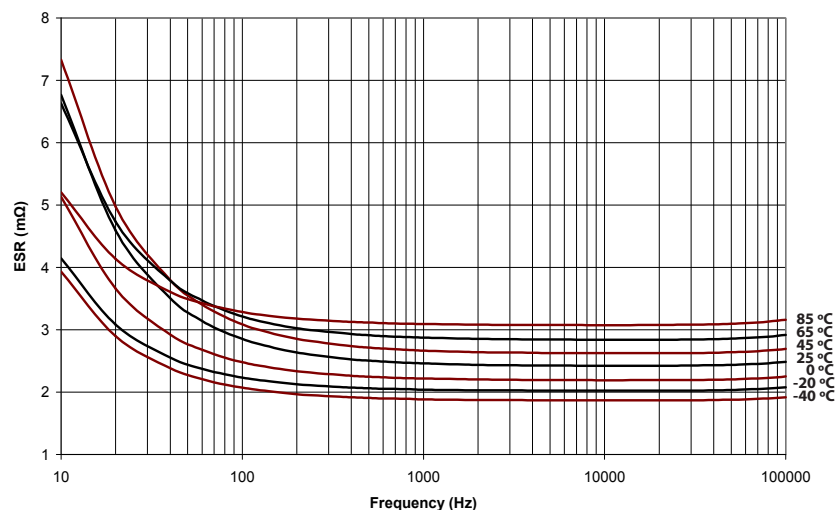


# Type 947D Polypropylene, High Energy Density, DC Link Capacitors

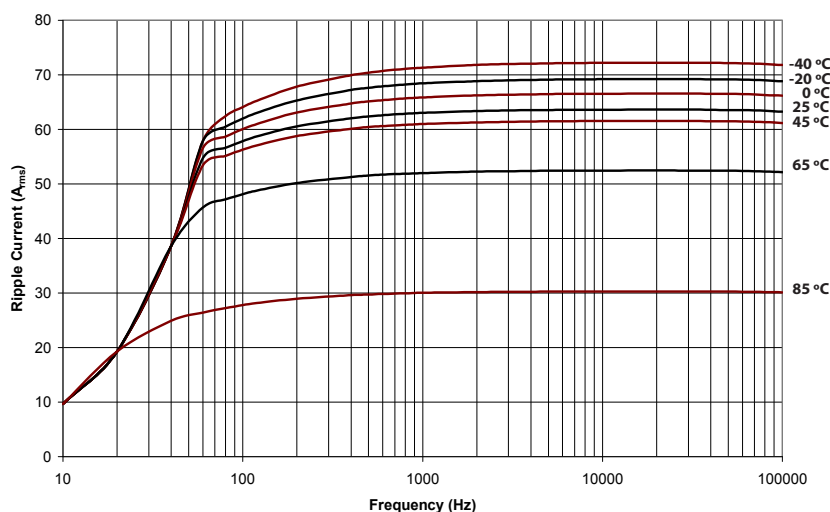
## High Current, High Capacitance for Inverter Applications

### Typical Performance Curves

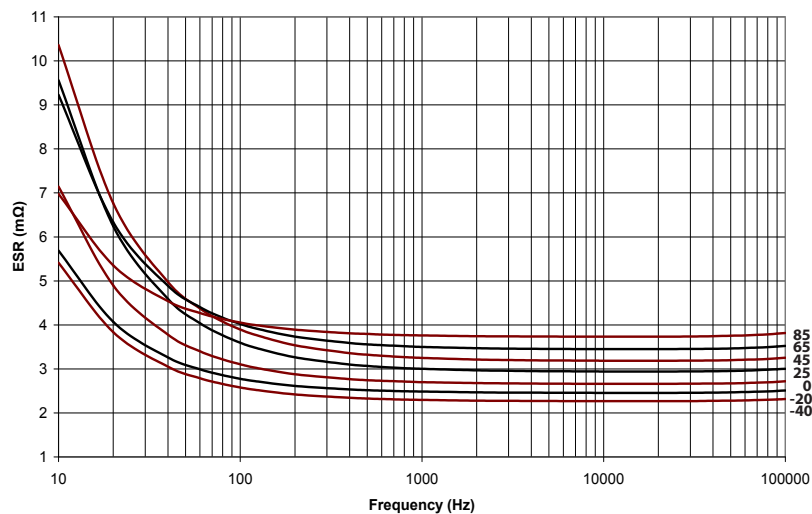
947D641K901AHGSN ESR vs Frequency and Temperature



947D641K901AHGSN Rated Ripple Current, Still Air, 7kh Life



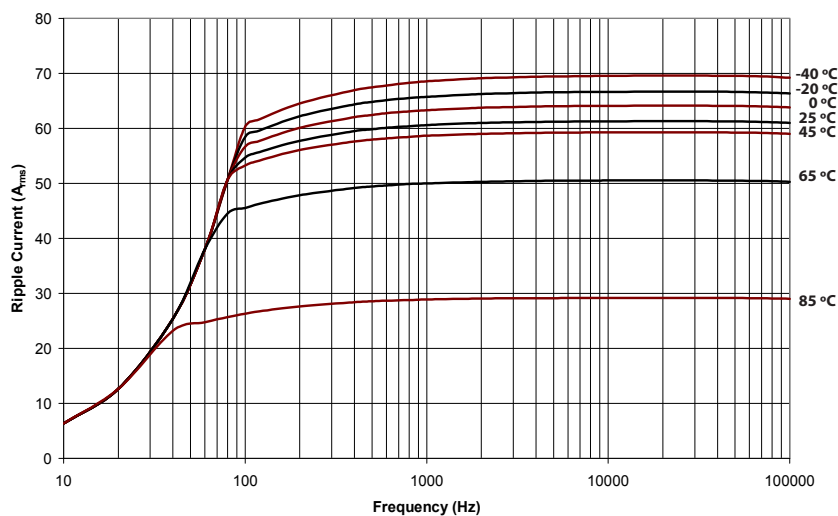
947D421K112AHGSN ESR vs Frequency and Temperature



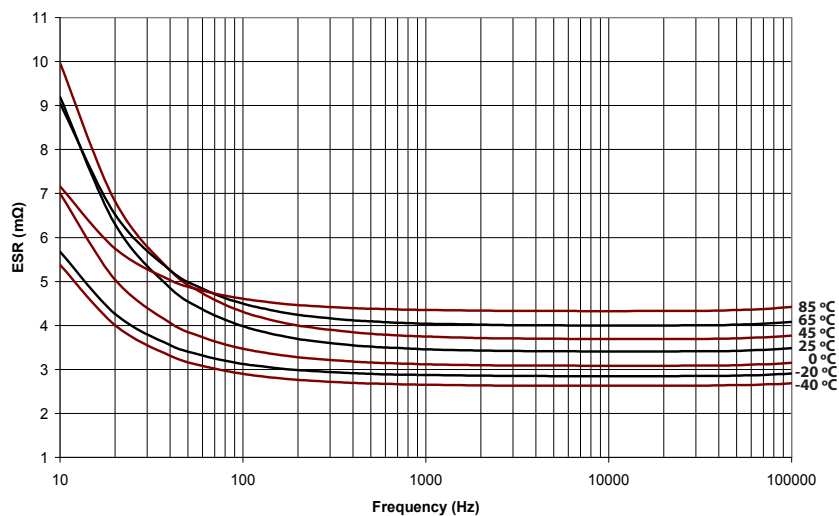
# Type 947D Polypropylene, High Energy Density, DC Link Capacitors

## High Current, High Capacitance for Inverter Applications

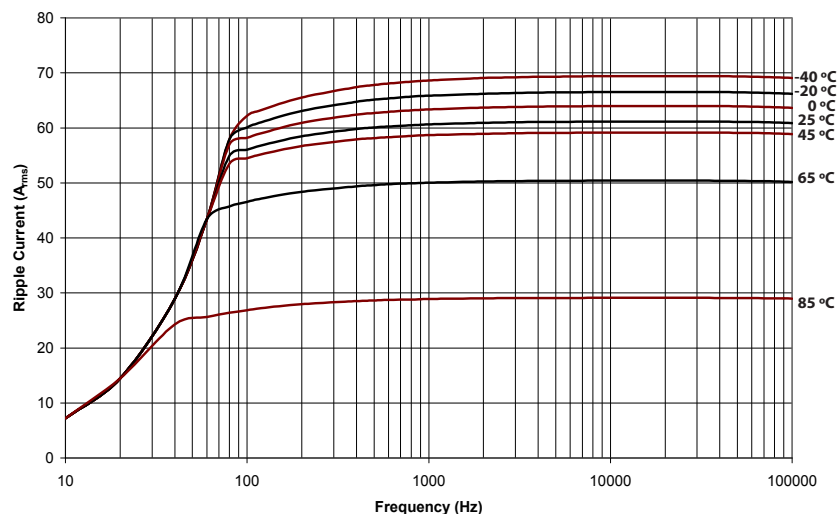
947D421K112AHGSN Rated Ripple Current, Still Air, 7kh Life



947D481K112ALGSN ESR vs Frequency and Temperature



947D481K112ALGSN Rated Ripple Current, Still Air, 7kh Life



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