

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

## High Current, High Capacitance for Inverter Applications



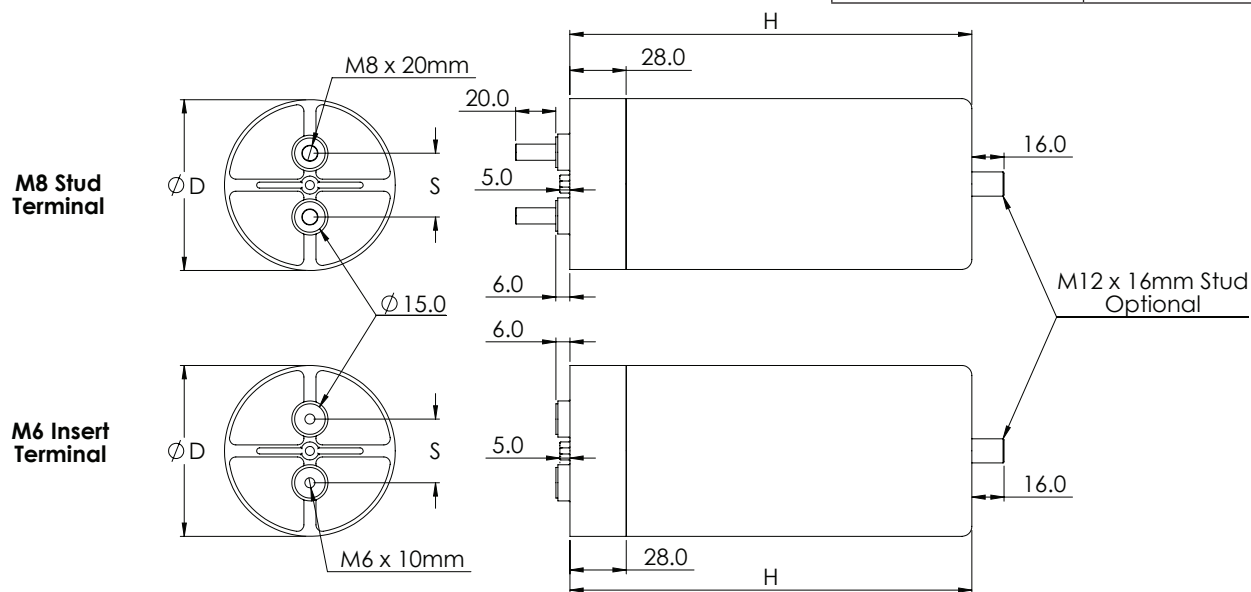
Type 947D series uses the most advanced metallized film technology for long life and high reliability in DC Link applications. This series combines high capacitance and very high ripple current capability needed for today’s inverter designs for wind, solar, fuel cells, UPS systems and more.

### Specifications

|                                                |                                       |
|------------------------------------------------|---------------------------------------|
| Capacitance Range                              | 130 to 1500 µF                        |
| Capacitance Tolerance                          | ±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<br>(µF) | V <sub>R</sub><br>(V <sub>DC</sub> ) | D<br>(mm) | H<br>(mm) | S<br>(mm) | Area<br>(mm <sup>2</sup> ) | I <sub>rms</sub><br>(A) | ESR<br>(mΩ) | ESL<br>(nH) | Θ <sub>cc</sub><br>(°C/W) | Θ <sub>ca</sub><br>(°C/W) | Mass<br>(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 |      |                 |                 | Max  |
|-------------------|------|--------------------|------|--------|---------|--------------------|-----------------------|---------|------|-----------------|-----------------|------|
|                   | C    | Voltage            | Dia  | Height | Spacing | Case               | T <sub>A</sub> =55 °C | Typ     | Typ  | Resistance      |                 |      |
|                   | (μF) | V <sub>R</sub>     | D    | H      | S       | Area               | I <sub>rms</sub>      | ESR     | ESL  | Θ <sub>cc</sub> | Θ <sub>ca</sub> | Mass |
|                   |      | (V <sub>DC</sub> ) | (mm) | (mm)   | (mm)    | (mm <sup>2</sup> ) | (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  |
| 947D181K132BDMMSN | 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.

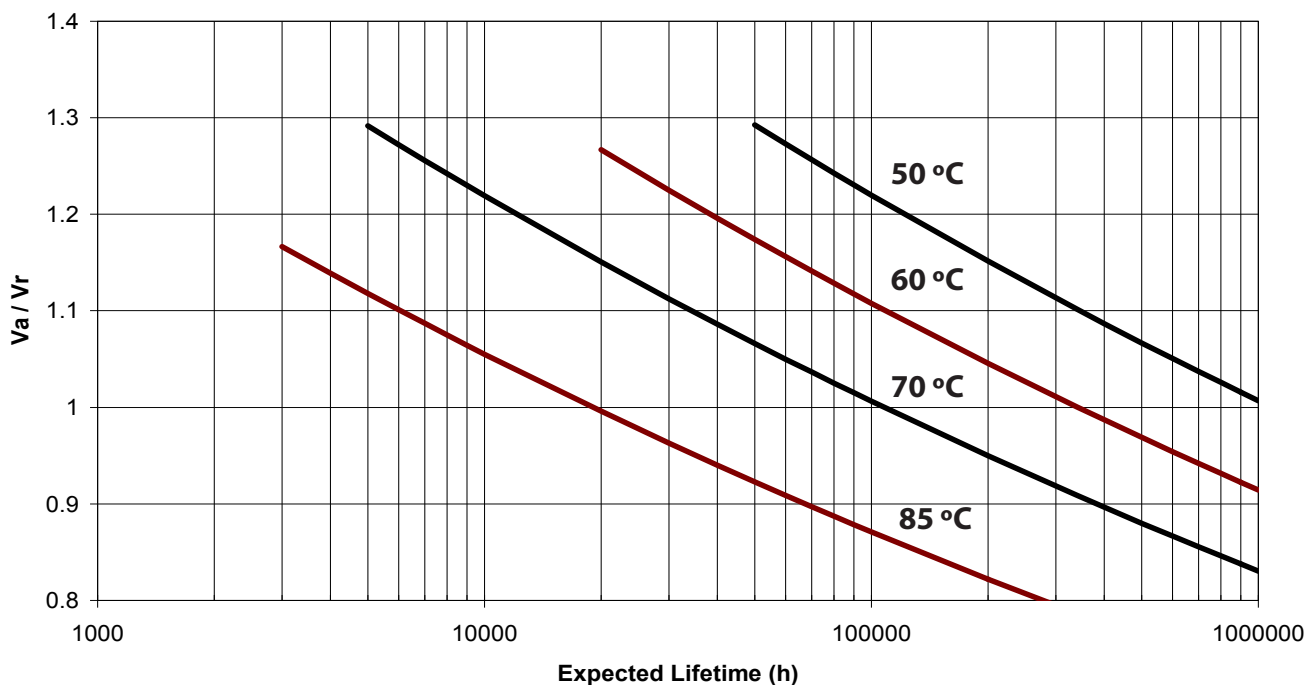
For operation below 10 kHz, the ESR will need to be adjusted using the following equation:  $\text{ESR} - 31.83 / (10C) + 31.83 / (fC)$ .

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**

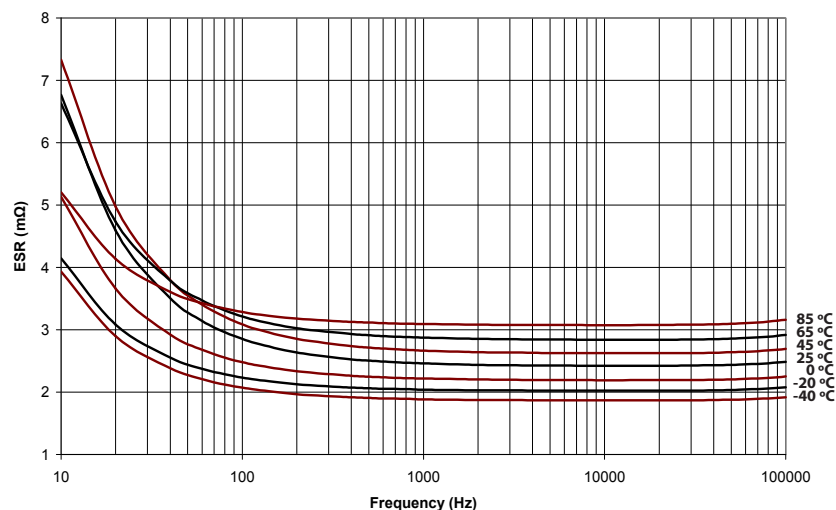


# Type 947D Polypropylene, High Energy Density, DC Link Capacitors

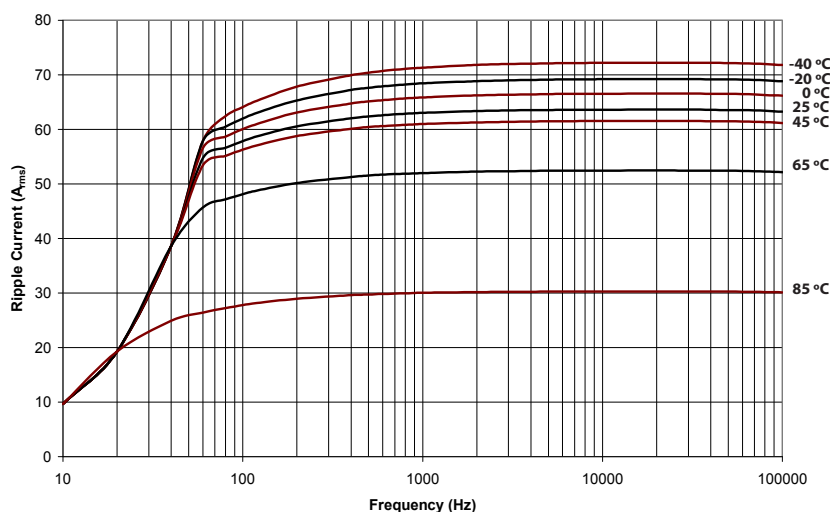
## High Current, High Capacitance for Inverter Applications

### Typical Performance Curves

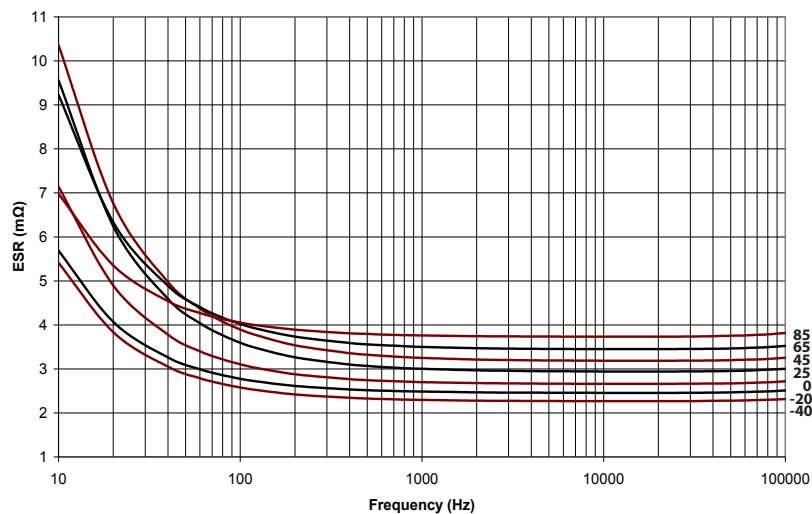
947D641K901AHGSN ESR vs Frequency and Temperature



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



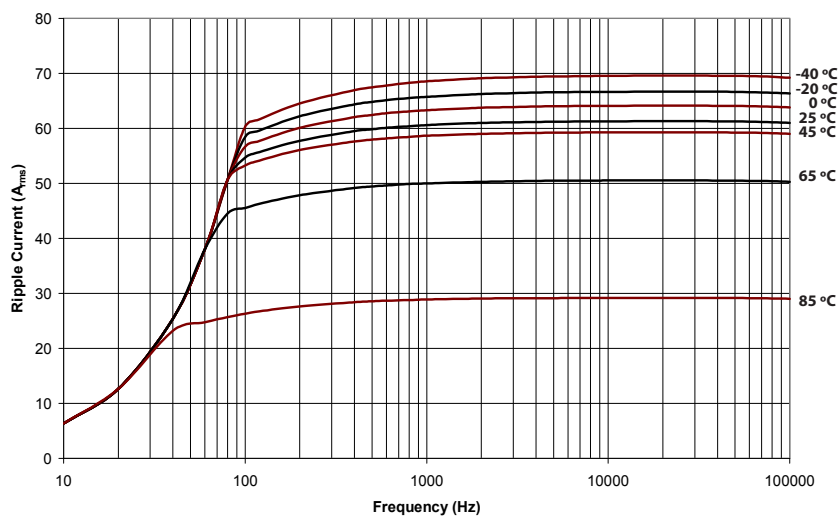
947D421K112AHGSN ESR vs Frequency and Temperature



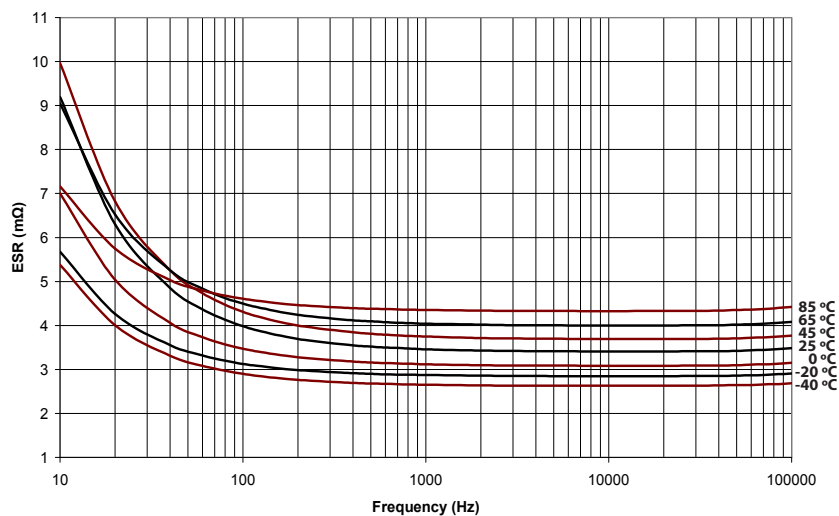
# Type 947D Polypropylene, High Energy Density, DC Link Capacitors

## High Current, High Capacitance for Inverter Applications

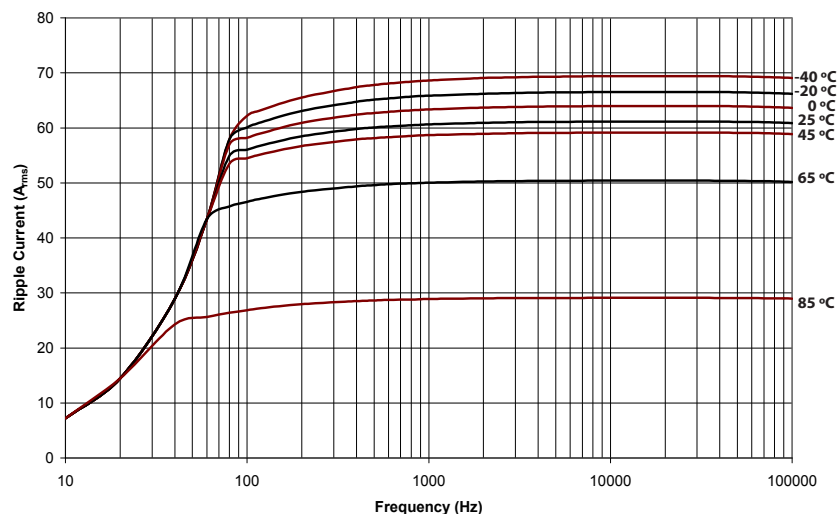
947D421K112AHGSN Rated Ripple Current, Still Air, 7kh Life



947D481K112ALGSN ESR vs Frequency and Temperature



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



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