

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

## High Current, High Capacitance for Inverter Applications



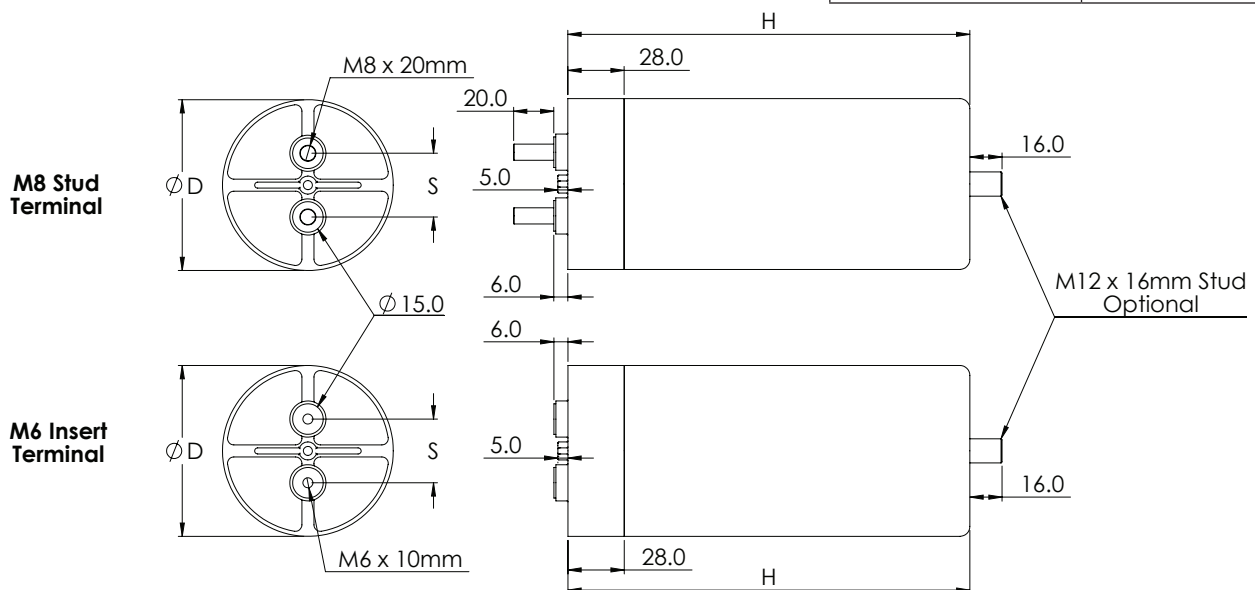
Type 947D series uses the most advanced metallized film technology for long life and high reliability in DC Link applications. This series combines high capacitance and very high ripple current capability needed for today's inverter designs for wind, solar, fuel cells, UPS systems and more.

### 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

|             |                               |           |   |  |  |  |                                |                                |
|-------------|-------------------------------|-----------|---|--|--|--|--------------------------------|--------------------------------|
| <b>947D</b> | <b>391</b>                    | <b>K</b>  | <b>112</b>  | <b>C</b>   | <b>E</b>   | <b>R</b>   | <b>S</b>                       | <b>N</b>                       |
| 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

| PartNumber       | Rated |                    | Can      | Can    | Lead    | Current            |                       |      |      | Thermal         |                 |      |
|------------------|-------|--------------------|----------|--------|---------|--------------------|-----------------------|------|------|-----------------|-----------------|------|
|                  | Cap   | Voltage            | Diameter | Height | Spacing | Case               | T <sub>A</sub> =55 °C | Typ  | Typ  | Resistance      |                 | Max  |
|                  | 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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| PartNumber       | Rated    |                           | Can      |             | Lead         | Current            |   |            |            | Thermal                   |                           | Max<br>Mass<br>(kg) |
|------------------|----------|---------------------------|----------|-------------|--------------|--------------------|---|------------|------------|---------------------------|---------------------------|---------------------|
|                  | Cap<br>C | Voltage<br>V <sub>R</sub> | Dia<br>D | Height<br>H | Spacing<br>S | Case<br>Area       | T <sub>A</sub> =55 °C<br>I <sub>rms</sub> | Typ<br>ESR | Typ<br>ESL | Resistance                |                           |                     |
|                  | (μF)     | (V <sub>DC</sub> )        | (mm)     | (mm)        | (mm)         | (mm <sup>2</sup> ) | (A)                                       | (mΩ)       | (nH)       | Θ <sub>cc</sub><br>(°C/W) | Θ <sub>ca</sub><br>(°C/W) |                     |
| 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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| PartNumber       | Rated |   | Can        |               | Lead           | Current                      |                                |              |              | Thermal                |                        | Max Mass (kg) |
|------------------|-------|---|------------|---------------|----------------|------------------------------|--------------------------------|--------------|--------------|------------------------|------------------------|---------------|
|                  | Cap C | Voltage V <sub>r</sub> (V <sub>DC</sub> ) | Dia D (mm) | Height H (mm) | Spacing S (mm) | Case Area (mm <sup>2</sup> ) | T <sub>A</sub> =55 °C Irms (A) | Typ ESR (mΩ) | Typ ESL (nH) | Resistance             |                        |               |
|                  | (μF)  | (V <sub>DC</sub> )                        | (mm)       | (mm)          | (mm)           | (mm <sup>2</sup> )           | (A)                            | (mΩ)         | (nH)         | Θ <sub>cc</sub> (°C/W) | Θ <sub>ca</sub> (°C/W) |               |
| 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<br>C<br>( $\mu$ F) | Rated<br>Voltage<br>$V_R$<br>( $V_{DC}$ ) | Can<br>Dia<br>D<br>(mm) | Can<br>Height<br>H<br>(mm) | Lead<br>Spacing<br>S<br>(mm) | Case<br>Area<br>(mm <sup>2</sup> ) | Current   |                             |                    | Thermal  |  | Max<br>Mass<br>(kg) |
|-------------------|------------------------|---|-------------------------|----------------------------|------------------------------|------------------------------------|---|-----------------------------|--------------------|--|--|---------------------|
|                   |                        |   |                         |                            |                              |                                    | $T_A=55^\circ\text{C}$<br>I <sub>rms</sub><br>(A) | Typ<br>ESR<br>(m $\Omega$ ) | Typ<br>ESL<br>(nH) | Resistance<br>$\Theta_{cc}$<br>( $^\circ\text{C}/\text{W}$ ) | $\Theta_{ca}$<br>( $^\circ\text{C}/\text{W}$ ) |                     |
| 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:  $v$  ( $\text{m}/\text{s}$ )
- 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

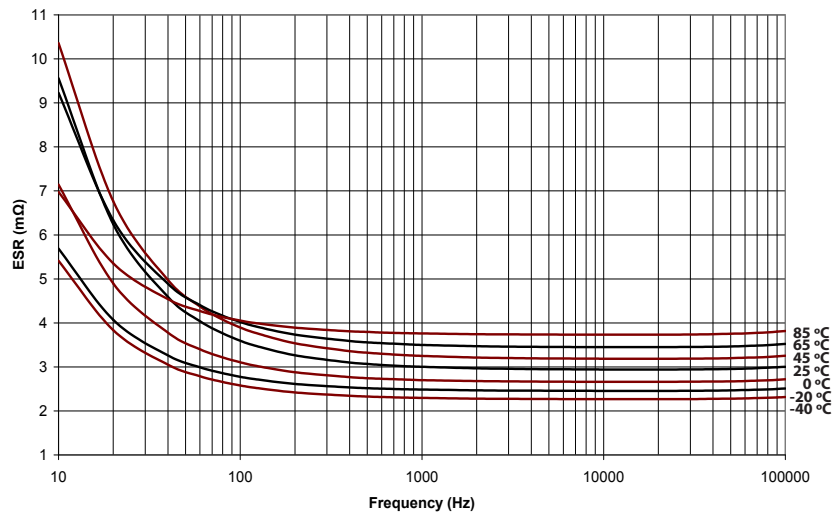
947D641K901AHGSN ESR vs Frequency and Temperature



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



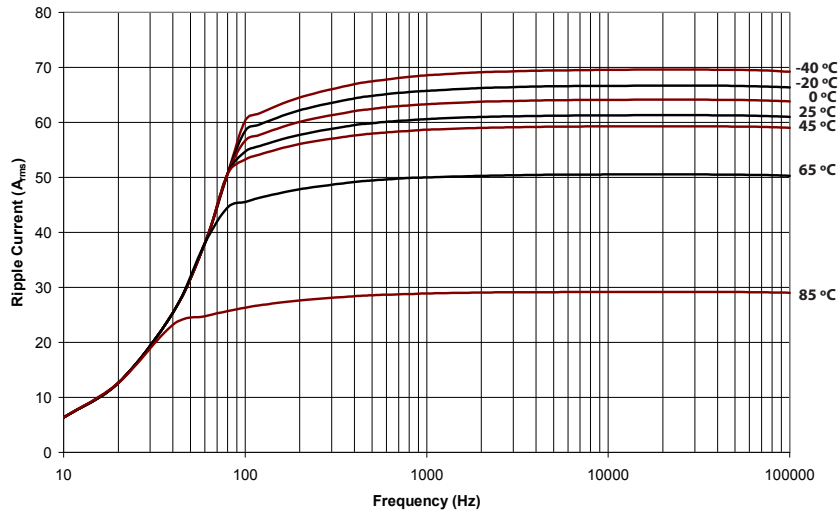
947D421K112AHGSN ESR vs Frequency and Temperature



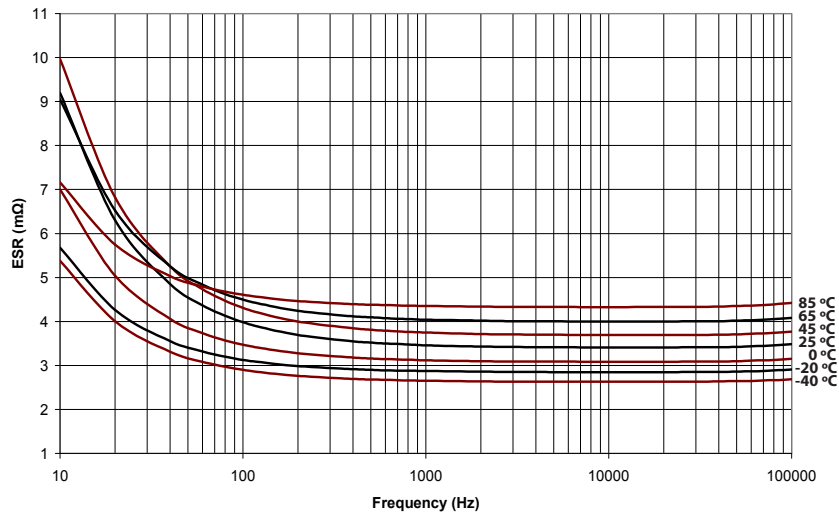
# Type 947D Polypropylene, High Energy Density, DC Link Capacitors

## High Current, High Capacitance for Inverter Applications

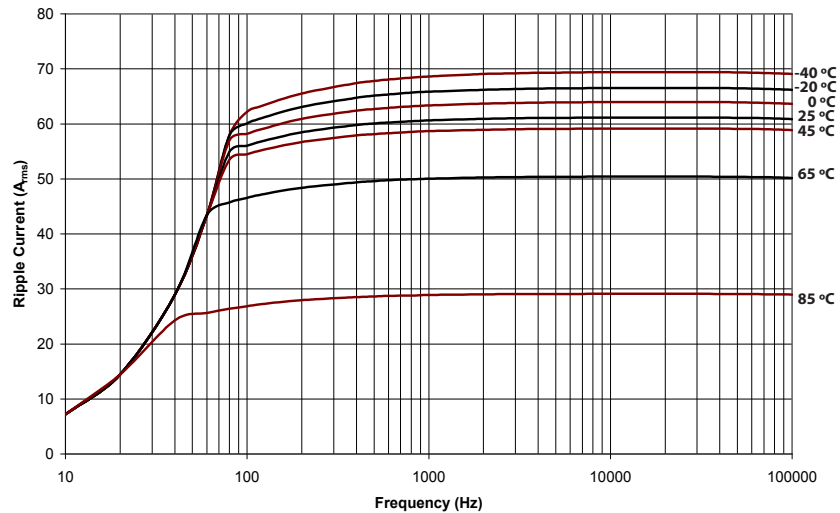
947D421K112AHGSN Rated Ripple Current, Still Air, 7kh Life



947D481K112ALGSN ESR vs Frequency and Temperature



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





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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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