

# Type 947C Polypropylene, DC Link Capacitors

## High Current, High Capacitance for Inverter Applications



Type 947C series uses the most advanced metallized film technology for long life, high reliability in DC Link applications. This series delivers high capacitance, high voltage and high ripple current handling capabilities required for inverters used in wind, solar, fuel cell applications and more.

### Highlights

- Non-polar dielectric
- Dry, resin filled
- High reliability and life expectancy
- Replacement for aluminum electrolytic capacitors (lower capacitance, higher current)
- High current to 100 Amps
- Low ESR
- Low Inductance

### Specifications

|                                               |                                         |
|-----------------------------------------------|-----------------------------------------|
| Capacitance Range                             | 110 to 1500 $\mu$ F                     |
| Capacitance Tolerance                         | $\pm 10\%$ standard, $\pm 5\%$ optional |
| Rated Voltage                                 | 800 to 1300 Vdc                         |
| Operating Temperature Range                   | -40 °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 & Case @ 25 °C | 4 kVac @ 50/60 Hz for 60 s              |
| Life Test                                     | 5000 h @ 85 °C, rated voltage           |
| Life Expectancy                               | 200,000 h @ 60 °C , rated voltage       |
| Reliability                                   | 100 FIT typical (medium size capacitor) |
| Standards                                     | IEC 61071, IEC 61881                    |
| RoHS Compliant                                |                                         |

### Dimensions

#### Construction Details

|                   |                                |
|-------------------|--------------------------------|
| Case Material     | Aluminum with Black PVC Sleeve |
| Resin Material    | Dry Resin UL94V-0              |
| Terminal Material | Tin Plated Brass               |

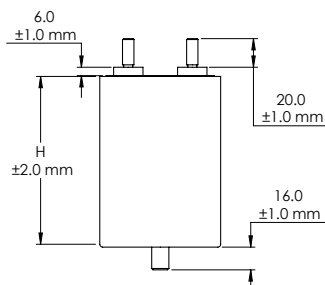
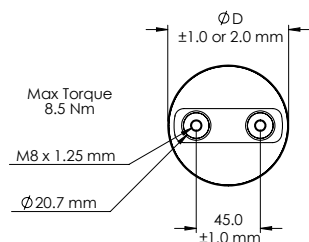


Figure 1

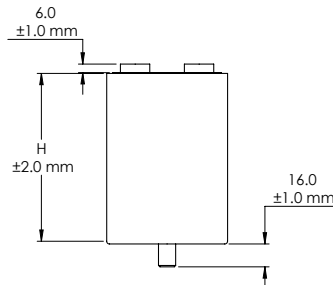
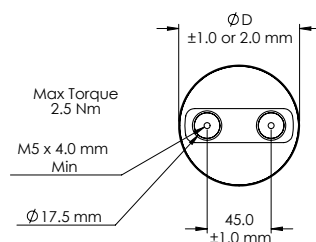


Figure 2

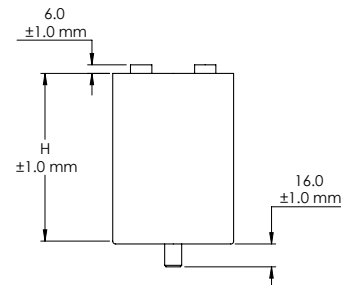
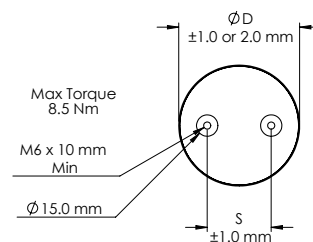


Figure 3

All Shown with Optional M12 x 1.75 THD Stud

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## High Current, High Capacitance for Inverter Applications

### Part Numbering System

| 947C | 361                | K              | 801            | C          | A          | M             | S               | - NS         |
|------|--------------------|----------------|----------------|------------|------------|---------------|-----------------|--------------|
| Type | Capacitance        | Tolerance      | Voltage        | Diameter D | Height H   | Terminal      | Mounting        | Sleeving     |
| 947C | 361 = 360 $\mu$ F  | K = $\pm 10$ % | 801 = 800 Vdc  | C = 90 mm  | T = 85 mm  | I = M5 Insert | blank = no stud | Specify -NS  |
|      | 731 = 730 $\mu$ F  | J = $\pm 5$ %  | 901 = 900 Vdc  | B = 85 mm  | A = 97 mm  | Threaded      | S = M12 Stud    | for Bare Can |
|      | 152 = 1500 $\mu$ F |                | 102 = 1000 Vdc | D = 116 mm | B = 120 mm | M = M8 Stud   | Threaded        |              |
|      |                    |                | 112 = 1100 Vdc |            | G = 140 mm | Threaded      |                 |              |
|      |                    |                | 122 = 1200 Vdc |            | C = 145 mm | H = M6 Insert |                 |              |
|      |                    |                | 132 = 1300 Vdc |            | L = 165 mm | Threaded      |                 |              |
|      |                    |                |                |            | D = 170 mm |               |                 |              |

### Ratings

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

| Part Number     | Rated | Can     | Can      | Lead   | Current |       |         |      | Thermal Resistance |        |        |      |     |
|-----------------|-------|---------|----------|--------|---------|-------|---------|------|--------------------|--------|--------|------|-----|
|                 | Cap.  | Voltage | Diameter | Height | Spacing | Case  | ΔT = 40 | Typ  | Typ                |        |        |      |     |
|                 | C     | Vr      | D        | H      | S       | Area  | Irms    | ESR  | ESL                | Θcc    | Θca    | Mass |     |
|                 | (μF)  | (Vdc)   | (mm)     | (mm)   | (mm)    | (mm²) | (A)     | (mΩ) | (nH)               | (°C/W) | (°C/W) | (kg) | Fig |
| 947C311K801BTHS | 310   | 800     | 85       | 85     | 31.7    | 34000 | 61      | 1.9  | 29                 | 2.9    | 3.4    | 0.6  | 3   |
| 947C341K801CTMS | 340   | 800     | 90       | 85     | 45.0    | 36800 | 66      | 1.7  | 29                 | 2.8    | 3.1    | 0.7  | 1   |
| 947C341K801CTIS | 340   | 800     | 90       | 85     | 45.0    | 36800 | 66      | 1.7  | 29                 | 2.8    | 3.1    | 0.7  | 2   |
| 947C361K801CAMS | 360   | 800     | 90       | 97     | 45.0    | 40100 | 65      | 1.9  | 33                 | 3.0    | 2.9    | 0.9  | 1   |
| 947C361K801CAIS | 360   | 800     | 90       | 97     | 45.0    | 40100 | 65      | 1.9  | 33                 | 3.0    | 2.9    | 0.9  | 2   |
| 947C381K801BAHS | 380   | 800     | 85       | 97     | 31.7    | 37300 | 61      | 2.0  | 33                 | 2.7    | 3.1    | 0.7  | 3   |
| 947C411K801CAMS | 410   | 800     | 90       | 97     | 45.0    | 40100 | 65      | 1.9  | 33                 | 2.7    | 2.9    | 0.7  | 1   |
| 947C411K801CAIS | 410   | 800     | 90       | 97     | 45.0    | 40100 | 65      | 1.9  | 33                 | 2.7    | 2.9    | 0.7  | 2   |
| 947C491K801CBMS | 490   | 800     | 90       | 120    | 45.0    | 46700 | 59      | 2.6  | 41                 | 2.6    | 2.5    | 1.0  | 1   |
| 947C491K801CBIS | 490   | 800     | 90       | 120    | 45.0    | 46700 | 59      | 2.6  | 41                 | 2.6    | 2.5    | 1.0  | 2   |
| 947C511K801BBHS | 510   | 800     | 85       | 120    | 31.7    | 43400 | 59      | 2.5  | 41                 | 2.3    | 2.6    | 0.8  | 3   |
| 947C561K801CBMS | 560   | 800     | 90       | 120    | 45.0    | 46700 | 64      | 2.3  | 41                 | 2.3    | 2.5    | 0.9  | 1   |
| 947C561K801CBIS | 560   | 800     | 90       | 120    | 45.0    | 46700 | 64      | 2.3  | 41                 | 2.3    | 2.5    | 0.9  | 2   |
| 947C601K801CCMS | 600   | 800     | 90       | 145    | 45.0    | 53700 | 58      | 3.1  | 49                 | 2.2    | 2.1    | 1.2  | 1   |
| 947C601K801CCIS | 600   | 800     | 90       | 145    | 45.0    | 53700 | 58      | 3.1  | 49                 | 2.2    | 2.1    | 1.2  | 2   |
| 947C621K801DTHS | 620   | 800     | 116      | 85     | 50.0    | 52100 | 103     | 1.0  | 35                 | 2.1    | 2.2    | 1.1  | 3   |
| 947C651K801BGHS | 650   | 800     | 85       | 140    | 31.7    | 48700 | 59      | 2.9  | 49                 | 2.0    | 2.4    | 0.9  | 3   |
| 947C701K801CCMS | 700   | 800     | 90       | 145    | 45.0    | 53700 | 63      | 2.7  | 49                 | 2.0    | 2.1    | 1.1  | 1   |
| 947C701K801CCIS | 700   | 800     | 90       | 145    | 45.0    | 53700 | 63      | 2.7  | 49                 | 2.0    | 2.1    | 1.1  | 2   |
| 947C731K801CDMS | 730   | 800     | 90       | 170    | 45.0    | 60800 | 58      | 3.5  | 58                 | 1.9    | 1.9    | 1.3  | 1   |
| 947C731K801CDIS | 730   | 800     | 90       | 170    | 45.0    | 60800 | 58      | 3.5  | 58                 | 1.9    | 1.9    | 1.3  | 2   |
| 947C751K801DAHS | 750   | 800     | 116      | 97     | 50.0    | 56500 | 101     | 1.1  | 40                 | 2.1    | 2      | 1.2  | 3   |
| 947C791K801BDHS | 790   | 800     | 85       | 170    | 31.7    | 56700 | 59      | 3.3  | 58                 | 1.7    | 2      | 1.1  | 3   |
| 947C851K801CDMS | 850   | 800     | 90       | 170    | 45.0    | 60800 | 63      | 3.0  | 58                 | 1.7    | 1.9    | 1.2  | 1   |
| 947C851K801CDIS | 850   | 800     | 90       | 170    | 45.0    | 60800 | 63      | 3.0  | 58                 | 1.7    | 1.9    | 1.2  | 2   |
| 947C102K801DBHS | 1000  | 800     | 116      | 120    | 50.0    | 64900 | 97      | 1.3  | 50                 | 2.0    | 1.8    | 1.4  | 3   |
| 947C122K801DCHS | 1200  | 800     | 116      | 145    | 50.0    | 74000 | 92      | 1.6  | 60                 | 1.9    | 1.6    | 1.7  | 3   |
| 947C152K801DLHS | 1500  | 800     | 116      | 165    | 50.0    | 81300 | 93      | 1.8  | 70                 | 1.7    | 1.4    | 1.9  | 3   |
| 947C241K901BTHS | 240   | 900     | 85       | 85     | 31.7    | 34000 | 57      | 2.1  | 29                 | 2.9    | 3.4    | 0.6  | 3   |

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| Part Number     | Rated       |         | Can      | Can    | Lead    | Current            |                 |               |      |                    |                   |      |     |
|-----------------|-------------|---------|----------|--------|---------|--------------------|-----------------|---------------|------|--------------------|-------------------|------|-----|
|                 | Cap.        | Voltage | Diameter | Height | Spacing | Case               | $\Delta T = 40$ | Typ           | Typ  | Thermal Resistance |                   | Mass | Fig |
|                 | C           | Vr      | D        | H      | S       | Area               | Irms            | ESR           | ESL  | $\Theta_{cc}$      | $\Theta_{ca}$     | (kg) |     |
|                 | ( $\mu F$ ) | (Vdc)   | (mm)     | (mm)   | (mm)    | (mm <sup>2</sup> ) | (A)             | (m $\Omega$ ) | (nH) | ( $^{\circ}C/W$ )  | ( $^{\circ}C/W$ ) | (kg) |     |
| 947C261K901CTMS | 260         | 900     | 90       | 85     | 45.0    | 36800              | 61              | 2.0           | 29   | 2.9                | 3.1               | 0.7  | 1   |
| 947C261K901CTIS | 260         | 900     | 90       | 85     | 45.0    | 36800              | 61              | 2.0           | 29   | 2.9                | 3.1               | 0.7  | 2   |
| 947C291K901BAHS | 290         | 900     | 85       | 97     | 31.7    | 37300              | 56              | 2.3           | 33   | 2.7                | 3.1               | 0.7  | 3   |
| 947C321K901CAMS | 320         | 900     | 90       | 97     | 45.0    | 40100              | 61              | 2.1           | 33   | 2.7                | 2.9               | 0.7  | 1   |
| 947C321K901CAIS | 320         | 900     | 90       | 97     | 45.0    | 40100              | 61              | 2.1           | 33   | 2.7                | 2.9               | 0.7  | 2   |
| 947C401K901BBHS | 400         | 900     | 85       | 120    | 31.7    | 43400              | 56              | 2.8           | 41   | 2.3                | 2.6               | 0.8  | 3   |
| 947C431K901CBMS | 430         | 900     | 90       | 120    | 45.0    | 46700              | 59              | 2.6           | 41   | 2.3                | 2.5               | 0.9  | 1   |
| 947C431K901CBIS | 430         | 900     | 90       | 120    | 45.0    | 46700              | 59              | 2.6           | 41   | 2.3                | 2.5               | 0.9  | 2   |
| 947C481K901DTHS | 480         | 900     | 116      | 85     | 50.0    | 52100              | 96              | 1.1           | 35   | 2.1                | 2.2               | 1.1  | 3   |
| 947C511K901BGHS | 510         | 900     | 85       | 140    | 31.7    | 48700              | 56              | 3.2           | 49   | 2.0                | 2.4               | 0.9  | 3   |
| 947C551K901CCMS | 550         | 900     | 90       | 145    | 45.0    | 53700              | 59              | 3.0           | 49   | 2.0                | 2.1               | 1.0  | 1   |
| 947C551K901CCIS | 550         | 900     | 90       | 145    | 45.0    | 53700              | 59              | 3.0           | 49   | 2.0                | 2.1               | 1.0  | 2   |
| 947C581K901DAHS | 580         | 900     | 116      | 97     | 50.0    | 56500              | 94              | 1.3           | 35   | 2.1                | 2                 | 1.2  | 3   |
| 947C611K901BDHS | 610         | 900     | 85       | 170    | 31.7    | 56700              | 56              | 3.7           | 58   | 1.7                | 2                 | 1.1  | 3   |
| 947C661K901CDMS | 660         | 900     | 90       | 170    | 45.0    | 60800              | 59              | 3.4           | 58   | 1.8                | 1.9               | 1.2  | 1   |
| 947C661K901CDIS | 660         | 900     | 90       | 170    | 45.0    | 60800              | 59              | 3.4           | 58   | 1.8                | 1.9               | 1.2  | 2   |
| 947C791K901DBHS | 790         | 900     | 116      | 120    | 50.0    | 64900              | 91              | 1.5           | 50   | 2.0                | 1.8               | 1.4  | 3   |
| 947C102K901DCHS | 1000        | 900     | 116      | 145    | 50.0    | 74000              | 89              | 1.7           | 60   | 1.8                | 1.6               | 1.7  | 3   |
| 947C122K901DLHS | 1200        | 900     | 116      | 165    | 50.0    | 81300              | 89              | 2.0           | 70   | 1.6                | 1.4               | 1.9  | 3   |
| 947C191K102BTHS | 190         | 1000    | 85       | 85     | 31.7    | 34000              | 53              | 2.4           | 29   | 2.9                | 3.4               | 0.6  | 3   |
| 947C211K102CTMS | 210         | 1000    | 90       | 85     | 45.0    | 36800              | 58              | 2.2           | 29   | 2.9                | 3.1               | 0.7  | 1   |
| 947C211K102CTIS | 210         | 1000    | 90       | 85     | 45.0    | 36800              | 58              | 2.2           | 29   | 2.9                | 3.1               | 0.7  | 2   |
| 947C231K102CAMS | 230         | 1000    | 90       | 97     | 45.0    | 40100              | 54              | 2.6           | 33   | 3.0                | 2.9               | 0.9  | 1   |
| 947C231K102CAIS | 230         | 1000    | 90       | 97     | 45.0    | 40100              | 54              | 2.6           | 33   | 3.0                | 2.9               | 0.9  | 2   |
| 947C241K102BAHS | 240         | 1000    | 85       | 97     | 31.7    | 37300              | 54              | 2.5           | 33   | 2.7                | 3.1               | 0.7  | 3   |
| 947C251K102CAMS | 250         | 1000    | 90       | 97     | 45.0    | 40100              | 56              | 2.4           | 33   | 2.7                | 2.9               | 0.8  | 1   |
| 947C251K102CAIS | 250         | 1000    | 90       | 97     | 45.0    | 40100              | 56              | 2.4           | 33   | 2.7                | 2.9               | 0.8  | 2   |
| 947C311K102CBMS | 310         | 1000    | 90       | 120    | 45.0    | 46700              | 53              | 3.2           | 41   | 2.6                | 2.5               | 1.0  | 1   |
| 947C311K102CBIS | 310         | 1000    | 90       | 120    | 45.0    | 46700              | 53              | 3.2           | 41   | 2.6                | 2.5               | 1.0  | 2   |
| 947C321K102BBHS | 320         | 1000    | 85       | 120    | 31.7    | 43400              | 53              | 3.1           | 41   | 2.3                | 2.6               | 0.8  | 3   |
| 947C351K102CBMS | 350         | 1000    | 90       | 120    | 45.0    | 46700              | 57              | 2.8           | 41   | 2.3                | 2.5               | 0.9  | 1   |
| 947C351K102CBIS | 350         | 1000    | 90       | 120    | 45.0    | 46700              | 57              | 2.8           | 41   | 2.3                | 2.5               | 0.9  | 2   |
| 947C381K102DTHS | 380         | 1000    | 116      | 85     | 50.0    | 52100              | 90              | 1.3           | 35   | 2.2                | 2.2               | 1.1  | 3   |
| 947C391K102CCMS | 390         | 1000    | 90       | 145    | 45.0    | 53700              | 53              | 3.7           | 49   | 2.2                | 2.1               | 1.2  | 1   |
| 947C391K102CCIS | 390         | 1000    | 90       | 145    | 45.0    | 53700              | 53              | 3.7           | 49   | 2.2                | 2.1               | 1.2  | 2   |
| 947C411K102BGHS | 410         | 1000    | 85       | 140    | 31.7    | 48700              | 53              | 3.5           | 49   | 2.0                | 2.4               | 0.9  | 3   |
| 947C441K102CCMS | 440         | 1000    | 90       | 145    | 45.0    | 53700              | 56              | 3.3           | 49   | 2.0                | 2.1               | 1.1  | 1   |
| 947C441K102CCIS | 440         | 1000    | 90       | 145    | 45.0    | 53700              | 56              | 3.3           | 49   | 2.0                | 2.1               | 1.1  | 2   |
| 947C471K102DAHS | 470         | 1000    | 116      | 97     | 50.0    | 56500              | 90              | 1.4           | 40   | 2.1                | 2                 | 1.2  | 3   |
| 947C471K102CDMS | 470         | 1000    | 90       | 170    | 45.0    | 60800              | 52              | 4.3           | 38   | 1.9                | 1.9               | 1.3  | 1   |
| 947C471K102CDIS | 470         | 1000    | 90       | 170    | 45.0    | 60800              | 52              | 4.3           | 38   | 1.9                | 1.9               | 1.3  | 2   |
| 947C491K102BDHS | 490         | 1000    | 85       | 170    | 31.7    | 56700              | 53              | 4.1           | 49   | 1.7                | 2                 | 1.1  | 3   |

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## High Current, High Capacitance for Inverter Applications

| Part Number     | Rated | Can     | Can      | Lead   | Current |       |         |      |      |                    |        |      |     |
|-----------------|-------|---------|----------|--------|---------|-------|---------|------|------|--------------------|--------|------|-----|
|                 | Cap.  | Voltage | Diameter | Height | Spacing | Case  | ΔT = 40 | Typ  | Typ  | Thermal Resistance |        |      |     |
|                 | C     | Vr      | D        | H      | S       | Area  | Irms    | ESR  | ESL  | Θcc                | Θca    | Mass |     |
|                 | (μF)  | (Vdc)   | (mm)     | (mm)   | (mm)    | (mm²) | (A)     | (mΩ) | (nH) | (°C/W)             | (°C/W) | (kg) | Fig |
| 947C531K102CDMS | 530   | 1000    | 90       | 170    | 45.0    | 60800 | 56      | 3.8  | 58   | 1.8                | 1.9    | 1.2  | 1   |
| 947C531K102CDIS | 530   | 1000    | 90       | 170    | 45.0    | 60800 | 56      | 3.8  | 58   | 1.8                | 1.9    | 1.2  | 2   |
| 947C641K102DBHS | 640   | 1000    | 116      | 120    | 50.0    | 64900 | 87      | 1.6  | 50   | 2.0                | 1.8    | 1.4  | 3   |
| 947C801K102DCHS | 800   | 1000    | 116      | 145    | 50.0    | 74000 | 85      | 1.9  | 60   | 1.8                | 1.6    | 1.7  | 3   |
| 947C971K102DLHS | 970   | 1000    | 116      | 165    | 50.0    | 81300 | 84      | 2.2  | 70   | 1.6                | 1.4    | 1.9  | 3   |
| 947C161K112BTHS | 160   | 1100    | 85       | 85     | 31.7    | 34000 | 51      | 2.6  | 29   | 2.9                | 3.4    | 0.6  | 3   |
| 947C171K112CTMS | 170   | 1100    | 90       | 85     | 45.0    | 36800 | 54      | 2.4  | 29   | 2.9                | 3.1    | 0.7  | 1   |
| 947C171K112CTIS | 170   | 1100    | 90       | 85     | 45.0    | 36800 | 54      | 2.4  | 29   | 2.9                | 3.1    | 0.7  | 2   |
| 947C191K112BAHS | 190   | 1100    | 85       | 97     | 31.7    | 37300 | 50      | 2.9  | 33   | 2.7                | 3.1    | 0.7  | 3   |
| 947C211K112CAMS | 210   | 1100    | 90       | 97     | 45.0    | 40100 | 54      | 2.6  | 33   | 2.7                | 2.9    | 0.8  | 1   |
| 947C211K112CAIS | 210   | 1100    | 90       | 97     | 45.0    | 40100 | 54      | 2.6  | 33   | 2.7                | 2.9    | 0.8  | 2   |
| 947C261K112BBHS | 260   | 1100    | 85       | 120    | 31.7    | 43400 | 50      | 3.4  | 41   | 2.3                | 2.6    | 0.8  | 3   |
| 947C281K112CBMS | 280   | 1100    | 90       | 120    | 45.0    | 46700 | 53      | 3.2  | 41   | 2.3                | 2.5    | 0.9  | 1   |
| 947C281K112CBIS | 280   | 1100    | 90       | 120    | 45.0    | 46700 | 53      | 3.2  | 41   | 2.3                | 2.5    | 0.9  | 2   |
| 947C311K112DTHS | 310   | 1100    | 116      | 85     | 50.0    | 52100 | 85      | 1.4  | 35   | 2.2                | 2.2    | 1.1  | 3   |
| 947C331K112BCHS | 330   | 1100    | 85       | 145    | 31.7    | 50100 | 50      | 4.0  | 49   | 2.0                | 2.3    | 0.9  | 3   |
| 947C361K112CCMS | 360   | 1100    | 90       | 145    | 45.0    | 53700 | 53      | 3.7  | 49   | 2.0                | 2.1    | 1.1  | 1   |
| 947C361K112CCIS | 360   | 1100    | 90       | 145    | 45.0    | 53700 | 53      | 3.7  | 49   | 2.0                | 2.1    | 1.1  | 2   |
| 947C381K112DAHS | 380   | 1100    | 116      | 97     | 50.0    | 56500 | 84      | 1.5  | 40   | 2.2                | 2      | 1.2  | 3   |
| 947C401K112BDHS | 400   | 1100    | 85       | 170    | 31.7    | 56700 | 50      | 4.5  | 58   | 1.7                | 2      | 1.1  | 3   |
| 947C431K112CDMS | 430   | 1100    | 90       | 170    | 45.0    | 60800 | 53      | 4.2  | 58   | 1.8                | 1.9    | 1.2  | 1   |
| 947C431K112CDIS | 430   | 1100    | 90       | 170    | 45.0    | 60800 | 53      | 4.2  | 58   | 1.8                | 1.9    | 1.2  | 2   |
| 947C521K112DBHS | 520   | 1100    | 116      | 120    | 50.0    | 64900 | 82      | 1.8  | 50   | 2.0                | 1.8    | 1.4  | 3   |
| 947C661K112DCHS | 660   | 1100    | 116      | 145    | 50.0    | 74000 | 81      | 2.1  | 60   | 1.8                | 1.6    | 1.7  | 3   |
| 947C801K112DLHS | 800   | 1100    | 116      | 165    | 50.0    | 81300 | 81      | 2.4  | 70   | 1.6                | 1.4    | 1.9  | 3   |
| 947C131K122BTHS | 130   | 1200    | 85       | 85     | 31.7    | 34000 | 48      | 2.9  | 29   | 2.9                | 3.4    | 0.6  | 3   |
| 947C141K122CTIS | 140   | 1200    | 90       | 85     | 45.0    | 36800 | 51      | 2.7  | 29   | 2.9                | 3.1    | 0.7  | 1   |
| 947C141K122CTIS | 140   | 1200    | 90       | 85     | 45.0    | 36800 | 51      | 2.7  | 29   | 2.9                | 3.1    | 0.7  | 2   |
| 947C161K122BAHS | 160   | 1200    | 85       | 97     | 31.7    | 37300 | 48      | 3.1  | 33   | 2.7                | 3.1    | 0.7  | 3   |
| 947C161K122CAMS | 160   | 1200    | 90       | 97     | 45.0    | 40100 | 49      | 3.1  | 33   | 3.0                | 2.9    | 0.9  | 1   |
| 947C161K122CAIS | 160   | 1200    | 90       | 97     | 45.0    | 40100 | 49      | 3.1  | 33   | 3.0                | 2.9    | 0.9  | 2   |
| 947C171K122CAMS | 170   | 1200    | 90       | 97     | 45.0    | 40100 | 51      | 3.0  | 33   | 2.8                | 2.9    | 0.8  | 1   |
| 947C171K122CAIS | 170   | 1200    | 90       | 97     | 45.0    | 40100 | 51      | 3.0  | 33   | 2.8                | 2.9    | 0.8  | 2   |
| 947C211K122CBMS | 210   | 1200    | 90       | 120    | 45.0    | 46700 | 48      | 3.9  | 41   | 2.6                | 2.5    | 1.0  | 1   |
| 947C211K122CBIS | 210   | 1200    | 90       | 120    | 45.0    | 46700 | 48      | 3.9  | 41   | 2.6                | 2.5    | 1.0  | 2   |
| 947C221K122BBHS | 220   | 1200    | 85       | 120    | 31.7    | 43400 | 48      | 3.7  | 41   | 2.3                | 2.6    | 0.8  | 3   |
| 947C241K122CBMS | 240   | 1200    | 90       | 120    | 45.0    | 46700 | 51      | 4.0  | 49   | 2.3                | 2.5    | 0.9  | 1   |
| 947C241K122CBIS | 240   | 1200    | 90       | 120    | 45.0    | 46700 | 51      | 4.0  | 49   | 2.3                | 2.5    | 0.9  | 2   |
| 947C261K122DTHS | 260   | 1200    | 116      | 85     | 50.0    | 52100 | 82      | 1.5  | 35   | 2.2                | 2.2    | 1.1  | 3   |
| 947C271K122CCMS | 270   | 1200    | 90       | 145    | 45.0    | 53700 | 48      | 4.4  | 49   | 2.2                | 2.1    | 1.2  | 1   |
| 947C271K122CCIS | 270   | 1200    | 90       | 145    | 45.0    | 53700 | 48      | 4.4  | 49   | 2.2                | 2.1    | 1.2  | 2   |
| 947C281K122BGHS | 280   | 1200    | 85       | 140    | 31.7    | 48700 | 48      | 4.3  | 49   | 2.0                | 2.4    | 0.9  | 3   |

# Type 947C Polypropylene, DC Link Capacitors

## High Current, High Capacitance for Inverter Applications

| Part Number     | Rated |         | Can      | Can    | Lead    | Current |         |      |      |                    |        |      |     |
|-----------------|-------|---------|----------|--------|---------|---------|---------|------|------|--------------------|--------|------|-----|
|                 | Cap.  | Voltage | Diameter | Height | Spacing | Case    | ΔT = 40 | Typ  | Typ  | Thermal Resistance |        |      |     |
|                 | C     | Vr      | D        | H      | S       | Area    | Irms    | ESR  | ESL  | Θcc                | Θca    | Mass |     |
|                 | (μF)  | (Vdc)   | (mm)     | (mm)   | (mm)    | (mm²)   | (A)     | (mΩ) | (nH) | (°C/W)             | (°C/W) | (kg) | Fig |
| 947C301K122CCMS | 300   | 1200    | 90       | 145    | 45.0    | 53700   | 51      | 4.0  | 49   | 2.0                | 2.1    | 1.1  | 1   |
| 947C301K122CCIS | 300   | 1200    | 90       | 145    | 45.0    | 53700   | 51      | 4.0  | 49   | 2.0                | 2.1    | 1.1  | 2   |
| 947C321K122DAHS | 320   | 1200    | 116      | 97     | 50.0    | 56500   | 81      | 1.7  | 40   | 2.1                | 2      | 1.2  | 3   |
| 947C321K122CDMS | 320   | 1200    | 90       | 170    | 45.0    | 60800   | 47      | 5.1  | 58   | 1.9                | 1.9    | 1.3  | 1   |
| 947C321K122CDIS | 320   | 1200    | 90       | 170    | 45.0    | 60800   | 47      | 5.1  | 58   | 1.9                | 1.9    | 1.3  | 2   |
| 947C331K122BDHS | 330   | 1200    | 85       | 170    | 31.7    | 56700   | 47      | 5.0  | 58   | 1.7                | 2      | 1.1  | 3   |
| 947C361K122CDMS | 360   | 1200    | 90       | 170    | 45.0    | 60800   | 51      | 4.6  | 58   | 1.8                | 1.9    | 1.2  | 1   |
| 947C361K122CDIS | 360   | 1200    | 90       | 170    | 45.0    | 60800   | 51      | 4.6  | 58   | 1.8                | 1.9    | 1.2  | 2   |
| 947C431K122DBHS | 430   | 1200    | 116      | 120    | 50.0    | 64900   | 78      | 2.0  | 50   | 2.0                | 1.8    | 1.4  | 3   |
| 947C551K122DCHS | 550   | 1200    | 116      | 145    | 50.0    | 74000   | 78      | 2.3  | 60   | 1.8                | 1.6    | 1.7  | 3   |
| 947C661K122DLHS | 660   | 1200    | 116      | 165    | 50.0    | 81300   | 76      | 2.6  | 70   | 1.6                | 1.4    | 1.9  | 3   |
| 947C111K132BTHS | 110   | 1300    | 85       | 85     | 31.7    | 34000   | 46      | 3.2  | 29   | 2.9                | 3.4    | 0.6  | 3   |
| 947C121K132CTMS | 120   | 1300    | 90       | 85     | 45.0    | 36800   | 49      | 2.9  | 29   | 2.9                | 3.1    | 0.7  | 1   |
| 947C121K132CTIS | 120   | 1300    | 90       | 85     | 45.0    | 36800   | 49      | 2.9  | 29   | 2.9                | 3.1    | 0.7  | 2   |
| 947C131K132BAHS | 130   | 1300    | 85       | 97     | 31.7    | 37300   | 45      | 3.6  | 33   | 2.8                | 3.1    | 0.7  | 3   |
| 947C151K132CAMS | 150   | 1300    | 90       | 97     | 45.0    | 40100   | 50      | 3.1  | 33   | 2.7                | 2.9    | 0.7  | 1   |
| 947C151K132CAIS | 150   | 1300    | 90       | 97     | 45.0    | 40100   | 50      | 3.1  | 33   | 2.7                | 2.9    | 0.7  | 2   |
| 947C181K132BBHS | 180   | 1300    | 85       | 120    | 31.7    | 43400   | 45      | 4.1  | 41   | 2.3                | 2.6    | 0.8  | 3   |
| 947C201K132CBMS | 200   | 1300    | 90       | 120    | 45.0    | 46700   | 49      | 3.8  | 41   | 2.3                | 2.5    | 0.9  | 1   |
| 947C201K132CBIS | 200   | 1300    | 90       | 120    | 45.0    | 46700   | 49      | 3.8  | 41   | 2.3                | 2.5    | 0.9  | 2   |
| 947C221K132DTHS | 220   | 1300    | 116      | 85     | 50.0    | 52100   | 78      | 1.7  | 35   | 2.2                | 2.2    | 1.1  | 3   |
| 947C231K132BGHS | 230   | 1300    | 85       | 140    | 31.7    | 48700   | 45      | 4.8  | 49   | 2.0                | 2.4    | 0.9  | 3   |
| 947C251K132CCMS | 250   | 1300    | 90       | 145    | 45.0    | 53700   | 48      | 4.4  | 49   | 2.0                | 2.1    | 1.1  | 1   |
| 947C251K132CCIS | 250   | 1300    | 90       | 145    | 45.0    | 53700   | 48      | 4.4  | 49   | 2.0                | 2.1    | 1.1  | 2   |
| 947C271K132DAHS | 270   | 1300    | 116      | 97     | 50.0    | 56500   | 77      | 1.8  | 40   | 2.1                | 2      | 1.2  | 3   |
| 947C281K132BDHS | 280   | 1300    | 85       | 170    | 31.7    | 56700   | 45      | 5.4  | 49   | 1.7                | 2      | 1.1  | 3   |
| 947C311K132CDMS | 310   | 1300    | 90       | 170    | 45.0    | 60800   | 49      | 4.9  | 58   | 1.7                | 1.9    | 1.2  | 1   |
| 947C311K132CDIS | 310   | 1300    | 90       | 170    | 45.0    | 60800   | 49      | 4.9  | 58   | 1.7                | 1.9    | 1.2  | 2   |
| 947C371K132DBHS | 370   | 1300    | 116      | 120    | 50.0    | 64900   | 76      | 2.1  | 50   | 2.0                | 1.8    | 1.4  | 3   |
| 947C461K132DCHS | 460   | 1300    | 116      | 145    | 50.0    | 74000   | 74      | 2.5  | 60   | 1.8                | 1.6    | 1.7  | 3   |
| 947C561K132DLHS | 560   | 1300    | 116      | 165    | 50.0    | 81300   | 73      | 2.8  | 70   | 1.6                | 1.4    | 1.9  | 3   |

1. Rated Current is for temperature rise of +40 °C at 1–20 kHz.
2.  $\theta_{cc}$  is core-to-case thermal resistance at 0–10 kHz. For higher frequency see [Expected Lifetime Predictions](#).
3.  $\theta_{ca}$  is case-to-ambient thermal resistance for still air. For moving air see [Expected Lifetime Predictions](#).

# Type 947C Polypropylene, DC Link Capacitors

## High Current, High Capacitance for Inverter Applications

### Expected Lifetime Predictions

To use the Expected Lifetime curves calculate  $V_a/V_r$  and core temperature  $T$ . Start by estimating:

Applied dc voltage  $V_a$   
Ripple Current  $I$   
Ripple Frequency  $f$   
Ambient Temperature  $T_a$   
Airflow speed  $v$

Units:

$A = m^2$        $T, T_a \text{ \& } T_c = ^\circ C$   
 $C = \mu F$        $\theta, \theta_{ca} \text{ \& } \theta_{cc} = ^\circ C/W$   
 $ESR = m\Omega$        $v = m/s$   
 $f = kHz$        $V_a \text{ \& } V_r = V_{dc}$   
 $I = A$

NOTE: The temperature rise in the 947C is  $I^2(ESR)$  times the thermal resistance  $\theta$ . The ESR is mainly the metal resistance; the metal resistance is the 10 kHz ESR. The dielectric resistance needs to be considered for operation below 10kHz.

1. Start with the 10kHz ESR from the ratings table. If frequency is less than 10kHz, use the following equation:  $ESR = 31.83/(10C) + 31.83/(fC)$ .

2. Compute total thermal resistance  $\theta$  as the sum of core-to-case thermal resistance  $\theta_{cc}$  and case-to-ambient thermal resistance  $\theta_{ca}$ . Both are in the Ratings table but  $\theta_{ca}$  is for still air. For moving air use the capacitor surface area  $A$  and airflow speed  $v$  to calculate  $\theta_{ca} = 1/[A(5+17(v+0.1)^{0.66})]$ .

Please note that the  $\theta_{cc}$  for all designs built to figures 1 and 2;  $\theta_{cc}$  is for 10 kHz or less. For frequency > 10 kHz multiply  $\theta_{cc}$  by  $[1+(f-10)/100]$ , e.g., for 75 kHz multiply  $\theta_{cc}$  by 1.65.

3. Compute  $V_a/V_r$  and the core temperature  $T$ .  
 $T = T_a + I^2(ESR)\theta$

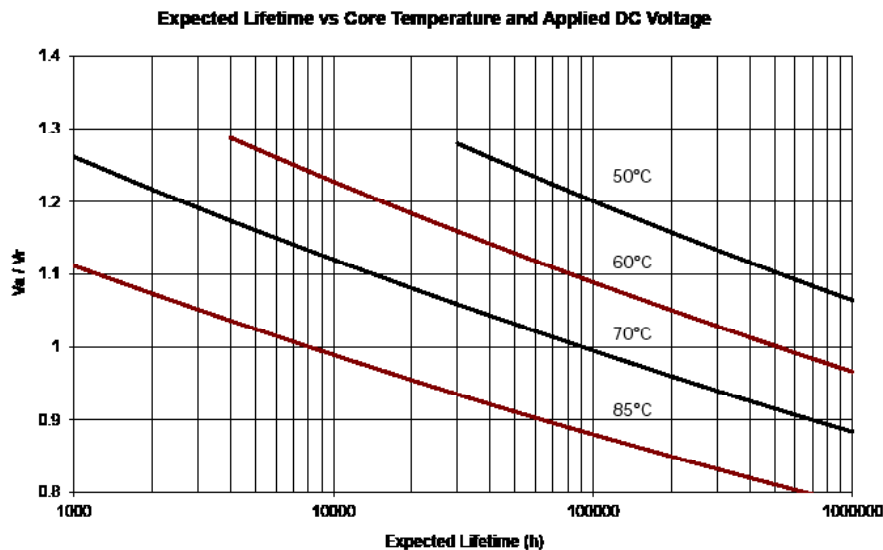
4. Look up estimated lifetime from the Expected Lifetime curves.

5. If you want a longer expected lifetime, choose a capacitor with higher voltage rating or consider using multiple capacitors in

The expected lifetime predictions assume no exposure to overvoltage transients. Expected lifetime can be calculated for varying exposure to overvoltage transients. As an illustration at 50 °C the expected lifetime is 100,000 h with the 24-hour  $V_a/V_r$  profile below:

| $V_a / V_r$ | Duration   |
|-------------|------------|
| 1.67        | 100 ms     |
| 1.50        | 5 minutes  |
| 1.30        | 2.5 hours  |
| 1.10        | 9.6 hours  |
| 1.00        | 11.9 hours |

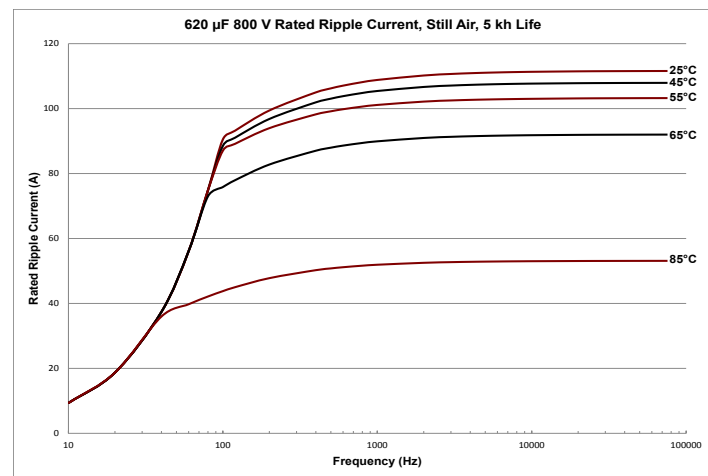
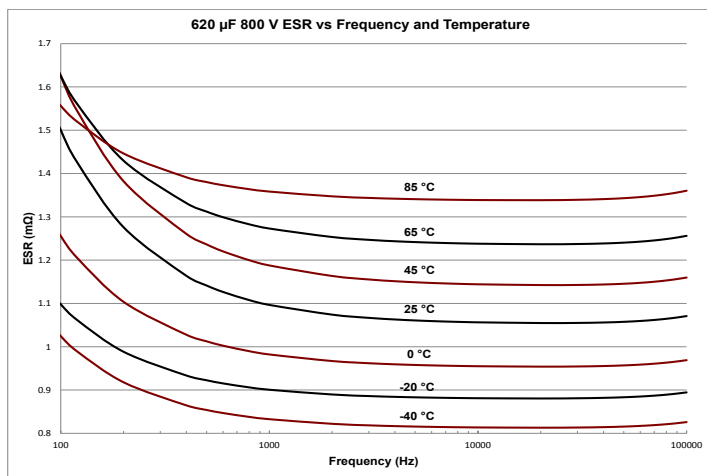
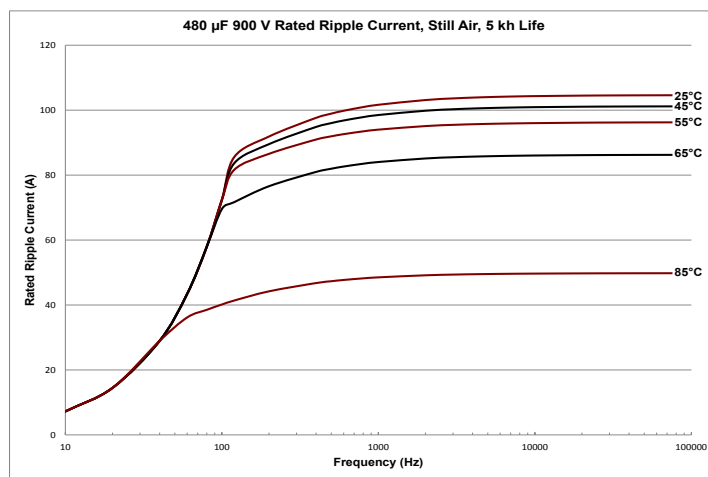
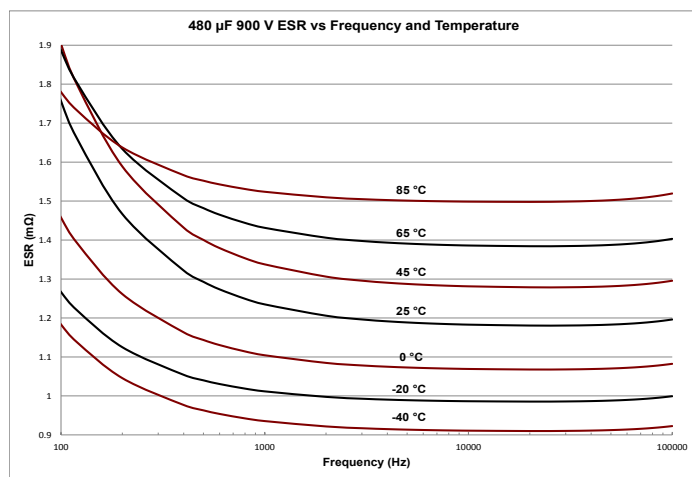
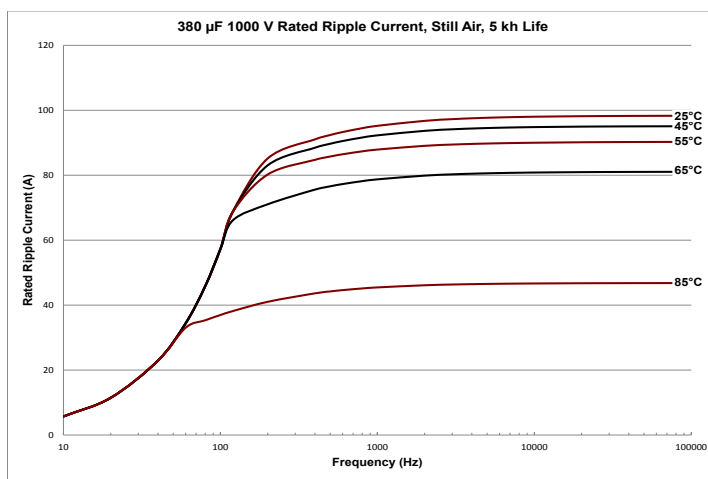
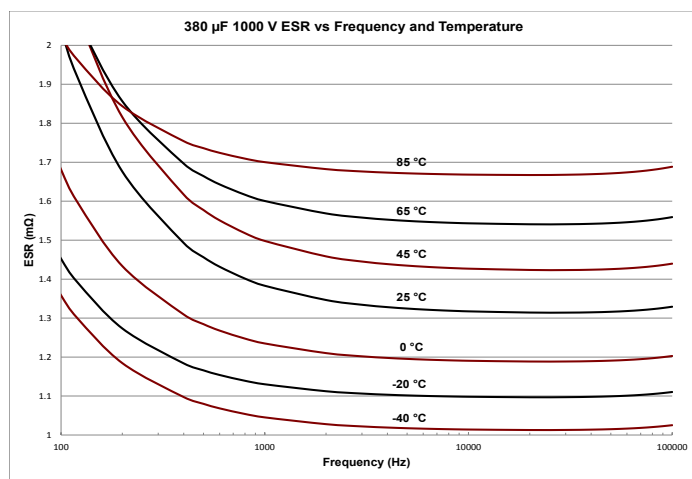
For applications with more severe 24-hour profiles, contact us.



# Type 947C Polypropylene, DC Link Capacitors

## High Current, High Capacitance for Inverter Applications

### Typical Performance Curves



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