

# Type SF Motor-Run and Power Supply Capacitors

## Oil Filled/Impregnated, AC Rated, Metallized Polypropylene Capacitors



Type SF, AC rated metallized polypropylene capacitors provide starting torque and power factor correction for split phase motors typically used in refrigeration and air conditioning motor-run applications. Type SF also may be used to provide noise suppression, voltage regulation and line current reduction in power supply applications.

### Highlights

- Self healing
- Fault current protection up to 10,000 amps AFC
- Low energy consumption
- 4 - tine, 1/4" quick connect lug terminals are standard
- Meets EIA Standard EIA-456-A
- UL recognized File Number E71645
- CSA File Number 223507

### Specifications [Click here to view hardware](#)

|                             |   |
|-----------------------------|---|
| Capacitance Range           | 5.0 $\mu$ F to 120.0 $\mu$ F  |
| Capacitance Tolerance       | $\pm$ 10% standard, $\pm$ 6% and $\pm$ 3% available                     |
| Rated Voltage               | 240 Vac to 660 Vac  |
| Operating Temperature Range | -40 $^{\circ}$ C to 70 $^{\circ}$ C standard, 90 $^{\circ}$ C available |
| Dissipation Factor          | <0.1%   |
| Service Life Objective      | 60,000 h with 94% survival rate   |
| RoHS Compliant              |   |

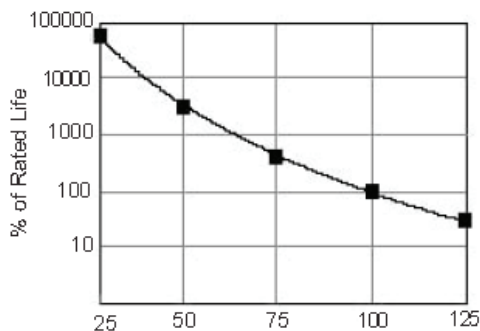
### Service Life Objective

The service life objective for this series is 60,000 hours of operating life with a 94% survival rate when operated at full voltage, 60 Hz, and rated ambient temperature. AC capacitors are frequently used at voltages and ambient temperatures other than rated conditions. Service life may be estimated under specific conditions of temperature and voltage by using the curves as shown below and to the right.

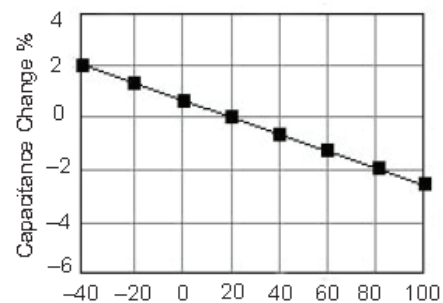
### Capacitance vs. Temperature

The Capacitance vs. Temperature curve may be used to determine the capacitance change as a function of temperature. Capacitance varies by no more than  $\pm$ 3% over the operating temperature range.

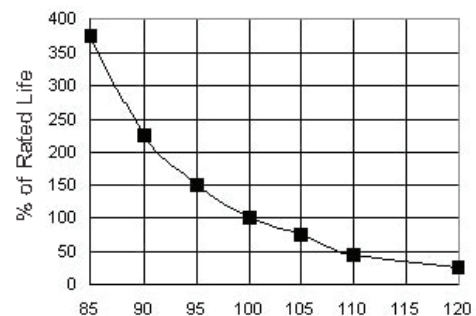
### Life vs. Temperature



### Capacitance vs. Temperature



### Life vs. Voltage



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### Part Numbering System

| SF     | C  | 37   | T                             | 35                         | K                              | 291   | B   | -F                                 |
|--------|--|--|-------------------------------|----------------------------|--------------------------------|---|---|------------------------------------|
| Series | Case   | AC Volt  | Case Material                 | Cap                        | Tol. ±%                        | Can Height  | VAR   | RoHS                               |
| SF     | A = 1 1/4" Oval<br>B = 1 1/2" Oval<br>C = 1 3/4" Oval<br>D = 2.0" Oval<br>P = 1 3/4" Round<br>S = 2.0" Round<br>T = 2 1/2" Round | 24 = 240 Vac<br>37 = 370 Vac<br>44 = 440 Vac<br>66 = 660 Vac | T = Aluminum<br>w/steel cover | 7 = 7.0 μF<br>35 = 35.0 μF | L = ±3%<br>H = ±6%<br>K = ±10% | 238 = 2.38"<br>291 = 2.91"<br>388 = 3.88"<br>475 = 4.75"<br>488 = 4.88" | A = 2 way 70°C<br>B = 4 way 70 °C<br>C = 2 way 90 °C<br>D = 4 way 90 °C<br>E = Dual 2,3,4 70 °C<br>F = Forks 70 °C<br>G = Forks 90 °C<br>H = Forks 100 °C<br>J = Forks, 70 °C Res.<br>K = Forks, 90 °C Res.<br>L = Forks 100 °C Res.<br>Z = Other | <b>Compliant</b><br>-F = Compliant |

### Options

Capacitors in aluminum cases with mounting studs, are available upon request.

Tighter capacitance tolerances such as ±3% or ±6% are available.

+90 °C ratings are available for HID lighting and power supply applications.

Discharge resistors are available.

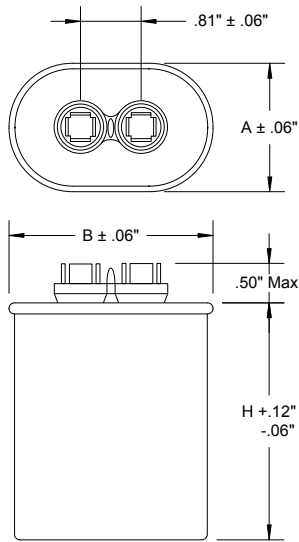
Special terminal lugs such as 2 tines plus 1 fork lug are available.

Dual capacitance values are available for 370 Vac and 440 Vac applications.

# Type SF Motor-Run and Power Supply Capacitors

## Oil Filled/Impregnated, AC Rated, Metallized Polypropylene Capacitors Oval Ratings

### Oval Case Style\*



| Case Code | Dimensions (Inches) |      |                   |
|-----------|---------------------|------|-------------------|
|           | A                   | B    | H                 |
| A         | 1.31                | 2.16 | See Ratings Table |
| B         | 1.56                | 2.69 |                   |
| C         | 1.91                | 2.91 |                   |
| D         | 1.97                | 3.66 |                   |

### Construction Details

|                   |                                       |
|-------------------|---------------------------------------|
| Case Material     | Aluminum                              |
| Encapsulation     | Environmentally Safe Dielectric Fluid |
| Terminal Material | Tin Plated Steel                      |

\*Note: The capacitor's safety pressure interrupter is designed to disconnect the capacitor element as the cover expands upward due to gas pressure build up. Catastrophic failure may result if movement of the cover and or terminals are restricted. Rigid bus bars are not recommended as they may restrict movement of the cover or terminals. Customers are advised to provide at least 0.5" clearance above the cover to allow for its expansion.

| Cap. (µF)   | Case Code | Aluminum Catalog Part Number | H (in) |
|-------------|-----------|------------------------------|--------|
| <b>240V</b> |           |                              |        |
| 4.0         | A         | SFA24T4K219B-F               | 2.19   |
| 5.0         | A         | SFA24T5K219B-F               | 2.19   |
| 6.0         | A         | SFA24T6K219B-F               | 2.19   |
| 7.5         | A         | SFA24T7.5K219B-F             | 2.19   |
| 10.0        | A         | SFA24T10K219B-F              | 2.19   |
| 15.0        | A         | SFA24T15K288B-F              | 2.88   |
| 20.0        | A         | SFA24T20K288B-F              | 2.88   |
| 25.0        | C         | SFC24T25K291B-F              | 2.91   |
| 30.0        | C         | SFC24T30K291B-F              | 2.91   |
| 35.0        | C         | SFC24T35K291B-F              | 2.91   |
| 40.0        | C         | SFC24T40K291B-F              | 2.91   |
| 45.0        | C         | SFC24T45K291B-F              | 2.91   |
| 50.0        | C         | SFC24T50K291B-F              | 2.91   |
| 60.0        | C         | SFC24T60K391B-F              | 3.91   |
| 70.0        | C         | SFC24T70K391B-F              | 3.91   |
| <b>370V</b> |           |                              |        |
| 2.0         | A         | SFA37T2K219B-F               | 2.19   |
| 2.0         | A         | SFA37T2K156B-F               | 1.56   |
| 3.0         | A         | SFA37T3K219B-F               | 2.19   |
| 3.0         | A         | SFA37T3K156B-F               | 1.56   |
| 4.0         | A         | SFA37T4K219B-F               | 2.19   |
| 4.0         | A         | SFA37T4K156B-F               | 1.56   |
| 5.0         | A         | SFA37T5K219B-F               | 2.19   |
| 5.0         | A         | SFA37T5K156B-F               | 1.56   |
| 6.0         | A         | SFA37T6K219B-F               | 2.19   |
| 6.0         | A         | SFA37T6K156B-F               | 1.56   |
| 7.5         | A         | SFA37T7.5K219B-F             | 2.19   |
| 10.0        | A         | SFA37T10K288B-F              | 2.88   |
| 12.5        | A         | SFA37T12.5K288B-F            | 2.88   |
| 15.0        | A         | SFA37T15K288B-F              | 2.88   |
| 17.5        | C         | SFC37T17.5K291B-F            | 2.91   |
| 20.0        | C         | SFC37T20K291B-F              | 2.91   |
| 20.0        | A         | SFA37T20K388B-F              | 3.88   |
| 25.0        | C         | SFC37T25K291B-F              | 2.91   |
| 30.0        | C         | SFC37T30K291B-F              | 2.91   |
| 35.0        | C         | SFC37T35K291B-F              | 2.91   |
| 40.0        | C         | SFC37T40K391B-F              | 3.91   |
| 45.0        | C         | SFC37T45K391B-F              | 3.91   |
| 50.0        | C         | SFC37T50K391B-F              | 3.91   |
| <b>440V</b> |           |                              |        |
| 2.0         | A         | SFA44T2K219B-F               | 2.19   |
| 2.0         | A         | SFA44T2K156B-F               | 1.56   |

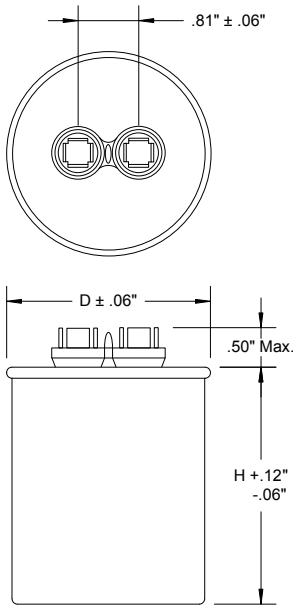
| Cap. (µF)   | Case Code | Aluminum Catalog Part Number | H (in) |
|-------------|-----------|------------------------------|--------|
| <b>440V</b> |           |                              |        |
| 3.0         | A         | SFA44T3K219B-F               | 2.19   |
| 3.0         | A         | SFA44T3K156B-F               | 1.56   |
| 4.0         | A         | SFA44T4K219B-F               | 2.19   |
| 4.0         | A         | SFA44T4K156B-F               | 1.56   |
| 5.0         | A         | SFA44T5K219B-F               | 2.19   |
| 6.0         | A         | SFA44T6K288B-F               | 2.88   |
| 7.5         | A         | SFA44T7.5K288B-F             | 2.88   |
| 10.0        | A         | SFA44T10K388B-F              | 3.88   |
| 12.5        | A         | SFA44T12.5K388B-F            | 3.88   |
| 12.5        | C         | SFC44T12.5K291B-F            | 2.91   |
| 15.0        | A         | SFA44T15K388B-F              | 3.88   |
| 15.0        | C         | SFC44T15K291B-F              | 2.91   |
| 17.5        | C         | SFC44T17.5K291B-F            | 2.91   |
| 20.0        | C         | SFC44T20K391B-F              | 3.91   |
| 25.0        | C         | SFC44T25K391B-F              | 3.91   |
| 30.0        | C         | SFC44T30K391B-F              | 3.91   |
| 35.0        | D         | SFD44T35K391B-F              | 3.91   |
| 40.0        | D         | SFD44T40K391B-F              | 3.91   |
| 45.0        | D         | SFD44T45K391B-F              | 3.91   |
| 50.0        | D         | SFD44T50K391B-F              | 3.91   |
| 55.0        | D         | SFD44T55K391B-F              | 3.91   |
| 60.0        | D         | SFD44T60K391B-F              | 3.91   |
| <b>660V</b> |           |                              |        |
| 1.0         | A         | SFA66T1K156B-F               | 1.56   |
| 1.0         | A         | SFA66T1K219B-F               | 2.19   |
| 2.0         | A         | SFA66T2K156B-F               | 1.56   |
| 2.0         | A         | SFA66T2K219B-F               | 2.19   |
| 3.0         | A         | SFA66T3K288B-F               | 2.88   |
| 4.0         | A         | SFA66T4K288B-F               | 2.88   |
| 5.0         | A         | SFA66T5K388B-F               | 3.88   |
| 6.0         | A         | SFA66T6K388B-F               | 3.88   |
| 8.0         | A         | SFA66T8K475B-F               | 4.75   |
| 8.0         | C         | SFC66T8K291B-F               | 2.91   |
| 10.0        | A         | SFA66T10K475B-F              | 4.75   |
| 10.0        | C         | SFC66T10K291B-F              | 2.91   |
| 12.0        | C         | SFC66T12K391B-F              | 3.91   |
| 15.0        | C         | SFC66T15K391B-F              | 3.91   |
| 18.0        | C         | SFC66T18K391B-F              | 3.91   |
| 20.0        | D         | SFD66T20K391B-F              | 3.91   |
| 25.0        | D         | SFD66T25K391B-F              | 3.91   |
| 30.0        | D         | SFD66T30K391B-F              | 3.91   |
| 35.0        | D         | SFD66T35K475B-F              | 4.75   |
| 40.0        | D         | SFD66T40K475B-F              | 4.75   |

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## Oil Filled/Impregnated, AC Rated, Metallized Polypropylene Capacitors

### Round Ratings

#### Round Case Style



| Case Code | D (Inches) | H                 |
|-----------|------------|-------------------|
| P         | 1.87       | See Ratings Table |
| S         | 2.12       |                   |
| T         | 2.62       |                   |

#### Construction Details

|                   |                                       |
|-------------------|---------------------------------------|
| Case Material     | Aluminum                              |
| Encapsulation     | Environmentally Safe Dielectric Fluid |
| Terminal Material | Tin Plated Steel                      |

Note: The capacitor's safety pressure interrupter is designed to disconnect the capacitor element as the cover expands upward due to gas pressure build up. Catastrophic failure may result if movement of the cover and or terminals are restricted. Rigid bus bars are not recommended as they may restrict movement of the cover or terminals. Customers are advised to provide at least 0.5" clearance above the cover to allow for its expansion.

| Cap. (μF)   | Case Code | Aluminum Catalog Part Number | H (in) |
|-------------|-----------|------------------------------|--------|
| <b>370V</b> |           |                              |        |
| 2.0         | P         | SFP37T2K238B-F               | 2.38   |
| 3.0         | P         | SFP37T3K238B-F               | 2.38   |
| 4.0         | P         | SFP37T4K238B-F               | 2.38   |
| 5.0         | P         | SFP37T5K238B-F               | 2.38   |
| 6.0         | P         | SFP37T6K238B-F               | 2.38   |
| 7.5         | P         | SFP37T7.5K238B-F             | 2.38   |
| 10.0        | P         | SFP37T10K238B-F              | 2.38   |
| 12.5        | P         | SFP37T12.5K238B-F            | 2.38   |
| 15.0        | P         | SFP37T15K238B-F              | 2.38   |
| 17.5        | P         | SFP37T17.5K238B-F            | 2.38   |
| 20.0        | P         | SFP37T20K238B-F              | 2.38   |
| 25.0        | P         | SFP37T25K284B-F              | 2.84   |
| 30.0        | P         | SFP37T30K284B-F              | 2.84   |
| 35.0        | S         | SFS37T35K291B-F              | 2.91   |
| 40.0        | S         | SFS37T40K291B-F              | 2.91   |
| 45.0        | S         | SFS37T45K384B-F              | 3.84   |
| 50.0        | S         | SFS37T50K384B-F              | 3.84   |
| 55.0        | S         | SFS37T55K384B-F              | 3.84   |
| 60.0        | T         | SFT37T60K291B-F              | 2.91   |
| 65.0        | T         | SFT37T65K291B-F              | 2.91   |
| 70.0        | T         | SFT37T70K291B-F              | 2.91   |
| 75.0        | T         | SFT37T75K391B-F              | 3.91   |
| 80.0        | T         | SFT37T80K391B-F              | 3.91   |
| 90.0        | T         | SFT37T90K475B-F              | 4.75   |
| 100.0       | T         | SFT37T100K475B-F             | 4.75   |
| <b>440V</b> |           |                              |        |
| 2.0         | P         | SFP44T2K238B-F               | 2.38   |
| 3.0         | P         | SFP44T3K238B-F               | 2.38   |
| 4.0         | P         | SFP44T4K238B-F               | 2.38   |

| Cap. (μF)   | Case Code | Aluminum Catalog Part Number | H (in) |
|-------------|-----------|------------------------------|--------|
| <b>440V</b> |           |                              |        |
| 5.0         | P         | SFP44T5K238B-F               | 2.38   |
| 6.0         | P         | SFP44T6K238B-F               | 2.38   |
| 7.5         | P         | SFP44T7.5K238B-F             | 2.38   |
| 10.0        | P         | SFP44T10K238B-F              | 2.38   |
| 12.5        | P         | SFP44T12.5K238B-F            | 2.38   |
| 15.0        | P         | SFP44T15K284B-F              | 2.84   |
| 17.5        | P         | SFP44T17.5K284B-F            | 2.84   |
| 20.0        | P         | SFP44T20K284B-F              | 2.84   |
| 25.0        | S         | SFS44T25K291B-F              | 2.91   |
| 30.0        | S         | SFS44T30K291B-F              | 2.91   |
| 35.0        | T         | SFT44T35K291B-F              | 2.91   |
| 40.0        | T         | SFT44T40K391B-F              | 3.91   |
| 45.0        | T         | SFT44T45K391B-F              | 3.91   |
| 50.0        | T         | SFT44T50K391B-F              | 3.91   |
| 55.0        | T         | SFT44T55K391B-F              | 3.91   |
| 60.0        | T         | SFT44T60K475B-F              | 4.75   |
| <b>660V</b> |           |                              |        |
| 2.0         | P         | SFP66T2K238B-F               | 2.38   |
| 3.0         | P         | SFP66T3K238B-F               | 2.38   |
| 5.0         | P         | SFP66T5K238B-F               | 2.38   |
| 7.5         | P         | SFP66T7.5K284B-F             | 2.84   |
| 10.0        | P         | SFP66T10K284B-F              | 2.84   |
| 12.5        | S         | SFS66T12.5K291B-F            | 2.91   |
| 15.0        | S         | SFS66T15K384B-F              | 3.84   |
| 17.5        | T         | SFT66T17.5K391B-F            | 3.91   |
| 20.0        | T         | SFT66T20K391B-F              | 3.91   |
| 25.0        | T         | SFT66T25K475B-F              | 4.75   |
| 30.0        | T         | SFT66T30K475B-F              | 4.75   |
| 35.0        | T         | SFT66T35K475B-F              | 4.75   |
| 40.0        | T         | SFT66T40K475B-F              | 4.75   |

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