

# Type SEK 105 °C Radial Leaded Aluminum Electrolytic Capacitors

## Long Life, Aluminum Electrolytic



Type SEK is a radial leaded aluminum electrolytic capacitor with a +105 °C, long life rating. The volumetric efficient high CV product of the SEK makes it ideal for high density packaging in general purpose, coupling, decoupling, bypass and filtering circuit applications.

### Highlights

- +105 °C
- Long life
- High CV product
- General purpose applications
- Available in T&R and ammo pack

## Specifications

|                                     |                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Capacitance Range:</b>           | 0.47 to 15,000 $\mu$ F                                                                                                                                                                                                                                                                                                             |
| <b>Voltage Range:</b>               | 6.3 to 450 Vdc                                                                                                                                                                                                                                                                                                                     |
| <b>Capacitance Tolerance:</b>       | $\pm$ 20%                                                                                                                                                                                                                                                                                                                          |
| <b>Operating Temperature Range:</b> | -55 °C to +105 °C; 6.3 to 100 Vdc<br>-40 °C to +105 °C; 160 to 400 Vdc<br>-25 °C to +105 °C; 450 Vdc                                                                                                                                                                                                                               |
| <b>Maximum DC Leakage Current:</b>  | After 2 minutes, with rated voltage at +20 °C<br>6.3 to 100 Vdc<br>$I = .01CV$ or 3 $\mu$ A Max (whichever is greater)<br>$\geq 160$ Vdc after 3 min, with rated voltage at +20 °C<br>$I = .03CV$ or 10 $\mu$ A Max (whichever is greater)<br>C = Capacitance in ( $\mu$ F)<br>V = Rated voltage<br>I = Leakage current in $\mu$ A |

### Dissipation Factor @ 120 Hz, +25 °C:

| WV (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 | 160-250 | 350-450 |
|--------|-----|----|----|----|----|----|----|----|-----|---------|---------|
| DF(%)  | 26  | 22 | 18 | 16 | 14 | 12 | 10 | 10 | 10  | 15      | 20      |

For capacitors whose capacitance value exceeds 1000  $\mu$ F, the value of DF (%) is increased 2% for every additional 1000  $\mu$ F.

### Ripple Multipliers for Voltage and Temperature:

| Rated WVDC | Ripple Multipliers |       |      |       |
|------------|--------------------|-------|------|-------|
|            | 60Hz               | 120Hz | 1kHz | 10kHz |
| 6 to 25    | 0.80               | 1.0   | 1.1  | 1.2   |
| 35 to 100  | 0.75               | 1.0   | 1.3  | 1.4   |
| 160 to 250 | 0.70               | 1.0   | 1.4  | 1.6   |
| 350 to 400 | 0.60               | 1.0   | 1.5  | 1.8   |

| Ambient Temperature | Ripple Multiplier |
|---------------------|-------------------|
| +105 °C             | 1.00              |
| +85 °C              | 1.50              |
| +70 °C              | 1.80              |



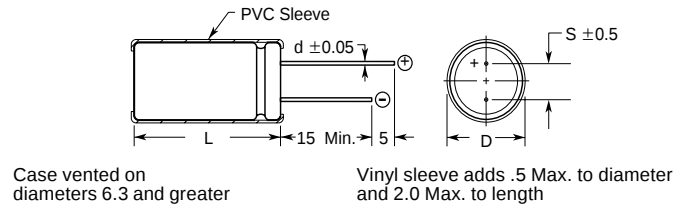
Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

|                    |                                                                                                                                                                                         |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Load Life:</b>  | Apply WVDC for 2000 hours at +105 °C<br>Capacitance change within 20% of initial limit<br>DF not to exceed 200% of initial requirement<br>Leakage current not to exceed 200% of initial |
| <b>Shelf Life:</b> | 1000 hrs with no voltage applied<br>Cap change within $\pm$ 20% of initial values<br>DF not to exceed 200% of initial requirement<br>DC leakage current meets initial requirement       |

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## Outline Drawing

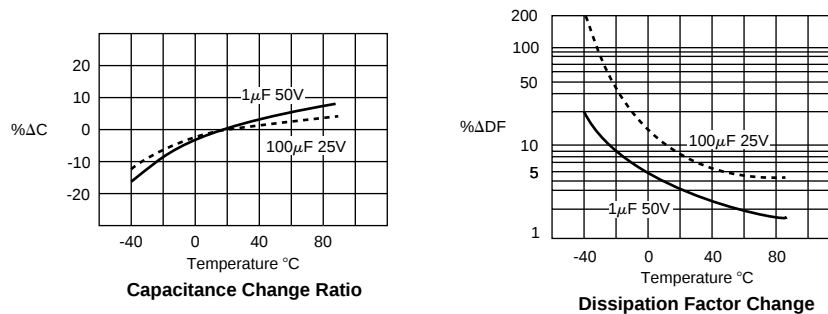
### Outline Dimensions (Millimeters)



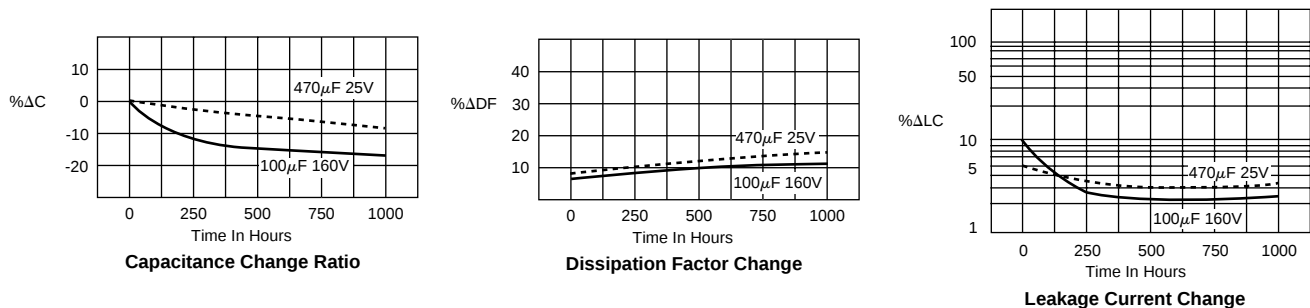
## Part Numbering System

| Type | Capacitance       | Capacitance Tolerance | Rated Voltage | Packaging                    | Lead Configuration          |
|------|-------------------|-----------------------|---------------|------------------------------|-----------------------------|
|      | ( $\mu\text{F}$ ) | (%)                   | (Vdc)         |                              |                             |
| SEK  | 100               | M                     | 100           | S                            | T                           |
|      | 3R0 = 3           | K = $\pm 10$          | 6R3 = 6.3     | A = Tape & Ammo              | 1 = Lead cut                |
|      | 100 = 10          | M = $\pm 20$          | 010 = 10      | E = Different Characteristic | 2 = Lead form               |
|      | 101 = 100         |                       | 100 = 100     | R = Tape & Reel              | 4 = Lead crimp & cut (form) |
|      | 102 = 1000        |                       |               | S = Standard                 | T = Standard                |

## Temperature Characteristics



## Load Life Characteristics



# Type SEK 105 °C Radial Leaded Aluminum Electrolytic Capacitors

## Ratings

| Cap<br>(µF)             | Catalog<br>Part Number | Max ESR                | Max Ripple               | Size in. (mm)   |               |                   |                  |
|-------------------------|------------------------|------------------------|--------------------------|-----------------|---------------|-------------------|------------------|
|                         |                        | 120 Hz<br>25 °C<br>(Ω) | 120 Hz<br>105 °C<br>(mA) | Diameter<br>(D) | Length<br>(L) | Lead Space<br>(S) | Lead Dia.<br>(d) |
| 6.3 Vdc (8 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 100                     | SEK101M6R3ST           | 3.45                   | 100                      | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 220                     | SEK221M6R3ST           | 1.57                   | 165                      | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 330                     | SEK331M6R3ST           | 1.05                   | 200                      | .248 (6.3)      | .453 (11.5)   | .098 (2.5)        | .0197 (0.5)      |
| 470                     | SEK471M6R3ST           | 0.73                   | 280                      | .315 (8.0)      | .453 (11.5)   | .138 (3.5)        | .0236 (0.6)      |
| 1000                    | SEK102M6R3ST           | 0.35                   | 470                      | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 2200                    | SEK222M6R3ST           | 0.17                   | 930                      | .394 (10.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 3300                    | SEK332M6R3ST           | 0.12                   | 1100                     | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 4700                    | SEK472M6R3ST           | 0.10                   | 1320                     | .630 (16.0)     | .984 (26.0)   | .197 (5.0)        | .0236 (0.6)      |
| 6800                    | SEK682M6R3ST           | 0.07                   | 1490                     | .630 (16.0)     | .984 (25.0)   | .295 (7.5)        | .0315 (0.8)      |
| 10000                   | SEK103M6R3ST           | 0.06                   | 1830                     | .630 (16.0)     | 1.26 (32.0)   | .295 (7.5)        | .0315 (0.8)      |
| 15000                   | SEK153M6R3ST           | 0.05                   | 2280                     | .709 (18.0)     | 1.40 (36.0)   | .295 (7.5)        | .0315 (0.8)      |
| 10 Vdc (13 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 47                      | SEK470M010ST           | 6.21                   | 75                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 100                     | SEK101M010ST           | 2.92                   | 110                      | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 220                     | SEK221M010ST           | 1.33                   | 180                      | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 330                     | SEK331M010ST           | 0.88                   | 255                      | .315 (8.0)      | .453 (11.5)   | .138 (3.5)        | .0236 (0.6)      |
| 470                     | SEK471M010ST           | 0.62                   | 305                      | .315 (8.0)      | .453 (11.5)   | .138 (3.5)        | .0236 (0.6)      |
| 1000                    | SEK102M010ST           | 0.29                   | 570                      | .394 (10.0)     | .630 (16.0)   | .197 (5.0)        | .0236 (0.6)      |
| 2200                    | SEK222M010ST           | 0.14                   | 1010                     | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 3300                    | SEK332M010ST           | 0.10                   | 1220                     | .512 (13.0)     | .984 (25.0)   | .197 (5.0)        | .0236 (0.6)      |
| 4700                    | SEK472M010ST           | 0.08                   | 1410                     | .630 (16.0)     | .984 (25.0)   | .295 (7.5)        | .0315 (0.8)      |
| 6800                    | SEK682M010ST           | 0.07                   | 1610                     | .630 (16.0)     | 1.26 (32.0)   | .295 (7.5)        | .0315 (0.8)      |
| 10000                   | SEK103M010ST           | 0.05                   | 1980                     | .709 (18.0)     | 1.40 (36.0)   | .295 (7.5)        | .0315 (0.8)      |
| 15000                   | SEK153M010ST           | 0.04                   | 3330                     | .709 (18.0)     | 1.65 (42.0)   | .295 (7.5)        | .0315 (0.8)      |
| 16 Vdc (20 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 33                      | SEK330M016ST           | 7.24                   | 70                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 47                      | SEK470M016ST           | 5.08                   | 85                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 100                     | SEK101M016ST           | 2.39                   | 135                      | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 220                     | SEK221M016ST           | 1.09                   | 235                      | .315 (8.0)      | .453 (11.5)   | .138 (3.5)        | .0236 (0.6)      |
| 330                     | SEK331M016ST           | 0.72                   | 285                      | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 470                     | SEK471M016ST           | 0.51                   | 395                      | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 1000                    | SEK102M016ST           | 0.24                   | 700                      | .394 (10.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 2200                    | SEK222M016ST           | 0.12                   | 1150                     | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 3300                    | SEK332M016ST           | 0.09                   | 1350                     | .512 (13.0)     | .984 (26.0)   | .197 (5.0)        | .0236 (0.6)      |
| 4700                    | SEK472M016ST           | 0.07                   | 1560                     | .630 (16.0)     | 1.26 (32.0)   | .295 (7.5)        | .0315 (0.8)      |
| 6800                    | SEK682M016ST           | 0.06                   | 1790                     | .709 (18.0)     | 1.40 (36.0)   | .295 (7.5)        | .0315 (0.8)      |
| 10000                   | SEK103M016ST           | 0.05                   | 2884                     | .709 (18.0)     | 1.65 (42.0)   | .295 (7.5)        | .0315 (0.8)      |
| 25 Vdc (32 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 10                      | SEK100M025ST           | 21.23                  | 50                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 22                      | SEK220M025ST           | 9.65                   | 60                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 33                      | SEK330M025ST           | 6.43                   | 75                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 47                      | SEK470M025ST           | 4.52                   | 90                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 100                     | SEK101M025ST           | 2.12                   | 145                      | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 220                     | SEK221M025ST           | 0.97                   | 250                      | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 330                     | SEK331M025ST           | 0.64                   | 355                      | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |

# Type SEK 105 °C Radial Leaded Aluminum Electrolytic Capacitors

| Cap<br>(µF)             | Catalog<br>Part Number | Max ESR                | Max Ripple               | Size in. (mm)   |               |                   |                  |
|-------------------------|------------------------|------------------------|--------------------------|-----------------|---------------|-------------------|------------------|
|                         |                        | 120 Hz<br>25 °C<br>(Ω) | 120 Hz<br>105 °C<br>(mA) | Diameter<br>(D) | Length<br>(L) | Lead Space<br>(S) | Lead Dia.<br>(d) |
| 25 Vdc (32 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 470                     | SEK471M025ST           | 0.45                   | 470                      | .394 (10.0)     | .630 (16.0)   | .197 (5.0)        | .0236 (0.6)      |
| 1000                    | SEK102M025ST           | 0.21                   | 855                      | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 2200                    | SEK222M025ST           | 0.11                   | 1230                     | .512 (13.0)     | .984 (26.0)   | .197 (5.0)        | .0236 (0.6)      |
| 3300                    | SEK332M025ST           | 0.08                   | 1450                     | .630 (16.0)     | 1.26 (32.0)   | .295 (7.5)        | .0315 (0.8)      |
| 4700                    | SEK472M025ST           | 0.07                   | 1690                     | .709 (18.0)     | 1.40 (36.0)   | .295 (7.5)        | .0315 (0.8)      |
| 6800                    | SEK682M025ST           | 0.05                   | 2856                     | .709 (18.0)     | 1.65 (42.0)   | .295 (7.5)        | .0315 (0.8)      |
| 35 Vdc (44 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 22                      | SEK220M035ST           | 8.44                   | 65                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 33                      | SEK330M035ST           | 5.63                   | 85                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 47                      | SEK470M035ST           | 3.95                   | 115                      | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 100                     | SEK101M035ST           | 1.86                   | 190                      | .315 (8.0)      | .453 (11.5)   | .138 (3.5)        | .0236 (0.6)      |
| 220                     | SEK221M035ST           | 0.84                   | 315                      | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 330                     | SEK331M035ST           | 0.56                   | 440                      | .394 (10.0)     | .630 (16.0)   | .197 (5.0)        | .0236 (0.6)      |
| 470                     | SEK471M035ST           | 0.40                   | 580                      | .512 (13.0)     | .787 (20.0)   | .197 (5.0)        | .0236 (0.6)      |
| 1000                    | SEK102M035ST           | 0.19                   | 995                      | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 2200                    | SEK222M035ST           | 0.10                   | 1450                     | .630 (16.0)     | 1.26 (32.0)   | .295 (7.5)        | .0315 (0.8)      |
| 3300                    | SEK332M035ST           | 0.07                   | 1660                     | .709 (18.0)     | 1.40 (36.0)   | .295 (7.5)        | .0315 (0.8)      |
| 4700                    | SEK472M035ST           | 0.06                   | 2674                     | .709 (18.0)     | 1.65 (42.0)   | .295 (7.5)        | .0315 (0.8)      |
| 50 Vdc (63 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 0.47                    | SEKR47M050ST           | 338.80                 | 7.0                      | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 1.0                     | SEK010M050ST           | 159.24                 | 12.0                     | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 2.2                     | SEK2R2M050ST           | 72.38                  | 18.0                     | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 3.3                     | SEK3R3M050ST           | 48.25                  | 25.0                     | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 4.7                     | SEK4R7M050ST           | 33.88                  | 30.0                     | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 10                      | SEK100M050ST           | 15.92                  | 50.0                     | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 22                      | SEK220M050ST           | 7.24                   | 75.0                     | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 33                      | SEK330M050ST           | 4.83                   | 105.0                    | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 47                      | SEK470M050ST           | 3.39                   | 125.0                    | .248 (6.3)      | .453 (11.5)   | .098 (2.5)        | .0197 (0.5)      |
| 100                     | SEK101M050ST           | 1.59                   | 210.0                    | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 220                     | SEK221M050ST           | 0.72                   | 400.0                    | .394 (10.0)     | .630 (16.0)   | .197 (5.0)        | .0236 (0.6)      |
| 330                     | SEK331M050ST           | 0.48                   | 535.0                    | .394 (10.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 470                     | SEK471M050ST           | 0.34                   | 730.0                    | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 1000                    | SEK102M050ST           | 0.16                   | 1110.0                   | .630 (16.0)     | .984 (25.0)   | .295 (7.5)        | .0315 (0.8)      |
| 2200                    | SEK222M050ST           | 0.08                   | 1530.0                   | .709 (18.0)     | 1.40 (36.0)   | .295 (7.5)        | .0315 (0.8)      |
| 3300                    | SEK332M050ST           | 0.47                   | 2478.0                   | .709 (18.0)     | 1.65 (42.0)   | .295 (7.5)        | .0315 (0.8)      |
| 63 Vdc (79 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 4.7                     | SEK4R7M063ST           | 28.23                  | 34                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 10                      | SEK100M063ST           | 13.27                  | 55                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 22                      | SEK220M063ST           | 6.03                   | 90                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 33                      | SEK330M063ST           | 4.02                   | 110                      | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 47                      | SEK470M063ST           | 2.82                   | 155                      | .315 (8.0)      | .433 (11.0)   | .098 (2.5)        | .0236 (0.6)      |
| 100                     | SEK101M063ST           | 1.33                   | 260                      | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 220                     | SEK221M063ST           | 0.60                   | 460                      | .394 (10.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 330                     | SEK331M063ST           | 0.40                   | 650                      | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 470                     | SEK471M063ST           | 0.28                   | 800                      | .512 (13.0)     | .984 (26.0)   | .197 (5.0)        | .0236 (0.6)      |
| 1000                    | SEK102M063ST           | 0.13                   | 1200                     | .630 (16.0)     | 1.26 (32.0)   | .295 (7.5)        | .0315 (0.8)      |

# Type SEK 105 °C Radial Leaded Aluminum Electrolytic Capacitors

| Cap<br>(µF)               | Catalog<br>Part Number | Max ESR                | Max Ripple               | Size in. (mm)   |               |                   |                  |
|---------------------------|------------------------|------------------------|--------------------------|-----------------|---------------|-------------------|------------------|
|                           |                        | 120 Hz<br>25 °C<br>(Ω) | 120 Hz<br>105 °C<br>(mA) | Diameter<br>(D) | Length<br>(L) | Lead Space<br>(S) | Lead Dia.<br>(d) |
| 100 Vdc (125 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 0.47                      | SEKR47M100ST           | 282.33                 | 10                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 1.0                       | SEK010M100ST           | 132.70                 | 15                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 2.2                       | SEK2R2M100ST           | 60.32                  | 22                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 3.3                       | SEK3R3M100ST           | 40.21                  | 29                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 4.7                       | SEK4R7M100ST           | 28.23                  | 37                       | .197 (5.0)      | .433 (11.0)   | .079 (2.0)        | .0197 (0.5)      |
| 10.0                      | SEK100M100ST           | 13.27                  | 65                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 22.0                      | SEK220M100ST           | 6.03                   | 115                      | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 33.0                      | SEK330M100ST           | 4.02                   | 160                      | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 47.0                      | SEK470M100ST           | 2.82                   | 210                      | .394 (10.0)     | .630 (16.0)   | .197 (5.0)        | .0236 (0.6)      |
| 100.0                     | SEK101M100ST           | 1.33                   | 385                      | .512 (13.0)     | .787 (20.0)   | .197 (5.0)        | .0236 (0.6)      |
| 220.0                     | SEK221M100ST           | 0.60                   | 590                      | .630 (16.0)     | .984 (25.0)   | .295 (7.5)        | .0315 (0.8)      |
| 330.0                     | SEK331M100ST           | 0.40                   | 720                      | .630 (16.0)     | .984 (25.0)   | .295 (7.5)        | .0315 (0.8)      |
| 470.0                     | SEK471M100ST           | 0.28                   | 875                      | .630 (16.0)     | 1.26 (32.0)   | .295 (7.5)        | .0315 (0.8)      |
| 160 Vdc (200 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 0.47                      | SEKR47M160ST           | 423.50                 | 12                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 1.0                       | SEK010M160ST           | 199.04                 | 17                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 2.2                       | SEK2R2M160ST           | 90.47                  | 25                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 3.3                       | SEK3R3M160ST           | 60.32                  | 36                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 4.7                       | SEK4R7M160ST           | 42.35                  | 43                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 10                        | SEK100M160ST           | 19.90                  | 70                       | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 22                        | SEK220M160ST           | 9.05                   | 130                      | .394 (10.0)     | .630 (16.0)   | .197 (5.0)        | .0236 (0.6)      |
| 33                        | SEK330M160ST           | 6.03                   | 180                      | .394 (10.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 47                        | SEK470M160ST           | 4.23                   | 270                      | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 100                       | SEK101M160ST           | 1.99                   | 330                      | .512 (13.0)     | .984 (26.0)   | .197 (5.0)        | .0236 (0.6)      |
| 220                       | SEK221M160ST           | 0.90                   | 500                      | .630 (16.0)     | 1.42 (36.0)   | .295 (7.5)        | .0315 (0.8)      |
| 330                       | SEK331M160ST           | 0.60                   | 850                      | .709 (18.0)     | 1.65 (42.0)   | .295 (7.5)        | .0315 (0.8)      |
| 200 Vdc (250 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 0.47                      | SEKR47M200ST           | 423.50                 | 12                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 1.0                       | SEK010M200ST           | 199.04                 | 17                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 2.2                       | SEK2R2M200ST           | 90.47                  | 25                       | .248 (6.3)      | .453 (11.5)   | .098 (2.5)        | .0197 (0.5)      |
| 3.3                       | SEK3R3M200ST           | 60.32                  | 36                       | .248 (6.3)      | .453 (11.5)   | .098 (2.5)        | .0197 (0.5)      |
| 4.7                       | SEK4R7M200ST           | 42.35                  | 50                       | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 10                        | SEK100M200ST           | 19.90                  | 80                       | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 22                        | SEK220M200ST           | 9.05                   | 140                      | .394 (10.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 33                        | SEK330M200ST           | 6.03                   | 190                      | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 47                        | SEK470M200ST           | 4.23                   | 220                      | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 100                       | SEK101M200ST           | 1.99                   | 335                      | .630 (16.0)     | .984 (25.0)   | .295 (7.5)        | .0315 (0.8)      |
| 220                       | SEK221M200ST           | 0.90                   | 515                      | .709 (18.0)     | 1.65 (42.0)   | .295 (7.5)        | .0315 (0.8)      |
| 250 Vdc (300 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 0.47                      | SEKR47M250ST           | 423.50                 | 12                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 1.0                       | SEK010M250ST           | 199.04                 | 17                       | .248 (6.3)      | .433 (11.0)   | .098 (2.5)        | .0197 (0.5)      |
| 2.2                       | SEK2R2M250ST           | 90.47                  | 29                       | .248 (6.3)      | .453 (11.5)   | .098 (2.5)        | .0197 (0.5)      |
| 3.3                       | SEK3R3M250ST           | 60.32                  | 42                       | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 4.7                       | SEK4R7M250ST           | 42.35                  | 50                       | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 10.0                      | SEK100M250ST           | 19.90                  | 88                       | .394 (10.0)     | .630 (16.0)   | .197 (5.0)        | .0236 (0.6)      |

# Type SEK 105 °C Radial Leaded Aluminum Electrolytic Capacitors

| Cap<br>(µF)               | Catalog<br>Part Number | Max ESR                | Max Ripple               | Size in. (mm)   |               |                   |                  |
|---------------------------|------------------------|------------------------|--------------------------|-----------------|---------------|-------------------|------------------|
|                           |                        | 120 Hz<br>25 °C<br>(Ω) | 120 Hz<br>105 °C<br>(mA) | Diameter<br>(D) | Length<br>(L) | Lead Space<br>(S) | Lead Dia.<br>(d) |
| 250 Vdc (300 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 22                        | SEK220M250ST           | 9.05                   | 155                      | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 33                        | SEK330M250ST           | 6.03                   | 190                      | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 47                        | SEK470M250ST           | 4.23                   | 230                      | .512 (13.0)     | .984 (26.0)   | .197 (5.0)        | .0236 (0.6)      |
| 100                       | SEK101M250ST           | 1.99                   | 340                      | .630 (16.0)     | 1.26 (32.0)   | .295 (7.5)        | .0315 (0.8)      |
| 350 Vdc (400 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 0.47                      | SEKR47M350ST           | 564.67                 | 14                       | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 1.0                       | SEK010M350ST           | 265.39                 | 20                       | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 2.2                       | SEK2R2M350ST           | 120.63                 | 35                       | .394 (10.0)     | .453 (11.5)   | .138 (3.5)        | .0236 (0.6)      |
| 3.3                       | SEK3R3M350ST           | 80.42                  | 47                       | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 4.7                       | SEK4R7M350ST           | 56.47                  | 55                       | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 10                        | SEK100M350ST           | 26.54                  | 95                       | .394 (10.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 22                        | SEK220M350ST           | 12.06                  | 165                      | .512 (13.0)     | .984 (26.0)   | .197 (5.0)        | .0236 (0.6)      |
| 33                        | SEK330M350ST           | 8.04                   | 195                      | .512 (13.0)     | .984 (25.0)   | .295 (7.5)        | .0315 (0.8)      |
| 47                        | SEK470M350ST           | 5.65                   | 240                      | .630 (16.0)     | 1.42 (36.0)   | .295 (7.5)        | .0315 (0.8)      |
| 100                       | SEK101M350ST           | 2.65                   | 360                      | .709 (18.0)     | 1.65 (42.0)   | .295 (7.5)        | .0315 (0.8)      |
| 400 Vdc (450 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 0.47                      | SEKR47M400ST           | 564.67                 | 14                       | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 1.0                       | SEK010M400ST           | 265.39                 | 20                       | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 2.2                       | SEK2R2M400ST           | 120.63                 | 35                       | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 3.3                       | SEK3R3M400ST           | 80.42                  | 50                       | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 4.7                       | SEK4R7M400ST           | 56.47                  | 58                       | .394 (10.0)     | .630 (16.0)   | .197 (5.0)        | .0236 (0.6)      |
| 10                        | SEK100M400ST           | 26.54                  | 100                      | .512 (13.0)     | .787 (20.0)   | .197 (5.0)        | .0236 (0.6)      |
| 22                        | SEK220M400ST           | 12.06                  | 170                      | .512 (13.0)     | .984 (26.0)   | .197 (5.0)        | .0236 (0.6)      |
| 33                        | SEK330M400ST           | 8.04                   | 205                      | .630 (16.0)     | 1.26 (32.0)   | .295 (7.5)        | .0315 (0.8)      |
| 47                        | SEK470M400ST           | 5.65                   | 255                      | .709 (18.0)     | 1.40 (36.0)   | .295 (7.5)        | .0315 (0.8)      |
| 450 Vdc (500 Volts Surge) |                        |                        |                          |                 |               |                   |                  |
| 0.47                      | SEKR47M450ST           | 564.67                 | 14                       | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 1.0                       | SEK010M450ST           | 265.39                 | 20                       | .315 (8.0)      | .433 (11.0)   | .138 (3.5)        | .0236 (0.6)      |
| 2.2                       | SEK2R2M450ST           | 120.63                 | 35                       | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 3.3                       | SEK3R3M450ST           | 80.42                  | 50                       | .394 (10.0)     | .512 (13.0)   | .197 (5.0)        | .0236 (0.6)      |
| 4.7                       | SEK4R7M450ST           | 56.47                  | 58                       | .394 (10.0)     | .630 (16.0)   | .197 (5.0)        | .0236 (0.6)      |
| 10                        | SEK100M450ST           | 26.54                  | 100                      | .512 (13.0)     | .827 (21.0)   | .197 (5.0)        | .0236 (0.6)      |
| 22                        | SEK220M450ST           | 12.06                  | 170                      | .512 (13.0)     | .984 (26.0)   | .197 (5.0)        | .0236 (0.6)      |
| 33                        | SEK330M450ST           | 8.04                   | 205                      | .630 (16.0)     | 1.26 (32.0)   | .295 (7.5)        | .0315 (0.8)      |
| 47                        | SEK470M450ST           | 5.65                   | 255                      | .709 (18.0)     | 1.40 (36.0)   | .295 (7.5)        | .0315 (0.8)      |