



**THE DATASHEET OF
SEK470M160ST**



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

| Capacitance Range | 0.47 to 15,000 μ F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---------------|--------------------|-------|----|----|------|-------|------|---------|----------------|---------|---------|--------------|-----|------------------|------|-----|-----|-----|-------------------|------|-----|-----|-----|-------------------|------|-----|-----|-----|---------------------|-------------------|---------|------|--------|------|--------|------|
| Capacitance Tolerance | \pm 20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage | 6.3 to 450 Vdc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operating Temperature Range | -55 °C to +105 °C; 6.3 to 100 Vdc -40 °C to +105 °C; 160 to 400 Vdc -25 °C to +105 °C; 450 Vdc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum DC Leakage Current | After 2 minutes, with rated voltage at +20 °C 6.3 to 100 Vdc $I = .01CV$ or 3 μ A Max (whichever is greater) ≥ 160 Vdc after 3 min, with rated voltage at +20 °C $I = .03CV$ or 10 μ A Max (whichever is greater) C = Capacitance in (μ F) V = Rated voltage I = Leakage current in μ A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor @ 120 Hz, +25 °C | <table border="1"> <tr> <td>WV (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>80</td> <td>100</td> <td>160-250</td> <td>350-450</td> </tr> <tr> <td>DF(%)</td> <td>26</td> <td>22</td> <td>18</td> <td>16</td> <td>14</td> <td>12</td> <td>10</td> <td>10</td> <td>10</td> <td>15</td> <td>20</td> </tr> </table> <p>For capacitors whose capacitance value exceeds 1000 μF, the value of DF (%) is increased 2% for every additional 1000 μF.</p> | 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 | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ripple Multipliers for Voltage and Temperature: | <table border="1"> <thead> <tr> <th rowspan="2">Rated WVDC</th> <th colspan="4">Ripple Multipliers</th> </tr> <tr> <th>60Hz</th> <th>120Hz</th> <th>1kHz</th> <th>10kHz</th> </tr> </thead> <tbody> <tr> <td>6 to 25</td> <td>0.80</td> <td>1.0</td> <td>1.1</td> <td>1.2</td> </tr> <tr> <td>35 to 100</td> <td>0.75</td> <td>1.0</td> <td>1.3</td> <td>1.4</td> </tr> <tr> <td>160 to 250</td> <td>0.70</td> <td>1.0</td> <td>1.4</td> <td>1.6</td> </tr> <tr> <td>350 to 400</td> <td>0.60</td> <td>1.0</td> <td>1.5</td> <td>1.8</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Ambient Temperature</th> <th>Ripple Multiplier</th> </tr> </thead> <tbody> <tr> <td>+105 °C</td> <td>1.00</td> </tr> <tr> <td>+85 °C</td> <td>1.50</td> </tr> <tr> <td>+70 °C</td> <td>1.80</td> </tr> </tbody> </table> | 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 |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Load Life Test | Apply WVDC for 2000 hours at +105 °C Capacitance change within 20% of initial limit DF not to exceed 200% of initial requirement Leakage current not to exceed 200% of initial | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shelf Life Test | 1000 hrs @105 °C with no voltage applied Cap change within \pm 20% of initial values DF not to exceed 200% of initial requirement DC leakage current meets initial requirement | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

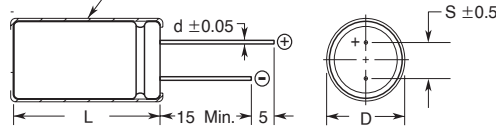
Regulatory Information

Type SEK 105 °C Radial Leaded Aluminum Electrolytic Capacitors

Outline Drawing

Outline Dimensions (Millimeters)

Sleeving is PVC or PET (PET for all date codes after December 2019)



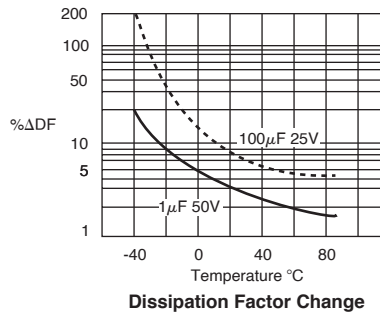
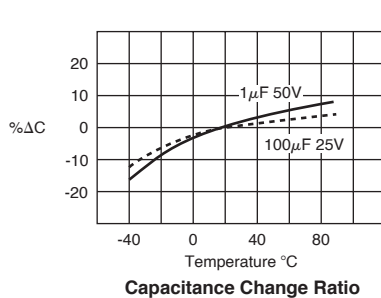
Case vented on diameters 6.3 and greater

sleeve adds .5 Max. to diameter and 2.0 Max. to length

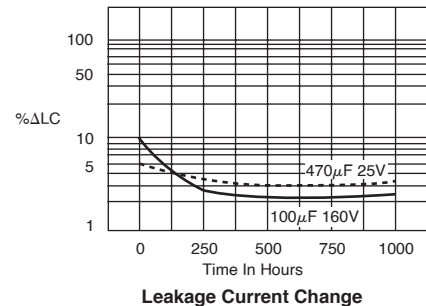
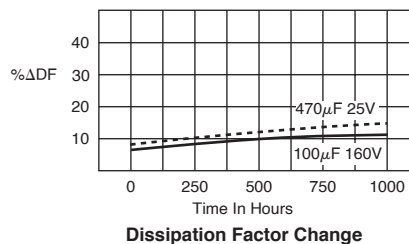
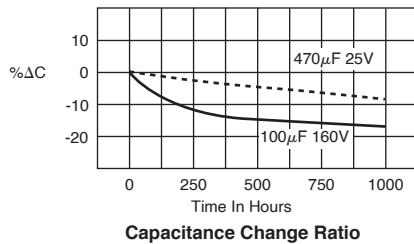
Part Numbering System

| Type | Capacitance | Tolerance | Rated Voltage | Packaging | Lead Configuration |
|------|-------------------|--------------|---------------|------------------------------|-----------------------------|
| | (μF) | (%) | (Vdc) | | |
| SEK | 100 | M | 100 | S | T |
| | 3R0 = 3 | K = ± 10 | 6R3 = 6.3 | A = Tape & Ammo | 1 = Lead cut |
| | 100 = 10 | M = ± 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



Ratings

| Cap (μ F) | Catalog Part Number | Max ESR 120 Hz 25 °C (Ω) | Max Ripple 120 Hz 105 °C (mA) | Size in. (mm) | | | |
|--------------------------------|------------------------|--|--|-----------------|---------------|-------------------|------------------|
| | | | | Diameter (D) | Length (L) | Lead Space (S) | Lead Dia. (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) | .295 (7.5) | .0315 (0.8) |
| 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 (μ F) | Catalog Part Number | Max ESR 120 Hz 25 °C (Ω) | Max Ripple 120 Hz 105 °C (mA) | Size in. (mm) | | | |
|--------------------------------|------------------------|--|--|-----------------|---------------|-------------------|------------------|
| | | | | Diameter (D) | Length (L) | Lead Space (S) | Lead Dia. (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) | .138 (3.5) | .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) |

Parts highlighted in yellow are obsolete.

Type SEK 105 °C Radial Leaded Aluminum Electrolytic Capacitors



| Cap (μ F) | Catalog Part Number | Max ESR 120 Hz 25 °C (Ω) | Max Ripple 120 Hz 105 °C (mA) | Size in. (mm) | | | |
|----------------------------------|------------------------|--|--|-----------------|---------------|-------------------|------------------|
| | | | | Diameter (D) | Length (L) | Lead Space (S) | Lead Dia. (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) |

Parts highlighted in yellow are obsolete.

Type SEK 105 °C Radial Leaded Aluminum Electrolytic Capacitors



| Cap (μ F) | Catalog Part Number | Max ESR 120 Hz 25 °C (Ω) | Max Ripple 120 Hz 105 °C (mA) | Size in. (mm) | | | |
|----------------------------------|------------------------|--|--|-----------------|---------------|-------------------|------------------|
| | | | | Diameter (D) | Length (L) | Lead Space (S) | Lead Dia. (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 | .315 (8.0) | .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) | .197 (5.0) | .0236 (0.6) |
| 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) |

Parts highlighted in yellow are obsolete.

Taping & Packaging

Fig. 1 - Formed Taping



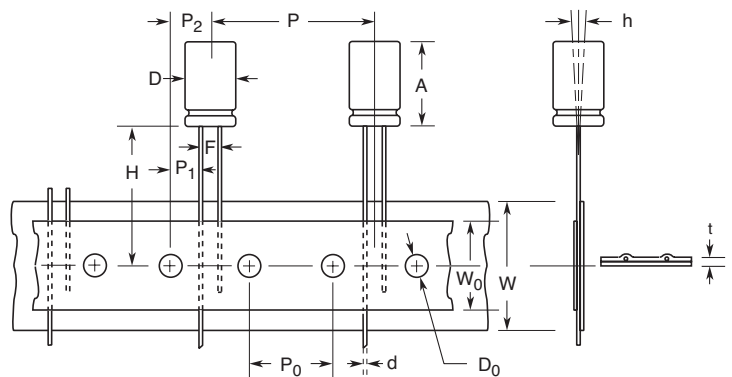
Fig. 2 - Straight Taping (5φ, 6.3φ, 8φ)



Fig. 3 - Straight Taping (Under 10φ, 12φ, 13φ)



Fig. 4 - Straight Taping (16φ, 18φ)



Standard Lead Spacing of Taped Components is 5mm
Other Lead Spacing is Available by Special Order

| Code | D | A | d | P | P ₀ | P ₁ | P ₂ | F | W | W ₀ | H | H ₀ | D ₀ | t | ih | Fig. |
|-----------|---------|------|-------|------|----------------|----------------|----------------|--------------|------|----------------|-------|----------------|----------------|------|------|------|
| Tolerance | 0.5 | 1.0 | ±0.05 | ±1.0 | ±0.2 | ±0.7 | ±1.3 | +0.8 -0.2 | ±0.5 | Min. | ±0.75 | ±0.5 | ±0.2 | ±0.2 | Max. | |
| Item | 4 ~ 6.3 | 7.0 | 0.45 | 12.7 | 12.7 | 3.85 | 6.35 | 5.0 | 18.0 | 12.5 | 18.5 | 16.0 | 4.0 | 0.7 | 2.0 | 1 |
| | 5 ~ 8 | 12.5 | 0.5 | 12.7 | 12.7 | 3.85 | 6.35 | 5.0 | 18.0 | 12.5 | 18.5 | 16.0 | 4.0 | 0.7 | 2.0 | 2 |
| | 5, 6.3 | 12.5 | 0.5 | 12.7 | 12.7 | 5.1 | 6.35 | 2.5 | 18.0 | 12.5 | 18.5 | — | 4.0 | 0.7 | 2.0 | |
| | 8 | 12.5 | 0.5 | 12.7 | 12.7 | 4.6 | 6.35 | 3.5 | 18.0 | 12.5 | 18.5 | — | 4.0 | 0.7 | 2.0 | 3 |
| | 10 | 21.0 | 0.6 | 12.7 | 12.7 | 3.85 | 6.35 | 5.0 | 18.0 | 12.5 | 18.5 | — | 4.0 | 0.7 | 2.0 | |
| | 12, 13 | 26.0 | 0.6 | 15.0 | 15.0 | 5.0 | 7.5 | 5.0 | 18.0 | 12.5 | 18.5 | — | 4.0 | 0.7 | 2.0 | |
| 16, 18 | 26.0 | 0.8 | 30.0 | 15.0 | 3.75 | 7.5 | 7.5 | 7.5 | 18.0 | 12.5 | 18.0 | — | 4.0 | 0.7 | 2.0 | 4 |

| Capacitor Diameter D (mm) | Ammo Pack Box Dimensions (mm) | | | Quantity Per Ammo Pack Box |
|---------------------------|-------------------------------|-------|-----|----------------------------|
| | A±5 | B Max | C±3 | |
| 4 | 250 | 340 | 54 | 3000 |
| 5 | 250 | 340 | 54 | 2,000 |
| 6.3 | 290 | 340 | 54 | 2,000 |
| 8 | 250 | 340 | 54 | 1,000 |
| 10 (12 L) | 290 | 340 | 54 | 600 |
| 10 (16 L) | 350 | 340 | 59 | 600 |
| 10 (20 L) | 340 | 340 | 71 | 600 |
| 12, 13 | 340 | 340 | 71 | 400 |
| 16 | 340 | 340 | 71 | 300 |



| Tape And Reel Quantities | | |
|--------------------------|------------|------------------|
| Case Diameter D (mm) | Reel Width | Reel Qty. (Pcs.) |
| 4 | 44 | 1500 |
| 5 | 44 | 1200 |
| 6 | 44 | 1000 |
| 8 | 44 | 800 |
| 10 (12L) | 44 | 600 |
| 10 (16L) | 50 | 600 |
| 12, 13 | - | - |
| 16 | - | - |

Type SEK 105 °C Radial Leaded Aluminum Electrolytic Capacitors

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