



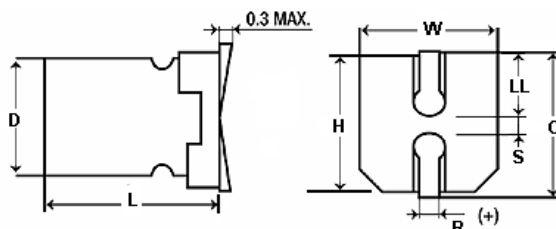
#### FEATURES

Small size – Low cost

#### APPLICATIONS

Filtering – Bypass – Coupling – Blocking

| Operating Temperature Range                              |                |     | -40°C to +85°C                                                                                                                                                                      |                                  |      |      |     |      |                  |      |      |  |
|----------------------------------------------------------|----------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------|------|-----|------|------------------|------|------|--|
| Capacitance Tolerance                                    |                |     | +20% at 120 Hz, 20°C                                                                                                                                                                |                                  |      |      |     |      |                  |      |      |  |
| Surge voltage                                            | WVDC           | 4   | 6.3                                                                                                                                                                                 | 10                               | 16   | 25   | 35  | 50   | 63               | 100  |      |  |
|                                                          | SVDC           | 5.2 | 7.9                                                                                                                                                                                 | 13                               | 20   | 32   | 44  | 63   | 79               | 125  |      |  |
| Dissipation Factor                                       | WVDC           | 4   | 6.3                                                                                                                                                                                 | 10                               | 16   | 25   | 35  | 50   | 63               | 100  |      |  |
|                                                          | tan δ          | .35 | .28                                                                                                                                                                                 | .24                              | .2   | .14  | .14 | .12  | .12              | .1   |      |  |
| Leakage current                                          |                |     | 2 Minutes                                                                                                                                                                           |                                  |      |      |     |      |                  |      |      |  |
|                                                          |                |     | .01CV or 3uA,Whichever is greater                                                                                                                                                   |                                  |      |      |     |      |                  |      |      |  |
| Low temperature stability<br>Impedance ratio<br>(120 Hz) | Rated WVDC     |     | 4                                                                                                                                                                                   | 6.3                              | 10   | 16   | 25  | 35   | 50               | 63   | 100  |  |
|                                                          | -25°C to +20°C | D<8 | 7                                                                                                                                                                                   | 4                                | 3    | 2    | 2   | 2    | 2                | 2    | 2    |  |
|                                                          |                | D≥8 | 7                                                                                                                                                                                   | 5                                | 4    | 3    | 2   | 2    | 2                | 2    | 2    |  |
|                                                          | -40°C to +20°C | D<8 | 15                                                                                                                                                                                  | 8                                | 6    | 4    | 4   | 3    | 3                | 3    | 3    |  |
|                                                          |                | D≥8 | 15                                                                                                                                                                                  | 10                               | 8    | 6    | 4   | 3    | 3                | 3    | 3    |  |
| Load Life                                                |                |     | 2000 hours at 85°C with rated WVDC and ripple current applied                                                                                                                       |                                  |      |      |     |      |                  |      |      |  |
|                                                          |                |     | Capacitance change                                                                                                                                                                  | ≤20% of initial measured value   |      |      |     |      |                  |      |      |  |
|                                                          |                |     | Dissipation factor                                                                                                                                                                  | ≤200% of maximum specified value |      |      |     |      |                  |      |      |  |
|                                                          |                |     | Leakage current                                                                                                                                                                     | ≤100% of maximum specified value |      |      |     |      |                  |      |      |  |
| Shelf Life                                               |                |     | 1000 hours at 85°C with no voltage applied                                                                                                                                          |                                  |      |      |     |      |                  |      |      |  |
|                                                          |                |     | Capacitance change                                                                                                                                                                  | ≤20% of initial measured value   |      |      |     |      |                  |      |      |  |
|                                                          |                |     | Dissipation factor                                                                                                                                                                  | ≤200% of maximum specified value |      |      |     |      |                  |      |      |  |
|                                                          |                |     | Leakage current                                                                                                                                                                     | ≤100% of maximum specified value |      |      |     |      |                  |      |      |  |
| Resistance to soldering heat                             |                |     | Capacitors placed on a 250C hot plate for 30 seconds with their electrode terminations facing downward will fulfill the following conditions after being cooled to room temperature |                                  |      |      |     |      |                  |      |      |  |
|                                                          |                |     | Capacitance change                                                                                                                                                                  | ≤10% of initial measured value   |      |      |     |      |                  |      |      |  |
|                                                          |                |     | Dissipation factor                                                                                                                                                                  | ≤200% of maximum specified value |      |      |     |      |                  |      |      |  |
|                                                          |                |     | Leakage current                                                                                                                                                                     | ≤100% of maximum specified value |      |      |     |      |                  |      |      |  |
| Ripple Current Multipliers                               |                |     | Frequency (Hz)                                                                                                                                                                      |                                  |      |      |     |      | Temperature (°C) |      |      |  |
|                                                          |                |     | 50                                                                                                                                                                                  | 120                              | 400  | 1k   | 10k | 100k | 85               | 70   | 65   |  |
|                                                          |                |     | 0.7                                                                                                                                                                                 | 1.0                              | 1.17 | 1.36 | 1.5 | 1.5  | 1.0              | 1.35 | 1.35 |  |



| D   | L             | W±0.2 | H±0.2 | C±0.2 | R       | LL±0.2 | S±0.2 |
|-----|---------------|-------|-------|-------|---------|--------|-------|
| 4   | 5.4 +0.1/-0.2 | 4.3   | 4.3   | 5.0   | 0.5~0.8 | 1.8    | 1.0   |
| 5   | 5.4 +0.1/-0.2 | 5.3   | 5.3   | 6.0   | 0.5~0.8 | 2.1    | 1.4   |
| 6.3 | 5.4 +0.1/-0.2 | 6.6   | 6.6   | 7.3   | 0.5~0.8 | 2.4    | 2.2   |
| 6.3 | 5.8 +0.1/-0.2 | 6.6   | 6.6   | 7.3   | 0.5~0.8 | 2.4    | 2.2   |
| 6.3 | 7.7 +0.1/-0.2 | 6.6   | 6.6   | 7.3   | 0.5~0.8 | 2.4    | 2.2   |
| 8   | 6.2 +0.1/-0.2 | 8.3   | 8.3   | 9.0   | 0.7~1.0 | 2.4    | 3.2   |
| 8   | 10.2+0.1/-0.2 | 8.3   | 8.3   | 9.0   | 0.7~1.0 | 2.8    | 3.2   |
| 10  | 10.2+0.1/-0.2 | 10    | 10    | 11.0  | 0.7~1.0 | 3.2    | 4.6   |

# SML

+85°C Standard 2000 hrs

| Capacitance<br>( $\mu$ F) | WVDC | IC PART NUMBER | Maximum<br>ESR ( $\Omega$ )<br>120 Hz,<br>+20°C | Maximum<br>RMS Ripple<br>Current<br>(mA)<br>120 Hz,<br>+105°C | Dims D $\times$ L<br>(mm) |
|---------------------------|------|----------------|-------------------------------------------------|---------------------------------------------------------------|---------------------------|
| 0.1                       | 50   | 104SML050MD4   | 1989.44                                         | 3.2                                                           | 4x5.4                     |
| 0.22                      | 50   | 224SML050MD4   | 904.29                                          | 4.7                                                           | 4x5.4                     |
| 0.33                      | 50   | 334SML050MD4   | 602.86                                          | 5.7                                                           | 4x5.4                     |
| 0.47                      | 50   | 474SML050MD4   | 423.28                                          | 6.8                                                           | 4x5.4                     |
| 1                         | 50   | 105SML050MD4   | 198.944                                         | 10                                                            | 4x5.4                     |
| 2.2                       | 50   | 225SML050MD4   | 90.429                                          | 15                                                            | 4x5.4                     |
| 3.3                       | 50   | 335SML050M     | 60.29                                           | 18                                                            | 4x5.4                     |
| 3.3                       | 100  | 335SML100M     | 50.24                                           | 28                                                            | 6.3x5.8                   |
| 4.7                       | 35   | 475SML035M     | 49.38                                           | 20                                                            | 4x5.4                     |
| 4.7                       | 50   | 475SML050M     | 42.33                                           | 24                                                            | 4x5.4                     |
| 4.7                       | 50   | 475SML050MD5   | 42.33                                           | 25                                                            | 5x5.4                     |
| 4.7                       | 100  | 475SML100MD8   | 3.53                                            | 60                                                            | 8x10.5                    |
| 10                        | 16   | 106SML016M     | 33.16                                           | 26                                                            | 4x5.4                     |
| 10                        | 35   | 106SML035M     | 23.21                                           | 34                                                            | 5x5.4                     |
| 10                        | 35   | 106SML035MD4   | 23.21                                           | 24                                                            | 4x5.4                     |
| 10                        | 50   | 106SML050MD5   | 19.894                                          | 41                                                            | 5x5.4                     |
| 10                        | 50   | 106SML050M     | 19.894                                          | 43                                                            | 6.3x5.4                   |
| 10                        | 63   | 106SML063MEL   | 19.89                                           | 50                                                            | 6.3x7.7                   |
| 10                        | 63   | 106SML063M     | 19.89                                           | 34                                                            | 6.3x5.4                   |
| 10                        | 100  | 106SML100M     | 16.57                                           | 50                                                            | 6.3x7.7                   |
| 10                        | 100  | 106SML100MD8   | 16.579                                          | 85                                                            | 8x10.5                    |
| 22                        | 6.3  | 226SML6R3M     | 21.1                                            | 31                                                            | 4x5.4                     |
| 22                        | 16   | 226SML016M     | 12.057                                          | 44                                                            | 5x5.4                     |
| 22                        | 16   | 226SML016MD4   | 12.057                                          | 30                                                            | 4x5.4                     |
| 22                        | 25   | 226SML025MD5   | 12.06                                           | 38                                                            | 5x5.4                     |
| 22                        | 35   | 226SML035M     | 10.55                                           | 59                                                            | 6.3x5.4                   |
| 22                        | 50   | 226SML050M     | 9.043                                           | 71                                                            | 6.3x5.4                   |
| 22                        | 63   | 226SML063MD8   | 9.043                                           | 120                                                           | 8x10.5                    |
| 22                        | 63   | 226SML063M     | 9.04                                            | 70                                                            | 6.3x7.7                   |
| 22                        | 100  | 226SML100M     | 7.54                                            | 120                                                           | 8x10.5                    |
| 33                        | 4    | 336SML004M     | 17.58                                           | 31                                                            | 4x5.4                     |
| 33                        | 10   | 336SML010MD4   | 12.057                                          | 34                                                            | 4x5.4                     |
| 33                        | 10   | 336SML010M     | 12.057                                          | 48                                                            | 5x5.4                     |
| 33                        | 25   | 336SML025M     | 8.038                                           | 67                                                            | 6.3x5.4                   |
| 33                        | 25   | 336SML025MD5   | 8.038                                           | 46                                                            | 5x5.4                     |
| 33                        | 35   | 336SML035M     | 7.033                                           | 65                                                            | 6.3x5.4                   |
| 33                        | 50   | 336SML050M     | 6.029                                           | 85                                                            | 6.3x7.7                   |
| 33                        | 50   | 336SML050MD8   | 6.029                                           | 95                                                            | 8x6.2                     |
| 33                        | 63   | 336SML063M     | 6.03                                            | 117                                                           | 8x10.5                    |
| 33                        | 100  | 336SML100M     | 5.02                                            | 100                                                           | 8x10.5                    |
| 47                        | 4    | 476SML004M     | 12.35                                           | 37                                                            | 4x5.4                     |
| 47                        | 6.3  | 476SML6R3MD4   | 9.877                                           | 40                                                            | 4x5.4                     |
| 47                        | 6.3  | 476SML6R3M     | 9.877                                           | 52                                                            | 5x5.4                     |
| 47                        | 16   | 476SML016M     | 7.055                                           | 75                                                            | 6.3x5.4                   |
| 47                        | 16   | 476SML016MD5   | 7.055                                           | 52                                                            | 5x5.4                     |
| 47                        | 25   | 476SML025M     | 5.644                                           | 70                                                            | 6.3x5.4                   |
| 47                        | 35   | 476SML035M     | 4.938                                           | 70                                                            | 6.3x5.8                   |
| 47                        | 35   | 476SML035MD8   | 4.938                                           | 105                                                           | 8x6.2                     |
| 47                        | 50   | 476SML050M     | 4.23                                            | 105                                                           | 6.3x7.7                   |
| 47                        | 50   | 476SML050MD8   | 4.23                                            | 140                                                           | 8x10.5                    |
| 47                        | 63   | 476SML063M     | 4.23                                            | 170                                                           | 8x10.5                    |
| 47                        | 100  | 476SML100M     | 3.5274                                          | 130                                                           | 10x10.5                   |
| 68                        | 6.3  | 686SML6R3M     | 6.826                                           | 50                                                            | 5x5.4                     |
| 68                        | 16   | 686SML016M     | 4.876                                           | 78                                                            | 6.3x5.4                   |
| 100                       | 4    | 107SML004M     | 5.83                                            | 63                                                            | 5x5.4                     |
| 100                       | 6.3  | 107SML6R3M     | 4.642                                           | 54                                                            | 5x5.4                     |
| 100                       | 16   | 107SML016M     | 3.316                                           | 103                                                           | 6.3x5.4                   |
| 100                       | 25   | 107SML025M     | 2.653                                           | 145                                                           | 8x6.2                     |

# SML

+85°C Standard 2000 hrs

| Capacitance<br>( $\mu$ F) | WVDC | IC PART NUMBER | Maximum<br>ESR ( $\Omega$ )<br>120 Hz,<br>+20°C | Maximum<br>RMS Ripple<br>Current<br>(mA)<br>120 Hz,<br>+105°C | Dims DxL<br>(mm) |
|---------------------------|------|----------------|-------------------------------------------------|---------------------------------------------------------------|------------------|
| 100                       | 35   | 107SML035M     | 2.321                                           | 120                                                           | 6.3x7.7          |
| 100                       | 50   | 107SML050M     | 1.99                                            | 200                                                           | 8x10.5           |
| 100                       | 50   | 107SML050MD10  | 1.99                                            | 250                                                           | 10x10.5          |
| 100                       | 63   | 107SML063M     | 1.99                                            | 280                                                           | 10x10.5          |
| 150                       | 4    | 157SML004M     | 3.868                                           | 84                                                            | 6.3x5.4          |
| 150                       | 10   | 157SML010M     | 2.653                                           | 88                                                            | 6.3x5.4          |
| 150                       | 16   | 157SML016M     | 2.21                                            | 135                                                           | 6.3x7.7          |
| 150                       | 35   | 157SML035MD8   | 1.547                                           | 220                                                           | 8x10.5           |
| 220                       | 4    | 227SML004M     | 2.64                                            | 110                                                           | 6.3x5.4          |
| 220                       | 6.3  | 227SML6R3M     | 2.11                                            | 91                                                            | 6.3x5.8          |
| 220                       | 10   | 227SML010M     | 1.8086                                          | 250                                                           | 8x6.5            |
| 220                       | 16   | 227SML016MD8   | 1.507                                           | 280                                                           | 8x10.5           |
| 220                       | 16   | 227SML016M     | 1.507                                           | 162                                                           | 6.3x7.7          |
| 220                       | 25   | 227SML025M     | 1.206                                           | 250                                                           | 10x7.7           |
| 220                       | 25   | 227SML025MD8   | 1.206                                           | 230                                                           | 8x10.5           |
| 220                       | 35   | 227SML035MD10  | 0.9                                             | 310                                                           | 10x10.5          |
| 220                       | 35   | 227SML035M     | 0.9                                             | 270                                                           | 8x10.5           |
| 220                       | 50   | 227SML050M     | 0.9043                                          | 320                                                           | 10x10.5          |
| 330                       | 6.3  | 337SML6R3M     | 1.407                                           | 188                                                           | 6.3x7.7          |
| 330                       | 6.3  | 337SML6R3MD8   | 1.407                                           | 190                                                           | 8x6.2            |
| 330                       | 25   | 337SML025MD10  | 0.7                                             | 340                                                           | 10x10.5          |
| 330                       | 25   | 337SML025M     | 0.7                                             | 270                                                           | 8x10.5           |
| 330                       | 35   | 337SML035M     | 0.703                                           | 360                                                           | 10x10.5          |
| 470                       | 4    | 477SML004M     | 1.24                                            | 150                                                           | 6.3x7.7          |
| 470                       | 6.3  | 477SML6R3M     | 0.9877                                          | 380                                                           | 8x10.5           |
| 470                       | 10   | 477SML010MD8   | 0.8466                                          | 390                                                           | 8x10.5           |
| 470                       | 16   | 477SML016MD10  | 0.7055                                          | 330                                                           | 10x10.5          |
| 470                       | 16   | 477SML016M     | 0.56                                            | 350                                                           | 8x10.5           |
| 470                       | 25   | 477SML025M     | 0.49                                            | 430                                                           | 10x10.5          |
| 1000                      | 4    | 108SML004MD8   | 0.58                                            | 300                                                           | 8x10.5           |
| 1000                      | 6.3  | 108SML6R3M     | 0.464                                           | 370                                                           | 8x10.5           |
| 1000                      | 10   | 108SML010M     | 0.398                                           | 580                                                           | 10x10.5          |
| 1500                      | 6.3  | 158SML6R3M     | 0.3095                                          | 450                                                           | 10x10.5          |