

# KXM

## +105°C Low Impedance Radial Lead Aluminum Electrolytic Capacitors



*For switching regulators and extended life applications*

### FEATURES

- High Ripple Current
- High Frequency
- Extended Life

- Voltage Range: 6.3 WVDC to 100 WVDC
- Capacitance Range: .47  $\mu$ F to 15000  $\mu$ F

### SPECIFICATIONS

|                                   |            |                                                                                                                                  |                |     |     |                                                                                                  |                  |      |      |      |
|-----------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------|----------------|-----|-----|--------------------------------------------------------------------------------------------------|------------------|------|------|------|
| Capacitance Tolerance             |            | ±20% at 120Hz, 20°C                                                                                                              |                |     |     |                                                                                                  |                  |      |      |      |
| Operating Temperature Range       |            | -55°C to + 105°C                                                                                                                 |                |     |     |                                                                                                  |                  |      |      |      |
| Dissipation Factor<br>120Hz, 20°C | WVDC       | 6.3                                                                                                                              | 10             | 16  | 25  | 35                                                                                               | 50               | 63   | 100  |      |
|                                   | tan δ      | .22                                                                                                                              | .19            | .16 | .14 | .12                                                                                              | .1               | .08  | .08  |      |
|                                   |            | Note: For above D.F. specifications, add .02 for every 1,000 μF above 1,000 μF                                                   |                |     |     |                                                                                                  |                  |      |      |      |
| Impedance Ratio<br>(Max.) @120Hz  | WVDC       | 6.3                                                                                                                              | 10             | 16  | 25  | 35                                                                                               | 50               | 63   | 100  |      |
|                                   | -25°C/20°C | 2                                                                                                                                | 2              | 2   | 2   | 2                                                                                                | 2                | 2    | 2    |      |
|                                   | -40°C/20°C | 3                                                                                                                                | 3              | 3   | 3   | 3                                                                                                | 3                | 3    | 3    |      |
| Leakage Current                   | WVDC       | < 100 WVDC                                                                                                                       |                |     |     |                                                                                                  |                  |      |      |      |
|                                   | Time       | 2 minutes                                                                                                                        |                |     |     |                                                                                                  |                  |      |      |      |
|                                   |            | .01 CV or 3μA<br>whichever is greater                                                                                            |                |     |     |                                                                                                  |                  |      |      |      |
| Load Life                         |            | 5000 hours at +105°C with rated WVDC and rated ripple current<br>(4000 hours for D=10, 3000 hours for D=8, 2000 hours for D≤6.3) |                |     |     |                                                                                                  |                  |      |      |      |
|                                   |            | Capacitors will meet the requirements listed below.                                                                              |                |     |     |                                                                                                  |                  |      |      |      |
|                                   |            | Capacitance change<br>Dissipation factor<br>Leakage current                                                                      |                |     |     | ≤ 25% of initial measured value<br>≤ 200% of initial specified value<br>≤100% of specified value |                  |      |      |      |
| Shelf Life                        |            | 1,000 hours at +105°C with no voltage applied.<br>Units will meet load life specifications                                       |                |     |     |                                                                                                  |                  |      |      |      |
| Ripple Current Multipliers        |            |                                                                                                                                  | Frequency (Hz) |     |     |                                                                                                  | Temperature (°C) |      |      |      |
|                                   |            | Capacitance (μF)                                                                                                                 | 50             | 120 | 1K  | 10K                                                                                              | 100K             | +105 | +85  | +70  |
|                                   |            | C≤33                                                                                                                             | .45            | .55 | .75 | .91                                                                                              | 1.0              | 1.0  | 1.41 | 1.65 |
|                                   |            | 47<C≤330                                                                                                                         | .60            | .70 | .85 | .95                                                                                              | 1.0              | 1.0  | 1.41 | 1.65 |
|                                   |            | 470<C≤1000                                                                                                                       | .65            | .75 | .90 | .98                                                                                              | 1.0              | 1.0  | 1.41 | 1.65 |
|                                   |            | C>1000                                                                                                                           | .75            | .80 | .95 | 1.0                                                                                              | 1.0              | 1.0  | 1.41 | 1.65 |

### SPECIAL ORDER OPTIONS

(See pages 33 thru 37)

- Special tolerances:  $\pm 10\%$  (K), -10% + 30% (Q)
- Tape and Reel/Ammo-Pack
- Cut, Formed, Cut and Formed, and Snap In Leads



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## PHYSICAL DIMENSIONS

| WVDC<br>(μF) | 6.3<br>(7.9)  | 10<br>(13)         | 16<br>(20)         | 25<br>(32)         | 35<br>(44)         | 50<br>(63) | 63<br>(79)         | 100<br>(125)       |
|--------------|---------------|--------------------|--------------------|--------------------|--------------------|------------|--------------------|--------------------|
| 0.47         |               |                    |                    |                    |                    |            | →                  | 5x11               |
| 0.68         |               |                    |                    |                    |                    |            | →                  | 5x11               |
| 1            |               |                    |                    |                    |                    |            | →                  | 5x11               |
| 1.5          |               |                    |                    |                    |                    |            | →                  | 5x11               |
| 2.2          |               |                    |                    |                    |                    |            | →                  | 5x11               |
| 3.3          |               |                    |                    |                    |                    |            | →                  | 5x11               |
| 4.7          |               |                    |                    |                    | →                  | 5x11       | →                  | 6.3x11             |
| 6.8          |               |                    |                    |                    | →                  | 5x11       | →                  | 6.3x11             |
| 10           |               |                    |                    |                    | →                  | 5x11       | 5x11               | 6.3x11             |
| 12           |               |                    |                    |                    | →                  | 5x11       | 5x11               | 6.3x11             |
| 15           |               |                    |                    |                    | →                  | 5x11       | 6.3x11             | 6.3x15             |
| 18           |               |                    |                    |                    | →                  | 5x11       | 6.3x11             | 6.3x15             |
| 22           |               |                    |                    |                    | →                  | 5x11       | 6.3x11             | 8x11.5             |
| 27           |               |                    |                    |                    | →                  | 5x11       | 6.3x11             | 10x12.5<br>8x15    |
| 33           |               |                    |                    | →                  | 5x11               | 6.3x11     | 6.3x15             | 10x12.5<br>8x15    |
| 39           |               |                    |                    |                    |                    |            | 6.3x15             | 10x15<br>8x20      |
| 47           |               |                    | →                  | 5x11               | →                  | 6.3x11     | 8x11.5             | 10x20<br>12.5x15   |
| 56           |               | →                  | 5x11               | →                  | 6.3x11             | 6.3x11     | 10x12.5<br>8x15    | 10x20<br>12.5x15   |
| 68           |               | →                  | 5x11               | →                  | 6.3x11             | 8x11.5     | 10x12.5<br>8x15    | 10x25<br>12.5x15   |
| 82           |               |                    |                    |                    |                    |            | 10x15<br>8x20      | 10x31.5<br>16x15   |
| 100          | →             | 5x11               | →                  | 6.3x11             | →                  | 8x11.5     | 10x20<br>12.5x15   | 10x31.5<br>16x15   |
| 120          |               | →                  | 6.3x11             |                    | →                  | 8x15       | 10x20<br>12.5x15   | 12.5x25<br>16x15   |
| 150          | 5x11          |                    |                    | →                  | 8x11.5             | 10x12.5    | 10x25<br>12.5x15   | 12.5x25<br>18x15   |
| 180          |               |                    |                    |                    | →                  | 8x20       | 10x31.5<br>16x15   | 12.5x31.5<br>16x20 |
| 220          | →             | 6.3x11             | →                  | 8x11.5             | 10x12.5<br>8x15    | 10x16      | 12.5x20<br>16x15   | 12.5x35.5<br>16x25 |
| 270          |               |                    |                    | →                  | 8x20               | 10x20      | 12.5x25<br>18x15   | 12.5x40<br>18x20   |
| 330          | 6.3x11        | →                  | 8x11.5             | 10x12.5<br>8x15    | 10x16              | 10x25      | 12.5x25<br>18x15   | 16x31.5<br>18x25   |
| 390          |               |                    |                    |                    |                    | →          | 12.5x31.5<br>16x20 | 16x35.5<br>18x31.5 |
| 470          | →             | 8x11.5             | 10x12.5<br>8x15    | 10x16<br>8x20      | 10x20              | 12.5x20    | 12.5x35.5<br>16x25 | 16x40<br>18x35.5   |
| 560          | 8x11.5        |                    |                    | →                  | 10x25              | 12.5x25    | 12.5x40<br>18x20   | 18x35.5            |
| 680          | →             | 10x12.5<br>8x15    | 10x16<br>8x20      | 10x20              | 12.5x20            | 12.5x31.5  | 16x31.5<br>18x25   | 18x40              |
| 820          | 8x15          |                    | →                  | 10x25              | →                  | 12.5x35.5  | 16x35.5<br>18x31.5 |                    |
| 1000         | 10x12.5       | 10x16<br>8x20      | 10x20              | 12.5x20            | 12.5x25            | 16x25      | 16x40<br>18x35.5   |                    |
| 1200         | 10x16<br>8x20 | 10x20              | 10x25              | 12.5x20            | 12.5x31.5          | 16x31.5    | 18x40              |                    |
| 1500         | 10x20         | 10x25              | 12.5x20            | 12.5x25            | 12.5x35.5<br>16x25 | 16x35.5    |                    |                    |
| 1800         |               |                    | →                  | 12.5x31.5          | 16x25              |            |                    |                    |
| 2200         | 10x25         | 12.5x20            | 12.5x25            | 12.5x35.5<br>16x25 | 16x31.5            | 18x35.5    |                    |                    |
| 2700         |               | →                  | 12.5x31.5          | 16x25              |                    |            |                    |                    |
| 3300         | 12.5x20       | 12.5x25            | 12.5x35.5<br>16x25 | 16x31.5            | 18x35.5            | 18x40      |                    |                    |
| 3900         | 12.5x25       | 12.5x31.5          | 16x25              |                    |                    |            |                    |                    |
| 4700         | 12.5x31.5     | 12.5x35.5<br>16x25 | 16x31.5            | 18x35.5            |                    |            |                    |                    |
| 5600         | 12.5x35.5     | 16x25              |                    |                    |                    |            |                    |                    |
| 6800         | 16x25         | 16x31.5            | 18x35.5            |                    |                    |            |                    |                    |
| 10000        | 16x31.5       | 18x35.5            | 18x40              |                    |                    |            |                    |                    |
| 15000        | 18x35.5       | 18x40              |                    |                    |                    |            |                    |                    |

D x L (mm)

## STANDARD PART LISTING

| Capacitance<br>( $\mu$ F) | WVDC | IC <sup>®</sup> PART<br>NUMBER | Maximum<br>ESR $\Omega$<br>120Hz,<br>+20°C | Impedance<br>$\Omega$<br>+20°C/-10°C<br>100kHz | Maximum RMS<br>Ripple Current<br>(mA) +105°C<br>100kHz | Dimensions<br>DxL<br>(mm) |
|---------------------------|------|--------------------------------|--------------------------------------------|------------------------------------------------|--------------------------------------------------------|---------------------------|
| 0.47                      | 100  | 474KXM100M                     | 282.190                                    | 45/121.5                                       | 20                                                     | 5x11                      |
| 0.68                      | 100  | 684KXM100M                     | 195.043                                    | 25/67.5                                        | 24                                                     | 5x11                      |
| 1                         | 100  | 105KXM100M                     | 132.629                                    | 17/46                                          | 26                                                     | 5x11                      |
| 1.5                       | 100  | 155KXM100M                     | 88.419                                     | 10/27                                          | 33                                                     | 5x11                      |
| 2.2                       | 100  | 225KXM100M                     | 60.286                                     | 6.8/18.36                                      | 45                                                     | 5x11                      |
| 3.3                       | 100  | 335KXM100M                     | 40.191                                     | 4.15/11.205                                    | 55                                                     | 5x11                      |
| 4.7                       | 50   | 475KXM050M                     | 35.274                                     | 1.699/5.096                                    | 80                                                     | 5x11                      |
| 4.7                       | 100  | 475KXM100M                     | 28.219                                     | 3/8.1                                          | 70                                                     | 6.3x11                    |
| 6.8                       | 100  | 685KXM100M                     | 19.504                                     | 2/5.4                                          | 85                                                     | 6.3x11                    |
| 10                        | 50   | 106KXM050M                     | 16.579                                     | 1.331/3.992                                    | 110                                                    | 5x11                      |
| 10                        | 63   | 106KXM063M                     | 13.263                                     | 1.08/2.16                                      | 137                                                    | 5x11                      |
| 10                        | 100  | 106KXM100M                     | 13.263                                     | 1.25/3.375                                     | 106                                                    | 6.3x11                    |
| 12                        | 63   | 126KXM063M                     | 11.052                                     | 0.95/1.9                                       | 148                                                    | 5x11                      |
| 12                        | 100  | 126KXM100M                     | 11.052                                     | 1/2.7                                          | 115                                                    | 6.3x11                    |
| 15                        | 63   | 156KXM063M                     | 8.842                                      | 0.75/1.5                                       | 185                                                    | 6.3x11                    |
| 15                        | 100  | 156KXM100M                     | 8.842                                      | 0.82/2.214                                     | 132                                                    | 6.3x15                    |
| 18                        | 63   | 186KXM063M                     | 7.368                                      | 0.64/1.28                                      | 198                                                    | 6.3x11                    |
| 18                        | 100  | 186KXM100M                     | 7.368                                      | 0.69/1.863                                     | 155                                                    | 6.3x15                    |
| 22                        | 50   | 226KXM050M                     | 7.536                                      | 0.34/1.18                                      | 238                                                    | 5x11                      |
| 22                        | 63   | 226KXM063M                     | 6.029                                      | 0.53/1.06                                      | 220                                                    | 6.3x11                    |
| 22                        | 100  | 226KXM100M                     | 6.029                                      | 0.57/1.54                                      | 230                                                    | 8x11.5                    |
| 27                        | 63   | 276KXM063M                     | 4.912                                      | 0.43/0.86                                      | 240                                                    | 6.3x11                    |
| 27                        | 100  | 276KXM100M                     | 4.912                                      | 0.5/1.4                                        | 270                                                    | 10x12.5                   |
| 27                        | 100  | 276KXM100MJP                   | 4.912                                      | 0.48/1.3                                       | 280                                                    | 8x15                      |
| 33                        | 35   | 336KXM035M                     | 6.029                                      | 0.3/1                                          | 250                                                    | 5x11                      |
| 33                        | 50   | 336KXM050M                     | 5.024                                      | 0.564/1.411                                    | 230                                                    | 6.3x11                    |
| 33                        | 63   | 336KXM063M                     | 4.019                                      | 0.36/0.72                                      | 308                                                    | 6.3x15                    |
| 33                        | 100  | 336KXM100M                     | 4.019                                      | 0.44/1.19                                      | 295                                                    | 10x12.5                   |
| 33                        | 100  | 336KXM100MJP                   | 4.019                                      | 0.4/1.08                                       | 300                                                    | 8x15                      |
| 39                        | 63   | 396KXM063M                     | 3.401                                      | 0.31/0.62                                      | 325                                                    | 6.3x15                    |
| 39                        | 100  | 396KXM100M                     | 3.401                                      | 0.38/1.03                                      | 340                                                    | 10x15                     |
| 39                        | 100  | 396KXM100MJU                   | 3.401                                      | 0.34/0.92                                      | 350                                                    | 8x20                      |
| 47                        | 25   | 476KXM025M                     | 4.938                                      | 0.3/1                                          | 250                                                    | 5x11                      |
| 47                        | 50   | 476KXM050M                     | 3.527                                      | 0.453/1.132                                    | 270                                                    | 6.3x11                    |
| 47                        | 63   | 476KXM063M                     | 2.822                                      | 0.26/0.52                                      | 370                                                    | 8x11.5                    |
| 47                        | 100  | 476KXM100M                     | 2.822                                      | 0.3/0.81                                       | 420                                                    | 10x20                     |
| 47                        | 100  | 476KXM100MNP                   | 2.822                                      | 0.33/0.89                                      | 400                                                    | 12.5x15                   |
| 56                        | 16   | 566KXM016M                     | 4.737                                      | 0.3/1                                          | 250                                                    | 5x11                      |
| 56                        | 35   | 566KXM035M                     | 3.553                                      | 0.13/0.41                                      | 405                                                    | 6.3x11                    |
| 56                        | 50   | 566KXM050M                     | 2.960                                      | 0.14/0.5                                       | 385                                                    | 6.3x11                    |
| 56                        | 63   | 566KXM063M                     | 2.368                                      | 0.24/0.48                                      | 445                                                    | 10x12.5                   |
| 56                        | 63   | 566KXM063MJP                   | 2.368                                      | 0.22/0.44                                      | 460                                                    | 8x15                      |
| 56                        | 100  | 566KXM100M                     | 2.368                                      | 0.25/0.675                                     | 455                                                    | 10x20                     |
| 56                        | 100  | 566KXM100MNP                   | 2.368                                      | 0.29/0.78                                      | 430                                                    | 12.5x15                   |

| Capacitance<br>( $\mu$ F) | WVDC | IC <sup>®</sup> PART<br>NUMBER | Maximum<br>ESR $\Omega$<br>120Hz,<br>+20°C | Impedance<br>$\Omega$<br>+20°C/-10°C<br>100kHz | Maximum RMS<br>Ripple Current<br>(mA) +105°C<br>100kHz | Dimensions<br>DxL<br>(mm) |
|---------------------------|------|--------------------------------|--------------------------------------------|------------------------------------------------|--------------------------------------------------------|---------------------------|
| 68                        | 16   | 686KXM016M                     | 3.901                                      | 0.5/1.25                                       | 180                                                    | 5x11                      |
| 68                        | 35   | 686KXM035M                     | 2.926                                      | 0.397/0.991                                    | 280                                                    | 6.3x11                    |
| 68                        | 50   | 686KXM050M                     | 2.438                                      | 0.352/0.88                                     | 380                                                    | 8x11.5                    |
| 68                        | 100  | 686KXM100MNP                   | 1.950                                      | 0.25/0.675                                     | 465                                                    | 12.5x15                   |
| 82                        | 63   | 826KXM063M                     | 1.617                                      | 0.16/0.32                                      | 580                                                    | 10x15                     |
| 82                        | 63   | 826KXM063MJU                   | 1.617                                      | 0.17/0.34                                      | 600                                                    | 8x20                      |
| 82                        | 100  | 826KXM100M                     | 1.617                                      | 0.2/0.54                                       | 610                                                    | 10x31.5                   |
| 82                        | 100  | 826KXM100MQP                   | 1.617                                      | 0.21/0.567                                     | 680                                                    | 16x15                     |
| 100                       | 10   | 107KXM010M                     | 3.150                                      | 0.3/1                                          | 250                                                    | 5x11                      |
| 100                       | 25   | 107KXM025M                     | 2.321                                      | 0.13/0.41                                      | 405                                                    | 6.3x11                    |
| 100                       | 50   | 107KXM050M                     | 1.658                                      | 0.074/0.22                                     | 724                                                    | 8x11.5                    |
| 100                       | 63   | 107KXM063M                     | 1.326                                      | 0.13/0.26                                      | 748                                                    | 10x20                     |
| 100                       | 63   | 107KXM063MNP                   | 1.326                                      | 0.15/0.3                                       | 700                                                    | 12.5x15                   |
| 100                       | 100  | 107KXM100M                     | 1.326                                      | 0.16/0.432                                     | 660                                                    | 10x31.5                   |
| 100                       | 100  | 107KXM100MQP                   | 1.326                                      | 0.18/0.486                                     | 715                                                    | 16x15                     |
| 120                       | 16   | 127KXM016M                     | 2.210                                      | 0.13/0.41                                      | 405                                                    | 6.3x11                    |
| 120                       | 50   | 127KXM050M                     | 1.382                                      | 0.061/0.18                                     | 950                                                    | 8x15                      |
| 120                       | 63   | 127KXM063M                     | 1.105                                      | 0.11/0.22                                      | 820                                                    | 10x20                     |
| 120                       | 63   | 127KXM063MNP                   | 1.105                                      | 0.125/0.15                                     | 755                                                    | 12.5x15                   |
| 120                       | 100  | 127KXM100M                     | 1.105                                      | 0.135/0.351                                    | 770                                                    | 12.5x25                   |
| 120                       | 100  | 127KXM100MQP                   | 1.105                                      | 0.15/0.405                                     | 795                                                    | 16x15                     |
| 150                       | 6.3  | 157KXM6R3M                     | 2.432                                      | 0.3/1                                          | 250                                                    | 5x11                      |
| 150                       | 35   | 157KXM035M                     | 1.326                                      | 0.072/0.22                                     | 760                                                    | 8x11.5                    |
| 150                       | 50   | 157KXM050M                     | 1.105                                      | 0.061/0.18                                     | 979                                                    | 10x12.5                   |
| 150                       | 63   | 157KXM063M                     | 0.884                                      | 0.092/0.184                                    | 940                                                    | 10x25                     |
| 150                       | 63   | 157KXM063MNP                   | 0.884                                      | 0.095/0.19                                     | 847                                                    | 12.5x15                   |
| 150                       | 100  | 157KXM100M                     | 0.884                                      | 0.12/0.324                                     | 800                                                    | 12.5x25                   |
| 150                       | 100  | 157KXM100MRP                   | 0.884                                      | 0.13/0.351                                     | 915                                                    | 18x15                     |
| 180                       | 50   | 187KXM050M                     | 0.921                                      | 0.046/0.14                                     | 1190                                                   | 8x20                      |
| 180                       | 63   | 187KXM063M                     | 0.737                                      | 0.077/0.154                                    | 1100                                                   | 10x31.5                   |
| 180                       | 63   | 187KXM063MQP                   | 0.737                                      | 0.082/0.164                                    | 1025                                                   | 16x15                     |
| 180                       | 100  | 187KXM100M                     | 0.737                                      | 0.1/0.27                                       | 900                                                    | 12.5x31.5                 |
| 180                       | 100  | 187KXM100MQU                   | 0.737                                      | 0.11/0.3                                       | 995                                                    | 16x20                     |
| 220                       | 10   | 227KXM010M                     | 1.432                                      | 0.13/0.41                                      | 405                                                    | 6.3x11                    |
| 220                       | 25   | 227KXM025M                     | 1.055                                      | 0.072/0.22                                     | 760                                                    | 8x11.5                    |
| 220                       | 35   | 227KXM035MLN                   | 0.904                                      | 0.128/0.319                                    | 630                                                    | 10x12.5                   |
| 220                       | 35   | 227KXM035M                     | 0.904                                      | 0.056/0.17                                     | 995                                                    | 8x15                      |
| 220                       | 50   | 227KXM050M                     | 0.754                                      | 0.042/0.12                                     | 1370                                                   | 10x16                     |
| 220                       | 63   | 227KXM063M                     | 0.603                                      | 0.067/0.134                                    | 1145                                                   | 12.5x20                   |
| 220                       | 63   | 227KXM063MQP                   | 0.603                                      | 0.072/0.144                                    | 1125                                                   | 16x15                     |
| 220                       | 100  | 227KXM100M                     | 0.603                                      | 0.088/0.238                                    | 1000                                                   | 12.5x35.5                 |
| 220                       | 100  | 227KXM100MQV                   | 0.603                                      | 0.094/0.254                                    | 1150                                                   | 16x25                     |
| 270                       | 35   | 277KXM035M                     | 0.737                                      | 0.041/0.13                                     | 1250                                                   | 8x20                      |
| 270                       | 50   | 277KXM050M                     | 0.614                                      | 0.03/0.09                                      | 1580                                                   | 10x20                     |

## STANDARD PART LISTING

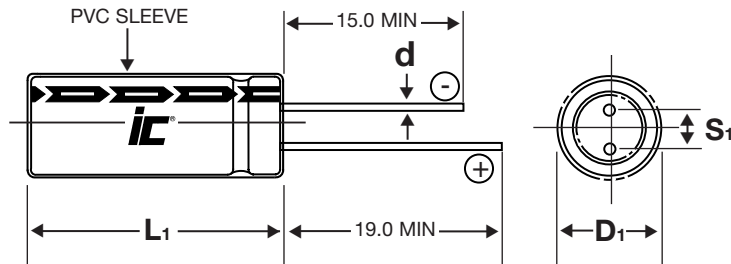
| Capacitance<br>( $\mu$ F) | WVDC | IC <sup>®</sup> PART<br>NUMBER | Maximum<br>ESR $\Omega$<br>120Hz,<br>+20°C | Impedance<br>$\Omega$<br>+20°C/-10°C<br>100kHz | Maximum RMS<br>Ripple Current<br>(mA) +105°C<br>100kHz | Dimensions<br>DxL<br>(mm) |
|---------------------------|------|--------------------------------|--------------------------------------------|------------------------------------------------|--------------------------------------------------------|---------------------------|
| 270                       | 63   | 277KXM063M                     | 0.491                                      | 0.056/0.112                                    | 1350                                                   | 12.5x25                   |
| 270                       | 63   | 277KXM063MRP                   | 0.491                                      | 0.06/0.12                                      | 1300                                                   | 18x15                     |
| 270                       | 100  | 277KXM100M                     | 0.491                                      | 0.074/0.2                                      | 1110                                                   | 12.5x40                   |
| 270                       | 100  | 277KXM100MRU                   | 0.491                                      | 0.082/0.221                                    | 1225                                                   | 18x20                     |
| 330                       | 6.3  | 337KXM6R3M                     | 1.105                                      | 0.13/0.41                                      | 405                                                    | 6.3x11                    |
| 330                       | 16   | 337KXM016M                     | 0.804                                      | 0.072/0.22                                     | 760                                                    | 8x11.5                    |
| 330                       | 25   | 337KXM025MLN                   | 0.703                                      | 0.108/0.27                                     | 700                                                    | 10x12.5                   |
| 330                       | 25   | 337KXM025M                     | 0.703                                      | 0.056/0.17                                     | 995                                                    | 8x15                      |
| 330                       | 35   | 337KXM035M                     | 0.603                                      | 0.038/0.12                                     | 1430                                                   | 10x16                     |
| 330                       | 50   | 337KXM050M                     | 0.502                                      | 0.028/0.085                                    | 1870                                                   | 10x25                     |
| 330                       | 63   | 337KXM063M                     | 0.402                                      | 0.05/0.1                                       | 1425                                                   | 12.5x25                   |
| 330                       | 63   | 337KXM063MRP                   | 0.402                                      | 0.051/0.102                                    | 1400                                                   | 18x15                     |
| 330                       | 100  | 337KXM100M                     | 0.402                                      | 0.065/0.176                                    | 1520                                                   | 16x31.5                   |
| 330                       | 100  | 337KXM100MRV                   | 0.402                                      | 0.072/0.194                                    | 1425                                                   | 18x25                     |
| 390                       | 63   | 397KXM063M                     | 0.340                                      | 0.044/0.088                                    | 1625                                                   | 12.5x31.5                 |
| 390                       | 63   | 397KXM063MQU                   | 0.340                                      | 0.047/0.094                                    | 1500                                                   | 16x20                     |
| 390                       | 100  | 397KXM100M                     | 0.340                                      | 0.055/0.149                                    | 1725                                                   | 16x35.5                   |
| 390                       | 100  | 397KXM100MRW                   | 0.340                                      | 0.063/0.17                                     | 1600                                                   | 18x31.5                   |
| 470                       | 10   | 477KXM010M                     | 0.670                                      | 0.072/0.22                                     | 760                                                    | 8x11.5                    |
| 470                       | 16   | 477KXM016MLN                   | 0.564                                      | 0.093/0.233                                    | 660                                                    | 10x12.5                   |
| 470                       | 16   | 477KXM016M                     | 0.564                                      | 0.056/0.17                                     | 995                                                    | 8x15                      |
| 470                       | 25   | 477KXM025MLQ                   | 0.494                                      | 0.088/0.221                                    | 920                                                    | 10x16                     |
| 470                       | 25   | 477KXM025M                     | 0.494                                      | 0.041/0.13                                     | 1250                                                   | 8x20                      |
| 470                       | 35   | 477KXM035M                     | 0.423                                      | 0.023/0.069                                    | 1820                                                   | 10x20                     |
| 470                       | 50   | 477KXM050M                     | 0.353                                      | 0.027/0.068                                    | 2050                                                   | 12.5x20                   |
| 470                       | 63   | 477KXM063M                     | 0.282                                      | 0.04/0.08                                      | 1785                                                   | 12.5x35.5                 |
| 470                       | 63   | 477KXM063MQV                   | 0.282                                      | 0.042/0.084                                    | 1700                                                   | 16x25                     |
| 470                       | 100  | 477KXM100M                     | 0.282                                      | 0.049/0.132                                    | 1920                                                   | 16x40                     |
| 470                       | 100  | 477KXM100MRY                   | 0.282                                      | 0.056/0.157                                    | 1775                                                   | 18x35.5                   |
| 560                       | 6.3  | 567KXM6R3M                     | 0.651                                      | 0.072/0.22                                     | 760                                                    | 8x11.5                    |
| 560                       | 35   | 567KXM035M                     | 0.355                                      | 0.022/0.066                                    | 2150                                                   | 10x25                     |
| 560                       | 50   | 567KXM050M                     | 0.296                                      | 0.023/0.059                                    | 2410                                                   | 12.5x25                   |
| 560                       | 63   | 567KXM063M                     | 0.237                                      | 0.036/0.072                                    | 1950                                                   | 12.5x40                   |
| 560                       | 63   | 567KXM063MRU                   | 0.237                                      | 0.04/0.08                                      | 1725                                                   | 18x20                     |
| 560                       | 100  | 567KXM100M                     | 0.237                                      | 0.043/0.116                                    | 2050                                                   | 18x35.5                   |
| 680                       | 10   | 687KXM010MLN                   | 0.463                                      | 0.077/0.194                                    | 760                                                    | 10x12.5                   |
| 680                       | 10   | 687KXM010M                     | 0.463                                      | 0.056/0.17                                     | 995                                                    | 8x15                      |
| 680                       | 16   | 687KXM016MLQ                   | 0.390                                      | 0.074/0.184                                    | 880                                                    | 10x16                     |
| 680                       | 16   | 687KXM016M                     | 0.390                                      | 0.041/0.13                                     | 1250                                                   | 8x20                      |
| 680                       | 25   | 687KXM025M                     | 0.341                                      | 0.023/0.069                                    | 1820                                                   | 10x20                     |
| 680                       | 35   | 687KXM035M                     | 0.293                                      | 0.021/0.053                                    | 2360                                                   | 12.5x20                   |
| 680                       | 50   | 687KXM050M                     | 0.244                                      | 0.021/0.052                                    | 2860                                                   | 12.5x31.5                 |
| 680                       | 63   | 687KXM063M                     | 0.195                                      | 0.033/0.066                                    | 2050                                                   | 16x31.5                   |

| Capacitance<br>( $\mu$ F) | WVDC | IC <sup>®</sup> PART<br>NUMBER | Maximum<br>ESR $\Omega$<br>120Hz,<br>+20°C | Impedance<br>$\Omega$<br>+20°C/-10°C<br>100kHz | Maximum RMS<br>Ripple Current<br>(mA) +105°C<br>100kHz | Dimensions<br>DxL<br>(mm) |
|---------------------------|------|--------------------------------|--------------------------------------------|------------------------------------------------|--------------------------------------------------------|---------------------------|
| 680                       | 63   | 687KXM063MRV                   | 0.195                                      | 0.036/0.072                                    | 1950                                                   | 18x25                     |
| 680                       | 100  | 687KXM100M                     | 0.195                                      | 0.038/0.103                                    | 2300                                                   | 18x40                     |
| 820                       | 6.3  | 827KXM6R3M                     | 0.445                                      | 0.056/0.17                                     | 995                                                    | 8x15                      |
| 820                       | 25   | 827KXM025M                     | 0.283                                      | 0.022/0.066                                    | 2150                                                   | 10x25                     |
| 820                       | 50   | 827KXM050M                     | 0.202                                      | 0.019/0.051                                    | 3960                                                   | 12.5x35.5                 |
| 820                       | 63   | 827KXM063M                     | 0.162                                      | 0.03/0.06                                      | 2225                                                   | 16x35.5                   |
| 820                       | 63   | 827KXM063MRW                   | 0.162                                      | 0.032/0.064                                    | 2100                                                   | 18x31.5                   |
| 1000                      | 6.3  | 108KXM6R3M                     | 0.365                                      | 0.053/0.16                                     | 1030                                                   | 10x12.5                   |
| 1000                      | 10   | 108KXM010MLQ                   | 0.315                                      | 0.063/0.158                                    | 1030                                                   | 10x16                     |
| 1000                      | 10   | 108KXM010M                     | 0.315                                      | 0.041/0.13                                     | 1250                                                   | 8x20                      |
| 1000                      | 16   | 108KXM016M                     | 0.265                                      | 0.023/0.069                                    | 1820                                                   | 10x20                     |
| 1000                      | 25   | 108KXM025M                     | 0.199                                      | 0.021/0.053                                    | 2360                                                   | 12.5x20                   |
| 1000                      | 35   | 108KXM035M                     | 0.199                                      | 0.018/0.045                                    | 2770                                                   | 12.5x25                   |
| 1000                      | 50   | 108KXM050M                     | 0.166                                      | 0.021/0.056                                    | 3010                                                   | 16x25                     |
| 1000                      | 63   | 108KXM063M                     | 0.133                                      | 0.028/0.056                                    | 2375                                                   | 16x40                     |
| 1000                      | 63   | 108KXM063MRY                   | 0.133                                      | 0.03/0.06                                      | 2280                                                   | 18x35.5                   |
| 1200                      | 6.3  | 128KXM6R3MLQ                   | 0.332                                      | 0.058/0.144                                    | 1090                                                   | 10x16                     |
| 1200                      | 6.3  | 128KXM6R3M                     | 0.332                                      | 0.041/0.13                                     | 1250                                                   | 8x20                      |
| 1200                      | 10   | 128KXM010M                     | 0.290                                      | 0.023/0.069                                    | 1820                                                   | 10x20                     |
| 1200                      | 16   | 128KXM016M                     | 0.249                                      | 0.022/0.066                                    | 2150                                                   | 10x25                     |
| 1200                      | 25   | 128KXM025M                     | 0.221                                      | 0.05/0.124                                     | 1730                                                   | 12.5x20                   |
| 1200                      | 35   | 128KXM035M                     | 0.193                                      | 0.016/0.041                                    | 3290                                                   | 12.5x31.5                 |
| 1200                      | 50   | 128KXM050M                     | 0.138                                      | 0.042/0.083                                    | 2710                                                   | 16x31.5                   |
| 1200                      | 63   | 128KXM063M                     | 0.138                                      | 0.026/0.052                                    | 2500                                                   | 18x40                     |
| 1500                      | 6.3  | 158KXM6R3M                     | 0.265                                      | 0.023/0.069                                    | 1820                                                   | 10x20                     |
| 1500                      | 10   | 158KXM010M                     | 0.232                                      | 0.022/0.066                                    | 2150                                                   | 10x25                     |
| 1500                      | 16   | 158KXM016M                     | 0.199                                      | 0.021/0.053                                    | 2360                                                   | 12.5x20                   |
| 1500                      | 25   | 158KXM025M                     | 0.177                                      | 0.018/0.045                                    | 2770                                                   | 12.5x25                   |
| 1500                      | 35   | 158KXM035M                     | 0.155                                      | 0.015/0.039                                    | 3400                                                   | 12.5x35.5                 |
| 1500                      | 35   | 158KXM035MQV                   | 0.155                                      | 0.04/0.079                                     | 2250                                                   | 16x25                     |
| 1500                      | 50   | 158KXM050M                     | 0.133                                      | 0.035/0.071                                    | 3010                                                   | 16x35.5                   |
| 1800                      | 25   | 188KXM025M                     | 0.147                                      | 0.016/0.041                                    | 3290                                                   | 12.5x31.5                 |
| 1800                      | 35   | 188KXM035M                     | 0.129                                      | 0.016/0.043                                    | 3460                                                   | 16x25                     |
| 2200                      | 6.3  | 228KXM6R3M                     | 0.196                                      | 0.022/0.066                                    | 2150                                                   | 10x25                     |
| 2200                      | 10   | 228KXM010M                     | 0.173                                      | 0.021/0.053                                    | 2360                                                   | 12.5x20                   |
| 2200                      | 16   | 228KXM016M                     | 0.151                                      | 0.018/0.045                                    | 2770                                                   | 12.5x25                   |
| 2200                      | 25   | 228KXM025M                     | 0.136                                      | 0.015/0.039                                    | 3400                                                   | 12.5x35.5                 |
| 2200                      | 25   | 228KXM025MQV                   | 0.136                                      | 0.032/0.065                                    | 2390                                                   | 16x25                     |
| 2200                      | 35   | 228KXM035M                     | 0.121                                      | 0.031/0.077                                    | 2880                                                   | 16x31.5                   |
| 2200                      | 50   | 228KXM050M                     | 0.106                                      | 0.027/0.055                                    | 3690                                                   | 18x35.5                   |
| 2700                      | 16   | 278KXM016M                     | 0.123                                      | 0.016/0.041                                    | 3290                                                   | 12.5x31.5                 |
| 2700                      | 25   | 278KXM025M                     | 0.111                                      | 0.016/0.043                                    | 3460                                                   | 16x25                     |
| 3300                      | 6.3  | 338KXM6R3M                     | 0.141                                      | 0.021/0.053                                    | 2360                                                   | 12.5x20                   |

## STANDARD PART LISTING

| Capacitance<br>( $\mu$ F) | WVDC | IC <sup>®</sup> PART<br>NUMBER | Maximum<br>ESR $\Omega$<br>120Hz,<br>+20°C | Impedance<br>$\Omega$<br>+20°C/-10°C<br>100kHz | Maximum RMS<br>Ripple Current<br>(mA) +105°C<br>100kHz | Dimensions<br>DxL<br>(mm) |
|---------------------------|------|--------------------------------|--------------------------------------------|------------------------------------------------|--------------------------------------------------------|---------------------------|
| 3300                      | 10   | 338KXM010M                     | 0.126                                      | 0.018/0.045                                    | 2770                                                   | 12.5x25                   |
| 3300                      | 16   | 338KXM016M                     | 0.111                                      | 0.015/0.039                                    | 3400                                                   | 12.5x35.5                 |
| 3300                      | 16   | 338KXM016MQV                   | 0.111                                      | 0.029/0.057                                    | 2200                                                   | 16x25                     |
| 3300                      | 25   | 338KXM025M                     | 0.100                                      | 0.027/0.054                                    | 3020                                                   | 16x31.5                   |
| 3300                      | 35   | 338KXM035M                     | 0.090                                      | 0.026/0.064                                    | 3650                                                   | 18x35.5                   |
| 3300                      | 50   | 338KXM050M                     | 0.080                                      | 0.023/0.046                                    | 4350                                                   | 18x40                     |
| 3900                      | 6.3  | 398KXM6R3M                     | 0.119                                      | 0.018/0.045                                    | 2770                                                   | 12.5x25                   |
| 3900                      | 10   | 398KXM010M                     | 0.106                                      | 0.016/0.041                                    | 3290                                                   | 12.5x31.5                 |
| 3900                      | 16   | 398KXM016M                     | 0.094                                      | 0.016/0.043                                    | 3460                                                   | 16x25                     |
| 4700                      | 6.3  | 478KXM6R3M                     | 0.106                                      | 0.016/0.041                                    | 3290                                                   | 12.5x31.5                 |
| 4700                      | 10   | 478KXM010M                     | 0.095                                      | 0.015/0.039                                    | 3400                                                   | 12.5x35.5                 |
| 4700                      | 10   | 478KXM010MQV                   | 0.095                                      | 0.025/0.051                                    | 2350                                                   | 16x25                     |

| Capacitance<br>( $\mu$ F) | WVDC | IC <sup>®</sup> PART<br>NUMBER | Maximum<br>ESR $\Omega$<br>120Hz,<br>+20°C | Impedance<br>$\Omega$<br>+20°C/-10°C<br>100kHz | Maximum RMS<br>Ripple Current<br>(mA) +105°C<br>100kHz | Dimensions<br>DxL<br>(mm) |
|---------------------------|------|--------------------------------|--------------------------------------------|------------------------------------------------|--------------------------------------------------------|---------------------------|
| 4700                      | 16   | 478KXM016M                     | 0.085                                      | 0.024/0.048                                    | 2670                                                   | 16x31.5                   |
| 4700                      | 25   | 478KXM025M                     | 0.078                                      | 0.023/0.046                                    | 3700                                                   | 18x35.5                   |
| 5600                      | 6.3  | 568KXM6R3M                     | 0.095                                      | 0.015/0.039                                    | 3400                                                   | 12.5x35.5                 |
| 5600                      | 10   | 568KXM010M                     | 0.086                                      | 0.016/0.043                                    | 3460                                                   | 16x25                     |
| 6800                      | 6.3  | 688KXM6R3M                     | 0.083                                      | 0.016/0.043                                    | 3460                                                   | 16x25                     |
| 6800                      | 10   | 688KXM010M                     | 0.076                                      | 0.023/0.045                                    | 2850                                                   | 16x31.5                   |
| 6800                      | 16   | 688KXM016M                     | 0.068                                      | 0.022/0.043                                    | 3280                                                   | 18x35.5                   |
| 10000                     | 6.3  | 109KXM6R3M                     | 0.055                                      | 0.022/0.043                                    | 3000                                                   | 16x31.5                   |
| 10000                     | 10   | 109KXM010M                     | 0.061                                      | 0.021/0.041                                    | 3430                                                   | 18x35.5                   |
| 10000                     | 16   | 109KXM016M                     | 0.060                                      | 0.019/0.039                                    | 3670                                                   | 18x40                     |
| 15000                     | 6.3  | 159KXM6R3M                     | 0.048                                      | 0.02/0.041                                     | 3610                                                   | 18x35.5                   |
| 15000                     | 10   | 159KXM010M                     | 0.052                                      | 0.019/0.039                                    | 3850                                                   | 18x40                     |



NOTE: Case Vent is standard on all diameter  $\geq 8.0$ mm

LEAD INFORMATION V.S. CASE DIAMETER

| D | 5.0 | 6.3 | 8.0 | 10.0 | 12.5 | 16.0 | 18.0 |
|---|-----|-----|-----|------|------|------|------|
| d | 0.5 | 0.5 | 0.6 | 0.6  | 0.6  | 0.8  | 0.8  |
| S | 2.0 | 2.5 | 3.5 | 5.0  | 5.0  | 7.5  | 7.5  |

$L_1 = L + 2.0$  Max.  
 $D_1 = D + 0.5$  mm Max.  
 $S_1 = S \pm 0.5$  mm Max.