

CKH/CKE

# +105°C General Purpose Radial Lead Aluminum Electrolytic Capacitors



- Standard case sizes
- Multiple case sizes
- Lead free leads
- Bypass
- coupling
- filtering

|                                                       |                |                                                                                                      |                |     |      |                                    |                  |     |                 |     |     |     |     |     |     |
|-------------------------------------------------------|----------------|------------------------------------------------------------------------------------------------------|----------------|-----|------|------------------------------------|------------------|-----|-----------------|-----|-----|-----|-----|-----|-----|
| Operating Temperature Range                           |                | -55°C to +105°C (6.3 to 100 WVDC)<br>-40°C to +105°C (160 to 400 WVDC)<br>-25°C to +105°C (450 WVDC) |                |     |      |                                    |                  |     |                 |     |     |     |     |     |     |
| Capacitance Tolerance                                 |                | +20% at 120 Hz, 20°C                                                                                 |                |     |      |                                    |                  |     |                 |     |     |     |     |     |     |
| Surge voltage                                         | WVDC           | 6.3                                                                                                  | 10             | 16  | 25   | 35                                 | 50               | 63  | 100             | 160 | 200 | 250 | 350 | 400 | 450 |
|                                                       | SVDC           | 7.9                                                                                                  | 13             | 20  | 32   | 44                                 | 63               | 79  | 125             | 200 | 250 | 300 | 400 | 450 | 500 |
| Dissipation Factor                                    | WVDC           | 6.3                                                                                                  | 10             | 16  | 25   | 35                                 | 50               | 63  | 100             | 160 | 200 | 250 | 350 | 400 | 450 |
|                                                       | tan            | .24                                                                                                  | .20            | .17 | .15  | .12                                | .1               | .1  | .08             | .15 | .15 | .15 | .2  | .2  | .2  |
|                                                       |                | Add .02 for every 1000uF above 1000uF                                                                |                |     |      |                                    |                  |     |                 |     |     |     |     |     |     |
| Leakage current                                       |                | 6.3 to 100 WVDC                                                                                      |                |     |      |                                    |                  |     | 160 to 450 WVDC |     |     |     |     |     |     |
|                                                       |                | 1 Minutes                                                                                            |                |     |      | 2 Minutes                          |                  |     | 2 Minutes       |     |     |     |     |     |     |
|                                                       |                | .03CV or 4uA, Whichever is greater                                                                   |                |     |      | .01CV or 3uA, Whichever is greater |                  |     | .03CV+40uA      |     |     |     |     |     |     |
| Low temperature stability<br>Impedance ratio (120 Hz) | Rated WVDC     | 6.3                                                                                                  | 10             | 16  | 25   | 35                                 | 50               | 63  | 100             | 160 | 200 | 250 | 350 | 400 | 450 |
|                                                       | -25°C to +20°C | 4                                                                                                    | 3              | 2   | 2    | 2                                  | 2                | 2   | 2               | 3   | 3   | 3   | 6   | 6   | 15  |
|                                                       | -40°C to +20°C | 10                                                                                                   | 8              | 6   | 4    | 3                                  | 3                | 3   | 3               | 4   | 4   | 4   | 10  | 10  | -   |
| Load Life                                             |                | 2000 hours at 105°C with rated WVDC 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 105°C with no voltage applied                                                          |                |     |      |                                    |                  |     |                 |     |     |     |     |     |     |
|                                                       |                | Capacitance change                                                                                   |                |     |      | <20% initial measured value        |                  |     |                 |     |     |     |     |     |     |
|                                                       |                | Dissipation factor                                                                                   |                |     |      | <200% of maximum specified value   |                  |     |                 |     |     |     |     |     |     |
|                                                       |                | Insulation resistance                                                                                |                |     |      | >100% of maximum specified value   |                  |     |                 |     |     |     |     |     |     |
| Ripple Current Multipliers                            |                |                                                                                                      | Frequency (Hz) |     |      |                                    | Temperature (°C) |     |                 |     |     |     |     |     |     |
|                                                       |                | WVDC                                                                                                 | 50             | 120 | 1k   | 10k+                               | +85              | +70 | +60             |     |     |     |     |     |     |
|                                                       |                | 6.3 to 25V                                                                                           | 0.8            | 1.0 | 1.10 | 1.20                               | 1.0              | 1.4 | 1.5             |     |     |     |     |     |     |
|                                                       |                | 35 to 100V                                                                                           | 0.8            | 1.0 | 1.15 | 1.25                               | 1.0              | 1.4 | 1.5             |     |     |     |     |     |     |
|                                                       |                | 160 to 250V                                                                                          | 0.8            | 1.0 | 1.25 | 1.40                               | 1.0              | 1.4 | 1.5             |     |     |     |     |     |     |
|                                                       |                | 350 to 450 V                                                                                         | 0.7            | 1.0 | 1.30 | 1.80                               | 1.0              | 1.4 | 1.5             |     |     |     |     |     |     |



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Standard Part Listing

## Physical Dimensions

| WVDC<br>uF | 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)                | 160<br>(200)     | 200<br>(250)      | 250<br>(300)                | 350<br>(350)      | 400<br>(450)      | 450<br>(500)                |
|------------|--------------|------------|-------------------|------------|------------|------------------|--------------------|-----------------------------|------------------|-------------------|-----------------------------|-------------------|-------------------|-----------------------------|
| 0.1        | -----        | -----      | -----             | -----      | ----->     | 5x11             |                    |                             |                  |                   |                             |                   |                   |                             |
| 0.15       | -----        | -----      | -----             | -----      | ----->     | 5x11             |                    |                             |                  |                   |                             |                   |                   |                             |
| 0.22       | -----        | -----      | -----             | -----      | ----->     | 5x11             |                    |                             |                  |                   |                             |                   |                   |                             |
| 0.33       | -----        | -----      | -----             | -----      | ----->     | 5x11             |                    |                             |                  |                   |                             |                   |                   |                             |
| 0.47       | -----        | -----      | -----             | -----      | -----      | -----            | ----->             | 5x11                        | -----            | ----->            | 6.3x11                      |                   |                   |                             |
| 0.68       | -----        | -----      | -----             | -----      | ----->     | 5x11             | -----              | -----                       | -----            | -----             | -----                       |                   |                   |                             |
| 1          | -----        | -----      | -----             | -----      | ----->     | 5x11             | ----->             | 5x11                        | -----            | ----->            | 6.3x11                      | 6.3x11            | 8x11.5            | 10x12.5                     |
| 1.5        | -----        | -----      | -----             | -----      | ----->     | 5x11             | -----              | -----                       | -----            | -----             | -----                       | -----             | -----             | -----                       |
| 2.2        | -----        | -----      | -----             | -----      | ----->     | 5x11             | ----->             | 5x11                        | -----            | ----->            | 6.3x11                      | 6.3x11            | 8x11.5            | 10x12.5<br>8x11.5           |
| 3.3        | -----        | -----      | -----             | -----      | ----->     | 5x11             | ----->             | 5x11                        | ----->           | 6.3x11            | 6.3x11<br>8x11.5            | 8x11.5            | 10x12.5<br>8x11.5 | 10x13<br>12.5x20            |
| 4.7        | -----        | -----      | -----             | -----      | -----      | -----            | ----->             | 5x11                        | 6.3x11           | 6.3x11            | 10x12.5<br>6.3x11<br>8x11.5 | 10x12.5<br>8x11.5 | 10x12.5<br>10x16  | 10x12.5<br>10x20<br>12.5x20 |
| 6.8        | -----        | -----      | -----             | -----      | ----->     | 5x11             | 5x11               | 6.3x11                      | -----            | ----->            | 10x16                       | -----             | -----             | -----                       |
| 10         | -----        | -----      | -----             | -----      | ----->     | 5x11             | 5x11               | 5x11<br>6.3x11              | 8x11.5           | 10x12.5<br>8x11.5 | 10x12.5<br>10x16            | 10x16<br>10x20    | 10x16<br>10x20    | 10x21<br>12.5x20            |
| 15         | -----        | -----      | -----             | -----      | ----->     | 5x11             | 6.3x11             | 8x11.5                      | 10x16            | ----->            | 10x20                       | -----             | -----             | -----                       |
| 22         | -----        | -----      | -----             | -----      | ----->     | 5x11             | 5x11<br>6.3x11     | 6.3x11<br>8x11.5            | 10x12.5<br>10x16 | 10x16<br>10x20    | 10x20<br>12.5x20            | 12.5x20           | 12.5x25           | 13x26<br>16x25<br>16x31.5   |
| 33         | -----        | -----      | -----             | -----      | ----->     | 5x11<br>6.3x11   | 6.3x11             | 10x12.5<br>8x11.5           | 10x16<br>10x20   | 10x20             | 12.5x20                     | 12.5x25           | 16x25<br>16x31.5  | 16x25<br>18x35.5            |
| 47         | -----        | -----      | ----->            | 5x11       | 5x11       | ----->           | 6.3x11<br>8x11.5   | 10x12.5<br>10x16<br>8x11.5  | 10x20<br>12.5x20 | 12.5x20           | 12.5x25<br>13x21            | 16x25<br>16x35.5  | 16x25<br>16x31.5  | 16x31.5                     |
| 68         | -----        | ----->     | 5x11              | 6.3x11     | ----->     | 8x11.5           | 10x12.5            | 10x16                       | ----->           | 16x25             | 16x31.5                     | -----             | -----             |                             |
| 100        | -----        | ----->     | 5x11              | 5x11       | 6.3x11     | 8x11.5           | 10x12.5<br>8x11.5  | 10x16<br>10x20              | 12.5x25          | 16x25             | 16x25<br>16x31.5            | 18x35.5<br>18x40  | 18x35.5           |                             |
| 150        | ----->       | 6.3x11     | ----->            | 8x11.5     | 10x12.5    | 10x16            | 10x20              | 12.5x20                     | 16x31.5          | 16x35.5           | -----                       | -----             | -----             |                             |
| 220        | ----->       | 5x11       | 6.3x11            | 6.3x11     | 8x11.5     | 10x12.5<br>10x16 | 10x16<br>10x20     | 12.5x20<br>12.5x25<br>16x25 | 16x31.5          | 16x35.5           | 18x35.5                     | -----             | -----             |                             |
| 330        | ----->       | 6.3x11     | 6.3x11            | 8x11.5     | 10x12.5    | 10x16<br>10x20   | 10x20<br>12.5x20   | 12.5x25<br>16x25            | 18x35.5          | 18x40             | -----                       | -----             | -----             |                             |
| 470        | ----->       | 6.3x11     | 10x12.5<br>8x11.5 | 10x12.5    | 10x16      | 10x20<br>12.5x20 | 12.5x20<br>12.5x25 | 16x25<br>16x31.5            | -----            | -----             | -----                       | -----             | -----             |                             |
| 680        | 10x12.5      | ----->     | 10x16             | ----->     | 12.5x20    | 12.5x25          | 16x25              | -----                       | -----            | -----             | -----                       | -----             | -----             |                             |

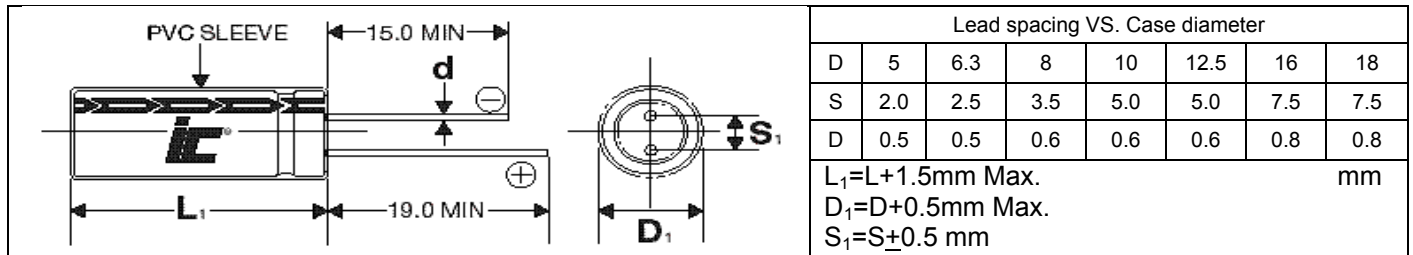


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+105°C Radial lead  
General Purpose  
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Capacitor

## Standard Part Listing

| WVDC<br>uF | 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)     | 160<br>(200) | 200<br>(250) | 250<br>(300) | 350<br>(350) | 400<br>(450) | 450<br>(500) |
|------------|--------------------|-------------------------------|-----------------------------|-----------------------------|--------------------|-------------------------------|------------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1000       | 8x11.5             | 10x12.5                       | 10x12.5<br>10x16<br>10x20   | 10x16<br>10x20              | 12.5x20            | 12.5x25<br>16x25              | 16x25<br>16x31.5 | 18x35.5<br>18x40 |              |              |              |              |              |              |
| 1500       | 10x20              | ----->                        | 12.5x20                     | 12.5x25                     | 16x25              | 18x31.5                       |                  |                  |              |              |              |              |              |              |
| 2200       | 10x16              | 10x16<br>10x20                | 10x20<br>12.5x20<br>12.5x25 | 12.5x25<br>16x25            | 16x25<br>16x31.5   | 16x31.5<br>16x35.5<br>18x35.5 | 18x35.5          |                  |              |              |              |              |              |              |
| 3300       | 10x20              | 12.5x20                       | 12.5x25<br>16x25            | 16x25<br>16x31.5            | 16x31.5<br>16x35.5 | 18x35.5                       |                  |                  |              |              |              |              |              |              |
| 4700       | ----->             | 12.5x25<br>16x25              | 16x25<br>16x31.5            | 16x25<br>16x31.5<br>18x31.5 | 16x35.5<br>18x35.5 |                               |                  |                  |              |              |              |              |              |              |
| 6800       | 12.5x25            | 16x25                         | 16x25<br>16x31.5            | 16x35.5<br>18x35.5          | 18x40              |                               |                  |                  |              |              |              |              |              |              |
| 10000      | 16x25<br>16x31.5   | 16x31.5<br>16x35.5<br>18x35.5 | 16x35.5<br>18x31.5          | 18x40                       |                    |                               |                  |                  |              |              |              |              |              |              |
| 15000      | 16x31.5<br>16x35.5 | 16x35.5<br>18x35.5            | 18x40                       |                             |                    |                               |                  |                  |              |              |              |              |              |              |
| 22000      | 18x35.5            | 18x40                         |                             |                             |                    |                               |                  |                  |              |              |              |              |              |              |



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## Standard Part Listing

| Cap (uF) | VDC | PART #       | Maximum ESR $\Omega$ 120Hz 20C | Maximum RMS ripple current (mA) 120Hz, 105C | DxL (mm) |
|----------|-----|--------------|--------------------------------|---------------------------------------------|----------|
| 0.1      | 50  | 104CKH050M   | 1658.7049                      | 5                                           | 5x11     |
| 0.15     | 50  | 154CKH050M   | 1105.8033                      | 5                                           | 5x11     |
| 0.22     | 50  | 224CKH050M   | 753.9568                       | 7                                           | 5x11     |
| 0.33     | 50  | 334CKH050M   | 502.6378                       | 10                                          | 5x11     |
| 0.47     | 100 | 474CKH100M   | 282.3327                       | 12                                          | 5x11     |
| 0.47     | 250 | 474CKH250M   | 529.3739                       | 15                                          | 6.3x11   |
| 0.68     | 50  | 684CKH050M   | 243.9272                       | 10                                          | 5x11     |
| 1        | 50  | 105CKH050M   | 165.8705                       | 17                                          | 5x11     |
| 1        | 100 | 105CKE100M   | 132.6964                       | 19                                          | 5x11     |
| 1        | 250 | 105CKE250M   | 248.8057                       | 21                                          | 6.3x11   |
| 1        | 350 | 105CKE350M   | 331.7410                       | 21                                          | 6.3x11   |
| 1        | 400 | 105CKE400M   | 331.7410                       | 21                                          | 8x11.5   |
| 1        | 450 | 105CKE450M   | 331.7410                       | 22                                          | 10x12.5  |
| 1.5      | 50  | 155CKH050M   | 110.5803                       | 15                                          | 5x11     |
| 2.2      | 50  | 225CKH050M   | 75.3957                        | 25                                          | 5x11     |
| 2.2      | 100 | 225CKE100M   | 60.3165                        | 28                                          | 5x11     |
| 2.2      | 250 | 225CKH250M   | 113.0935                       | 31                                          | 6.3x11   |
| 2.2      | 350 | 225CKE350M   | 150.7914                       | 21                                          | 6.3x11   |
| 2.2      | 400 | 225CKE400M   | 150.7914                       | 26                                          | 8x11.5   |
| 2.2      | 450 | 225CKE450M   | 150.7914                       | 31                                          | 10x12.5  |
| 2.2      | 450 | 225CKE450MJM | 150.7914                       | 20                                          | 8x11.5   |
| 3.3      | 50  | 335CKE050M   | 50.2638                        | 31                                          | 5x11     |
| 3.3      | 100 | 335CKE100M   | 40.2110                        | 34                                          | 5x11     |
| 3.3      | 200 | 335CKE200M   | 75.3957                        | 34                                          | 6.3x11   |
| 3.3      | 250 | 335CKE250MGM | 75.3957                        | 28                                          | 6.3x11   |
| 3.3      | 250 | 335CKE250M   | 75.3957                        | 44                                          | 8x11.5   |
| 3.3      | 350 | 335CKE350MJM | 100.5276                       | 30                                          | 8x11.5   |
| 3.3      | 400 | 335CKE400M   | 100.5276                       | 41                                          | 10x12.5  |
| 3.3      | 400 | 335CKE400MJM | 100.5276                       | 34                                          | 8x11.5   |
| 3.3      | 450 | 335CKE450MLN | 100.5276                       | 28                                          | 10x13    |
| 3.3      | 450 | 335CKE450M   | 100.5276                       | 50                                          | 12.5x20  |
| 4.7      | 100 | 475CKE100M   | 28.2333                        | 41                                          | 5x11     |
| 4.7      | 160 | 475CKE160M   | 52.9374                        | 38                                          | 6.3x11   |
| 4.7      | 200 | 475CKE200M   | 52.9374                        | 35                                          | 6.3x11   |
| 4.7      | 250 | 475CKH250M   | 52.9374                        | 60                                          | 10x12.5  |
| 4.7      | 250 | 475CKE250MGM | 52.9374                        | 35                                          | 6.3x11   |
| 4.7      | 250 | 475CKE250M   | 52.9374                        | 50                                          | 8x11.5   |
| 4.7      | 350 | 475CKE350M   | 70.5832                        | 47                                          | 10x12.5  |
| 4.7      | 350 | 475CKE350MJM | 70.5832                        | 39                                          | 8x11.5   |
| 4.7      | 400 | 475CKE400MLN | 70.5832                        | 42                                          | 10x12.5  |
| 4.7      | 400 | 475CKE400M   | 70.5832                        | 55                                          | 10x16    |
| 4.7      | 450 | 475CKE450MLN | 70.5832                        | 32                                          | 10x12.5  |
| 4.7      | 450 | 475CKE450M   | 70.5832                        | 43                                          | 10x20    |

| Cap (uF) | VDC | PART #       | Maximum ESR $\Omega$ 120Hz 20C | Maximum RMS ripple current (mA) 120Hz, 105C | DxL (mm) |
|----------|-----|--------------|--------------------------------|---------------------------------------------|----------|
| 4.7      | 450 | 475CKH450M   | 70.5832                        | 60                                          | 12.5x20  |
| 6.8      | 50  | 685CKH050M   | 24.3927                        | 40                                          | 5x11     |
| 6.8      | 63  | 685CKH063M   | 24.3927                        | 42                                          | 5x11     |
| 6.8      | 100 | 685CKH100M   | 19.5142                        | 52                                          | 6.3x11   |
| 6.8      | 250 | 685CKH250M   | 36.5891                        | 65                                          | 10x16    |
| 10       | 50  | 106CKH050M   | 16.5870                        | 55                                          | 5x11     |
| 10       | 63  | 106CKE063M   | 16.5870                        | 55                                          | 5x11     |
| 10       | 100 | 106CKE100MEM | 13.2696                        | 50                                          | 5x11     |
| 10       | 100 | 106CKH100M   | 13.2696                        | 65                                          | 6.3x11   |
| 10       | 160 | 106CKE160M   | 24.8806                        | 65                                          | 8x11.5   |
| 10       | 200 | 106CKE200M   | 24.8806                        | 75                                          | 10x12.5  |
| 10       | 200 | 106CKE200MJM | 24.8806                        | 57                                          | 8x11.5   |
| 10       | 250 | 106CKE250MLN | 24.8806                        | 71                                          | 10x12.5  |
| 10       | 250 | 106CKH250M   | 24.8806                        | 90                                          | 10x16    |
| 10       | 350 | 106CKE350MLQ | 33.1741                        | 64                                          | 10x16    |
| 10       | 350 | 106CKE350M   | 33.1741                        | 85                                          | 10x20    |
| 10       | 400 | 106CKE400MLQ | 33.1741                        | 64                                          | 10x16    |
| 10       | 400 | 106CKE400M   | 33.1741                        | 73                                          | 10x20    |
| 10       | 450 | 106CKE450MLU | 33.1741                        | 27                                          | 10x21    |
| 10       | 450 | 106CKE450M   | 33.1741                        | 65                                          | 12.5x20  |
| 15       | 50  | 156CKH050M   | 11.0580                        | 58                                          | 5x11     |
| 15       | 63  | 156CKH063M   | 11.0580                        | 65                                          | 6.3x11   |
| 15       | 100 | 156CKH100M   | 8.8464                         | 80                                          | 8x11.5   |
| 15       | 160 | 156CKH160M   | 16.5870                        | 80                                          | 10x16    |
| 15       | 250 | 156CKH250M   | 16.5870                        | 90                                          | 10x20    |
| 22       | 50  | 226CKH050M   | 7.5396                         | 80                                          | 5x11     |
| 22       | 63  | 226CKE063M   | 7.5396                         | 80                                          | 5x11     |
| 22       | 63  | 226CKH063M   | 7.5396                         | 85                                          | 6.3x11   |
| 22       | 100 | 226CKE100M   | 6.0317                         | 100                                         | 6.3x11   |
| 22       | 100 | 226CKH100M   | 6.0317                         | 110                                         | 8x11.5   |
| 22       | 160 | 226CKE160MLN | 11.3094                        | 92                                          | 10x12.5  |
| 22       | 160 | 226CKE160M   | 11.3094                        | 110                                         | 10x16    |
| 22       | 200 | 226CKE200MLQ | 11.3094                        | 105                                         | 10x16    |
| 22       | 200 | 226CKH200M   | 11.3094                        | 130                                         | 10x20    |
| 22       | 250 | 226CKE250MLU | 11.3094                        | 105                                         | 10x20    |
| 22       | 250 | 226CKE250M   | 11.3094                        | 160                                         | 12.5x20  |
| 22       | 350 | 226CKE350MNU | 15.0791                        | 105                                         | 12.5x20  |
| 22       | 400 | 226CKE400M   | 15.0791                        | 150                                         | 12.5x25  |
| 22       | 450 | 226CKE450MNV | 15.0791                        | 100                                         | 13x26    |
| 22       | 450 | 226CKE450M   | 15.0791                        | 130                                         | 16x25    |
| 22       | 450 | 226CKH450M   | 15.0791                        | 160                                         | 16x31.5  |
| 33       | 50  | 336CKE050M   | 5.0264                         | 95                                          | 5x11     |
| 33       | 63  | 336CKE063M   | 5.0264                         | 110                                         | 6.3x11   |



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## Standard Part Listing

| Cap (uF) | VDC | PART #       | Maximum ESR, $\Omega$ 120Hz 20C | Maximum RMS ripple current (mA) 120Hz, 105C | DxL (mm) |
|----------|-----|--------------|---------------------------------|---------------------------------------------|----------|
| 33       | 100 | 336CKH100M   | 4.0211                          | 140                                         | 10x12.5  |
| 33       | 100 | 336CKE100M   | 4.0211                          | 140                                         | 8x11.5   |
| 33       | 160 | 336CKE160MLQ | 7.5396                          | 125                                         | 10x16    |
| 33       | 160 | 336CKE160M   | 7.5396                          | 150                                         | 10x20    |
| 33       | 200 | 336CKE200MLU | 7.5396                          | 140                                         | 10x20    |
| 33       | 250 | 336CKE250M   | 7.5396                          | 190                                         | 12.5x20  |
| 33       | 350 | 336CKE350MNV | 10.0528                         | 170                                         | 12.5x25  |
| 33       | 400 | 336CKE400M   | 10.0528                         | 160                                         | 16x25    |
| 33       | 400 | 336CKH400M   | 10.0528                         | 210                                         | 16x31.5  |
| 33       | 450 | 336CKE450MQV | 10.0528                         | 120                                         | 16x25    |
| 33       | 450 | 336CKE450M   | 10.0528                         | 230                                         | 18x35.5  |
| 47       | 25  | 476CKH025M   | 5.2937                          | 95                                          | 5x11     |
| 47       | 35  | 476CKE035M   | 4.2350                          | 110                                         | 5x11     |
| 47       | 50  | 476CKE050M   | 3.5292                          | 130                                         | 6.3x11   |
| 47       | 63  | 476CKE063M   | 3.5292                          | 130                                         | 6.3x11   |
| 47       | 63  | 476CKH063M   | 3.5292                          | 135                                         | 8x11.5   |
| 47       | 100 | 476CKE100M   | 2.8233                          | 180                                         | 10x12.5  |
| 47       | 100 | 476CKH100M   | 2.8233                          | 190                                         | 10x16    |
| 47       | 100 | 476CKE100MJM | 2.8233                          | 140                                         | 8x11.5   |
| 47       | 160 | 476CKE160MLU | 5.2937                          | 150                                         | 10x20    |
| 47       | 160 | 476CKE160M   | 5.2937                          | 190                                         | 12.5x20  |
| 47       | 200 | 476CKE200M   | 5.2937                          | 210                                         | 12.5x20  |
| 47       | 250 | 476CKE250M   | 5.2937                          | 250                                         | 12.5x25  |
| 47       | 250 | 476CKE250MNU | 5.2937                          | 190                                         | 13x21    |
| 47       | 350 | 476CKE350M   | 7.0583                          | 190                                         | 16x25    |
| 47       | 350 | 476CKH350M   | 7.0583                          | 250                                         | 16x35.5  |
| 47       | 400 | 476CKE400MQV | 7.0583                          | 200                                         | 16x25    |
| 47       | 400 | 476CKE400M   | 7.0583                          | 210                                         | 16x31.5  |
| 47       | 450 | 476CKE450MQW | 7.0583                          | 155                                         | 16x31.5  |
| 68       | 16  | 686CKH016M   | 4.1468                          | 95                                          | 5x11     |
| 68       | 25  | 686CKH025M   | 3.6589                          | 105                                         | 6.3x11   |
| 68       | 50  | 686CKH050M   | 2.4393                          | 165                                         | 8x11.5   |
| 68       | 63  | 686CKH063M   | 2.4393                          | 190                                         | 10x12.5  |
| 68       | 100 | 686CKH100M   | 1.9514                          | 255                                         | 10x16    |
| 68       | 200 | 686CKH200M   | 3.6589                          | 235                                         | 16x25    |
| 68       | 250 | 686CKH250M   | 3.6589                          | 255                                         | 16x31.5  |
| 100      | 16  | 107CKE016M   | 2.8198                          | 130                                         | 5x11     |
| 100      | 25  | 107CKE025MEM | 2.4881                          | 125                                         | 5x11     |
| 100      | 35  | 107CKE035M   | 1.9904                          | 170                                         | 6.3x11   |
| 100      | 50  | 107CKH050M   | 1.6587                          | 220                                         | 8x11.5   |
| 100      | 63  | 107CKH063M   | 1.6587                          | 240                                         | 10x12.5  |
| 100      | 63  | 107CKE063MJM | 1.6587                          | 200                                         | 8x11.5   |
| 100      | 100 | 107CKE100MLQ | 1.3270                          | 240                                         | 10x16    |

| Cap (uF) | VDC | PART #       | Maximum ESR, $\Omega$ 120Hz 20C | Maximum RMS ripple current (mA) 120Hz, 105C | DxL (mm) |
|----------|-----|--------------|---------------------------------|---------------------------------------------|----------|
| 100      | 100 | 107CKE100M   | 1.3270                          | 320                                         | 10x20    |
| 100      | 160 | 107CKE160M   | 2.4881                          | 310                                         | 12.5x25  |
| 100      | 200 | 107CKE200M   | 2.4881                          | 340                                         | 16x25    |
| 100      | 250 | 107CKE250MQV | 2.4881                          | 310                                         | 16x25    |
| 100      | 250 | 107CKE250M   | 2.4881                          | 410                                         | 16x31.5  |
| 100      | 350 | 107CKE350MRV | 3.3174                          | 370                                         | 18x35.5  |
| 100      | 350 | 107CKE350M   | 3.3174                          | 410                                         | 18x40    |
| 100      | 400 | 107CKE400M   | 3.3174                          | 310                                         | 18x35.5  |
| 150      | 10  | 157CKH010M   | 2.2116                          | 125                                         | 6.3x11   |
| 150      | 25  | 157CKH025M   | 1.6587                          | 180                                         | 8x11.5   |
| 150      | 35  | 157CKH035M   | 1.3270                          | 230                                         | 10x12.5  |
| 150      | 50  | 157CKH050M   | 1.1058                          | 260                                         | 10x16    |
| 150      | 63  | 157CKH063M   | 1.1058                          | 315                                         | 10x20    |
| 150      | 100 | 157CKH100M   | 0.8846                          | 410                                         | 12.5x20  |
| 150      | 160 | 157CKH160M   | 1.6587                          | 330                                         | 16x31.5  |
| 150      | 200 | 157CKH200M   | 1.6587                          | 350                                         | 16x35.5  |
| 220      | 10  | 227CKE010M   | 1.5079                          | 180                                         | 5x11     |
| 220      | 16  | 227CKE016M   | 1.2817                          | 220                                         | 6.3x11   |
| 220      | 25  | 227CKE025MGM | 1.1309                          | 200                                         | 6.3x11   |
| 220      | 35  | 227CKE035M   | 0.9047                          | 300                                         | 8x11.5   |
| 220      | 50  | 227CKE050M   | 0.7540                          | 350                                         | 10x12.5  |
| 220      | 50  | 227CKH050M   | 0.7540                          | 360                                         | 10x16    |
| 220      | 63  | 227CKE063M   | 0.7540                          | 390                                         | 10x16    |
| 220      | 63  | 227CKH063M   | 0.7540                          | 400                                         | 10x20    |
| 220      | 100 | 227CKE100MNU | 0.6032                          | 390                                         | 12.5x20  |
| 220      | 100 | 227CKE100M   | 0.6032                          | 560                                         | 12.5x25  |
| 220      | 100 | 227CKH100M   | 0.6032                          | 540                                         | 16x25    |
| 220      | 160 | 227CKE160MQW | 1.1309                          | 410                                         | 16x31.5  |
| 220      | 200 | 227CKE200M   | 1.1309                          | 500                                         | 16x35.5  |
| 220      | 250 | 227CKE250M   | 1.1309                          | 485                                         | 18x35.5  |
| 330      | 10  | 337CKE010M   | 1.0053                          | 250                                         | 6.3x11   |
| 330      | 16  | 337CKE016MGM | 0.8545                          | 225                                         | 6.3x11   |
| 330      | 25  | 337CKE025M   | 0.7540                          | 330                                         | 8x11.5   |
| 330      | 35  | 337CKE035M   | 0.6032                          | 390                                         | 10x12.5  |
| 330      | 50  | 337CKE050M   | 0.5026                          | 480                                         | 10x16    |
| 330      | 50  | 337CKH050M   | 0.5026                          | 490                                         | 10x20    |
| 330      | 63  | 337CKE063M   | 0.5026                          | 520                                         | 10x20    |
| 330      | 63  | 337CKH063M   | 0.5026                          | 530                                         | 12.5x20  |
| 330      | 100 | 337CKE100M   | 0.4021                          | 690                                         | 12.5x25  |
| 330      | 100 | 337CKH100M   | 0.4021                          | 660                                         | 16x25    |
| 330      | 160 | 337CKE160M   | 0.7540                          | 550                                         | 18x35.5  |
| 330      | 200 | 337CKE200M   | 0.7540                          | 675                                         | 18x40    |
| 470      | 10  | 477CKE010M   | 0.7058                          | 290                                         | 6.3x11   |



# CKH/CKE

+105°C Radial lead  
General Purpose  
Aluminum Electrolytic  
Capacitor

## Standard Part Listing

| Cap (uF) | VDC | PART #       | Maximum ESR, $\Omega$ 120Hz 20C | Maximum RMS ripple current (mA) 120Hz, 105C | DxL (mm) |
|----------|-----|--------------|---------------------------------|---------------------------------------------|----------|
| 470      | 16  | 477CKH016M   | 0.6000                          | 370                                         | 10x12.5  |
| 470      | 16  | 477CKE016M   | 0.6000                          | 370                                         | 8x11.5   |
| 470      | 25  | 477CKE025M   | 0.5294                          | 420                                         | 10x12.5  |
| 470      | 35  | 477CKE035M   | 0.4235                          | 520                                         | 10x16    |
| 470      | 50  | 477CKE050M   | 0.3529                          | 630                                         | 10x20    |
| 470      | 50  | 477CKH050M   | 0.3529                          | 630                                         | 12.5x20  |
| 470      | 63  | 477CKE063M   | 0.3529                          | 670                                         | 12.5x20  |
| 470      | 63  | 477CKH063M   | 0.3529                          | 690                                         | 12.5x25  |
| 470      | 100 | 477CKE100M   | 0.2823                          | 830                                         | 16x25    |
| 470      | 100 | 477CKH100M   | 0.2823                          | 870                                         | 16x31.5  |
| 680      | 6.3 | 687CKH6R3M   | 0.5854                          | 375                                         | 10x12.5  |
| 680      | 16  | 687CKH016M   | 0.4147                          | 490                                         | 10x16    |
| 680      | 35  | 687CKH035M   | 0.2927                          | 695                                         | 12.5x20  |
| 680      | 50  | 687CKH050M   | 0.2439                          | 825                                         | 12.5x25  |
| 680      | 63  | 687CKH063M   | 0.2439                          | 925                                         | 16x25    |
| 1000     | 6.3 | 108CKE6R3M   | 0.3981                          | 460                                         | 8x11.5   |
| 1000     | 10  | 108CKE010M   | 0.3317                          | 530                                         | 10x12.5  |
| 1000     | 16  | 108CKE016MLN | 0.2820                          | 500                                         | 10x12.5  |
| 1000     | 16  | 108CKE016M   | 0.2820                          | 630                                         | 10x16    |
| 1000     | 16  | 108CKH016M   | 0.2820                          | 660                                         | 10x20    |
| 1000     | 25  | 108CKE025MLQ | 0.2488                          | 610                                         | 10x16    |
| 1000     | 25  | 108CKE025M   | 0.2488                          | 740                                         | 10x20    |
| 1000     | 35  | 108CKH035M   | 0.1990                          | 890                                         | 12.5x20  |
| 1000     | 50  | 108CKE050M   | 0.1659                          | 1070                                        | 12.5x25  |
| 1000     | 50  | 108CKH050M   | 0.1659                          | 1010                                        | 16x25    |
| 1000     | 63  | 108CKE063M   | 0.1659                          | 1080                                        | 16x25    |
| 1000     | 63  | 108CKH063M   | 0.1659                          | 1120                                        | 16x31.5  |
| 1000     | 100 | 108CKE100MRY | 0.1327                          | 1000                                        | 18x35.5  |
| 1000     | 100 | 108CKE100M   | 0.1327                          | 1580                                        | 18x40    |
| 1500     | 6.3 | 158CKH6R3M   | 0.2875                          | 585                                         | 10x20    |
| 1500     | 16  | 158CKH016M   | 0.2101                          | 800                                         | 12.5x20  |
| 1500     | 25  | 158CKH025M   | 0.1880                          | 905                                         | 12.5x25  |
| 1500     | 35  | 158CKH035M   | 0.1548                          | 1140                                        | 16x25    |
| 1500     | 50  | 158CKH050M   | 0.1327                          | 1250                                        | 18x31.5  |
| 2200     | 6.3 | 228CKE6R3M   | 0.2111                          | 760                                         | 10x16    |
| 2200     | 10  | 228CKE010MLQ | 0.1809                          | 705                                         | 10x16    |
| 2200     | 10  | 228CKE010M   | 0.1809                          | 910                                         | 10x20    |
| 2200     | 16  | 228CKE016MLU | 0.1583                          | 710                                         | 10x20    |
| 2200     | 16  | 228CKE016M   | 0.1583                          | 1050                                        | 12.5x20  |
| 2200     | 16  | 228CKH016M   | 0.1583                          | 1090                                        | 12.5x25  |
| 2200     | 25  | 228CKE025M   | 0.1433                          | 1220                                        | 12.5x25  |
| 2200     | 25  | 228CKH025M   | 0.1433                          | 1210                                        | 16x25    |
| 2200     | 35  | 228CKE035M   | 0.1206                          | 1350                                        | 16x25    |
| 2200     | 35  | 228CKH035M   | 0.1206                          | 1440                                        | 16x31.5  |

| Cap (uF) | VDC | PART #       | Maximum ESR, $\Omega$ 120Hz 20C | Maximum RMS ripple current (mA) 120Hz, 105C | DxL (mm) |
|----------|-----|--------------|---------------------------------|---------------------------------------------|----------|
| 2200     | 50  | 228CKE050MQW | 0.1056                          | 1410                                        | 16x31.5  |
| 2200     | 50  | 228CKE050M   | 0.1056                          | 1700                                        | 16x35.5  |
| 2200     | 50  | 228CKH050M   | 0.1056                          | 1700                                        | 18x35.5  |
| 2200     | 63  | 228CKE063M   | 0.1056                          | 1650                                        | 18x35.5  |
| 3300     | 6.3 | 338CKE6R3M   | 0.1508                          | 990                                         | 10x20    |
| 3300     | 10  | 338CKE010M   | 0.1307                          | 1140                                        | 12.5x20  |
| 3300     | 16  | 338CKE016M   | 0.1156                          | 1340                                        | 12.5x25  |
| 3300     | 16  | 338CKH016M   | 0.1156                          | 1270                                        | 16x25    |
| 3300     | 25  | 338CKE025M   | 0.1056                          | 1420                                        | 16x25    |
| 3300     | 25  | 338CKH025M   | 0.1056                          | 1530                                        | 16x31.5  |
| 3300     | 35  | 338CKE035MQW | 0.0905                          | 1500                                        | 16x31.5  |
| 3300     | 35  | 338CKE035M   | 0.0905                          | 1810                                        | 16x35.5  |
| 3300     | 50  | 338CKE050M   | 0.0804                          | 2060                                        | 18x35.5  |
| 4700     | 10  | 478CKE010M   | 0.0847                          | 1420                                        | 12.5x25  |
| 4700     | 10  | 478CKH010M   | 0.0988                          | 1350                                        | 16x25    |
| 4700     | 16  | 478CKE016M   | 0.0741                          | 1510                                        | 16x25    |
| 4700     | 16  | 478CKH016M   | 0.0882                          | 1560                                        | 16x31.5  |
| 4700     | 25  | 478CKE025MQV | 0.0812                          | 1570                                        | 16x25    |
| 4700     | 25  | 478CKE025M   | 0.0812                          | 1740                                        | 16x31.5  |
| 4700     | 25  | 478CKH025M   | 0.0812                          | 1780                                        | 18x31.5  |
| 4700     | 35  | 478CKE035MQY | 0.0706                          | 1780                                        | 16x35.5  |
| 4700     | 35  | 478CKE035M   | 0.0706                          | 2110                                        | 18x35.5  |
| 6800     | 6.3 | 688CKE6R3M   | 0.0585                          | 1500                                        | 12.5x25  |
| 6800     | 10  | 688CKE010M   | 0.0488                          | 1600                                        | 16x25    |
| 6800     | 16  | 688CKE016MQV | 0.0707                          | 1600                                        | 16x25    |
| 6800     | 16  | 688CKE016M   | 0.0707                          | 1860                                        | 16x31.5  |
| 6800     | 25  | 688CKE025MQY | 0.0659                          | 1850                                        | 16x35.5  |
| 6800     | 25  | 688CKE025M   | 0.0659                          | 2170                                        | 18x35.5  |
| 6800     | 35  | 688CKE035M   | 0.0585                          | 2000                                        | 18x40    |
| 10000    | 6.3 | 109CKE6R3M   | 0.0398                          | 1660                                        | 16x25    |
| 10000    | 6.3 | 109CKH6R3M   | 0.0697                          | 1730                                        | 16x31.5  |
| 10000    | 10  | 109CKE010MQW | 0.0630                          | 1820                                        | 16x31.5  |
| 10000    | 10  | 109CKE010M   | 0.0630                          | 2040                                        | 16x35.5  |
| 10000    | 10  | 109CKH010M   | 0.0630                          | 2030                                        | 18x35.5  |
| 10000    | 16  | 109CKE016MQY | 0.0581                          | 1930                                        | 16x35.5  |
| 10000    | 16  | 109CKE016M   | 0.0581                          | 1960                                        | 18x31.5  |
| 10000    | 25  | 109CKE025M   | 0.0547                          | 2000                                        | 18x40    |
| 15000    | 6.3 | 159CKE6R3MQW | 0.0575                          | 1820                                        | 16x31.5  |
| 15000    | 6.3 | 159CKE6R3M   | 0.0575                          | 2140                                        | 16x35.5  |
| 15000    | 10  | 159CKE010MQY | 0.0531                          | 2050                                        | 16x35.5  |
| 15000    | 10  | 159CKE010M   | 0.0531                          | 2370                                        | 18x35.5  |
| 15000    | 16  | 159CKE016M   | 0.0498                          | 2210                                        | 18x40    |
| 22000    | 6.3 | 229CKE6R3MRY | 0.0498                          | 2280                                        | 18x35.5  |
| 22000    | 10  | 229CKE010M   | 0.0467                          | 2420                                        | 18x40    |

