



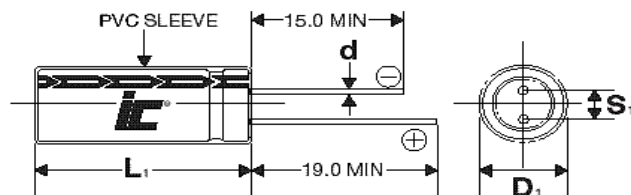
#### FEATURES

Small size - High voltage - General purpose

#### APPLICATIONS

Bypass - Coupling - Filter - De-coupling

| Operating Temperature Range                        |                | -40°C to +105°C (6.3 to 100 WVDC)<br>-25°C to +105°C (160 to 400 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 δ          | .22                                                                    | .19               | .16 | .14 | .12                              | .1   | .09  | .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 |                  |      |     |     |      |
|                                                    |                | 2 Minutes                                                              |                   |     |     |                                  |      |      |      | 2 Minutes       |                  |      |     |     |      |
|                                                    |                | .01CV or 3uA,<br>Whichever is greater                                  |                   |     |     |                                  |      |      |      | .03CV+40uA      |                  |      |     |     |      |
| Low temperature Stability Impedance Ratio (120 Hz) | 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    | 4               | 4                | 4    | 6   | 6   | 7    |
|                                                    | -40°C to +20°C | 8                                                                      | 6                 | 4   | 3   | 3                                | 3    | 3    | 3    | -               | -                | -    | -   | -   | -    |
| Load Life                                          |                | 2000 hours at 105°C with rated WVDC and ripple current applied         |                   |     |     |                                  |      |      |      |                 |                  |      |     |     |      |
|                                                    |                | Capacitance Change                                                     |                   |     |     | ≤20% of initial measured value   |      |      |      |                 |                  |      |     |     |      |
|                                                    |                | Dissipation Factor                                                     |                   |     |     | ≤200% of maximum specified value |      |      |      |                 |                  |      |     |     |      |
|                                                    |                | Leakage Current                                                        |                   |     |     | ≤100% of maximum specified value |      |      |      |                 |                  |      |     |     |      |
| Shelf Life                                         |                | 1000 hours at 105°C with no voltage applied                            |                   |     |     |                                  |      |      |      |                 |                  |      |     |     |      |
|                                                    |                | Capacitance Change                                                     |                   |     |     | ≤20% of initial measured value   |      |      |      |                 |                  |      |     |     |      |
|                                                    |                | Dissipation Factor                                                     |                   |     |     | ≤200% of maximum specified value |      |      |      |                 |                  |      |     |     |      |
|                                                    |                | Leakage Current                                                        |                   |     |     | ≤100% of maximum specified value |      |      |      |                 |                  |      |     |     |      |
| Ripple Current Multipliers                         |                |                                                                        |                   |     |     | Frequency (Hz)                   |      |      |      |                 | Temperature (°C) |      |     |     |      |
|                                                    |                | WVDC                                                                   | Capacitance ( uF) |     | 50  | 120                              | 300  | 1k   | 10k  | 100k            | 105              | 85   | 70  | 65  | 45   |
|                                                    |                | 6.3 to 100V                                                            | <47               |     | .75 | 1.0                              | 1.36 | 1.57 | 2.0  | 2.3             | 1                | 1.75 | 1.9 | 2   | 2.23 |
|                                                    |                |                                                                        | 100 to 470        |     | .8  | 1.0                              | 1.23 | 1.34 | 11.5 | 1.65            | 1                | 1.75 | 1.9 | 2   | 2.23 |
|                                                    |                |                                                                        | ≥560              |     | .85 | 1.0                              | 1.1. | 1.13 | 1.15 | 1.4             | 1                | 1.75 | 1.9 | 2   | 2.23 |
|                                                    |                | 160 to 450V                                                            | .47 to 4.7        |     | .65 | 1.0                              | 1.35 | 1.75 | 2.3  | 2.5             | 1                | 1.75 | 1.9 | 2   | 2.23 |
|                                                    |                |                                                                        | 6.8 to 82         |     | .75 | 1.0                              | 1.25 | 1.5  | 1.75 | 1.8             | 1                | 1.75 | 1.9 | 2   | 2.23 |
|                                                    |                |                                                                        | 100 to 1000       |     | .8  | 1.0                              | 1.15 | 1.3  | 1.4  | 1.5             | 1                | 1.75 | 1.9 | 2   | 2.23 |



| D | 5   | 6.3 | 8   | 10  | 12.5 | 16  | 18  |
|---|-----|-----|-----|-----|------|-----|-----|
| S | 2.0 | 2.5 | 3.5 | 5.0 | 5.0  | 7.5 | 7.5 |
| d | 0.5 | 0.5 | 0.5 | 0.6 | 0.6  | 0.8 | 0.8 |

L<sub>1</sub>=L+1.5mm Max.  
D<sub>1</sub>=D+0.5mm Max.  
S<sub>1</sub>=S+0.5 mm

# CKH\_CKE

+105°C, Extended life 2000 hour

| Capacitance (μF) | WVDC | IC PART NUMBER | Maximum ESR (Ω) 120 Hz, +20°C | Maximum RMS Ripple Current (mA) 120 Hz, +105°C | Dims DxL (mm) |
|------------------|------|----------------|-------------------------------|------------------------------------------------|---------------|
| 0.1              | 50   | 104CKH050M     | 1657.86                       | 1                                              | 5x11          |
| 0.22             | 50   | 224CKH050M     | 753.575                       | 3                                              | 5x11          |
| 0.33             | 50   | 334CKH050M     | 502.38                        | 4                                              | 5x11          |
| 0.47             | 100  | 474CKH100M     | 282.19                        | 12                                             | 5x11          |
| 0.47             | 250  | 474CKH250M     | 529.106                       | 15                                             | 6.3x11        |
| 1                | 50   | 105CKH050M     | 165.79                        | 13                                             | 5x11          |
| 1                | 100  | 105CKE100M     | 132.63                        | 15                                             | 5x11          |
| 1                | 250  | 105CKE250M     | 248.68                        | 16                                             | 6.3x11        |
| 1                | 400  | 105CKE400M     | 331.57                        | 21                                             | 8x11.5        |
| 1                | 450  | 105CKE450M     | 331.57                        | 22                                             | 10x12.5       |
| 1                | 450  | 105CKE450MEBB  | 331.573                       | 18                                             | 6.3x11        |
| 2.2              | 50   | 225CKH050M     | 75.358                        | 20                                             | 5x11          |
| 2.2              | 100  | 225CKE100M     | 60.286                        | 35                                             | 5x11          |
| 2.2              | 250  | 225CKH250M     | 113.036                       | 29                                             | 6.3x11        |
| 2.2              | 350  | 225CKE350M     | 150.71                        | 30                                             | 6.3x11        |
| 2.2              | 400  | 225CKE400M     | 150.71                        | 26                                             | 8x11.5        |
| 2.2              | 450  | 225CKE450M     | 150.71                        | 31                                             | 10x12.5       |
| 2.2              | 450  | 225CKE450MJM   | 150.71                        | 30                                             | 8x11.5        |
| 3.3              | 50   | 335CKE050M     | 50.238                        | 35                                             | 5x11          |
| 3.3              | 100  | 335CKE100M     | 40.19                         | 35                                             | 5x11          |
| 3.3              | 200  | 335CKE200M     | 75.358                        | 35                                             | 6.3x11        |
| 3.3              | 250  | 335CKE250M     | 75.358                        | 44                                             | 8x11.5        |
| 3.3              | 250  | 335CKE250MGGM  | 75.358                        | 37                                             | 6.3x11        |
| 3.3              | 350  | 335CKE350MJM   | 100.477                       | 30                                             | 8x11.5        |
| 3.3              | 400  | 335CKE400MJM   | 100.477                       | 42                                             | 8x11.5        |
| 3.3              | 400  | 335CKE400M     | 100.477                       | 41                                             | 10x12.5       |
| 3.3              | 450  | 335CKE450MFH   | 100.477                       | 40                                             | 8x11.5        |
| 3.3              | 450  | 335CKE450MGJG  | 100.477                       | 44                                             | 10x20         |
| 4.7              | 100  | 475CKE100M     | 28.219                        | 40                                             | 5x11          |
| 4.7              | 160  | 475CKE160M     | 52.911                        | 51                                             | 6.3x11        |
| 4.7              | 200  | 475CKE200M     | 52.911                        | 53                                             | 6.3x11        |
| 4.7              | 250  | 475CKE250M     | 52.911                        | 53                                             | 8x11.5        |
| 4.7              | 250  | 475CKH250M     | 52.911                        | 60                                             | 10x12.5       |
| 4.7              | 350  | 475CKE350M     | 70.547                        | 47                                             | 10x12.5       |
| 4.7              | 400  | 475CKE400M     | 70.547                        | 55                                             | 10x16         |
| 4.7              | 400  | 475CKE400MFH   | 70.5474                       | 56                                             | 8x11.5        |
| 4.7              | 450  | 475CKE450MLN   | 70.547                        | 32                                             | 10x12.5       |
| 4.7              | 450  | 475CKE450M     | 70.547                        | 43                                             | 10x20         |
| 6.8              | 50   | 685CKH050M     | 24.381                        | 40                                             | 5x11          |
| 6.8              | 450  | 685CKE450MGBW  | 48.7607                       | 90                                             | 10x16         |
| 10               | 50   | 106CKH050M     | 16.579                        | 55                                             | 5x11          |
| 10               | 63   | 106CKE063M     | 14.9208                       | 60                                             | 5x11          |
| 10               | 100  | 106CKH100M     | 13.263                        | 85                                             | 6.3x11        |
| 10               | 160  | 106CKE160M     | 24.868                        | 91                                             | 8x11.5        |
| 10               | 200  | 106CKE200MJM   | 24.868                        | 91                                             | 8x11.5        |
| 10               | 200  | 106CKE200M     | 24.868                        | 75                                             | 10x12.5       |
| 10               | 250  | 106CKH250M     | 24.868                        | 90                                             | 10x16         |
| 10               | 350  | 106CKE350M     | 24.868                        | 85                                             | 10x20         |
| 10               | 350  | 106CKE350MLQ   | 33.157                        | 64                                             | 10x16         |
| 10               | 400  | 106CKE400MLQ   | 33.157                        | 64                                             | 10x16         |
| 10               | 400  | 106CKE400M     | 33.157                        | 73                                             | 10x20         |
| 10               | 450  | 106CKE450M     | 33.157                        | 65                                             | 12.5x20       |
| 10               | 450  | 106CKE450MLU   | 33.157                        | 120                                            | 10x20         |
| 15               | 50   | 156CKH050M     | 11.052                        | 58                                             | 5x11          |
| 15               | 250  | 156CKE250MGBW  | 22.1049                       | 112                                            | 10x16         |
| 15               | 400  | 156CKE400MGJG  | 22.1049                       | 115                                            | 10x20         |
| 15               | 450  | 156CKE450MTJG  | 22.1049                       | 112                                            | 12.5x20       |
| 22               | 50   | 226CKH050M     | 7.536                         | 80                                             | 5x11          |

| Capacitance (μF) | WVDC | IC PART NUMBER | Maximum ESR (Ω) 120 Hz, +20°C | Maximum RMS Ripple Current (mA) 120 Hz, +105°C | Dims DxL (mm) |
|------------------|------|----------------|-------------------------------|------------------------------------------------|---------------|
| 22               | 63   | 226CKH063M     | 6.7822                        | 90                                             | 6.3x11        |
| 22               | 63   | 226CKE063M     | 6.7822                        | 80                                             | 5x11          |
| 22               | 100  | 226CKH100M     | 6.029                         | 150                                            | 8x11.5        |
| 22               | 100  | 226CKE100M     | 6.029                         | 95                                             | 6.3x11        |
| 22               | 160  | 226CKE160MLN   | 11.304                        | 150                                            | 10x12.5       |
| 22               | 200  | 226CKE200MLQ   | 11.304                        | 165                                            | 10x16         |
| 22               | 250  | 226CKE250MLU   | 11.304                        | 180                                            | 10x20         |
| 22               | 350  | 226CKE350MNU   | 15.072                        | 105                                            | 12.5x20       |
| 22               | 450  | 226CKE450MNV   | 15.0715                       | 215                                            | 12.5x25       |
| 33               | 50   | 336CKE050M     | 5.024                         | 100                                            | 5x11          |
| 33               | 63   | 336CKE063M     | 4.5214                        | 120                                            | 6.3x11        |
| 33               | 100  | 336CKE100M     | 4.019                         | 145                                            | 8x11.5        |
| 33               | 100  | 336CKH100M     | 4.019                         | 260                                            | 10x12.5       |
| 33               | 160  | 336CKE160MLQ   | 7.536                         | 205                                            | 10x16         |
| 33               | 200  | 336CKE200MLU   | 7.536                         | 225                                            | 10x20         |
| 33               | 250  | 336CKE250M     | 7.536                         | 190                                            | 12.5x20       |
| 33               | 350  | 336CKE350MNV   | 10.048                        | 270                                            | 12.5x25       |
| 33               | 400  | 336CKE400M     | 10.048                        | 160                                            | 16x25         |
| 33               | 450  | 336CKE450MQV   | 10.048                        | 120                                            | 16x25         |
| 47               | 25   | 476CKH025M     | 4.9383                        | 100                                            | 5x11          |
| 47               | 35   | 476CKE035M     | 4.233                         | 92                                             | 5x11          |
| 47               | 50   | 476CKE050M     | 3.527                         | 135                                            | 6.3x11        |
| 47               | 63   | 476CKE063M     | 3.1746                        | 145                                            | 6.3x11        |
| 47               | 63   | 476CKH063M     | 3.1746                        | 155                                            | 8x11.5        |
| 47               | 100  | 476CKH100M     | 2.822                         | 280                                            | 10x16         |
| 47               | 100  | 476CKE100M     | 2.822                         | 280                                            | 10x12.5       |
| 47               | 160  | 476CKE160MLU   | 5.291                         | 270                                            | 10x20         |
| 47               | 200  | 476CKE200M     | 5.291                         | 210                                            | 12.5x20       |
| 47               | 250  | 476CKE250MNU   | 5.291                         | 190                                            | 13x21         |
| 47               | 250  | 476CKE250M     | 5.291                         | 320                                            | 12.5x25       |
| 47               | 350  | 476CKE350M     | 7.055                         | 190                                            | 16x25         |
| 47               | 400  | 476CKE400M     | 7.055                         | 210                                            | 16x30         |
| 47               | 400  | 476CKE400MQV   | 7.055                         | 360                                            | 16x25         |
| 47               | 450  | 476CKE450MQW   | 7.055                         | 395                                            | 16x30         |
| 68               | 50   | 686CKH050M     | 2.438                         | 165                                            | 8x11.5        |
| 68               | 63   | 686CKH063M     | 2.1942                        | 190                                            | 10x12.5       |
| 68               | 100  | 686CKH100M     | 1.95                          | 300                                            | 10x16         |
| 68               | 160  | 686CKE160MTJG  | 4.8761                        | 350                                            | 12.5x20       |
| 68               | 200  | 686CKE200MTJD  | 4.8761                        | 380                                            | 12.5x25       |
| 68               | 250  | 686CKE250MKJG  | 4.8761                        | 400                                            | 16x20         |
| 68               | 400  | 686CKE400MKAG  | 4.8761                        | 475                                            | 16x30         |
| 68               | 450  | 686CKE450MKAD  | 4.8761                        | 510                                            | 16x35         |
| 100              | 25   | 107CKE025M     | 2.321                         | 125                                            | 5x11          |
| 100              | 35   | 107CKE035M     | 1.989                         | 170                                            | 6.3x11        |
| 100              | 50   | 107CKH050M     | 1.658                         | 230                                            | 8x11.5        |
| 100              | 63   | 107CKH063M     | 1.4921                        | 260                                            | 10x12.5       |
| 100              | 100  | 107CKE100MLQ   | 1.326                         | 240                                            | 10x16         |
| 100              | 160  | 107CKE160M     | 2.487                         | 470                                            | 12.5x25       |
| 100              | 250  | 107CKE250MQV   | 2.487                         | 530                                            | 16x25         |
| 100              | 350  | 107CKE350MKCG  | 3.3157                        | 510                                            | 16x40         |
| 100              | 350  | 107CKE350M     | 3.316                         | 410                                            | 18x40         |
| 100              | 400  | 107CKE400M     | 3.316                         | 310                                            | 18x35         |
| 150              | 100  | 157CKH100M     | 0.884                         | 410                                            | 12.5x20       |
| 150              | 160  | 157CKE160MKJD  | 1.65786                       | 515                                            | 16x25         |
| 150              | 200  | 157CKE200MKJD  | 1.65786                       | 660                                            | 16x25         |
| 150              | 250  | 157CKE250MKAD  | 1.65786                       | 750                                            | 16x35         |
| 150              | 450  | 157CKE450MLCD  | 2.2105                        | 880                                            | 18x45         |
| 220              | 10   | 227CKE010M     | 2.1                           | 170                                            | 5x11          |

# CKH\_CKE

+105°C, Extended life 2000 hour

| Capacitance (μF) | WVDC | IC PART NUMBER | Maximum ESR (Ω) 120 Hz, +20°C | Maximum RMS Ripple Current (mA) 120 Hz, +105°C | Dims DxL (mm) |
|------------------|------|----------------|-------------------------------|------------------------------------------------|---------------|
| 220              | 16   | 227CKE016M     | 1.2057                        | 215                                            | 6.3x11        |
| 220              | 25   | 227CKE025MGM   | 1.055                         | 200                                            | 6.3x11        |
| 220              | 35   | 227CKE035M     | 0.904                         | 295                                            | 8x11.5        |
| 220              | 50   | 227CKE050M     | 0.754                         | 350                                            | 10x12.5       |
| 220              | 50   | 227CKH050M     | 0.7536                        | 510                                            | 10x16         |
| 220              | 63   | 227CKH063M     | 0.09                          | 505                                            | 10x20         |
| 220              | 63   | 227CKE063M     | 0.09                          | 390                                            | 10x16         |
| 220              | 100  | 227CKH100M     | 0.603                         | 960                                            | 16x25         |
| 220              | 100  | 227CKE100M     | 0.603                         | 660                                            | 12.5x25       |
| 220              | 100  | 227CKE100MNU   | 0.603                         | 390                                            | 12.5x20       |
| 220              | 160  | 227CKE160MQW   | 1.13                          | 860                                            | 16x30         |
| 220              | 200  | 227CKE200M     | 1.13                          | 920                                            | 16x35         |
| 220              | 250  | 227CKE250M     | 1.13                          | 485                                            | 18x35         |
| 220              | 250  | 227CKE250MLCG  | 1.5071                        | 1010                                           | 18x40         |
| 330              | 10   | 337CKE010M     | 0.9545                        | 240                                            | 6.3x11        |
| 330              | 16   | 337CKE016MGM   | 0.8038                        | 225                                            | 6.3x11        |
| 330              | 25   | 337CKE025M     | 0.4938                        | 340                                            | 8x11.5        |
| 330              | 35   | 337CKE035M     | 0.603                         | 420                                            | 10x12.5       |
| 330              | 50   | 337CKE050M     | 0.502                         | 590                                            | 10x16         |
| 330              | 50   | 337CKH050M     | 0.502                         | 490                                            | 10x20         |
| 330              | 63   | 337CKH063M     | 0.4521                        | 690                                            | 12.5x20       |
| 330              | 100  | 337CKH100M     | 0.402                         | 1000                                           | 16x25         |
| 330              | 100  | 337CKE100M     | 0.402                         | 800                                            | 12.5x25       |
| 330              | 160  | 337CKE160MKCG  | 1.0048                        | 1200                                           | 16x40         |
| 330              | 200  | 337CKE200M     | 0.754                         | 675                                            | 18x40         |
| 470              | 10   | 477CKE010M     | 0.6702                        | 285                                            | 6.3x11        |
| 470              | 16   | 477CKE016M     | 0.5644                        | 365                                            | 8x11.5        |
| 470              | 16   | 477CKH016M     | 0.5644                        | 440                                            | 10x12.5       |
| 470              | 25   | 477CKE025M     | 0.4938                        | 470                                            | 10x12.5       |
| 470              | 35   | 477CKE035M     | 0.423                         | 545                                            | 10x16         |
| 470              | 50   | 477CKE050M     | 0.353                         | 705                                            | 10x20         |
| 470              | 50   | 477CKH050M     | 0.353                         | 630                                            | 12.5x20       |
| 470              | 63   | 477CKH063M     | 0.3175                        | 690                                            | 12.5x25       |
| 470              | 63   | 477CKE063M     | 0.3175                        | 810                                            | 12.5x20       |
| 470              | 100  | 477CKE100M     | 0.282                         | 1050                                           | 16x25         |
| 680              | 6.3  | 687CKH6R3M     | 0.5364                        | 375                                            | 10x12.5       |
| 680              | 16   | 687CKH016M     | 0.3901                        | 490                                            | 10x16         |
| 680              | 35   | 687CKE035MGJG  | 0.2926                        | 680                                            | 10x20         |
| 680              | 50   | 687CKE050MTJG  | 0.2438                        | 925                                            | 12.5x20       |
| 680              | 63   | 687CKH063M     | 0.2194                        | 925                                            | 16x25         |
| 1000             | 6.3  | 108CKE6R3M     | 0.3647                        | 445                                            | 8x11.5        |
| 1000             | 10   | 108CKE010M     | 0.315                         | 570                                            | 10x12.5       |
| 1000             | 16   | 108CKE016M     | 0.2653                        | 680                                            | 10x16         |
| 1000             | 16   | 108CKE016MLN   | 0.2653                        | 500                                            | 10x12.5       |
| 1000             | 16   | 108CKH016M     | 0.2653                        | 720                                            | 10x20         |
| 1000             | 25   | 108CKE025MLQ   | 0.2321                        | 610                                            | 10x16         |
| 1000             | 25   | 108CKE025M     | 0.2321                        | 820                                            | 10x20         |
| 1000             | 35   | 108CKH035M     | 0.199                         | 1025                                           | 12.5x20       |
| 1000             | 50   | 108CKH050M     | 0.166                         | 1010                                           | 16x25         |
| 1000             | 50   | 108CKE050M     | 0.166                         | 1285                                           | 12.5x25       |
| 1000             | 63   | 108CKE063M     | 0.1492                        | 1450                                           | 16x25         |
| 1000             | 100  | 108CKE100M     | 0.133                         | 2020                                           | 18x40         |
| 1000             | 100  | 108CKE100MRV   | 0.133                         | 1000                                           | 18x35         |
| 1500             | 6.3  | 158CKH6R3M     | 0.2653                        | 585                                            | 10x20         |
| 1500             | 16   | 158CKH016M     | 0.1989                        | 800                                            | 12.5x20       |

| Capacitance (μF) | WVDC | IC PART NUMBER | Maximum ESR (Ω) 120 Hz, +20°C | Maximum RMS Ripple Current (mA) 120 Hz, +105°C | Dims DxL (mm) |
|------------------|------|----------------|-------------------------------|------------------------------------------------|---------------|
| 1500             | 25   | 158CKH025M     | 0.1768                        | 905                                            | 12.5x25       |
| 1500             | 35   | 158CKH035M     | 0.1547                        | 1140                                           | 16x25         |
| 1500             | 35   | 158CKE035MTJD  | 0.1326                        | 1125                                           | 12.5x25       |
| 1500             | 50   | 158CKH050M     | 0.1326                        | 1250                                           | 18x30         |
| 2200             | 6.3  | 228CKE6R3M     | 0.1959                        | 740                                            | 10x16         |
| 2200             | 10   | 228CKE010MLQ   | 0.1733                        | 705                                            | 10x16         |
| 2200             | 10   | 228CKE010M     | 0.1733                        | 900                                            | 10x20         |
| 2200             | 16   | 228CKE016M     | 0.1507                        | 1110                                           | 12.5x20       |
| 2200             | 16   | 228CKE016MLU   | 0.1507                        | 710                                            | 10x20         |
| 2200             | 16   | 228CKH016M     | 0.1507                        | 1250                                           | 12.5x25       |
| 2200             | 25   | 228CKH025M     | 0.1356                        | 1210                                           | 16x25         |
| 2200             | 25   | 228CKE025M     | 0.1356                        | 1175                                           | 12.5x25       |
| 2200             | 35   | 228CKE035M     | 0.1206                        | 1500                                           | 16x25         |
| 2200             | 35   | 228CKH035M     | 0.121                         | 1730                                           | 16x30         |
| 2200             | 50   | 228CKH050M     | 0.106                         | 1700                                           | 18x35         |
| 2200             | 50   | 228CKE050MQW   | 0.1055                        | 1410                                           | 16x30         |
| 2200             | 50   | 228CKE050M     | 0.1055                        | 1885                                           | 16x35         |
| 3300             | 6.3  | 338CKE6R3M     | 0.1407                        | 1030                                           | 10x20         |
| 3300             | 10   | 338CKE010M     | 0.1256                        | 1205                                           | 12.5x20       |
| 3300             | 16   | 338CKE016M     | 0.1105                        | 1390                                           | 12.5x25       |
| 3300             | 25   | 338CKE025M     | 0.1005                        | 1645                                           | 16x25         |
| 3300             | 25   | 338CKH025M     | 0.1005                        | 1800                                           | 16x30         |
| 3300             | 35   | 338CKE035MQW   | 0.0905                        | 1810                                           | 16x30         |
| 3300             | 35   | 338CKE035M     | 0.0905                        | 1820                                           | 16x35         |
| 3300             | 50   | 338CKE050M     | 0.0804                        | 2165                                           | 18x35         |
| 4700             | 10   | 478CKE010M     | 0.0952                        | 1490                                           | 12.5x25       |
| 4700             | 10   | 478CKH010M     | 0.0952                        | 1350                                           | 16x25         |
| 4700             | 16   | 478CKH016M     | 0.0847                        | 1560                                           | 16x30         |
| 4700             | 16   | 478CKE016M     | 0.0847                        | 1740                                           | 16x25         |
| 4700             | 25   | 478CKE025M     | 0.0776                        | 2010                                           | 16x30         |
| 4700             | 25   | 478CKE025MQV   | 0.0776                        | 1570                                           | 16x25         |
| 4700             | 35   | 478CKE035MQY   | 0.0706                        | 1780                                           | 16x35         |
| 4700             | 35   | 478CKE035M     | 0.0706                        | 2335                                           | 18x35         |
| 6800             | 6.3  | 688CKE6R3M     | 0.0829                        | 1555                                           | 12.5x25       |
| 6800             | 10   | 688CKE010M     | 0.0756                        | 1825                                           | 16x25         |
| 6800             | 16   | 688CKE016M     | 0.0707                        | 2080                                           | 16x30         |
| 6800             | 16   | 688CKE016MQV   | 0.0707                        | 1600                                           | 16x25         |
| 6800             | 25   | 688CKE025MQY   | 0.0634                        | 2308                                           | 16x35         |
| 6800             | 25   | 688CKE025M     | 0.0634                        | 2170                                           | 18x35         |
| 6800             | 35   | 688CKE035M     | 0.0585                        | 2400                                           | 18x40         |
| 10000            | 6.3  | 109CKH6R3M     | 0.0663                        | 1730                                           | 16x30         |
| 10000            | 6.3  | 109CKE6R3M     | 0.0663                        | 1900                                           | 16x25         |
| 10000            | 10   | 109CKH010M     | 0.0613                        | 2030                                           | 18x35         |
| 10000            | 10   | 109CKE010MQW   | 0.0613                        | 1980                                           | 16x30         |
| 10000            | 16   | 109CKE016M     | 0.0564                        | 2380                                           | 16x35         |
| 10000            | 25   | 109CKE025M     | 0.0531                        | 2000                                           | 18x40         |
| 10000            | 25   | 109CKE025MLAD  | 0.0547                        | 2500                                           | 18x35         |
| 15000            | 6.3  | 159CKE6R3M     | 0.0553                        | 2140                                           | 16x35         |
| 15000            | 6.3  | 159CKE6R3MQW   | 0.0553                        | 1820                                           | 16x30         |
| 15000            | 10   | 159CKE010MQY   | 0.0519                        | 2050                                           | 16x35         |
| 15000            | 10   | 159CKE010M     | 0.0519                        | 2370                                           | 18x35         |
| 15000            | 16   | 159CKE016M     | 0.0486                        | 2210                                           | 18x40         |
| 22000            | 6.3  | 229CKE6R3MRV   | 0.0482                        | 2400                                           | 18x35         |
| 22000            | 10   | 229CKE010M     | 0.046                         | 2410                                           | 18x40         |