

# CD288HL SERIES



## ALUMINUM ELECTROLYTIC CAPACITORS

- Load life of 3000 hours at 105°C
- High frequency and low impedance, wide temperature, long life, small size



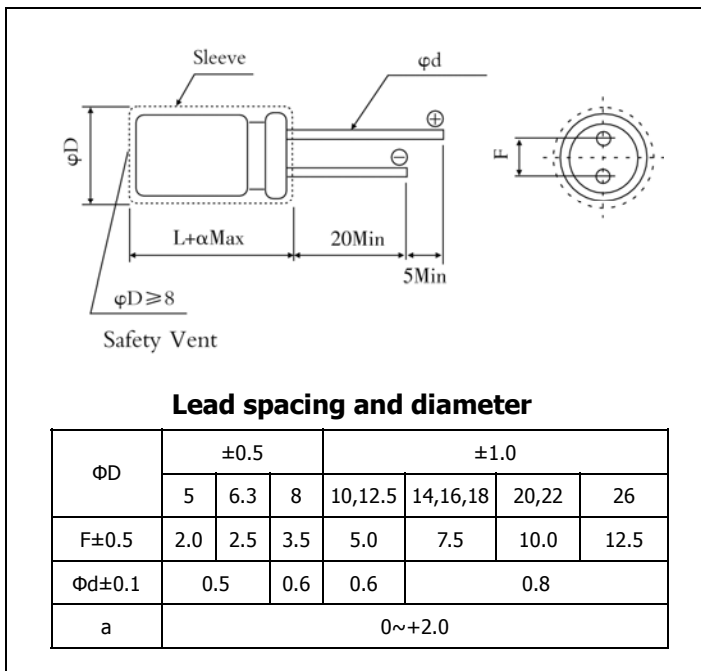
### ■ SPECIFICATIONS

| Item                              | Characteristics  |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
|-----------------------------------|--|----------|--|-------------------|--------------------------------|-----------------|------------------------------------|--------------------|-----------------------------------|--------------------|--|-----|---------|---------|---------|------|------|---------------|------|------|------|------|------|------|---------------|------|------|---|---|----|---|
| Operating Temperature Range(°C)   | -55~+105   | -40~+105 | -25~+105   |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Rated Voltage Range (V)           | 6.3~100  | 160~400  | 450  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Nominal capacitance range (μF)    | 0.47~15000   |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Capacitance Tolerance(20°C,120Hz) | ±20%   |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Leakage current (μA)              | 6.3~100V<br>$I \leq 0.03CV$ or 4 (Whichever is greater)  |          | 160~450V<br>$I \leq 0.1CV+40$ CV>1000: $I \leq 0.04CV+100$ |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
|                                   | (at 20°C, after 2 minutes) C: Nominal Capacitance (μF) V: Rated Voltage (V)  |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Dissipation Factor(20°C,120Hz)    | <table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160~250</th> <th>315~350</th> <th>400~450</th> </tr> </thead> <tbody> <tr> <td>tanδ</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> <td>0.15</td> <td>0.20</td> <td>0.25</td> </tr> </tbody> </table> <p>when nominal capacitance is over 1000uF, tanδ shall be added 0.02 to the listed value with increase of every 1000μF</p> |          |  | Rated Voltage (V) | 6.3                            | 10              | 16                                 | 25                 | 35                                | 50                 | 63   | 100 | 160~250 | 315~350 | 400~450 | tanδ | 0.22 | 0.19          | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.15          | 0.20 | 0.25 |   |   |    |   |
| Rated Voltage (V)                 | 6.3  | 10       | 16   | 25                | 35                             | 50              | 63                                 | 100                | 160~250                           | 315~350            | 400~450                                    |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| tanδ                              | 0.22   | 0.19     | 0.16   | 0.14              | 0.12                           | 0.10            | 0.09                               | 0.08               | 0.15                              | 0.20               | 0.25                                       |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Temperature Stability(120Hz)      | <table border="1"> <thead> <tr> <th>Rated voltage (v)</th> <th>6.3~100</th> <th>160~200</th> <th>250</th> <th>315~350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>Impedance Ratio</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Z-25°C/Z+20°C</td> <td>-</td> <td>3</td> <td>3</td> <td>4</td> <td>6</td> <td>15</td> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>-</td> <td>4</td> <td>6</td> <td>8</td> <td>10</td> <td>-</td> </tr> </tbody> </table>  |          |  | Rated voltage (v) | 6.3~100                        | 160~200         | 250                                | 315~350            | 400                               | 450                | Impedance Ratio                            |     |         |         |         |      |      | Z-25°C/Z+20°C | -    | 3    | 3    | 4    | 6    | 15   | Z-40°C/Z+20°C | -    | 4    | 6 | 8 | 10 | - |
| Rated voltage (v)                 | 6.3~100  | 160~200  | 250  | 315~350           | 400                            | 450             |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Impedance Ratio                   |  |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Z-25°C/Z+20°C                     | -  | 3        | 3  | 4                 | 6                              | 15              |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Z-40°C/Z+20°C                     | -  | 4        | 6  | 8                 | 10                             | -               |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Load Life(+105°C)                 | <table border="1"> <thead> <tr> <th>Time</th> <td>3000 hours(φ5,6.3,8: 2000hrs).</td> </tr> </thead> <tbody> <tr> <td>Leakage Current</td> <td>Not more than the specified value.</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±20% of the initial value.</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of the specified value.</td> </tr> </tbody> </table>  |          |  | Time              | 3000 hours(φ5,6.3,8: 2000hrs). | Leakage Current | Not more than the specified value. | Capacitance Change | Within ±20% of the initial value. | Dissipation Factor | Not more than 200% of the specified value. |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Time                              | 3000 hours(φ5,6.3,8: 2000hrs).   |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Leakage Current                   | Not more than the specified value.   |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Capacitance Change                | Within ±20% of the initial value.  |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Dissipation Factor                | Not more than 200% of the specified value.   |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Shelf Life(+105°C)                | <table border="1"> <thead> <tr> <th>Time</th> <td>1000 hours.</td> </tr> </thead> <tbody> <tr> <td>Leakage Current</td> <td>Not more than the specified value.</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±20% of the initial value.</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of the specified value.</td> </tr> </tbody> </table> <p>After test: Rated voltage to be applied for 30 minutes, 24 to 48 hours before measurement.</p>   |          |  | Time              | 1000 hours.                    | Leakage Current | Not more than the specified value. | Capacitance Change | Within ±20% of the initial value. | Dissipation Factor | Not more than 200% of the specified value. |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Time                              | 1000 hours.  |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Leakage Current                   | Not more than the specified value.   |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Capacitance Change                | Within ±20% of the initial value.  |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |
| Dissipation Factor                | Not more than 200% of the specified value.   |          |  |                   |                                |                 |                                    |                    |                                   |                    |  |     |         |         |         |      |      |               |      |      |      |      |      |      |               |      |      |   |   |    |   |

### ■ DIMENSIONS

### MM

### ■ MULTIPLIER FOR RIPPLE CURRENT



### Frequency coefficient

| Rated Voltage (V) | Freq(Hz)   | 50,60 | 100  | 1K   | 10K~ |
|-------------------|------------|-------|------|------|------|
|                   | C(μF)      |       |      |      |      |
| 6.3~100           | ~47        | 0.20  | 0.30 | 0.80 | 1.00 |
|                   | 68~330     | 0.55  | 0.65 | 0.85 | 1.00 |
|                   | 390~1000   | 0.70  | 0.75 | 0.90 | 1.00 |
|                   | 1200~15000 | 0.80  | 0.85 | 0.95 | 1.00 |
| 160~450           | 0.47~220   | 0.80  | 1.00 | 1.40 | 1.60 |
|                   | 330~470    | 0.90  | 1.00 | 1.13 | 1.15 |

# CD288HL SERIES



## ■ STANDARD RATINGS

| WV(V)   | 6.3      |           |        | 10       |           |        | 16       |           |        | 25            |           |        |
|---------|----------|-----------|--------|----------|-----------|--------|----------|-----------|--------|---------------|-----------|--------|
| Cap(μF) | Size     | Impedance | Ripple | Size     | Impedance | Ripple | Size     | Impedance | Ripple | Size          | Impedance | Ripple |
|         | ΦDxL(mm) | Z(Ω)      | (mA)   | ΦDxL(mm) | Z(Ω)      | (mA)   | ΦDxL(mm) | Z(Ω)      | (mA)   | ΦDxL(mm)      | Z(Ω)      | (mA)   |
| 4.7     | -        | -         | -      | -        | -         | -      | -        | -         | -      | 5X11          | 0.600     | 180    |
| 10      | -        | -         | -      | -        | -         | -      | 5X11     | 0.600     | 180    | 5X11          | 0.600     | 180    |
| 22      | 5X11     | 0.600     | 180    | 5X11     | 0.600     | 180    | 5X11     | 0.600     | 180    | 5X11          | 0.600     | 180    |
| 33      | 5X11     | 0.600     | 180    | 5X11     | 0.600     | 180    | 5X11     | 0.600     | 180    | 5X11          | 0.600     | 180    |
| 39      | -        | -         | -      | -        | -         | -      | -        | -         | -      | 5X11          | 0.650     | 175    |
| 47      | 5X11     | 0.600     | 180    | 5X11     | 0.600     | 180    | 5X11     | 0.600     | 180    | 5X11          | 0.600     | 180    |
| 56      | -        | -         | -      | -        | -         | -      | 5X11     | 0.650     | 175    | -             | -         | -      |
| 82      | -        | -         | -      | 5X11     | 0.650     | 175    | -        | -         | -      | 6.3X11        | 0.350     | 290    |
| 100     | 5X11     | 0.650     | 175    | 5X11     | 0.600     | 180    | 6.3X11   | 0.250     | 290    | 6.3X11        | 0.250     | 290    |
| 120     | -        | -         | -      | -        | -         | -      | 6.3X11   | 0.250     | 290    | 8X11.5        | 0.250     | 400    |
| 150     | 6.3X11   | 0.250     | 280    | 6.3X11   | 0.250     | 290    | 6.3X11   | 0.250     | 290    | 8X11.5        | 0.117     | 555    |
| 180     | -        | -         | -      | 6.3X11   | 0.250     | 290    | 8X11.5   | 0.230     | 400    | -             | -         | -      |
| 220     | 6.3X11   | 0.250     | 290    | 6.3X11   | 0.250     | 290    | 8X11.5   | 0.117     | 555    | 8X11.5        | 0.117     | 555    |
| 330     | 8X11.5   | 0.250     | 290    | 8X11.5   | 0.170     | 488    | 8X11.5   | 0.117     | 555    | 10X12.5       | 0.090     | 755    |
| 470     | 8X11.5   | 0.170     | 488    | 8X11.5   | 0.117     | 555    | 10X12.5  | 0.090     | 755    | 10X16<br>8X20 | 0.068     | 1050   |
| 560     | 8X11.5   | 0.117     | 555    | -        | -         | -      | -        | -         | -      | 10X20         | 0.052     | 1220   |
| 680     | 10X12.5  | 0.120     | 613    | 10X12.5  | 0.090     | 755    | 10X16    | 0.068     | 1050   | 10X20         | 0.052     | 1220   |
| 820     | 8X16     | 0.085     | 730    | -        | -         | -      | 10X20    | 0.052     | 1220   | 10X25         | 0.045     | 1440   |
| 1000    | 10X12.5  | 0.090     | 755    | 10X16    | 0.068     | 1050   | 10X20    | 0.052     | 1220   | 12.5X20       | 0.038     | 1655   |
| 1200    | 8X20     | 0.065     | 995    | 10X20    | 0.052     | 1220   | 10X25    | 0.045     | 1440   | -             | -         | -      |
| 1500    | 10X20    | 0.052     | 1220   | 10X20    | 0.052     | 1220   | 12.5X20  | 0.038     | 1655   | 16X25         | 0.022     | 1950   |
| 1800    | -        | -         | -      | -        | -         | -      | -        | -         | -      | 14X31.5       | 0.025     | 2310   |
| 2200    | 12.5X20  | 0.045     | 1400   | 12.5X20  | 0.038     | 1655   | 12.5X25  | 0.030     | 1945   | 16X25         | 0.026     | 2390   |
| 2700    | 10X25    | 0.035     | 1815   | 12.5X25  | 0.030     | 1945   | 14X25    | 0.025     | 2310   | 16X25         | 0.022     | 2555   |
| 3300    | 12.5X20  | 0.038     | 1655   | 12.5X25  | 0.030     | 1945   | 16X25    | 0.026     | 2390   | 16X31.5       | 0.018     | 3010   |
| 3900    | 12.5X25  | 0.030     | 1945   | 14X31.5  | 0.022     | 2510   | 16X25    | 0.022     | 2555   | 16X35.5       | 0.016     | 3150   |
| 4700    | 16X25    | 0.028     | 2220   | 16X25    | 0.022     | 2120   | 16X31.5  | 0.018     | 3010   | 18X35.5       | 0.015     | 3680   |
| 5600    | 14X31.5  | 0.022     | 2510   | 16X25    | 0.022     | 2555   | 16X35.5  | 0.016     | 3150   | -             | -         | -      |
| 6800    | 16X25    | 0.022     | 2555   | 16X31.5  | 0.018     | 3010   | 18X35.5  | 0.015     | 3680   | 18X40         | 0.014     | 3800   |
| 8200    | 16X31.5  | 0.018     | 3010   | 16X35.5  | 0.016     | 3150   | 18X35.5  | 0.015     | 3680   | -             | -         | -      |
| 10000   | 16X31.5  | 0.020     | 3150   | 18X35.5  | 0.015     | 3680   | 18X40    | 0.014     | 3800   | -             | -         | -      |
| 12000   | 18X31.5  | 0.016     | 3635   | -        | -         | -      | -        | -         | -      | -             | -         | -      |
| 15000   | 18X35.5  | 0.015     | 3680   | 18X40    | 0.014     | 3800   | -        | -         | -      | -             | -         | -      |

# CD288HL SERIES



| WV(V) | 35       |           |        | 50       |           |        | 63       |           |        | 100      |           |        |
|-------|----------|-----------|--------|----------|-----------|--------|----------|-----------|--------|----------|-----------|--------|
|       | Size     | Impedance | Ripple | Size     | Impedance | Ripple | Size     | Impedance | Ripple | Size     | Impedance | Ripple |
|       | ΦDxL(mm) | Z(Ω)      | (mA)   | ΦDxL(mm) | Z(Ω)      | (mA)   | ΦDxL(mm) | Z(Ω)      | (mA)   | ΦDxL(mm) | Z(Ω)      | (mA)   |
| 0.47  | -        | -         | -      | 5X11     | 5.000     | 25     | -        | -         | -      | 5X11     | 43.000    | 20     |
| 1     | -        | -         | -      | 5X11     | 3.500     | 40     | -        | -         | -      | 5X11     | 20.000    | 30     |
| 2.2   | -        | -         | -      | 5X11     | 3.000     | 55     | -        | -         | -      | 5X11     | 9.800     | 44     |
| 3.3   | -        | -         | -      | 5X11     | 2.600     | 65     | -        | -         | -      | 5X11     | 6.600     | 58     |
| 4.7   | 5X11     | 0.600     | 180    | 5X11     | 2.300     | 90     | 5X11     | 4.700     | 68     | 5X11     | 4.600     | 74     |
| 6.8   | -        | -         | -      | -        | -         | -      | 5X11     | 2.500     | 95     | 5X11     | 3.500     | 95     |
| 10    | 5X11     | 0.600     | 180    | 5X11     | 1.400     | 120    | 5X11     | 2.100     | 110    | 6.3X11   | 1.800     | 130    |
| 12    | -        | -         | -      | -        | -         | -      | 5X11     | 2.000     | 145    | -        | -         | -      |
| 15    | -        | -         | -      | -        | -         | -      | 6.3X11   | 1.200     | 160    | 8X11.5   | 0.830     | 180    |
| 18    | -        | -         | -      | 5X11     | 1.300     | 120    | -        | -         | -      | 8X11.5   | 0.800     | 200    |
| 22    | 5X11     | 0.600     | 180    | 5X11     | 1.200     | 170    | 6.3X11   | 0.710     | 250    | 8X11.5   | 0.680     | 330    |
| 27    | 5X11     | 0.650     | 175    | -        | -         | -      | -        | -         | -      | -        | -         | -      |
| 33    | 5X11     | 0.600     | 180    | 6.3X11   | 0.430     | 300    | 6.3X11   | 0.710     | 250    | 10X12.5  | 0.460     | 320    |
| 39    | -        | -         | -      | -        | -         | -      | 8X11.5   | 0.700     | 330    | -        | -         | -      |
| 47    | 6.3X11   | 0.250     | 290    | 6.3X11   | 0.430     | 300    | 8X11.5   | 0.342     | 360    | 10X16    | 0.370     | 420    |
| 56    | 6.3X11   | 0.250     | 290    | 8X11.5   | 0.400     | 360    | -        | -         | -      | -        | -         | -      |
| 68    | -        | -         | -      | -        | -         | -      | 8X11.5   | 0.342     | 405    | 10X20    | 0.300     | 490    |
| 82    | 8X11.5   | 0.200     | 400    | 8X11.5   | 0.234     | 485    | -        | -         | -      | 10X25    | 0.250     | 540    |
| 100   | 8X11.5   | 0.117     | 555    | 8X11.5   | 0.234     | 485    | 10X12.5  | 0.256     | 535    | 12.5X20  | 0.180     | 580    |
| 120   | -        | -         | -      | 8X16     | 0.155     | 635    | 10X16    | 0.194     | 600    | -        | -         | -      |
| 150   | 8X11.5   | 0.117     | 555    | 10X12.5  | 0.162     | 615    | 10X16    | 0.194     | 660    | 12.5X25  | 0.130     | 710    |
| 180   | -        | -         | -      | 8X20     | 0.120     | 860    | 10X20    | 0.147     | 885    | 14X31.5  | 0.120     | 790    |
| 220   | 10X12.5  | 0.090     | 755    | 10X16    | 0.119     | 850    | 10X20    | 0.200     | 700    | 16X25    | 0.100     | 890    |
| 270   | -        | -         | -      | 10X25    | 0.082     | 1200   | 12.5X20  | 0.090     | 1410   | -        | -         | -      |
| 330   | 10X16    | 0.068     | 1050   | 10X20    | 0.090     | 1010   | 12.5X20  | 0.085     | 1285   | 16X25    | 0.090     | 1080   |
| 390   | 10X20    | 0.052     | 1220   | 12.5X20  | 0.063     | 1480   | 12.5X25  | 0.070     | 1720   | 18X25    | 0.083     | 1260   |
| 470   | 10X20    | 0.052     | 1220   | 12.5X20  | 0.060     | 1500   | 12.5X25  | 0.070     | 1470   | 16X31.5  | 0.076     | 1310   |
| 560   | 10X25    | 0.045     | 1440   | 12.5X25  | 0.050     | 1832   | -        | -         | -      | 18X31.5  | 0.068     | 1370   |
| 680   | 12.5X20  | 0.038     | 1655   | 12.5X25  | 0.050     | 1470   | 16X25    | 0.050     | 2160   | 18X35.5  | 0.064     | 1410   |
| 820   | -        | -         | -      | 14X31.5  | 0.034     | 2285   | 16X31.5  | 0.043     | 2670   | -        | -         | -      |
| 1000  | 12.5X25  | 0.030     | 1945   | 16X25    | 0.034     | 2235   | 16X31.5  | 0.043     | 2340   | 18X40    | 0.047     | 1520   |
| 1200  | 14X25    | 0.025     | 2310   | 16X31.5  | 0.028     | 2700   | 18X31.5  | 0.032     | 2950   | -        | -         | -      |
| 1500  | 16X25    | 0.026     | 2390   | 16X31.5  | 0.026     | 1970   | 18X35.5  | 0.030     | 3095   | -        | -         | -      |
| 1800  | 16X25    | 0.022     | 2555   | 18X31.5  | 0.025     | 3000   | -        | -         | -      | -        | -         | -      |
| 2200  | 16X31.5  | 0.018     | 3010   | 18X35.5  | 0.023     | 3100   | 18X40    | 0.028     | 3200   | -        | -         | -      |
| 2700  | 16X35.5  | 0.016     | 3150   | -        | -         | -      | -        | -         | -      | -        | -         | -      |
| 3300  | 18X35.5  | 0.015     | 3680   | -        | -         | -      | -        | -         | -      | -        | -         | -      |
| 4700  | 18X40    | 0.014     | 3800   | -        | -         | -      | -        | -         | -      | -        | -         | -      |

# CD288HL SERIES



| WV(V)   | 160      |        | 200      |        | 250      |        | 315      |        | 350      |        | 400      |        | 450      |        |
|---------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|
| Cap(μF) | Size     | Ripple | Size     | Ripple | Size     | Ripple | Size     | Ripple | Size     | Ripple | Size     | Ripple | Size     | Ripple |
|         | ΦDxL(mm) | (mA)   | ΦDxL(mm) | (mA)   | ΦDxL(mm) | (mA)   | ΦDxL(mm) | (mA)   | ΦDxL(mm) | (mA)   | ΦDxL(mm) | (mA)   | ΦDxL(mm) | (mA)   |
| 0.47    | 6.3X11   | 12     | 6.3X11   | 12     | 6.3X11   | 12     | 8X11.5   | 11     | 8X11.5   | 11     | -        | -      | -        | -      |
| 1       | 6.3X11   | 17     | 6.3X11   | 17     | 6.3X11   | 17     | 8X11.5   | 16     | 10X12.5  | 17     | 10X12.5  | 16     | 10X12.5  | 18     |
| 2.2     | 6.3X11   | 25     | 6.3X11   | 25     | 8X11.5   | 29     | 10X12.5  | 28     | 10X16    | 31     | 10X16    | 27     | 10X20    | 29     |
| 3.3     | 8X11.5   | 36     | 8X11.5   | 36     | 10X12.5  | 42     | 10X12.5  | 34     | 10X16    | 38     | 10X20    | 36     | 12.5X20  | 41     |
| 4.7     | 8X11.5   | 43     | 10X12.5  | 50     | 10X12.5  | 50     | 10X16    | 45     | 10X20    | 49     | 10X20    | 43     | 12.5X20  | 49     |
| 10      | 10X12.5  | 70     | 10X16    | 80     | 10X20    | 88     | 10X20    | 72     | 12.5X20  | 82     | 12.5X20  | 72     | 16X25    | 75     |
| 22      | 10X20    | 130    | 10X20    | 140    | 12.5X25  | 155    | 12.5X25  | 120    | 16X25    | 130    | 16X25    | 110    | 16X31.5  | 115    |
| 33      | 12.5X20  | 180    | 12.5X25  | 190    | 12.5X25  | 190    | 16X25    | 155    | 16X31.5  | 160    | 16X31.5  | 140    | 18X35.5  | 145    |
| 47      | 12.5X25  | 220    | 12.5X25  | 220    | 16X25    | 230    | 16X35.5  | 190    | 18X35.5  | 200    | 18X35.5  | 170    | 20X40    | 175    |
| 100     | 16X25    | 330    | 16X31.5  | 335    | 18X35.5  | 340    | 18X40    | 285    | 20X40    | 290    | 22X50    | 350    | 26X50    | 350    |
| 220     | 18X35.5  | 500    | 18X40    | 515    | 20X40    | 525    | 22X50    | 540    | 26X50    | 550    | -        | -      | -        | -      |
| 330     | 20X40    | 900    | 22X40    | 1100   | 22X50    | 1150   | -        | -      | -        | -      | -        | -      | -        | -      |
| 470     | 22X50    | 1200   | 22X50    | 1300   | 26X50    | 1350   | -        | -      | -        | -      | -        | -      | -        | -      |

■ Ripple Current: 105°C, 100Hz or 120Hz; Impedance: 20°C, 100KHz.

The specific capacitance and case size are available on request.