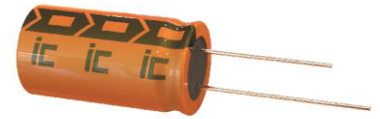




# Radial Lead Aluminum Electrolytic Capacitors

+125°C Long Life



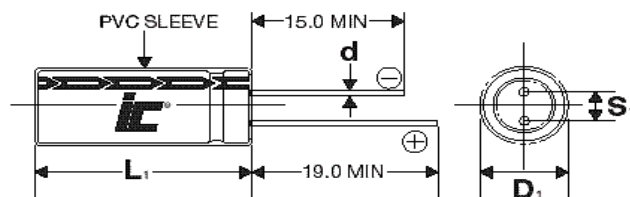
## FEATURES

Small Size - High Voltage - General Purpose

## APPLICATIONS

Inverters - DC Link - AC/DC Motor Controls - Solar Inverters

|   |                       |  |              |           |                        |                                       |                                  |                         |                |  |  |
|---|-----------------------|--|--------------|-----------|------------------------|---------------------------------------|----------------------------------|-------------------------|----------------|--|--|
| <b>Operating Temperature Range</b>  |                       | <b>-40°C to +125°C</b><br><b>-25°C to +125°C</b>   |              |           |                        |                                       |                                  |                         |                |  |  |
| <b>Capacitance Tolerance</b>  |                       | <b>+20% at 120 Hz, 20°C</b>                        |              |           |                        |                                       |                                  |                         |                |  |  |
| <b>Surge Voltage</b>  | <b>WVDC</b>           | <b>10</b>  | <b>16</b>    | <b>25</b> | <b>35</b>              | <b>50</b>                             | <b>63</b>                        | <b>160-250</b>          | <b>350-450</b> |  |  |
|   | <b>SVDC</b>           | 13   | 20           | 32        | 44                     | 63                                    | 79                               | 200-300                 | 400-500        |  |  |
| <b>Dissipation Factor</b>   | <b>WVDC</b>           | <b>10</b>  | <b>16</b>    | <b>25</b> | <b>35</b>              | <b>50</b>                             | <b>63</b>                        | <b>160-250</b>          | <b>350-450</b> |  |  |
|   | <b>Tan δ</b>          | 0.19   | 0.16         | 0.14      | 0.12                   | 0.14                                  | 0.14                             | 0.20                    | 0.24           |  |  |
| Add .02 for every 1000uF above 1000uF   |                       |  |              |           |                        |                                       |                                  |                         |                |  |  |
| <b>Leakage Current</b>  |                       | <b>10 to 450 WVDC</b>                              |              |           |                        |                                       |                                  |                         |                |  |  |
|   |                       | <b>1 Minutes</b>                                   |              |           |                        | <b>2 Minutes</b>                      |                                  |                         |                |  |  |
|   |                       | .03CV or 4uA,<br>Whichever is greater              |              |           |                        | .01CV or 3uA,<br>Whichever is greater |                                  |                         |                |  |  |
| <b>Low Temperature Stability Impedance Ratio (120 Hz)</b>                       | <b>WVDC</b>           | <b>10</b>  | <b>16</b>    | <b>25</b> | <b>35</b>              | <b>50</b>                             | <b>63</b>                        | <b>160-250</b>          | <b>350-450</b> |  |  |
|   | <b>-25°C to +20°C</b> | 3  | 2            | 2         | 2                      | 2                                     | 2                                | 3                       | 6              |  |  |
|   | <b>-40°C to +20°C</b> | 6  | 4            | 4         | 4                      | 4                                     | 3                                | -                       | -              |  |  |
| <b>2000-5000 hours at 125°C with rated 10-63WVDC and ripple current applied</b> |                       |  |              |           |                        |                                       |                                  |                         |                |  |  |
| <b>Load Life</b>  |                       | <b>8(D) = 2000hrs</b>                              |              |           | <b>10(D) = 3000hrs</b> |                                       |                                  | <b>≥13(D) = 5000hrs</b> |                |  |  |
|   |                       | <b>Capacitance Change</b>                          |              |           |                        |                                       | ≤30% of initial measured value   |                         |                |  |  |
|   |                       | <b>Dissipation Factor</b>                          |              |           |                        |                                       | ≤300% of maximum specified value |                         |                |  |  |
|   |                       | <b>Leakage Current</b>                             |              |           |                        |                                       | ≤100% of maximum specified value |                         |                |  |  |
| <b>2000 hours at 125°C with rated 160-450WVDC and ripple current applied</b>    |                       |  |              |           |                        |                                       |                                  |                         |                |  |  |
| <b>Shelf Life</b>   |                       | <b>1000 hours at 125°C with no voltage applied</b> |              |           |                        |                                       |                                  |                         |                |  |  |
|   |                       | <b>Capacitance Change</b>                          |              |           |                        |                                       | ≤20% of initial measured value   |                         |                |  |  |
|   |                       | <b>Dissipation Factor</b>                          |              |           |                        |                                       | ≤200% of maximum specified value |                         |                |  |  |
| <b>Ripple Current Multipliers</b>   |                       | <b>Frequency (Hz)</b>                              |              |           |                        |                                       |                                  |                         |                |  |  |
|   |                       | <b>WVDC</b>  | <b>Cap</b>   |           | <b>120</b>             | <b>1k</b>                             | <b>10k</b>                       | <b>50k-100k</b>         |                |  |  |
|   |                       | <b>10 to 63V</b>                                   | CAP≤10       |           | 0.40                   | 0.75                                  | 0.90                             | 1.00                    |                |  |  |
|   |                       |  | 10<CAP≤100   |           | 0.50                   | 0.85                                  | 0.95                             | 1.00                    |                |  |  |
|   |                       |  | 100<CAP≤1000 |           | 0.60                   | 0.88                                  | 0.96                             | 1.00                    |                |  |  |
|   |                       |  | 1000<CAP     |           | 0.75                   | 0.90                                  | 0.98                             | 1.00                    |                |  |  |
| <b>160 to 450V</b>  | CAP≤33                |  | 1.00         | 1.50      | 1.75                   | 1.80                                  |                                  |                         |                |  |  |
|   | CAP≥47                |  | 1.00         | 1.30      | 1.40                   | 1.50                                  |                                  |                         |                |  |  |



|          |          |           |             |           |           |
|----------|----------|-----------|-------------|-----------|-----------|
| <b>D</b> | <b>8</b> | <b>10</b> | <b>12.5</b> | <b>16</b> | <b>18</b> |
| <b>S</b> | 3.5      | 5.0       | 5.0         | 7.5       | 7.5       |
| <b>d</b> | 0.6      | 0.6       | 0.6         | 0.8       | 0.8       |

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



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# HJR

+125°C, 2000 hours

| Capacitance (µF) | WVDC | IC PART NUMBER | Maximum ESR (Ω) 120 Hz, +20°C | Maximum RMS Ripple Current (mA) 120 Hz, +125°C | Maximum RMS Ripple Current (mA) 100 kHz, +125°C | Dims DxL (mm) |
|------------------|------|----------------|-------------------------------|--|---|---------------|
| 1                | 350  | HJR105M350     | 397.888                       | 20   | 0   | 6.3x11        |
| 1                | 400  | HJR105M400     | 397.888                       | 19   | 0   | 6.3x11        |
| 1                | 450  | HJR105M450     | 397.888                       | 20   | 0   | 8x11          |
| 2.2              | 250  | HJR225M250     | 150.715                       | 28   | 0   | 8x11          |
| 2.2              | 350  | HJR225M350     | 180.858                       | 26   | 0   | 8x12          |
| 2.2              | 400  | HJR225M400     | 180.858                       | 24   | 0   | 8x11          |
| 2.2              | 450  | HJR225M450     | 180.858                       | 26   | 0   | 8x15          |
| 3.3              | 160  | HJR335M160     | 100.477                       | 28   | 0   | 8x11          |
| 3.3              | 200  | HJR335M200     | 100.477                       | 28   | 0   | 8x11          |
| 3.3              | 250  | HJR335M250     | 100.477                       | 32   | 0   | 10x12.5       |
| 3.3              | 350  | HJR335M350     | 120.572                       | 38   | 0   | 10x12.5       |
| 3.3              | 400  | HJR335M400     | 120.572                       | 35   | 0   | 8x16          |
| 3.3              | 450  | HJR335M450     | 120.572                       | 34   | 0   | 10x16         |
| 4.7              | 160  | HJR475M160     | 70.5475                       | 40   | 0   | 10x12.5       |
| 4.7              | 200  | HJR475M200     | 70.5475                       | 31   | 0   | 8x11          |
| 4.7              | 250  | HJR475M250     | 70.5475                       | 45   | 0   | 10x16         |
| 4.7              | 350  | HJR475M350     | 84.657                        | 45   | 0   | 10x16         |
| 4.7              | 400  | HJR475M400     | 84.657                        | 53   | 0   | 10x20         |
| 4.7              | 450  | HJR475M450     | 84.657                        | 45   | 0   | 10x16         |
| 10               | 160  | HJR106M160     | 33.1573                       | 60   | 0   | 10x16         |
| 10               | 200  | HJR106M200     | 33.1573                       | 60   | 0   | 10x12.5       |
| 10               | 250  | HJR106M250     | 33.1573                       | 78   | 0   | 10x20         |
| 10               | 350  | HJR106M350     | 39.7888                       | 66   | 0   | 10x16         |
| 10               | 400  | HJR106M400     | 39.7888                       | 73   | 0   | 10x20         |
| 10               | 450  | HJR106M450     | 39.7888                       | 86   | 0   | 12.5x20       |
| 22               | 160  | HJR226M160     | 15.0715                       | 100  | 0   | 10x16         |
| 22               | 200  | HJR226M200     | 15.0715                       | 98   | 0   | 10x16         |
| 22               | 250  | HJR226M250     | 15.0715                       | 128  | 0   | 12.5x20       |
| 22               | 350  | HJR226M350     | 18.0858                       | 139  | 0   | 12.5x25       |
| 22               | 400  | HJR226M400     | 18.0858                       | 142  | 0   | 12.5x30       |
| 22               | 450  | HJR226M450     | 18.0858                       | 154  | 0   | 16x25         |
| 33               | 160  | HJR336M160     | 10.0477                       | 132  | 0   | 10x20         |
| 33               | 200  | HJR336M200     | 10.0477                       | 157  | 0   | 12.5x20       |
| 33               | 250  | HJR336M250     | 10.0477                       | 171  | 0   | 12.5x25       |
| 33               | 350  | HJR336M350     | 12.0572                       | 189  | 0   | 16x25         |
| 33               | 400  | HJR336M400     | 12.0572                       | 189  | 0   | 16x25         |
| 33               | 450  | HJR336M450     | 12.0572                       | 203  | 0   | 16x32         |
| 47               | 50   | HJR476M050     | 4.9383                        | 0  | 245   | 8x11          |
| 47               | 63   | HJR476M063     | 4.9383                        | 0  | 245   | 8x11          |
| 47               | 160  | HJR476M160     | 7.0547                        | 187  | 0   | 12.5x20       |
| 47               | 200  | HJR476M200     | 7.0547                        | 204  | 0   | 12.5x25       |
| 47               | 250  | HJR476M250     | 7.0547                        | 225  | 0   | 16x25         |

| Capacitance (µF) | WVDC | IC PART NUMBER | Maximum ESR (Ω) 120 Hz, +20°C | Maximum RMS Ripple Current (mA) 120 Hz, +125°C | Maximum RMS Ripple Current (mA) 100 kHz, +125°C | Dims DxL (mm) |
|------------------|------|----------------|-------------------------------|--|---|---------------|
| 47               | 350  | HJR476M350     | 8.4657                        | 243  | 0   | 16x32         |
| 47               | 400  | HJR476M400     | 8.4657                        | 243  | 0   | 16x32         |
| 68               | 160  | HJR686M160     | 4.8761                        | 245  | 0   | 12.5x25       |
| 68               | 200  | HJR686M200     | 4.8761                        | 250  | 0   | 16x20         |
| 68               | 250  | HJR686M250     | 4.8761                        | 292  | 0   | 16x32         |
| 100              | 25   | HJR107M025     | 2.321                         | 0  | 340   | 8x11          |
| 100              | 35   | HJR107M035     | 1.9894                        | 0  | 340   | 10x12.5       |
| 100              | 50   | HJR107M050     | 2.321                         | 0  | 415   | 10x12.5       |
| 100              | 63   | HJR107M063     | 2.321                         | 0  | 455   | 10x15         |
| 100              | 160  | HJR107M160     | 3.3157                        | 329  | 0   | 16x25         |
| 100              | 200  | HJR107M200     | 3.3157                        | 329  | 0   | 16x25         |
| 150              | 160  | HJR157M160     | 2.2105                        | 434  | 0   | 16x32         |
| 220              | 10   | HJR227M010     | 1.4318                        | 0  | 340   | 8x11          |
| 220              | 16   | HJR227M016     | 1.2057                        | 0  | 340   | 8x11          |
| 220              | 25   | HJR227M025     | 1.055                         | 0  | 500   | 10x12.5       |
| 220              | 35   | HJR227M035     | 0.9043                        | 0  | 500   | 10x16         |
| 220              | 50   | HJR227M050     | 1.055                         | 0  | 491   | 10x20         |
| 220              | 63   | HJR227M063     | 1.055                         | 0  | 665   | 12.5x20       |
| 330              | 10   | HJR337M010     | 0.9545                        | 0  | 500   | 10x12.5       |
| 330              | 16   | HJR337M016     | 0.8038                        | 0  | 500   | 10x12.5       |
| 330              | 25   | HJR337M025     | 0.7033                        | 0  | 630   | 10x16         |
| 330              | 35   | HJR337M035     | 0.6029                        | 0  | 770   | 10x20         |
| 330              | 50   | HJR337M050     | 0.7033                        | 0  | 665   | 12.5x20       |
| 330              | 63   | HJR337M063     | 0.7033                        | 0  | 995   | 12.5x25       |
| 470              | 10   | HJR477M010     | 0.6702                        | 0  | 630   | 10x16         |
| 470              | 16   | HJR477M016     | 0.5644                        | 0  | 770   | 10x20         |
| 470              | 25   | HJR477M025     | 0.4938                        | 0  | 770   | 10x20         |
| 470              | 35   | HJR477M035     | 0.4233                        | 0  | 920   | 12.5x20       |
| 470              | 50   | HJR477M050     | 0.4938                        | 0  | 995   | 12.5x25       |
| 470              | 63   | HJR477M063     | 0.4938                        | 0  | 1000  | 16x25         |
| 1000             | 10   | HJR108M010     | 0.315                         | 0  | 770   | 10x20         |
| 1000             | 16   | HJR108M016     | 0.2653                        | 0  | 920   | 12.5x20       |
| 1000             | 25   | HJR108M025     | 0.2321                        | 0  | 1250  | 12.5x25       |
| 1000             | 35   | HJR108M035     | 0.1989                        | 0  | 1380  | 16x25         |
| 1000             | 50   | HJR108M050     | 0.2321                        | 0  | 1280  | 16x32         |
| 2200             | 10   | HJR228M010     | 0.1432                        | 0  | 1250  | 12.5x25       |
| 2200             | 16   | HJR228M016     | 0.1206                        | 0  | 1380  | 16x25         |
| 2200             | 25   | HJR228M025     | 0.1055                        | 0  | 1450  | 16x32         |
| 3300             | 10   | HJR338M010     | 0.0955                        | 0  | 1380  | 16x25         |
| 3300             | 16   | HJR338M016     | 0.0804                        | 0  | 1450  | 16x32         |
| 4700             | 10   | HJR478M010     | 0.067                         | 0  | 1450  | 16x32         |
| 4700             | 16   | HJR478M016     | 0.0564                        | 0  | 1720  | 18x32         |