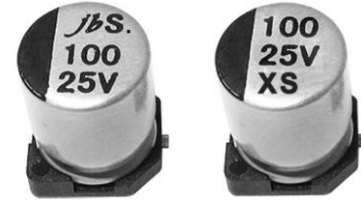


# SMD Aluminum Electrolytic Capacitor – JCS

## FEATURES

- Designed for surface mounting on high density circuit board.
- Emboss carrier tape packing system is available for automatic insertion.



## SPECIFICATIONS

|                       |   |
|-----------------------|---|
| Operating Temperature | -40°C ~ +85°C   |
| Voltage Range         | 4V ~ 100V.DC  |
| Capacitance Range     | 0.1 ~ 10000 μF  |
| Capacitance Tolerance | ±20% at 120Hz, 20°C   |
| Leakage Current       | Leakage current (Φ4~Φ10) ≤0.01CV or 3μA, whichever is greater (After 2 minutes application of rated voltage)<br>Leakage current (Φ12.5) ≤0.03CV or 4μA, whichever is greater (After 1 minutes application of rated voltage) |

Dissipation Factor (Tan δ)

Measurement Frequency: 120Hz, Temperature: 20°C

| Rated Voltage (V) |        | 4    | 6.3  | 10   | 16   | 25   | 35   | 50   | 63   | 100  |
|-------------------|--------|------|------|------|------|------|------|------|------|------|
| Tan δ (Max.)      | Φ4~Φ10 | 0.35 | 0.30 | 0.24 | 0.20 | 0.16 | 0.14 | 0.14 | 0.12 | 0.10 |
|                   | Φ12.5  | 0.42 | 0.38 | 0.34 | 0.30 | 0.26 | 0.22 | 0.18 | 0.14 | 0.10 |

Stability At Low Temp.

Measurement Frequency: 120Hz

| Rated Voltage (V)             |        | 4                 | 6.3 | 10 | 16 | 25 | 35 | 50~100 |
|-------------------------------|--------|-------------------|-----|----|----|----|----|--------|
| Impedance Ratio ZT/Z20 (Max.) | Φ4~Φ10 | Z(-25°C)/ Z(20°C) | 7   | 4  | 3  | 2  | 2  | 2      |
|                               |        | Z(-40°C)/ Z(20°C) | 15  | 8  | 6  | 4  | 4  | 3      |
|                               | Φ12.5  | Z(-25°C)/ Z(20°C) | 7   | 5  | 4  | 3  | 2  | 2      |
|                               |        | Z(-40°C)/ Z(20°C) | 17  | 12 | 10 | 8  | 5  | 4      |

Load Life

After 2000 hours application of rated voltage at 85°C, Capacitors meet the characteristics requirements listed below.

|                    |  |
|--------------------|--|
| Capacitance Change | Within ± 20% of initial value (Within ± 30% of initial value for 4V) |
| Dissipation Factor | 200% or less of initial specified value                              |
| Leakage Current    | Initial specified value or less                                      |

Shelf Life

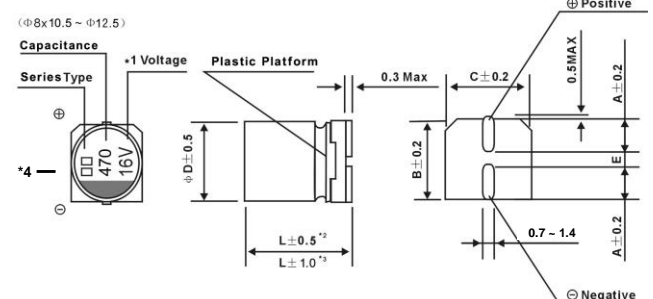
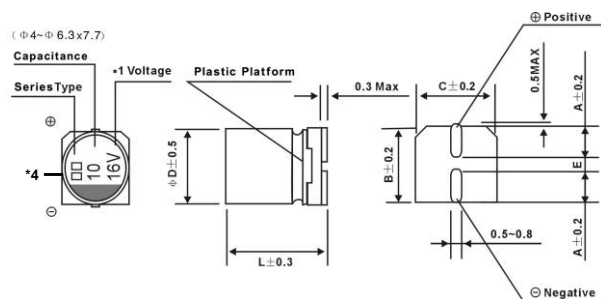
After leaving capacitors under no load at 85°C for 1000 hours, They meet the specified value for load life characteristics listed above.

Resistance to Soldering Heat

After reflow soldering and restored at room temperature, they meet the characteristics listed below.

|                    |                                 |
|--------------------|---------------------------------|
| Capacitance Change | Within ± 10% of initial value   |
| Dissipation Factor | Initial specified value or less |
| Leakage Current    | Initial specified value or less |

## DRAWING (Unit: mm)



\*1 Voltage mark for 6.3V is [6V] or [6.3V]  
\*4 Surface Marking Types: jbs, js, CS, XS

\*2 Applicable to Φ8x10.5~Φ10x10.5 \*3 Applicable to Φ10x13.5~Φ12.5 (mm)

| ΦDxL | 4x5.4   | 5x5.4   | 6.3x5.4 | 6.3x7.7 | 8x6.5   | 8x10.5  | 10x10.5 | 10x13.5 | 12.5x13.5 |
|------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|
| A    | 1.8     | 2.1     | 2.4     | 2.4     | 3.3     | 2.9     | 3.2     | 3.2     | 4.7       |
| B    | 4.3     | 5.3     | 6.6     | 6.6     | 8.3     | 8.3     | 10.3    | 10.3    | 13.0      |
| C    | 4.3     | 5.3     | 6.6     | 6.6     | 8.3     | 8.3     | 10.3    | 10.3    | 13.0      |
| E    | 1.0±0.2 | 1.3±0.2 | 2.2±0.2 | 2.2±0.2 | 3.1±0.2 | 3.1±0.2 | 4.4±0.2 | 4.4±0.2 | 4.8±0.6   |
| L    | 5.4     | 5.4     | 5.4     | 7.7     | 6.5     | 10.5    | 10.5    | 13.5    | 13.5      |

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# SMD Aluminum Electrolytic Capacitor – JCS

## FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT

| Coefficient | Frequency |              | 50Hz | 120Hz | 300Hz | 1KHz | 10KHz~ |
|-------------|-----------|--------------|------|-------|-------|------|--------|
|             | Φ4~Φ10    | 0.1~68μF     | 0.70 | 1.00  | 1.17  | 1.36 | 1.50   |
|             |           | 100~3300μF   | 0.85 | 1.00  | 1.08  | 1.20 | 1.30   |
| Φ12.5       |           | ~68μF        | 0.75 | 1.00  | 1.35  | 1.57 | 2.00   |
|             |           | 100~680μF    | 0.8  | 1.00  | 1.23  | 1.34 | 1.50   |
|             |           | 1000~10000μF | 0.85 | 1.00  | 1.10  | 1.13 | 1.15   |

## STANDARD SIZE

| WV       |     | 4                  |            | 6.3                         |                   | 10                           |                   | 16                              |                   | 25                   |                |
|----------|-----|--------------------|------------|-----------------------------|-------------------|------------------------------|-------------------|---------------------------------|-------------------|----------------------|----------------|
| Cap.(μF) |     | 0G                 |            | 0J                          |                   | 1A                           |                   | 1C                              |                   | 1E                   |                |
| 4.7      | 4R7 | --                 | --         | --                          | --                | --                           | --                | --                              | --                | 4x5.4                | 13             |
| 10       | 100 | --                 | --         | --                          | --                | --                           | --                | 4x5.4                           | 18                | 4x5.4<br>5x5.4       | 14<br>20       |
| 15       | 150 | --                 | --         | --                          | --                | --                           | --                | 4x5.4                           | 25                | 5x5.4                | 27             |
| 22       | 220 | --                 | --         | 4x5.4                       | 20                | 4x5.4<br>5x5.4               | 20<br>25          | 4x5.4<br>5x5.4                  | 20<br>27          | 5x5.4<br>6.3x5.4     | 25<br>36       |
| 33       | 330 | 4x5.4              | 18         | 4x5.4<br>5x5.4              | 22<br>27          | 4x5.4<br>5x5.4               | 22<br>30          | 5x5.4<br>6.3x5.4                | 28<br>31          | 5x5.4<br>6.3x5.4     | 29<br>44       |
| 47       | 470 | 4x5.4              | 24         | 4x5.4<br>5x5.4              | 23<br>30          | 4x5.4<br>5x5.4<br>6.3x5.4    | 25<br>30<br>49    | 5x5.4<br>6.3x5.4                | 30<br>48          | 6.3x5.4<br>8x6.5     | 48<br>80       |
| 56       | 560 | 4x5.4              | 27         | 5x5.4                       | 32                | 6.3x5.4                      | 40                | 6.3x5.4                         | 52                | 6.3x5.4              | 48             |
| 68       | 680 | 5x5.4              | 31         | 5x5.4<br>6.3x5.4            | 41<br>43          | 6.3x5.4                      | 50                | 6.3x5.4                         | 56                | 6.3x5.4              | 50             |
| 100      | 101 | 5x5.4<br>6.3x5.4   | 43<br>50   | 5x5.4<br>6.3x5.4            | 40<br>50          | 5x5.4<br>6.3x5.4             | 40<br>53          | 6.3x5.4<br>8x6.5                | 60<br>100         | 6.3x5.4<br>6.3x7.7   | 80<br>91       |
| 150      | 151 | 6.3x5.4            | 52         | 6.3x5.4                     | 55                | 6.3x5.4                      | 62                | 6.3x7.7<br>8x6.5                | 80<br>120         | 6.3x7.7<br>8x10.5    | 100<br>140     |
| 220      | 221 | 6.3x5.4            | 57         | 6.3x5.4<br>6.3x7.7          | 67<br>105         | 6.3x5.4<br>6.3x7.7<br>8x6.5  | 67<br>88<br>105   | 6.3x7.7<br>8x6.5<br>8x10.5      | 86<br>105<br>150  | 8x10.5<br>10x7.7     | 175<br>160     |
| 330      | 331 | 6.3x7.7            | 100        | 6.3x7.7<br>8x6.5            | 105<br>105        | 6.3x7.7<br>8x10.5            | 135<br>195        | 8x10.5<br>10x7.7                | 195<br>175        | 8x10.5<br>10x10.5    | 220<br>220     |
| 470      | 471 | 6.3x7.7<br>8x6.5   | 105<br>105 | 6.3x7.7<br>8x10.5           | 120<br>230        | 6.3x7.7<br>8x10.5<br>10x10.5 | 120<br>210<br>232 | 8x10.5<br>10x10.5               | 270<br>280        | 10x10.5              | 280            |
| 680      | 681 | 8x10.5             | 210        | 8x10.5                      | 230               | 8x10.5<br>10x10.5            | 230<br>270        | 10x10.5                         | 315               | 10x10.5<br>10x13.5   | 245<br>400     |
| 1000     | 102 | 8x10.5<br>10x7.7   | 230<br>230 | 8x10.5<br>10x7.7<br>10x10.5 | 290<br>230<br>315 | 8x10.5<br>10x10.5            | 290<br>315        | 10x10.5<br>10x13.5<br>12.5x13.5 | 315<br>390<br>500 | 10x13.5<br>12.5x13.5 | 430<br>580     |
| 1500     | 152 | 10x10.5            | 315        | 10x10.5<br>10x13.5          | 410<br>450        | 10x10.5<br>10x13.5           | 335<br>460        | 10x13.5<br>12.5x13.5            | 430<br>550        | --                   | --             |
| 2200     | 222 | 10x10.5<br>10x13.5 | 340<br>440 | 10x13.5<br>12.5x13.5        | 500<br>620        | 12.5x13.5                    | 680               | --                              | --                | --                   | --             |
| 3300     | 332 | 10x13.5            | 490        | 12.5x13.5                   | 660               | --                           | --                | --                              | --                | --                   | --             |
| 4700     | 472 | 12.5x13.5          | 600        | --                          | --                | --                           | --                | --                              | --                | Case Size            | Ripple Current |

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## SMD Aluminum Electrolytic Capacitor – JCS

### STANDARD SIZE

| WV<br>Cap.(μF) |     | 35                              |                   | 50                                    |                        | 63                              |                   | 100                             |                   |
|----------------|-----|---------------------------------|-------------------|---------------------------------------|------------------------|---------------------------------|-------------------|---------------------------------|-------------------|
|                |     | 1V                              |                   | 1H                                    |                        | 1J                              |                   | 2A                              |                   |
| 0.1            | 0R1 | --                              | --                | 4x5.4                                 | 2                      | 4x5.4                           | 2                 | --                              | --                |
| 0.22           | R22 | --                              | --                | 4x5.4                                 | 4                      | 4x5.4                           | 4                 | --                              | --                |
| 0.33           | R33 | --                              | --                | 4x5.4                                 | 4                      | 4x5.4                           | 4                 | --                              | --                |
| 0.47           | R47 | --                              | --                | 4x5.4                                 | 5                      | 4x5.4                           | 5                 | --                              | --                |
| 1              | 010 | --                              | --                | 4x5.4                                 | 8                      | 4x5.4                           | 8                 | 4x5.4                           | 8                 |
| 1.5            | 1R5 | --                              | --                | 4x5.4                                 | 9                      | 4x5.4                           | 9                 | 6.3x5.4                         | 12                |
| 2.2            | 2R2 | --                              | --                | 4x5.4                                 | 11                     | 4x5.4                           | 11                | 5x5.4<br>6.3x5.4                | 12<br>14          |
| 3.3            | 3R3 | 4x5.4                           | 13                | 4x5.4                                 | 12                     | 5x5.4<br>6.3x5.4                | 12<br>30          | 6.3x5.4<br>6.3x7.7<br>8x6.5     | 23<br>32<br>30    |
| 4.7            | 4R7 | 4x5.4                           | 15                | 4x5.4<br>5x5.4                        | 14<br>19               | 5x5.4<br>6.3x5.4                | 18<br>23          | 5x5.4<br>6.3x5.4<br>6.3x7.7     | 15<br>21<br>35    |
| 10             | 100 | 4x5.4<br>5x5.4                  | 18<br>25          | 5x5.4<br>6.3x5.4                      | 20<br>28               | 6.3x5.4<br>6.3x7.7<br>8x6.5     | 24<br>39<br>25    | 6.3x5.4<br>6.3x7.7<br>8x10.5    | 25<br>35<br>77    |
| 22             | 220 | 5x5.4<br>6.3x5.4                | 34<br>29          | 6.3x5.4<br>6.3x7.7<br>8x6.5           | 42<br>51<br>70         | 6.3x7.7<br>8x6.5<br>8x10.5      | 48<br>55<br>98    | 8x10.5<br>10x10.5               | 84<br>126         |
| 33             | 330 | 6.3x5.4<br>8x6.5                | 46<br>85          | 6.3x5.4<br>6.3x7.7<br>8x6.5           | 60<br>60<br>70         | 8x10.5                          | 112               | 10x10.5                         | 133               |
| 47             | 470 | 6.3x5.4<br>6.3x7.7<br>8x6.5     | 55<br>78<br>85    | 6.3x7.7<br>8x6.5<br>8x10.5<br>10x10.5 | 63<br>85<br>119<br>170 | 8x10.5<br>10x10.5               | 119<br>160        | 10x10.5<br>10x13.5<br>12.5x13.5 | 140<br>160<br>250 |
| 56             | 560 | 6.3x7.7                         | 65                | 6.3x7.7                               | 90                     | 10x10.5                         | 210               | --                              | --                |
| 68             | 680 | 6.3x7.7<br>8x6.5                | 69<br>90          | 8x6.5<br>8x10.5                       | 70<br>110              | 10x10.5<br>10x13.5              | 140<br>160        | 10x13.5<br>12.5x13.5            | 180<br>300        |
| 100            | 101 | 6.3x7.7<br>8x10.5<br>10x7.7     | 80<br>80<br>160   | 8x10.5<br>10x10.5<br>10x7.7           | 145<br>175<br>160      | 10x10.5<br>10x13.5<br>12.5x13.5 | 196<br>210<br>270 | 12.5x13.5                       | 380               |
| 150            | 151 | 8x10.5                          | 175               | 10x10.5                               | 200                    | 10x13.5                         | 225               | --                              | --                |
| 220            | 221 | 8x10.5<br>10x10.5               | 185<br>250        | 10x10.5<br>10x13.5                    | 220<br>280             | 12.5x13.5                       | 470               | --                              | --                |
| 330            | 331 | 10x10.5<br>10x13.5              | 300<br>330        | 10x13.5<br>12.5x13.5                  | 295<br>420             | --                              | --                | --                              | --                |
| 470            | 471 | 10x10.5<br>10x13.5<br>12.5x13.5 | 310<br>375<br>520 | 12.5x13.5                             | 470                    | --                              | --                | --                              | --                |
| 680            | 681 | 12.5x13.5                       | 530               | --                                    | --                     | --                              | --                | Case size                       | Allowable ripple  |

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