

# ALUMINUM ELECTROLYTIC CAPACITORS

Suntan®

CHIP TYPE SERIES

# TS13CA

## FEATURES

- 105°C 3,000 to 5,000hours
- Solvent proof (within 2 minutes)

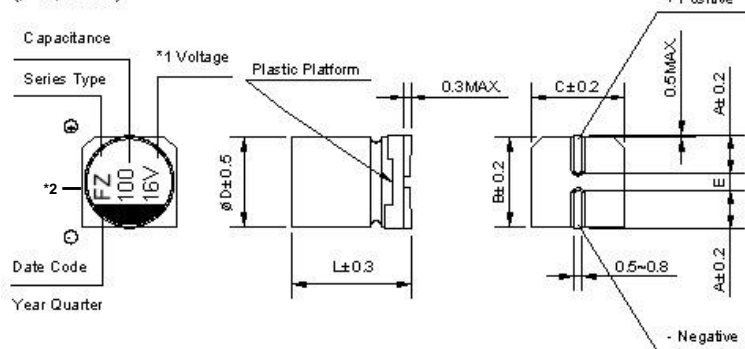


## ◆ Specifications

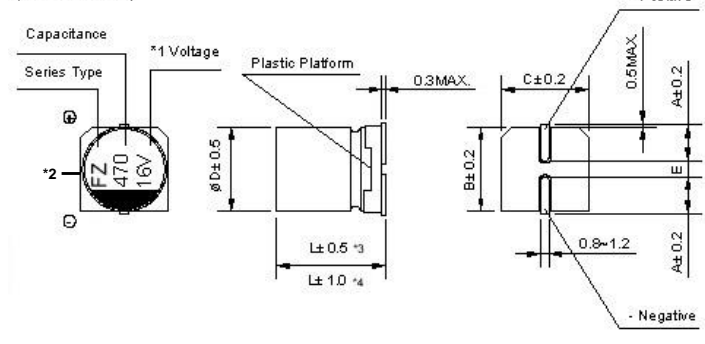
| I T E M S                          |   | C o n d i t i o n |         | S p e c i f i c a t i o n s                                       |      |      |      |      |      |      |      |      |
|------------------------------------|---|-------------------|---------|---|------|------|------|------|------|------|------|------|
| Rated voltage (V)                  | -   | -                 | -       | 6.3   | 10   | 16   | 25   | 35   | 50   | 63   | 80   | 100  |
| Surge voltage (V)                  | Room temperature  | -                 | -       | 8.0   | 13   | 20   | 32   | 44   | 63   | 79   | 100  | 125  |
| Category temperature range (°C)    | -   | -                 | -       | -55 to +105   |      |      |      |      |      |      |      |      |
| Capacitance tolerance (%)          | 120Hz/20°C  | -                 | -       | M : ±20   |      |      |      |      |      |      |      |      |
| Dissipation Factor (Tan δ)         | tanδ (max) 120Hz/20°C                                       | φ4 to φ10         | -       | 0.24  | 0.20 | 0.18 | 0.16 | 0.14 | 0.12 | 0.12 | 0.12 | 0.12 |
|                                    |   | φ12.5 to φ16      | -       | 0.28  | 0.24 | 0.20 | 0.18 | 0.16 | 0.14 | 0.14 | 0.14 | 0.14 |
|                                    |   |                   |         | Exceeding 1,000μF, +0.02 every 1,000μF                            |      |      |      |      |      |      |      |      |
| Leakage current (LC)               | μA/after 2minutes (max)                                     | -                 | -       | The greater value of either 0.01CV or 3μA                         |      |      |      |      |      |      |      |      |
| Impedance ratio at low temperature | Based on the value at 120Hz, +20°C                          | -25°C             | Z/Z20°C | 3   | 3    | 3    | 3    | 3    | 3    | 2    | 2    | 2    |
|                                    |   | -55°C             | Z/Z20°C | 4   | 4    | 4    | 3    | 3    | 3    | 3    | 3    | 3    |
| Endurance                          | 105°C rated voltage applied (With the rated ripple current) | Test              | -       | φ4 to φ6.3, φ10×7.7 and φ8×6.5: 3,000hours, φ8 to φ16: 5,000hours |      |      |      |      |      |      |      |      |
|                                    |   | ΔC/C              | -       | Within ±30% of the initial value                                  |      |      |      |      |      |      |      |      |
|                                    |   | tanδ              | -       | Less than 300% of the specified value                             |      |      |      |      |      |      |      |      |
|                                    |   | LC                | -       | Less than the specified value                                     |      |      |      |      |      |      |      |      |

## ◆ Chip type

(φ4~φ8x6.2)



(φ8x10.5~φ16)



\*3 [L±0.5] is applicable to φ8×10.5~φ10; \*4 [L±1.0] is applicable to φ12.5~φ16.

\*1 Voltage mark for 6.3V is [6V] or [6.3V]

Re: Date code and series type-  
1<sup>st</sup> digit for ear;  
2<sup>nd</sup> digit for Quarter, 4 quarter codes in one year are 1.4.7.0;  
3<sup>rd</sup> character for Series, TS13CA series=F

\*2 Markings: SuA, SA, FZ

| ØDxL | 4x5.8 | 5x5.8 | 6.3x5.8/7.7 | 8 x6.5/10.5 | 10x7.7 | 10x10.5/13.5 | 12.5 x13.5/16 | 16 x16.5 |
|------|-------|-------|-------------|-------------|--------|--------------|---------------|----------|
| A    | 1.8   | 2.1   | 2.4         | 3.3         | 3.2    | 3.2          | 4.7           | 5.5      |
| B    | 4.3   | 5.3   | 6.6         | 8.3         | 10.3   | 10.3         | 13            | 17       |
| C    | 4.3   | 5.3   | 6.6         | 8.3         | 10.3   | 10.3         | 13            | 17       |
| E    | 1.0   | 1.3   | 2.2         | 3.1         | 4.4    | 4.4          | 4.4           | 6.4      |
| L    | 5.8   | 5.8   | 5.8/7.7     | 6.5/10.5    | 7.7    | 10.5/13.5    | 13.5/16       | 16.5     |

# TS13CA

◆ Standard size & Maximum permissible ripple current & Impedance

| WV/V<br>Cap/ $\mu$ F |     | 6.3                |                |              | 10                 |                |              | 16                    |   |  |
|----------------------|-----|--------------------|----------------|--------------|--------------------|----------------|--------------|-----------------------|---|--|
|                      |     | 0J                 |                |              | 1A                 |                |              | 1C                    |   |  |
| 4.7                  | 4R7 | --                 | --             | --           | --                 | --             | --           | --                    | --  | --   |
| 10                   | 100 | --                 | --             | --           | --                 | --             | --           | --                    | --  | --   |
| 15                   | 150 | --                 | --             | --           | --                 | --             | --           | 4×5.8                 | 1.45  | 90   |
| 22                   | 220 | --                 | --             | --           | 4×5.8              | 1.45           | 90           | 5×5.8                 | 0.76  | 170  |
| 27                   | 270 | 4×5.8              | 1.45           | 90           | 5×5.8              | 0.76           | 170          | 5×5.8                 | 0.76  | 170  |
| 33                   | 330 | 5×5.8              | 0.76           | 170          | 5×5.8              | 0.76           | 170          | 6.3×5.8               | 0.44  | 250  |
| 47                   | 470 | 5×5.8              | 0.76           | 170          | 6.3×5.8            | 0.44           | 250          | 6.3×5.8               | 0.44  | 250  |
| 56                   | 560 | 5×5.8              | 0.76           | 170          | 6.3×5.8            | 0.44           | 250          | 6.3×5.8               | 0.44  | 250  |
| 68                   | 680 | 6.3×5.8            | 0.44           | 250          | 6.3×5.8            | 0.44           | 250          | 6.3×5.8               | 0.44  | 250  |
| 100                  | 101 | 5×5.8<br>(6.3×5.8) | 0.76<br>(0.44) | 170<br>(250) | 6.3×5.8            | 0.44           | 250          | 6.3×5.8               | 0.44  | 250  |
| 150                  | 151 | 6.3×5.8            | 0.44           | 250          | 6.3×5.8            | 0.44           | 250          | 6.3×7.7<br>(8×6.5)    | 0.34<br>(0.34)                                      | 300<br>(300)   |
| 220                  | 221 | 6.3×5.8            | 0.44           | 250          | 6.3×7.7<br>(8×6.5) | 0.34<br>(0.34) | 300<br>(300) | 6.3×7.7               | 0.34  | 300  |
| 330                  | 331 | 6.3×7.7<br>(8×6.5) | 0.30<br>(0.34) | 300<br>(300) | 8×10.5             | 0.17           | 600          | 8×10.5<br>(10×7.7)    | 0.17<br>(0.17)                                      | 600<br>(600)   |
| 470                  | 471 | 8×10.5             | 0.17           | 600          | 8×10.5<br>(10×7.7) | 0.17<br>(0.17) | 600<br>(600) | 8×10.5                | 0.17  | 600  |
| 680                  | 681 | 8×10.5<br>(10×7.7) | 0.17<br>(0.17) | 600<br>(600) | 10×10.5            | 0.09           | 850          | 10×10.5               | 0.09  | 850  |
| 1000                 | 102 | 8×10.5             | 0.17           | 600          | 10×10.5            | 0.09           | 850          | Case<br>size:φD×L(mm) | Impedance<br>( $\Omega$ ) max at<br>100kHz,<br>20°C | Rated ripple<br>current<br>mA rms(100k<br>Hz, 105°C) |
| 1500                 | 152 | 10×10.5            | 0.09           | 850          | --                 | --             | --           |                       |   |  |

| WV/V<br>Cap/ $\mu$ F |     | 25                 |                |              | 35                  |                |              | 50                    |   |  |
|----------------------|-----|--------------------|----------------|--------------|---------------------|----------------|--------------|-----------------------|---|--|
|                      |     | 1E                 |                |              | 1V                  |                |              | 1H                    |   |  |
| 4.7                  | 4R7 | --                 | --             | --           | 4×5.8               | 1.45           | 90           | 4×5.8                 | 2.90  | 60   |
| 10                   | 100 | 4×5.8              | 1.45           | 90           | 5×5.8               | 0.76           | 170          | 6.3×5.8               | 0.88  | 165  |
| 15                   | 150 | 5×5.8              | 0.76           | 170          | 5×5.8               | 0.76           | 170          | --                    | --  | --   |
| 22                   | 220 | 5×5.8              | 0.76           | 170          | 5×5.8               | 0.76           | 170          | 6.3×5.8               | 0.88  | 165  |
| 27                   | 270 | 6.3×5.8            | 0.44           | 250          | 6.3×5.8             | 0.44           | 250          | 6.3×7.7               | 0.68  | 195  |
| 33                   | 330 | 6.3×5.8            | 0.44           | 250          | 6.3×5.8             | 0.44           | 250          | 6.3×7.7               | 0.68  | 195  |
| 47                   | 470 | 6.3×5.8            | 0.44           | 250          | 6.3×5.8             | 0.44           | 250          | 6.3×7.7               | 0.68  | 195  |
| 56                   | 560 | 6.3×5.8            | 0.44           | 250          | 6.3×7.7             | 0.34           | 300          | 8×10.5                | 0.34  | 350  |
| 68                   | 680 | 6.3×5.8            | 0.44           | 250          | 6.3×7.7             | 0.34           | 300          | 8×10.5                | 0.34  | 350  |
| 100                  | 101 | 6.3×7.7<br>(8×6.5) | 0.34<br>(0.34) | 300<br>(300) | 6.3×7.7<br>(8×10.5) | 0.34<br>(0.17) | 300<br>(600) | 8×10.5<br>(10×7.7)    | 0.34<br>(0.34)                                      | 350<br>(330)   |
| 150                  | 151 | 8×10.5             | 0.17           | 600          | 8×10.5<br>(10×7.7)  | 0.17<br>(0.17) | 600<br>(600) | 10×10.5               | 0.18  | 670  |
| 220                  | 221 | 8×10.5<br>(10×7.7) | 0.17<br>(0.17) | 600<br>(600) | 8×10.5              | 0.17           | 600          | 10×10.5               | 0.18  | 670  |
| 330                  | 331 | 8×10.5             | 0.17           | 600          | 10×10.5             | 0.09           | 850          | Case<br>size:φD×L(mm) | Impedance<br>( $\Omega$ ) max at<br>100kHz,<br>20°C | Rated ripple<br>current<br>mA rms(100k<br>Hz, 105°C) |
| 470                  | 471 | 10×10.5            | 0.09           | 850          | --                  | --             | --           |                       |   |  |

# TS13CA

◆ Standard size & Maximum permissible ripple current & Impedance

| WV/V<br>Cap/ $\mu$ F |     | 63      |      |     | 80      |      |     | 100                       |                                       |                                  |
|----------------------|-----|---------|------|-----|---------|------|-----|---------------------------|---------------------------------------|----------------------------------|
|                      |     | 1J      |      |     | 1K      |      |     | 2A                        |                                       |                                  |
| 4.7                  | 4R7 | 5×5.8   | 1.90 | 70  | --      | --   | --  | 6.3×5.8                   | 3.00                                  | 80                               |
| 10                   | 100 | 6.3×5.8 | 1.50 | 80  | --      | --   | --  | 6.3×7.7                   | 2.40                                  | 120                              |
| 22                   | 220 | 6.3×7.7 | 1.20 | 120 | --      | --   | --  | 8×10.5                    | 1.30                                  | 130                              |
| 27                   | 270 | --      | --   | --  | 10×10.5 | 0.70 | 200 | --                        | --                                    | --                               |
| 33                   | 330 | 8×6.5   | 1.20 | 120 | --      | --   | --  | 10×10.5                   | 0.65                                  | 200                              |
| 47                   | 470 | 10×7.7  | 0.70 | 200 | 10×10.5 | 0.65 | 200 | --                        | --                                    | --                               |
| 56                   | 560 | 10×10.5 | 0.50 | 300 | --      | --   | --  | --                        | --                                    | --                               |
| 68                   | 680 | --      | --   | --  | --      | --   | --  | --                        | --                                    | --                               |
| 100                  | 101 | --      | --   | --  | --      | --   | --  | --                        | --                                    | --                               |
| 150                  | 151 | --      | --   | --  | --      | --   | --  | Case size: $\phi$ DxL(mm) | Impedance ( $\Omega$ ) max at 100kHz, | Rated ripple current mArms(100k) |
| 220                  | 221 | --      | --   | --  | --      | --   | --  |                           |                                       |                                  |

◆ Frequency coefficient Factor of Rated Ripple current

| Frequency: F(Hz)<br>Capacitance: C ( $\mu$ F) | 100≤F<1k | 1k≤F<10k | 10k≤F<100k | 100k≤F |
|---|----------|----------|------------|--------|
|   | C≤33     | 0.35     | 0.70       | 0.90   |
| 33<C≤150                                      | 0.40     | 0.85     | 0.92       | 1.00   |
| 150<C   | 0.60     | 0.85     | 0.95       | 1.00   |

Note: Specification are subject to change without notice. For more detail and update, please visit our website.