

CONDUCTIVE POLYMER ALUMINUM SOLID ELECTROLYTIC CAPACITORS

**VA/VB/VC/VE** series



**FPCAP** *NEW*



Resin-molded Chip (7.3 × 4.3 × 2.8)

- By using Functional Polymer cathode, Frequency & Temp. characteristics are greatly improved.
- Low ESR at a high frequency range. ● High ripple current capability.

〈Applications〉

Switching Power Supply and DC/DC Converter.  
Back up Power Supplies of CPU (VRM etc.)  
Miniature high Power Supply.

〈Environmental Correspondence〉

Compliant to the RoHS directive (2011/65/EU).  
The Lead-free of terminal plating.

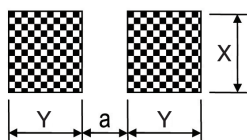
■ Specifications

| Item                          | Performance Characteristics  |   |
|-------------------------------|--|---|
| Category Temperature Range    | -55 to +105°C  |   |
| Rated Voltage Range           | 2.0 to 25V   |   |
| Rated Capacitance Range       | 15 to 330μF  |   |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C  |   |
| Tangent of loss angle (tan δ) | Less than or equal to the specified value at 120Hz, 20°C   |   |
| ESR (※1)                      | Less than or equal to the specified value at 100kHz, 20°C  |   |
| Leakage Current (※2)          | Less than or equal to the specified value. After 2 minutes' application of rated voltage at 20°C |   |
| Endurance                     | Test condition   | 105°C, rated voltage 1000Hrs.                     |
|                               | Capacitance change   | Within ±20% of initial value before test          |
|                               | tan δ  | 150% or less than the initial specified value     |
|                               | Leakage current (※2)   | Less than or equal to the initial specified value |
| Damp Heat (Steady State)      | Test condition   | 60°C, 90 to 95%RH, No Bias, 500Hrs.               |
|                               | Capacitance change   | Within +50% to -20% of initial value before test  |
|                               | tan δ  | 200% or less than the initial specified value     |
|                               | Leakage current (※2)   | 300% or less than the initial specified value     |
| Failure Rate                  | 0.5% / 1000Hrs. Max. (60%CL)   |   |

※1 ESR should be measured at both of the terminal ends closest to the capacitor body.

※2 Conditioning : If any doubt arises, measure the leakage current after the voltage treatment of applying DC rated voltage continuously to the capacitor for 120 minutes at 105°C.

■ Recommended land Size

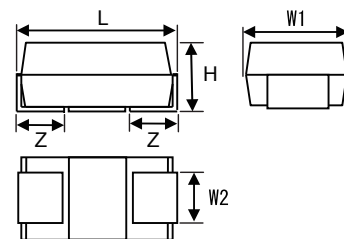


| (mm)            |     |      |     |
|-----------------|-----|------|-----|
| L × W × H       | X   | Y    | a   |
| 7.3 × 4.3 × 2.8 | 2.9 | 2.05 | 4.1 |

■ Size Code (ESR)

[Upper value : Size Code, Lower value : ESR (mΩ)]

| Cap [μF] | R.V.(V) |       | 2.0                |        | 2.5    |        | 4.0    |        | 6.3    |        | 16     |        | 25     |  |
|----------|---------|-------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
|          | S.V.(V) |       | 2.3                |        | 2.8    |        | 4.6    |        | 7.2    |        | 18.4   |        | 28.7   |  |
| series   | VB      | VC    | VE                 | VA     | VB     | VA     | VB     | VA     | VB     | VA     | VB     | VA     | VB     |  |
| 15       |         |       |                    |        |        |        |        |        |        |        |        | N (60) | N (30) |  |
| 27       |         |       |                    |        |        |        |        |        |        | N (55) | N (30) | N (60) | N (30) |  |
| 33       |         |       |                    |        |        |        |        |        |        | N (55) | N (30) |        |        |  |
| 47       |         |       |                    |        |        |        |        |        |        | N (55) | N (30) |        |        |  |
| 100      |         |       |                    |        |        |        |        | N (25) | N (15) |        |        |        |        |  |
| 150      |         |       |                    |        |        | N (18) | N (15) |        | N (15) |        |        |        |        |  |
| 220      |         |       |                    | N (18) | N (15) |        | N (15) |        |        |        |        |        |        |  |
| 330      | N (15)  | N (9) | N <sup>o</sup> (6) |        |        |        |        |        |        |        |        |        |        |  |



| Size Code | L±0.2 | W1±0.2 | W2±0.1 | H±0.2 | Z±0.2 |
|-----------|-------|--------|--------|-------|-------|
| N         | 7.3   | 4.3    | 2.4    | 2.8   | 1.3   |

※ Mass Production Plan : Dec. 2013

Design, Specifications are subject to change without notice.

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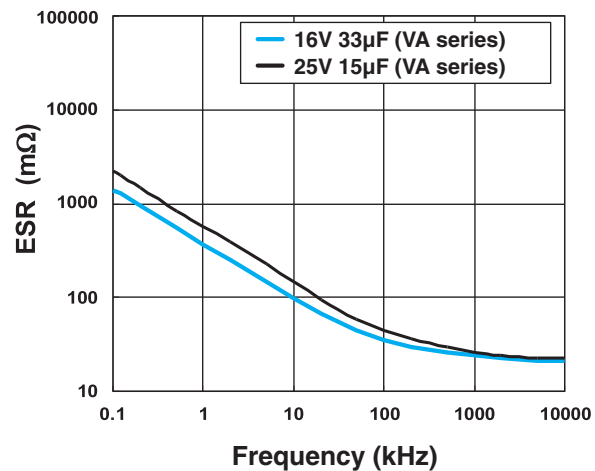
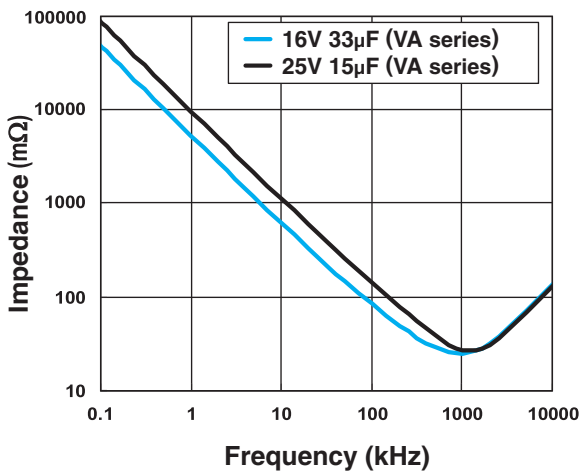
VA / VB / VC / VE series

Standard Ratings

| Rated Voltage (V) (code) | Surge Voltage (V) | Rated Capacitance (μF) | Case Size LxWxH (mm) | tan δ | Leakage Current (μA, 2min.) | ESR (mΩ, 100kHz) | Rated Ripple Current (mA rms) | NICHICON    | FPCAP            | MSL (J-STD-020D) |
|--------------------------|-------------------|------------------------|----------------------|-------|-----------------------------|------------------|-------------------------------|-------------|------------------|------------------|
| 2.0 (OD)                 | 2.3               | 330                    | 7.3x4.3x2.8          | 0.12  | 700                         | 15               | 2800                          | RVB0D331MNG | FP-2R0CM331M-VBR | Level 3          |
|                          |                   | 330                    | 7.3x4.3x2.8          | 0.12  | 700                         | 9                | 3300                          | RVC0D331MNG | FP-2R0CM331M-VCR | Level 3          |
|                          |                   | 330*                   | 7.3x4.3x2.8          | 0.12  | 700                         | 6                | 3500                          | RVE0D331MNG | FP-2R0CM331M-VER | Level 3          |
| 2.5 (OE)                 | 2.8               | 220                    | 7.3x4.3x2.8          | 0.12  | 700                         | 18               | 2600                          | RVA0E221MNG | FP-2R5CM221M-VAR | Level 3          |
|                          |                   | 220                    | 7.3x4.3x2.8          | 0.12  | 700                         | 15               | 2800                          | RVB0E221MNG | FP-2R5CM221M-VBR | Level 3          |
| 4.0 (OG)                 | 4.6               | 150                    | 7.3x4.3x2.8          | 0.12  | 700                         | 18               | 2600                          | RVA0G151MNG | FP-4R0CM151M-VAR | Level 3          |
|                          |                   | 150                    | 7.3x4.3x2.8          | 0.12  | 700                         | 15               | 2800                          | RVB0G151MNG | FP-4R0CM151M-VBR | Level 3          |
|                          |                   | 220                    | 7.3x4.3x2.8          | 0.12  | 1000                        | 15               | 2800                          | RVB0G221MNG | FP-4R0CM221M-VBR | Level 3          |
| 6.3 (OJ)                 | 7.2               | 100                    | 7.3x4.3x2.8          | 0.12  | 700                         | 25               | 2000                          | RVA0J101MNG | FP-6R3CM101M-VAR | Level 3          |
|                          |                   | 100                    | 7.3x4.3x2.8          | 0.12  | 700                         | 15               | 2800                          | RVB0J101MNG | FP-6R3CM101M-VBR | Level 3          |
|                          |                   | 150                    | 7.3x4.3x2.8          | 0.12  | 1000                        | 15               | 2800                          | RVB0J151MNG | FP-6R3CM151M-VBR | Level 3          |
| 16 (1C)                  | 18.4              | 27                     | 7.3x4.3x2.8          | 0.12  | 216                         | 55               | 1100                          | RVA1C270MNG | FP-016CM270M-VAR | Level 3          |
|                          |                   | 27                     | 7.3x4.3x2.8          | 0.12  | 216                         | 30               | 1400                          | RVB1C270MNG | FP-016CM270M-VBR | Level 3          |
|                          |                   | 33                     | 7.3x4.3x2.8          | 0.12  | 264                         | 55               | 1100                          | RVA1C330MNG | FP-016CM330M-VAR | Level 3          |
|                          |                   | 33                     | 7.3x4.3x2.8          | 0.12  | 264                         | 30               | 1400                          | RVB1C330MNG | FP-016CM330M-VBR | Level 3          |
|                          |                   | 47                     | 7.3x4.3x2.8          | 0.12  | 376                         | 55               | 1100                          | RVA1C470MNG | FP-016CM470M-VAR | Level 3          |
|                          |                   | 47                     | 7.3x4.3x2.8          | 0.12  | 376                         | 30               | 1400                          | RVB1C470MNG | FP-016CM470M-VBR | Level 3          |
| 25 (1E)                  | 28.7              | 15                     | 7.3x4.3x2.8          | 0.12  | 188                         | 60               | 1000                          | RVA1E150MNG | FP-025CM150M-VAR | Level 3          |
|                          |                   | 15                     | 7.3x4.3x2.8          | 0.12  | 188                         | 30               | 1400                          | RVB1E150MNG | FP-025CM150M-VBR | Level 3          |
|                          |                   | 27                     | 7.3x4.3x2.8          | 0.12  | 337                         | 60               | 1000                          | RVA1E270MNG | FP-025CM270M-VAR | Level 3          |
|                          |                   | 27                     | 7.3x4.3x2.8          | 0.12  | 337                         | 30               | 1400                          | RVB1E270MNG | FP-025CM270M-VBR | Level 3          |

\* Mass Production Plan : Dec. 2013.

Frequency Characteristics (The frequency characteristics are typical and not a guaranteed value.)



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