



VEC Series

Features

- 4 φ ~ 6.3 φ , 85°C, 2,000 hours assured
- Vertical chip type miniaturized for 5.5mm, high capacitors
- Low Leakage Current Lead free reflow soldering is available
- Designed for surface mounting on high density PC board
- RoHS Compliance

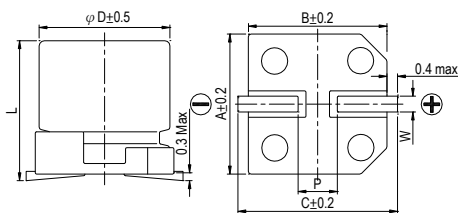


Marking color: Black

Specifications

| Items                                      | Performance  |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
|--|--|----------------|-----------|--------------------|------------------------------|--------|-----------------------------------|-----------------|------------------------|-----------------|-------------------|------|------|------|------|---|---|-------------------|---|---|---|---|---|---|
| Category Temperature Range                 | -40°C ~ +85°C  |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Capacitance Tolerance                      | ±20% (at 120Hz, 20°C)  |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Leakage Current (at 20°C)                  | I = 0.002CV or 0.5 (μA) whichever is greater (after 2 minutes)<br>Where, C = rated capacitance in μF V = rated DC working voltage in V   |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Tanδ (at 120Hz, 20°C)                      | <table border="1"> <tr> <td>Rated Voltage</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>Tanδ (max)</td> <td>0.28</td> <td>0.24</td> <td>0.20</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table>  | Rated Voltage  | 6.3       | 10                 | 16                           | 25     | 35                                | 50              | Tanδ (max)             | 0.28            | 0.24              | 0.20 | 0.14 | 0.12 | 0.10 |   |   |                   |   |   |   |   |   |   |
| Rated Voltage                              | 6.3  | 10             | 16        | 25                 | 35                           | 50     |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Tanδ (max)                                 | 0.28   | 0.24           | 0.20      | 0.14               | 0.12                         | 0.10   |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Low Temperature Characteristics (at 120Hz) | <p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <tr> <td colspan="2">Rated Voltage</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td rowspan="2">Impedance Ratio</td> <td>Z(-25°C)/Z(+20°C)</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table> | Rated Voltage  |           | 6.3                | 10                           | 16     | 25                                | 35              | 50                     | Impedance Ratio | Z(-25°C)/Z(+20°C) | 3    | 3    | 2    | 2    | 2 | 2 | Z(-40°C)/Z(+20°C) | 8 | 5 | 4 | 3 | 3 | 3 |
| Rated Voltage                              |  | 6.3            | 10        | 16                 | 25                           | 35     | 50                                |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Impedance Ratio                            | Z(-25°C)/Z(+20°C)  | 3              | 3         | 2                  | 2                            | 2      | 2                                 |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
|  | Z(-40°C)/Z(+20°C)  | 8              | 5         | 4                  | 3                            | 3      | 3                                 |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Endurance                                  | <table border="1"> <tr> <td>Test Time</td> <td>2,000 Hrs</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </table> <p>* The above Specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2,000 hours at 85°C.</p>                             | Test Time      | 2,000 Hrs | Capacitance Change | Within ±20% of initial value | Tanδ   | Less than 200% of specified value | Leakage Current | Within specified value |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Test Time                                  | 2,000 Hrs  |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Capacitance Change                         | Within ±20% of initial value   |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Tanδ                                       | Less than 200% of specified value  |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Leakage Current                            | Within specified value   |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Shelf Life Test                            | <table border="1"> <tr> <td>Test Time</td> <td>1,000 Hrs</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </table> <p>* The above Specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied.</p>                 | Test Time      | 1,000 Hrs | Capacitance Change | Within ±20% of initial value | Tanδ   | Less than 200% of specified value | Leakage Current | Within specified value |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Test Time                                  | 1,000 Hrs  |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Capacitance Change                         | Within ±20% of initial value   |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Tanδ                                       | Less than 200% of specified value  |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Leakage Current                            | Within specified value   |                |           |                    |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Ripple Current & Frequency Multipliers     | <table border="1"> <tr> <td>Frequency (Hz)</td> <td>50</td> <td>120</td> <td>1k</td> <td>10k up</td> </tr> <tr> <td>Multiplier</td> <td>0.7</td> <td>1.0</td> <td>1.3</td> <td>1.4</td> </tr> </table>   | Frequency (Hz) | 50        | 120                | 1k                           | 10k up | Multiplier                        | 0.7             | 1.0                    | 1.3             | 1.4               |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Frequency (Hz)                             | 50   | 120            | 1k        | 10k up             |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |
| Multiplier                                 | 0.7  | 1.0            | 1.3       | 1.4                |                              |        |                                   |                 |                        |                 |                   |      |      |      |      |   |   |                   |   |   |   |   |   |   |

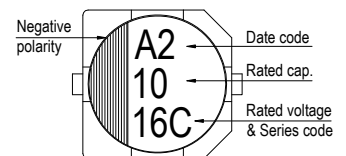
Diagram of Dimensions



Lead Spacing and Diameter Unit: mm

| φD  | L         | A   | B   | C   | W         | P ± 0.2 |
|-----|-----------|-----|-----|-----|-----------|---------|
| 4   | 5.3 ± 0.2 | 4.3 | 4.3 | 5.1 | 0.5 ~ 0.8 | 1.0     |
| 5   | 5.3 ± 0.2 | 5.3 | 5.3 | 5.9 | 0.5 ~ 0.8 | 1.5     |
| 6.3 | 5.3 ± 0.2 | 6.6 | 6.6 | 7.2 | 0.5 ~ 0.8 | 2.0     |

Marking



Dimension & Permissible Ripple Current

Dimension: φ D × L(mm)

Ripple Current: mA/rms at 120 Hz, 85°C

| V. DC | μF Contents | 6.3V (0J) |    | 10V (1A) |    | 16V (1C) |    | 25V (1E) |    | 35V (1V) |    | 50V (1H) |    |
|-------|-------------|-----------|----|----------|----|----------|----|----------|----|----------|----|----------|----|
|       |             | φ D×L     | mA | φ D×L    | mA | φ D×L    | mA | φ D×L    | mA | φ D×L    | mA | φ D×L    | mA |
| 1     | 010         |           |    |          |    |          |    |          |    |          |    | 4×5.3    | 10 |
| 2.2   | 2R2         |           |    |          |    |          |    |          |    |          |    | 4×5.3    | 15 |
| 3.3   | 3R3         |           |    |          |    |          |    |          |    |          |    | 4×5.3    | 19 |
| 4.7   | 4R7         |           |    |          |    |          |    | 4×5.3    | 19 | 4×5.3    | 20 | 5×5.3    | 26 |
| 10    | 100         |           |    | 4×5.3    | 23 | 4×5.3    | 26 | 5×5.3    | 32 | 5×5.3    | 34 | 6.3×5.3  | 44 |
| 22    | 220         | 4×5.3     | 31 | 5×5.3    | 39 | 5×5.3    | 44 | 6.3×5.3  | 55 | 6.3×5.3  | 59 |          |    |
| 33    | 330         | 5×5.3     | 44 | 5×5.3    | 48 | 6.3×5.3  | 63 | 6.3×5.3  | 67 |          |    |          |    |
| 47    | 470         | 5×5.3     | 52 | 6.3×5.3  | 67 | 6.3×5.3  | 75 |          |    |          |    |          |    |
| 100   | 101         | 6.3×5.3   | 89 | 6.3×5.3  | 98 |          |    |          |    |          |    |          |    |

Part Numbering System

|             |             |                       |               |              |               |                              |
|-------------|-------------|-----------------------|---------------|--------------|---------------|------------------------------|
| VEC series  | 10μF        | ±20%                  | 16V           | Carrier Tape | 4 φ × 5.3L    | Pb-free and PET coating case |
| <b>VEC</b>  | <b>100</b>  | <b>M</b>              | <b>1C</b>     | <b>TR</b>    | <b>-</b>      | <b>0405</b>                  |
| Series name | Capacitance | Capacitance Tolerance | Rated Voltage | Package Type | Terminal Type | Case size                    |
|             |             |                       |               |              |               | Lead Wire and Coating Type   |

Note: For more details, please refer to "Part Numbering System (SMD Type)" on page 12.

## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9