

## OVG Series

### Features

- 105°C, 15,000 hours assured
- Ultra low ESR with large permissible ripple current
- RoHS Compliance



Marking color: Blue

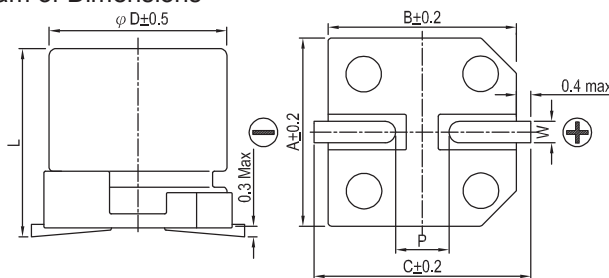
### Specifications

|                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|----------------|-----------------|--------------------|------------------------------|--------------|----------------|-----------------|--------------------|-----------------------------------|-----|-----|-----|------|-----------------------------------|--|--|--|-----------------|-----------------------------------|--|--|--|-----------------|------------------------|--|--|--|
| Items                                                                                                                                                                                                        | Performance                                                                                                                                                                                                                                                                                                                                                                                       |                                   |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Category Temperature Range                                                                                                                                                                                   | -55℃ ~ +105℃                                                                                                                                                                                                                                                                                                                                                                                      |                                   |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Capacitance Tolerance                                                                                                                                                                                        | ±20% (at 120Hz, 20℃)                                                                                                                                                                                                                                                                                                                                                                              |                                   |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Leakage Current (at 20℃)*                                                                                                                                                                                    | Rated voltage applied, after 2 minutes at 20℃.<br>See Standard Ratings                                                                                                                                                                                                                                                                                                                            |                                   |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Tanδ (at120Hz, 20℃)                                                                                                                                                                                          | See Standard Ratings                                                                                                                                                                                                                                                                                                                                                                              |                                   |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| ESR (at 100k ~ 300k Hz, 20℃)                                                                                                                                                                                 | See Standard Ratings                                                                                                                                                                                                                                                                                                                                                                              |                                   |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Endurance                                                                                                                                                                                                    | <table><tr><td>Test Time</td><td colspan="4">15,000 Hrs</td></tr><tr><td>Capacitance Change</td><td colspan="4">Within ±20% of initial value</td></tr><tr><td>Tanδ</td><td colspan="4">Less than 150% of specified value</td></tr><tr><td>ESR</td><td colspan="4">Less than 150% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="4">Within specified value</td></tr></table> |                                   |              |                |                 | Test Time          | 15,000 Hrs                   |              |                |                 | Capacitance Change | Within ±20% of initial value      |     |     |     | Tanδ | Less than 150% of specified value |  |  |  | ESR             | Less than 150% of specified value |  |  |  | Leakage Current | Within specified value |  |  |  |
|                                                                                                                                                                                                              | Test Time                                                                                                                                                                                                                                                                                                                                                                                         | 15,000 Hrs                        |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | Capacitance Change                                                                                                                                                                                                                                                                                                                                                                                | Within ±20% of initial value      |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | Tanδ                                                                                                                                                                                                                                                                                                                                                                                              | Less than 150% of specified value |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | ESR                                                                                                                                                                                                                                                                                                                                                                                               | Less than 150% of specified value |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | Leakage Current                                                                                                                                                                                                                                                                                                                                                                                   | Within specified value            |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| * The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for 15,000 hours at 105℃.                                                              |                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Moisture Resistance                                                                                                                                                                                          | <table><tr><td>Test Time</td><td colspan="4">1,000 Hrs</td></tr><tr><td>Capacitance Change</td><td colspan="4">Within ±20% of initial value</td></tr><tr><td>Tanδ</td><td colspan="4">Less than 150% of specified value</td></tr><tr><td>ESR</td><td colspan="4">Less than 150% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="4">Within specified value</td></tr></table>  |                                   |              |                |                 | Test Time          | 1,000 Hrs                    |              |                |                 | Capacitance Change | Within ±20% of initial value      |     |     |     | Tanδ | Less than 150% of specified value |  |  |  | ESR             | Less than 150% of specified value |  |  |  | Leakage Current | Within specified value |  |  |  |
|                                                                                                                                                                                                              | Test Time                                                                                                                                                                                                                                                                                                                                                                                         | 1,000 Hrs                         |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | Capacitance Change                                                                                                                                                                                                                                                                                                                                                                                | Within ±20% of initial value      |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | Tanδ                                                                                                                                                                                                                                                                                                                                                                                              | Less than 150% of specified value |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | ESR                                                                                                                                                                                                                                                                                                                                                                                               | Less than 150% of specified value |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | Leakage Current                                                                                                                                                                                                                                                                                                                                                                                   | Within specified value            |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| * The above specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them at 60℃, 90 to 95% RH for 1,000 hours. Leakage current should be tested after voltage treatment*. |                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Resistance to Soldering Heat *<br>(Please refer to page 25 for reflow soldering conditions)                                                                                                                  | <table><tr><td>Capacitance Change</td><td colspan="4">Within ±10% of initial value</td></tr><tr><td>Tanδ</td><td colspan="4">Less than 130% of specified value</td></tr><tr><td>ESR</td><td colspan="4">Less than 130% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="4">Within specified value</td></tr></table>                                                           |                                   |              |                |                 | Capacitance Change | Within ±10% of initial value |              |                |                 | Tanδ               | Less than 130% of specified value |     |     |     | ESR  | Less than 130% of specified value |  |  |  | Leakage Current | Within specified value            |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | Capacitance Change                                                                                                                                                                                                                                                                                                                                                                                | Within ±10% of initial value      |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | Tanδ                                                                                                                                                                                                                                                                                                                                                                                              | Less than 130% of specified value |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | ESR                                                                                                                                                                                                                                                                                                                                                                                               | Less than 130% of specified value |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | Leakage Current                                                                                                                                                                                                                                                                                                                                                                                   | Within specified value            |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |              |                |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Ripple Current and Frequency Multipliers                                                                                                                                                                     | <table><tr><td>Frequency (Hz)</td><td>120 ≤ f &lt; 1k</td><td>1k ≤ f &lt; 10k</td><td>10k ≤ f &lt; 100k</td><td>100k ≤ f &lt; 500k</td></tr><tr><td>Multiplier</td><td>0.05</td><td>0.3</td><td>0.7</td><td>1.0</td></tr></table>                                                                                                                                                                 |                                   |              |                |                 | Frequency (Hz)     | 120 ≤ f < 1k                 | 1k ≤ f < 10k | 10k ≤ f < 100k | 100k ≤ f < 500k | Multiplier         | 0.05                              | 0.3 | 0.7 | 1.0 |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
|                                                                                                                                                                                                              | Frequency (Hz)                                                                                                                                                                                                                                                                                                                                                                                    | 120 ≤ f < 1k                      | 1k ≤ f < 10k | 10k ≤ f < 100k | 100k ≤ f < 500k |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |
| Multiplier                                                                                                                                                                                                   | 0.05                                                                                                                                                                                                                                                                                                                                                                                              | 0.3                               | 0.7          | 1.0            |                 |                    |                              |              |                |                 |                    |                                   |     |     |     |      |                                   |  |  |  |                 |                                   |  |  |  |                 |                        |  |  |  |

\* For any doubt about measured values, measure the leakage current again after the following voltage treatment.

Voltage treatment: DC rated voltage is applied to the capacitors for 2 hours at 105°C.

### Diagram of Dimensions



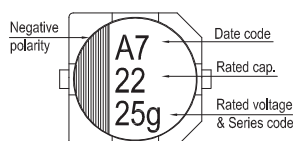
### Lead Spacing and Diameter

Unit: mm

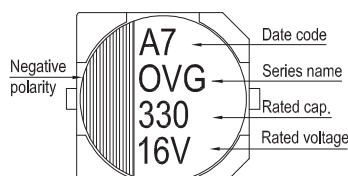
| φ D | L              | A    | B    | C    | W         | P ± 0.2 |
|-----|----------------|------|------|------|-----------|---------|
| 5   | 5.8 ± 0.3      | 5.3  | 5.3  | 5.9  | 0.5 ~ 0.8 | 1.5     |
| 6.3 | 5.8 ± 0.3      | 6.6  | 6.6  | 7.2  | 0.5 ~ 0.8 | 2.0     |
| 6.3 | 7.7 ± 0.3      | 6.6  | 6.6  | 7.2  | 0.5 ~ 0.8 | 2.0     |
| 8   | 6.7 ± 0.3      | 8.4  | 8.4  | 9.0  | 0.7 ~ 1.1 | 3.1     |
| 8   | 10.0 ± 0.5     | 8.4  | 8.4  | 9.0  | 0.7 ~ 1.1 | 3.1     |
| 10  | 7.7 ± 0.3      | 10.4 | 10.4 | 11.0 | 0.7 ~ 1.3 | 4.7     |
| 10  | 10.0 ± 0.5     | 10.4 | 10.4 | 11.0 | 0.7 ~ 1.3 | 4.7     |
| 10  | 12.6 +0.1/-0.4 | 10.4 | 10.4 | 11.0 | 0.7 ~ 1.3 | 4.7     |

### Marking

φ D = 5 ~ 6.3



φ D = 8 ~ 10





## Standard Ratings

Dimension:  $\phi D \times L$ (mm)

Ripple Current: mA/rms at 100k Hz, 105°C

| W. V. (V) | Surge Voltage (V) | Capacitance ( $\mu$ F) | Size $\phi D \times L$ (mm) | Tan $\delta$ (120Hz, 20°C) | L C ( $\mu$ A) | E S R (m $\Omega$ /at 100k ~ 300k Hz, 20°C Max) | Rated R. C. (mA/rms at 100k Hz, 105°C) |
|-----------|-------------------|------------------------|-----------------------------|----------------------------|----------------|-------------------------------------------------|----------------------------------------|
| 16V (1C)  | 18.0              | 220                    | 6.3 $\times$ 7.7            | 0.12                       | 704            | 22                                              | 3,300                                  |
|           |                   | 270                    | 8 $\times$ 6.7              | 0.12                       | 864            | 22                                              | 3,300                                  |
|           |                   | 330                    | 8 $\times$ 10               | 0.12                       | 1,050          | 21                                              | 3,400                                  |
|           |                   | 820                    | 10 $\times$ 12.6            | 0.12                       | 2,620          | 12                                              | 5,400                                  |
|           |                   | 1,000                  | 10 $\times$ 12.6            | 0.12                       | 3,200          | 12                                              | 5,400                                  |
| 20V(1D)   | 23.0              | 47                     | 5 $\times$ 5.8              | 0.12                       | 188            | 30                                              | 2,800                                  |
|           |                   | 56                     | 5 $\times$ 5.8              | 0.12                       | 224            | 30                                              | 2,800                                  |
|           |                   | 120                    | 6.3 $\times$ 5.8            | 0.12                       | 480            | 25                                              | 3,200                                  |
|           |                   | 150                    | 6.3 $\times$ 7.7            | 0.12                       | 600            | 25                                              | 3,200                                  |
|           |                   | 180                    | 8 $\times$ 6.7              | 0.12                       | 720            | 25                                              | 3,200                                  |
|           |                   | 220                    | 8 $\times$ 10               | 0.12                       | 880            | 23                                              | 3,400                                  |
|           |                   | 560                    | 10 $\times$ 10              | 0.12                       | 2,240          | 18                                              | 4,100                                  |
| 25V(1E)   | 29.0              | 22                     | 5 $\times$ 5.8              | 0.12                       | 110            | 40                                              | 2,450                                  |
|           |                   | 27                     | 5 $\times$ 5.8              | 0.12                       | 135            | 40                                              | 2,450                                  |
|           |                   | 39                     | 6.3 $\times$ 5.8            | 0.12                       | 195            | 30                                              | 2,800                                  |
|           |                   | 47                     | 6.3 $\times$ 5.8            | 0.12                       | 235            | 30                                              | 2,800                                  |
|           |                   | 56                     | 6.3 $\times$ 5.8            | 0.12                       | 280            | 30                                              | 2,800                                  |
|           |                   |                        | 6.3 $\times$ 7.7            | 0.12                       | 280            | 28                                              | 2,800                                  |
|           |                   | 68                     | 8 $\times$ 6.7              | 0.12                       | 340            | 28                                              | 3,000                                  |
|           |                   | 100                    | 8 $\times$ 10               | 0.12                       | 500            | 24                                              | 3,300                                  |
|           |                   | 120                    | 8 $\times$ 10               | 0.12                       | 600            | 22                                              | 3,500                                  |
|           |                   | 150                    | 10 $\times$ 7.7             | 0.12                       | 750            | 25                                              | 3,400                                  |
|           |                   | 220                    | 10 $\times$ 10              | 0.12                       | 1,100          | 20                                              | 3,800                                  |

## Part Numbering System

|             |             |                       |               |              |                       |                              |
|-------------|-------------|-----------------------|---------------|--------------|-----------------------|------------------------------|
| OVG Series  | 150 $\mu$ F | $\pm 20\%$            | 25V           | Carrier Tape | 10 $\phi \times 7.7L$ | Pb-free and PET coating case |
| <b>OVG</b>  | <b>151</b>  | <b>M</b>              | <b>1E</b>     | <b>TR</b>    | <b>-</b>              | <b>1008</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 15.

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

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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

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