

**GVU**

 Low Impedance, Long Life  
 Series


## Features

105°C, 5000~7000 hours assured.

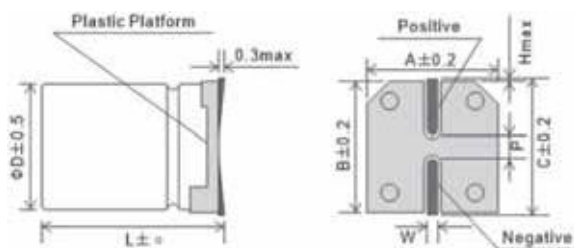
Low Impedance, High Ripple Current.

Available for high density surface mounting.

## Specifications

| Item                            | Condition                                                                |                                        | Specifications                              |      |      |      |      |      |      |      |
|---------------------------------|--------------------------------------------------------------------------|----------------------------------------|---------------------------------------------|------|------|------|------|------|------|------|
| Category Temperature Range(°C)  | —                                                                        |                                        | -55°C ~ +105°C                              |      |      |      |      |      |      |      |
| Capacitance Tolerance (%)       | 120Hz, 20°C                                                              |                                        | ±20%                                        |      |      |      |      |      |      |      |
| Rated Voltage (V)               | —                                                                        |                                        | 6.3                                         | 10   | 16   | 25   | 35   | 50   | 63   | 100  |
| Dissipation Factor (tanδ)       | 120Hz, 20°C<br>(Max.)                                                    | tanδ                                   | 0.26                                        | 0.18 | 0.16 | 0.14 | 0.12 | 0.10 | 0.10 | 0.07 |
|                                 |                                                                          | Notes                                  | Exceeding 1,000uF, +0.02 every 1,000uF      |      |      |      |      |      |      |      |
| Leakage Current (LC)            | After 2 minutes, 20°C (uA, Max.)                                         |                                        | 0.01CV or 3uA, whichever is greater.        |      |      |      |      |      |      |      |
| Low Temperature Characteristics | Impedance Ratio<br>(Max.)                                                | Z <sub>-25°C</sub> /Z <sub>+20°C</sub> | 4                                           | 3    | 2    | 2    | 2    | 2    | 2    | 2    |
|                                 |                                                                          | Z <sub>-55°C</sub> /Z <sub>+20°C</sub> | 8                                           | 5    | 4    | 3    | 3    | 3    | 3    | 3    |
| Endurance                       | 105°C,<br>Rated Voltage<br>Applied<br>(With the rated<br>ripple current) | Hours                                  | 7,000 (5,000hrs. for Ø4~Ø6.3)               |      |      |      |      |      |      |      |
|                                 |                                                                          | ΔC/C                                   | Within ±30% of initial value                |      |      |      |      |      |      |      |
|                                 |                                                                          | tanδ                                   | 300% or less of the initial specified value |      |      |      |      |      |      |      |
|                                 |                                                                          | LC                                     | The initial specified value or less         |      |      |      |      |      |      |      |
| Shelf life                      | 105°C                                                                    | Hours                                  | 1,000                                       |      |      |      |      |      |      |      |
|                                 |                                                                          | Other Items                            | same as those for the endurance.            |      |      |      |      |      |      |      |

## Dimensions



| D   | L    | A    | B    | C    | P   | α    | W       |
|-----|------|------|------|------|-----|------|---------|
| 4   | 7.0  | 4.3  | 4.3  | 5.0  | 1.0 | ±0.3 | 0.5-0.8 |
| 5   | 7.0  | 5.3  | 5.3  | 6.0  | 1.5 | ±0.3 | 0.5-0.8 |
| 6.3 | 7.0  | 6.6  | 6.6  | 7.3  | 2.0 | ±0.3 | 0.5-0.8 |
| 6.3 | 8.7  | 6.6  | 6.6  | 7.3  | 2.0 | ±0.3 | 0.5-0.8 |
| 8   | 10.5 | 8.3  | 8.3  | 9.0  | 3.1 | ±0.5 | 0.7-1.2 |
| 10  | 10.5 | 10.3 | 10.3 | 11.0 | 4.7 | ±0.5 | 0.7-1.2 |

## Rated Ripple Current Multipliers

| Frequency (Hz)<br>Capacitance (uF) | 50   | 120  | 1k   | 10k  | 100K |
|------------------------------------|------|------|------|------|------|
| Under 100                          | 0.35 | 0.50 | 0.70 | 0.90 | 1.00 |
| 100 ~ 2200uF                       | 0.40 | 0.65 | 0.85 | 0.95 | 1.00 |

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 Series

## ■ Dimensions

| uF   | WV | 6.3v(0J)          |      |      | 10v(1A)           |      |      | 16v(1C)           |      |      | 25v(1E)           |      |      | 35v(1V)           |      |      | 50v(1H)           |      |      |
|------|----|-------------------|------|------|-------------------|------|------|-------------------|------|------|-------------------|------|------|-------------------|------|------|-------------------|------|------|
|      |    | $\Phi D \times L$ | Imp. | R.C. | $\Phi D \times L$ | Imp. | R.C. | $\Phi D \times L$ | Imp. | R.C. | $\Phi D \times L$ | Imp. | R.C. | $\Phi D \times L$ | Imp. | R.C. | $\Phi D \times L$ | Imp. | R.C. |
| 1    |    |                   |      |      |                   |      |      |                   |      |      |                   |      |      |                   |      |      | 4x7.0             | 5.0  | 30   |
| 1.5  |    |                   |      |      |                   |      |      |                   |      |      |                   |      |      |                   |      |      | 4x7.0             | 5.0  | 30   |
| 2.2  |    |                   |      |      |                   |      |      |                   |      |      |                   |      |      |                   |      |      | 4x7.0             | 5.0  | 30   |
| 3.3  |    |                   |      |      |                   |      |      |                   |      |      |                   |      |      | 4x7.0             | 3.0  | 60   | 4x7.0             | 5.0  | 30   |
| 4.7  |    |                   |      |      |                   |      |      |                   |      |      |                   |      |      | 4x7.0             | 3.0  | 60   | 5x7.0             | 3.0  | 50   |
| 10   |    |                   |      |      |                   |      |      |                   |      |      | 4x7.0             | 3.0  | 60   | 4x7.0             | 3.0  | 60   | 5x7.0             | 3.0  | 50   |
| 15   |    |                   |      |      |                   |      |      | 4x7.0             | 3.0  | 60   | 4x7.0             | 3.0  | 60   | 5x7.0             | 1.8  | 95   | 6.3x7.0           | 2.0  | 70   |
| 22   |    |                   |      |      | 4x7.0             | 3.0  | 60   | 4x7.0             | 3.0  | 60   | 4x7.0             | 3.0  | 60   | 5x7.0             | 1.8  | 95   | 6.3x7.0           | 2.0  | 70   |
| 33   |    |                   |      |      | 4x7.0             | 3    | 60   | 4x7.0             | 3    | 60   | 5x7.0             | 1.8  | 95   | 6.3x7.0           | 1.0  | 140  | 6.3x8.7           | 1.1  | 120  |
| 47   |    | 4x7.0             | 3.0  | 60   | 5x7.0             | 1.8  | 95   | 5x7.0             | 1.8  | 95   | 6.3x7.0           | 1.0  | 140  | 6.3x7.0           | 1.0  | 140  | 6.3x8.7           | 1.1  | 120  |
| 56   |    | 5x7.0             | 1.8  | 95   | 5x7.0             | 1.8  | 95   | 6.3x7.0           | 1.0  | 140  | 6.3x7.0           | 1.0  | 140  | 6.3x7.0           | 1.0  | 140  | 6.3x8.7           | 1.1  | 120  |
| 68   |    | 5x7.0             | 1.8  | 95   | 5x7.0             | 1.8  | 95   | 6.3x7.0           | 1.0  | 140  | 6.3x7.0           | 1.0  | 140  | 6.3x8.7           | 0.6  | 230  | 8x10.5            | 0.6  | 300  |
| 100  |    | 5x7.0             | 1.8  | 95   | 6.3x7.0           | 1.0  | 140  | 6.3x7.0           | 1.0  | 140  | 6.3x8.7           | 0.6  | 230  | 6.3x8.7           | 0.6  | 230  | 8x10.5            | 0.6  | 300  |
| 150  |    | 6.3x7.0           | 1.0  | 140  | 6.3x7.0           | 1.0  | 140  | 6.3x7.0           | 1.0  | 140  | 6.3x8.7           | 0.6  | 230  | 8x10.5            | 0.3  | 450  | 10x10.5           | 0.3  | 500  |
| 220  |    | 6.3x7.0           | 1.0  | 140  | 6.3x8.7           | 0.6  | 230  | 6.3x8.7           | 0.6  | 230  | 8x10.5            | 0.3  | 450  | 8x10.5            | 0.3  | 450  | 10x12.5           | 0.3  | 500  |
| 330  |    | 6.3x8.7           | 0.6  | 230  | 6.3x8.7           | 0.6  | 230  | 8x10.5            | 0.3  | 450  | 10x10.5           | 0.15 | 670  | 10x10.5           | 0.15 | 670  |                   |      |      |
| 470  |    | 6.3x8.7           | 0.6  | 230  | 8x10.5            | 0.3  | 450  | 8x10.5            | 0.3  | 450  | 10x10.5           | 0.15 | 670  |                   |      |      |                   |      |      |
| 680  |    | 8x10.5            | 0.3  | 450  | 8x10.5            | 0.3  | 450  | 10x10.5           | 0.15 | 670  |                   |      |      |                   |      |      |                   |      |      |
| 1000 |    | 8x10.5            | 0.3  | 450  | 10x10.5           | 0.15 | 670  |                   |      |      |                   |      |      |                   |      |      |                   |      |      |
| 1500 |    | 10x10.5           | 0.15 | 670  |                   |      |      |                   |      |      |                   |      |      |                   |      |      |                   |      |      |

Note1: Case size  $\Phi D \times L$ (mm), ripple current (mA, rms) at 105°C, 100KHz.

Note2: Produce custom product too, which are not found in these tables.

## GVU Series

## ■ Dimensions

| uF \ WV | 63v(1J)           |             |            | 80v(1K)           |            |           | 100v(2A)          |            |            |
|---------|-------------------|-------------|------------|-------------------|------------|-----------|-------------------|------------|------------|
|         | $\Phi D \times L$ | Imp.        | R.C.       | $\Phi D \times L$ | Imp.       | R.C.      | $\Phi D \times L$ | Imp.       | R.C.       |
| 4.7     | 5x7               | 3.0         | 50         |                   |            |           |                   |            |            |
| 10      | 6.3x7<br>6.3x8.7  | 1.5<br>1.2  | 80<br>120  | 6.3x7<br>6.3x8.7  | 3.0<br>2.4 | 40<br>60  | 6.3x8.7           | 2.4        | 60         |
| 22      | 6.3x8.7           | 1.2         | 120        | 6.3x8.7<br>8x10.5 | 2.4<br>1.5 | 60<br>110 | 8x10.5            | 1.5        | 110        |
| 33      | 6.3x8.7<br>8x10.5 | 1.2<br>0.65 | 120<br>250 | 8x10.5            | 1.5        | 110       | 8x10.5<br>10x10.5 | 1.5<br>0.8 | 110<br>170 |
| 47      | 8x10.5            | 0.65        | 250        | 8x10.5            | 1.5        | 110       | 10x10.5           | 0.8        | 170        |
| 56      | 8x10.5            | 0.65        | 250        | 10x10.5           | 0.8        | 170       | 10x10.5           | 0.8        | 170        |
| 68      | 8x10.5            | 0.65        | 250        | 10x10.5           | 0.8        | 170       |                   |            |            |
| 82      | 10x10.5           | 0.35        | 400        | 10x10.5           | 0.8        | 170       |                   |            |            |
| 100     | 10x10.5           | 0.35        | 400        |                   |            |           |                   |            |            |

Note1: Case size  $\Phi D \times L$ (mm), ripple current (mA, rms) at 105°C, 100KHz.

Note2: Produce custom product too, which are not found in these tables.