

### Conductive Polymer Hybrid Capacitors

GREEN  
CAP

SMD

Low  
ESR

105°C  
10000hours

- Low ESR and high ripple current are realized.
- HT is resist to vibration. (30G guaranteed)
- Equivalent to conductive polymer type Aluminum Electrolytic Capacitor.  
(There are little characteristics change by temperature and frequency)
- Guaranteed 105°C, 10000 hours.



Marking color : Blue print

### Specifications

| Item                                           | Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                             |      |      |      |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------|------|------|------|------|------|------|-----|------------------------|---------------|----|----|----|----|-----|----|----|-----|-----------------|-------------------------------------|------|------|------|------|------|------|------|------|----------------------------------|------------------------------|--|--|--|--|--|--|--|--|---------------------------|---------------------------------------------|--|--|--|--|--|--|--|--|------------|---------------------------------------------|--|--|--|--|--|--|--|--|
| Category temperature range (°C)                | -55~+105                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                             |      |      |      |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
| Tolerance at rated capacitance (%)             | ±20 (20°C, 120Hz)                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                             |      |      |      |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
| Leakage current (μA)<br>(max.)                 | 0.01CV or 3 whichever is larger (after 2 minutes)<br>C : Rated capacitance (μF) , V : Rated voltage (V) (20°C)                                                                                                                                                                                                                                                                                                                                                                |                                             |      |      |      |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
| Tangent of loss angle<br>(tanδ)                | <table><tr><td>Rated voltage (V)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>80</td><td>100</td></tr><tr><td>tanδ (max.)</td><td>0.20</td><td>0.18</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.10</td><td>0.08</td><td>0.08</td><td>0.08</td></tr></table> (20°C, 120Hz)                                                                                                                                                       |                                             |      |      |      |      |      |      |      |     | Rated voltage (V)      | 6.3           | 10 | 16 | 25 | 35 | 50  | 63 | 80 | 100 | tanδ (max.)     | 0.20                                | 0.18 | 0.16 | 0.14 | 0.12 | 0.10 | 0.08 | 0.08 | 0.08 |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
|                                                | Rated voltage (V)                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 6.3                                         | 10   | 16   | 25   | 35   | 50   | 63   | 80   | 100 |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
| tanδ (max.)                                    | 0.20                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.18                                        | 0.16 | 0.14 | 0.12 | 0.10 | 0.08 | 0.08 | 0.08 |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
| Characteristics at high<br>and low temperature | <table><tr><td rowspan="2">Impedance ratio (max.)</td><td colspan="5">Z-25°C/Z+20°C</td><td colspan="4">1.5</td></tr><tr><td colspan="5">Z-55°C/Z+20°C</td><td colspan="4">2.0</td></tr></table> (100kHz)                                                                                                                                                                                                                                                                     |                                             |      |      |      |      |      |      |      |     | Impedance ratio (max.) | Z-25°C/Z+20°C |    |    |    |    | 1.5 |    |    |     | Z-55°C/Z+20°C   |                                     |      |      |      | 2.0  |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
|                                                | Impedance ratio (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Z-25°C/Z+20°C                               |      |      |      |      | 1.5  |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
| Z-55°C/Z+20°C                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                             |      |      | 2.0  |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
| Endurance (105°C)<br>(Applied ripple current)  | <table><tr><td>Test time</td><td colspan="9">10000 hours</td></tr><tr><td>Leakage current</td><td colspan="9">The initial specified value or less</td></tr><tr><td>Percentage of capacitance change</td><td colspan="9">Within ±30% of initial value</td></tr><tr><td>Tangent of the loss angle</td><td colspan="9">200% or less of the initial specified value</td></tr><tr><td>ESR change</td><td colspan="9">200% or less of the initial specified value</td></tr></table> |                                             |      |      |      |      |      |      |      |     | Test time              | 10000 hours   |    |    |    |    |     |    |    |     | Leakage current | The initial specified value or less |      |      |      |      |      |      |      |      | Percentage of capacitance change | Within ±30% of initial value |  |  |  |  |  |  |  |  | Tangent of the loss angle | 200% or less of the initial specified value |  |  |  |  |  |  |  |  | ESR change | 200% or less of the initial specified value |  |  |  |  |  |  |  |  |
|                                                | Test time                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10000 hours                                 |      |      |      |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
|                                                | Leakage current                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The initial specified value or less         |      |      |      |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
|                                                | Percentage of capacitance change                                                                                                                                                                                                                                                                                                                                                                                                                                              | Within ±30% of initial value                |      |      |      |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
|                                                | Tangent of the loss angle                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 200% or less of the initial specified value |      |      |      |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
| ESR change                                     | 200% or less of the initial specified value                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                             |      |      |      |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |
| Shelf life (105°C)                             | Test time : 1000hours ; other items are same as the endurance. Voltage application treatment : According to JIS C5101-4 4.1.                                                                                                                                                                                                                                                                                                                                                  |                                             |      |      |      |      |      |      |      |     |                        |               |    |    |    |    |     |    |    |     |                 |                                     |      |      |      |      |      |      |      |      |                                  |                              |  |  |  |  |  |  |  |  |                           |                                             |  |  |  |  |  |  |  |  |            |                                             |  |  |  |  |  |  |  |  |

### Outline Drawing

Unit : mm

| Series HV            |          |      |      |     |         |            |     |               | Series HT            |          |      |      |     |         |            |     |               |
|----------------------|----------|------|------|-----|---------|------------|-----|---------------|----------------------|----------|------|------|-----|---------|------------|-----|---------------|
|                      |          |      |      |     |         |            |     |               |                      |          |      |      |     |         |            |     |               |
| ( ) : Reference size |          |      |      |     |         |            |     |               | ( ) : Reference size |          |      |      |     |         |            |     |               |
| ϕD                   | L        | A    | B    | C   | M       | W          | P   | Casing symbol | ϕD                   | L        | A    | B    | C   | M       | W          | P   | Casing symbol |
| 5                    | 5.8±0.3  | 5.3  | 5.3  | 2.3 | 0.4±0.2 | 0.5 to 0.8 | 1.5 | E61           | 8                    | 10±0.5   | 8.4  | 8.4  | 3.0 | 0.4±0.2 | 0.7 to 1.1 | 3.1 | G10           |
| 6.3                  | 5.8±0.3  | 6.6  | 6.6  | 2.7 | 0.4±0.2 | 0.5 to 0.8 | 2.0 | F61           | 10                   | 10±0.5   | 10.4 | 10.4 | 3.3 | 0.4±0.2 | 0.7 to 1.1 | 4.7 | H10           |
| 6.3                  | 7.7±0.3  | 6.6  | 6.6  | 2.7 | 0.4±0.2 | 0.5 to 0.8 | 2.0 | F80           | 10                   | 12.5±0.5 | 10.4 | 10.4 | 3.3 | 0.4±0.2 | 0.7 to 1.1 | 4.7 | HC5           |
| 8                    | 8.7±0.3  | 8.4  | 8.4  | 3.0 | 0.4±0.2 | 0.5 to 0.8 | 3.1 | G90           | 12.5                 | 13.5±0.5 | 13.0 | 13.0 | 4.9 | 0.7±0.3 | 1.0 to 1.4 | 4.6 | IE            |
| 8                    | 10±0.5   | 8.4  | 8.4  | 3.0 | 0.4±0.2 | 0.7 to 1.1 | 3.1 | G10           |                      |          |      |      |     |         |            |     |               |
| 10                   | 8.7±0.3  | 10.4 | 10.4 | 3.3 | 0.4±0.2 | 0.7 to 1.1 | 4.7 | H90           |                      |          |      |      |     |         |            |     |               |
| 10                   | 10±0.5   | 10.4 | 10.4 | 3.3 | 0.4±0.2 | 0.7 to 1.1 | 4.7 | H10           |                      |          |      |      |     |         |            |     |               |
| 10                   | 12.5±0.5 | 10.4 | 10.4 | 3.3 | 0.4±0.2 | 0.7 to 1.1 | 4.7 | HC5           |                      |          |      |      |     |         |            |     |               |
| 12.5                 | 13.5±0.5 | 13.0 | 13.0 | 4.9 | 0.7±0.3 | 1.0 to 1.4 | 4.6 | IE            |                      |          |      |      |     |         |            |     |               |

- Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

### Coefficient of Frequency for Rated Ripple Current

| Frequency (Hz)<br>Rated voltage (V) | 120  | 1k   | 10k  | 100k or more |
|-------------------------------------|------|------|------|--------------|
| 6.3 to 100                          | 0.10 | 0.30 | 0.60 | 1            |

### Part numbering system

HV (example : 35V270μF)

|             |   |                      |   |                          |                              |               |   |   |               |
|-------------|---|----------------------|---|--------------------------|------------------------------|---------------|---|---|---------------|
| HV          | — | 35                   | V | 271                      | M                            | H10           | E | — | □             |
| Series code |   | Rated voltage symbol |   | Rated capacitance symbol | Capacitance tolerance symbol | Casing symbol |   |   | Taping symbol |

HT (example : 35V270μF)

|             |   |                      |   |                          |                              |               |   |   |               |
|-------------|---|----------------------|---|--------------------------|------------------------------|---------------|---|---|---------------|
| HT          | — | 35                   | V | 271                      | M                            | H10           | E | — | □             |
| Series code |   | Rated voltage symbol |   | Rated capacitance symbol | Capacitance tolerance symbol | Casing symbol |   |   | Taping symbol |

NOTE : Design, Specifications are subject to change without notice.  
It is recommended that you shall obtain technical specifications from ELNA to ensure that the component is suitable for your use.

## Standard Ratings

| Rated voltage (V)<br>Rated capacitance (μF)<br>Item | 6.3                |                  |                                                 | 10                 |                  |                                                 | 16                 |                  |                                                 | 25                 |                  |                                                 |
|-----------------------------------------------------|--------------------|------------------|-------------------------------------------------|--------------------|------------------|-------------------------------------------------|--------------------|------------------|-------------------------------------------------|--------------------|------------------|-------------------------------------------------|
|                                                     | Case<br>φ D×L (mm) | ESR<br>(mΩ max.) | Rated ripple<br>current<br>(mA <sub>rms</sub> ) | Case<br>φ D×L (mm) | ESR<br>(mΩ max.) | Rated ripple<br>current<br>(mA <sub>rms</sub> ) | Case<br>φ D×L (mm) | ESR<br>(mΩ max.) | Rated ripple<br>current<br>(mA <sub>rms</sub> ) | Case<br>φ D×L (mm) | ESR<br>(mΩ max.) | Rated ripple<br>current<br>(mA <sub>rms</sub> ) |
| 33                                                  | —                  | —                | —                                               | —                  | —                | —                                               | —                  | —                | —                                               | 5×5.8              | 80               | 900                                             |
| 47                                                  | —                  | —                | —                                               | —                  | —                | —                                               | 5×5.8              | 70               | 900                                             | —                  | —                | —                                               |
| 56                                                  | —                  | —                | —                                               | —                  | —                | —                                               | —                  | —                | —                                               | 6.3×5.8            | 50               | 1300                                            |
| 82                                                  | —                  | —                | —                                               | —                  | —                | —                                               | 6.3×5.8            | 45               | 1600                                            | —                  | —                | —                                               |
| 100                                                 | —                  | —                | —                                               | 6.3×5.8            | 45               | 1600                                            | —                  | —                | —                                               | 6.3×7.7            | 30               | 2000                                            |
| 150                                                 | —                  | —                | —                                               | —                  | —                | —                                               | 6.3×7.7            | 27               | 2200                                            | 8×8.7              | 27               | 2100                                            |
| 220                                                 | 6.3×5.8            | 45               | 1600                                            | 6.3×7.7            | 24               | 2300                                            | —                  | —                | —                                               | 8×10               | 27               | 2300                                            |
| 270                                                 | —                  | —                | —                                               | —                  | —                | —                                               | 8×10               | 22               | 2500                                            | 10×8.7             | 25               | 2400                                            |
| 330                                                 | 6.3×7.7            | 24               | 2300                                            | 8×10               | 22               | 2500                                            | —                  | —                | —                                               | 10×10              | 20               | 2500                                            |
| 470                                                 | —                  | —                | —                                               | 10×10              | 18               | 2600                                            | 10×10              | 18               | 2600                                            | —                  | —                | —                                               |
| 560                                                 | 8×10               | 22               | 2500                                            | —                  | —                | —                                               | —                  | —                | —                                               | 10×12.5            | 18               | 3500                                            |
| 820                                                 | 10×10              | 18               | 2600                                            | —                  | —                | —                                               | —                  | —                | —                                               | 12.5×13.5          | 15               | 4000                                            |

| Rated voltage (V)<br>Rated capacitance (μF)<br>Item | 35                 |                  |                                                 | 50                 |                  |                                                 | 63                 |                  |                                                 |
|-----------------------------------------------------|--------------------|------------------|-------------------------------------------------|--------------------|------------------|-------------------------------------------------|--------------------|------------------|-------------------------------------------------|
|                                                     | Case<br>φ D×L (mm) | ESR<br>(mΩ max.) | Rated ripple<br>current<br>(mA <sub>rms</sub> ) | Case<br>φ D×L (mm) | ESR<br>(mΩ max.) | Rated ripple<br>current<br>(mA <sub>rms</sub> ) | Case<br>φ D×L (mm) | ESR<br>(mΩ max.) | Rated ripple<br>current<br>(mA <sub>rms</sub> ) |
| 10                                                  | —                  | —                | —                                               | 5×5.8              | 120              | 750                                             | 6.3×5.8            | 120              | 1000                                            |
| 22                                                  | 5×5.8              | 100              | 900                                             | 6.3×5.8            | 80               | 1100                                            | 6.3×7.7            | 80               | 1500                                            |
| 27                                                  | —                  | —                | —                                               | —                  | —                | —                                               | 8×8.7              | 50               | 1600                                            |
| 33                                                  | —                  | —                | —                                               | 6.3×7.7            | 40               | 1600                                            | 8×10               | 40               | 1600                                            |
| 47                                                  | 6.3×5.8            | 60               | 1300                                            | 8×8.7              | 35               | 1700                                            | 10×8.7             | 35               | 1700                                            |
| 56                                                  | —                  | —                | —                                               | —                  | —                | —                                               | 10×10              | 30               | 1800                                            |
| 68                                                  | 6.3×7.7            | 35               | 2000                                            | 8×10               | 30               | 1800                                            | —                  | —                | —                                               |
| 82                                                  | —                  | —                | —                                               | 10×8.7             | 28               | 1900                                            | —                  | —                | —                                               |
| 100                                                 | 8×8.7              | 30               | 2100                                            | 10×10              | 28               | 2000                                            | 10×12.5            | 26               | 2500                                            |
| 120                                                 | —                  | —                | —                                               | —                  | —                | —                                               | 12.5×13.5          | 22               | 3000                                            |
| 150                                                 | 8×10               | 27               | 2300                                            | 10×12.5            | 24               | 3000                                            | —                  | —                | —                                               |
| 220                                                 | 10×8.7             | 25               | 2400                                            | —                  | —                | —                                               | —                  | —                | —                                               |
| 270                                                 | 10×10              | 20               | 2500                                            | —                  | —                | —                                               | —                  | —                | —                                               |
| 330                                                 | —                  | —                | —                                               | 12.5×13.5          | 20               | 3600                                            | —                  | —                | —                                               |
| 390                                                 | 10×12.5            | 18               | 3500                                            | —                  | —                | —                                               | —                  | —                | —                                               |
| 560                                                 | 12.5×13.5          | 15               | 4000                                            | —                  | —                | —                                               | —                  | —                | —                                               |

| Rated voltage (V)<br>Rated capacitance (μF)<br>Item | 80                 |                  |                                                 | 100                |                  |                                                 |
|-----------------------------------------------------|--------------------|------------------|-------------------------------------------------|--------------------|------------------|-------------------------------------------------|
|                                                     | Case<br>φ D×L (mm) | ESR<br>(mΩ max.) | Rated ripple<br>current<br>(mA <sub>rms</sub> ) | Case<br>φ D×L (mm) | ESR<br>(mΩ max.) | Rated ripple<br>current<br>(mA <sub>rms</sub> ) |
| 15                                                  | —                  | —                | —                                               | 10×10              | 45               | 1600                                            |
| 22                                                  | 8×10               | 45               | 1550                                            | —                  | —                | —                                               |
| 33                                                  | 10×10              | 36               | 1700                                            | —                  | —                | —                                               |

(Note) Rated ripple current : 105°C , 100kHz ; ESR : 20°C , 100kHz

# Mouser Electronics

Authorized Distributor

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