

## HBV Series

### Features

- 105°C, 10,000 hours assured
- Low ESR and High ripple current
- RoHS Compliance

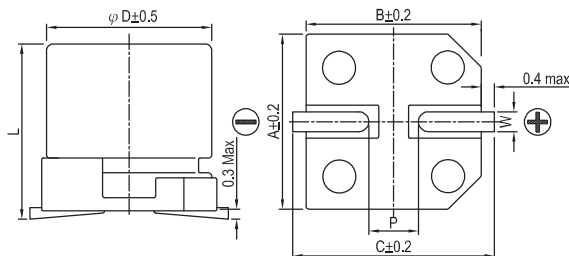


Marking color: Dark Green

### Specifications

| Items   | Performance   |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
|---|---|-----------------------------------|------------------------------|--------------------|------------------------------|-----------------|-----------------------------------|-----------------|-----------------------------------|-----------------|------------------------|
| Category Temperature Range  | -55°C ~ +105°C  |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Capacitance Tolerance   | ±20% (at 120Hz, 20°C)   |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Leakage Current (at 20°C)   | I = 0.01CV or 3 (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)   | See Standard Ratings  |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Endurance   | <table border="1"> <tr> <td>Test Time</td> <td>10,000 Hrs</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±30% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>ESR</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </table> | Test Time                         | 10,000 Hrs                   | Capacitance Change | Within ±30% of initial value | Tanδ            | Less than 200% of specified value | ESR             | Less than 200% of specified value | Leakage Current | Within specified value |
|   | Test Time   | 10,000 Hrs                        |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
|   | Capacitance Change  | Within ±30% of initial value      |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
|   | Tanδ  | Less than 200% of specified value |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
|   | ESR   | Less than 200% of specified value |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Leakage Current   | Within specified value  |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| * The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied with rated ripple current for 10,000 hours at 105°C. |   |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Shelf Life Test   | * After storage for 1,000 hours at 105 ± 2°C with no voltage applied and then being stabilized at 20°C, capacitors shall meet the limits specified in Endurance. (With voltage treatment)   |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Resistance to Soldering Heat<br>(Please refer to page 25 for reflowsoldering conditions)  | <table border="1"> <tr> <td>Capacitance Change</td> <td>Within ±10% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Within specified value</td> </tr> <tr> <td>ESR</td> <td>Within specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </table>   | Capacitance Change                | Within ±10% of initial value | Tanδ               | Within specified value       | ESR             | Within specified value            | Leakage Current | Within specified value            |                 |                        |
|   | Capacitance Change  | Within ±10% of initial value      |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
|   | Tanδ  | Within specified value            |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
|   | ESR   | Within specified value            |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Leakage Current   | Within specified value  |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
| Ripple Current and Frequency Multipliers  |   |                                   |                              |                    |                              |                 |                                   |                 |                                   |                 |                        |
|   | <table border="1"> <thead> <tr> <th>Frequency (Hz)</th> <th>120 ≤ f &lt; 1k</th> <th>1k ≤ f &lt; 10k</th> <th>10k ≤ f &lt; 100k</th> <th>100k ≤ f &lt; 500k</th> </tr> </thead> <tbody> <tr> <td>Multiplier</td> <td>0.1</td> <td>0.3</td> <td>0.6</td> <td>1.0</td> </tr> </tbody> </table>  | Frequency (Hz)                    | 120 ≤ f < 1k                 | 1k ≤ f < 10k       | 10k ≤ f < 100k               | 100k ≤ f < 500k | Multiplier                        | 0.1             | 0.3                               | 0.6             | 1.0                    |
| Frequency (Hz)  | 120 ≤ f < 1k  | 1k ≤ f < 10k                      | 10k ≤ f < 100k               | 100k ≤ f < 500k    |                              |                 |                                   |                 |                                   |                 |                        |
| Multiplier  | 0.1   | 0.3                               | 0.6                          | 1.0                |                              |                 |                                   |                 |                                   |                 |                        |

### Diagram of Dimensions



### Lead Spacing and Diameter

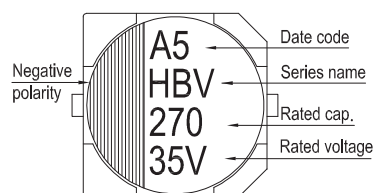
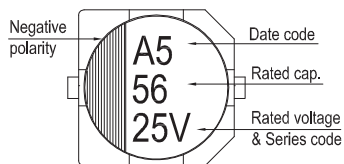
Unit: mm

| φ D | L          | A    | B    | C    | W         | P ± 0.2 |
|-----|------------|------|------|------|-----------|---------|
| 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   | 10.0 ± 0.5 | 8.4  | 8.4  | 9.0  | 0.7 ~ 1.1 | 3.1     |
| 8   | 12.0 ± 0.5 | 8.4  | 8.4  | 9.0  | 0.7 ~ 1.1 | 3.1     |
| 10  | 10.0 ± 0.5 | 10.4 | 10.4 | 11.0 | 0.7 ~ 1.3 | 4.7     |
| 10  | 12.5 ± 0.5 | 10.4 | 10.4 | 11.0 | 0.7 ~ 1.3 | 4.7     |

### Marking

φ D = 6.3 mm

φ D = 8 ~ 10 mm



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

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

### Standard Ratings

| 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 100kHz, 20°C Max) | Rated R. C. (mA/rms at 100k Hz, 105°C) |
|-----------|-------------------|------------------------|-----------------------------|----------------------------|----------------|---|--|
| 16V (1C)  | 18.4              | 82                     | 6.3 $\times$ 5.8            | 0.16                       | 13.1           | 50                                      | 1,300                                  |
|           |                   | 150                    | 6.3 $\times$ 7.7            | 0.16                       | 24             | 30                                      | 2,000                                  |
|           |                   | 270                    | 8 $\times$ 10               | 0.16                       | 43.2           | 27                                      | 2,300                                  |
|           |                   | 470                    | 10 $\times$ 10              | 0.16                       | 75.2           | 20                                      | 2,500                                  |
| 25V (1E)  | 28.8              | 56                     | 6.3 $\times$ 5.8            | 0.14                       | 14             | 50                                      | 1,300                                  |
|           |                   | 100                    | 6.3 $\times$ 7.7            | 0.14                       | 25             | 30                                      | 2,000                                  |
|           |                   | 220                    | 8 $\times$ 10               | 0.14                       | 55             | 27                                      | 2,300                                  |
|           |                   | 330                    | 10 $\times$ 10              | 0.14                       | 82.5           | 20                                      | 2,500                                  |
|           |                   | 330                    | 10 $\times$ 12.5            | 0.14                       | 82.5           | 16                                      | 2,900                                  |
| 35V (1V)  | 40.3              | 27                     | 6.3 $\times$ 5.8            | 0.12                       | 9.5            | 60                                      | 1,300                                  |
|           |                   | 68                     | 6.3 $\times$ 7.7            | 0.12                       | 23.8           | 35                                      | 2,000                                  |
|           |                   | 150                    | 8 $\times$ 10               | 0.12                       | 52.5           | 27                                      | 2,300                                  |
|           |                   | 270                    | 10 $\times$ 10              | 0.12                       | 94.5           | 20                                      | 2,500                                  |
| 50V(1H)   | 57.5              | 22                     | 6.3 $\times$ 5.8            | 0.10                       | 11             | 80                                      | 1,100                                  |
|           |                   | 33                     | 6.3 $\times$ 7.7            | 0.10                       | 16.5           | 40                                      | 1,600                                  |
|           |                   | 68                     | 8 $\times$ 10               | 0.10                       | 34             | 30                                      | 1,800                                  |
|           |                   | 100                    | 10 $\times$ 10              | 0.10                       | 50             | 28                                      | 2,000                                  |
| 63V(1J)   | 72.5              | 10                     | 6.3 $\times$ 5.8            | 0.08                       | 6.3            | 120                                     | 1,000                                  |
|           |                   | 22                     | 6.3 $\times$ 7.7            | 0.08                       | 13.9           | 80                                      | 1,500                                  |
|           |                   | 27                     | 8 $\times$ 12               | 0.08                       | 17             | 40                                      | 1,700                                  |
|           |                   | 33                     | 8 $\times$ 10               | 0.08                       | 20.8           | 40                                      | 1,700                                  |
|           |                   | 56                     | 10 $\times$ 10              | 0.08                       | 35.3           | 30                                      | 1,800                                  |
| 80V(1K)   | 92.0              | 22                     | 8 $\times$ 10               | 0.08                       | 17.6           | 45                                      | 1,550                                  |
|           |                   | 33                     | 10 $\times$ 10              | 0.08                       | 26.4           | 36                                      | 1,700                                  |

Hybrid

### Part Numbering System

HBV Series    220 $\mu$ F     $\pm$ 20%    25V    Carrier Tape    8  $\phi$   $\times$  10L    Pb-free and PET coating case  
**HBV**    **221**    **M**    **1E**    **TR**    -    **0810**  
 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.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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