

## VZH 系列

### 特长 / 用途

- $4\phi \sim 18\phi$ , 105°C、2,000 ~ 5,000小时寿命保证
- 大额定静电容量并具有极低阻抗之电容器
- 适用表面黏着之高密度PCB设计
- 符合RoHS指令



标示颜色: 黑色

### 规格表

| 项...目               | 性 能  |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
|---------------------|--|--------|---|--------|------------|--------|-------------|------|-------|------|-----|--------------|-------------------|------|------|------|------|------|------|------|------|-------------------|---|---|---|---|---|---|---|---|
| 工作温度范围              | -55°C ~ +105°C   |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 额定静电容量容许误差值         | ±20% (120Hz, 20°C)   |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 漏电流(20°C)           | I = 0.01CV 或 3 (μA) 中的任一个较大值以下(2 分钟后)<br>I = 漏电流(μA)、C = 额定静电容量(μF)、V = 额定直流工作电压(V)  |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 损失角正切值(120Hz, 20°C) | <table border="1"> <thead> <tr> <th>额定电压</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> </tr> </thead> <tbody> <tr> <td>损失角正切值 (max)</td> <td>0.30</td> <td>0.26</td> <td>0.22</td> <td>0.16</td> <td>0.13</td> <td>0.10</td> <td>0.08</td> <td>0.08</td> <td>0.07</td> </tr> </tbody> </table> <p>当额定静电容量大于 1,000 μF 时, 每增加 1,000 μF 需加 0.02。</p>   | 额定电压   | 6.3   | 10     | 16         | 25     | 35          | 50   | 63    | 80   | 100 | 损失角正切值 (max) | 0.30              | 0.26 | 0.22 | 0.16 | 0.13 | 0.10 | 0.08 | 0.08 | 0.07 |                   |   |   |   |   |   |   |   |   |
| 额定电压                | 6.3  | 10     | 16  | 25     | 35         | 50     | 63          | 80   | 100   |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 损失角正切值 (max)        | 0.30   | 0.26   | 0.22  | 0.16   | 0.13       | 0.10   | 0.08        | 0.08 | 0.07  |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 温度特性(120Hz)         | <p>阻抗比不可大于下表所列数值</p> <table border="1"> <thead> <tr> <th>额定电压</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> </tr> </thead> <tbody> <tr> <td rowspan="2">阻抗比</td> <td>Z(-25°C)/Z(+20°C)</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-55°C)/Z(+20°C)</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </table> | 额定电压   | 6.3   | 10     | 16         | 25     | 35          | 50   | 63    | 80   | 100 | 阻抗比          | Z(-25°C)/Z(+20°C) | 4    | 3    | 2    | 2    | 2    | 2    | 2    | 2    | Z(-55°C)/Z(+20°C) | 8 | 5 | 4 | 3 | 3 | 3 | 3 | 3 |
| 额定电压                | 6.3  | 10     | 16  | 25     | 35         | 50     | 63          | 80   | 100   |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 阻抗比                 | Z(-25°C)/Z(+20°C)  | 4      | 3   | 2      | 2          | 2      | 2           | 2    | 2     |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
|                     | Z(-55°C)/Z(+20°C)  | 8      | 5   | 4      | 3          | 3      | 3           | 3    | 3     |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 耐久性                 | <table border="1"> <tbody> <tr> <td>保证寿命时间</td> <td><math>\phi D \leq 6.3\text{mm}, 8 \times 6.5\text{L}, 10 \phi \times 7.7\text{L}</math>: 2,000 小时;<br/><math>\phi D \geq 8\text{mm}</math>: 5,000 小时</td> </tr> <tr> <td>静电容量化率</td> <td>≦ 初始值的±30%</td> </tr> <tr> <td>损失角正切值</td> <td>≦ 规格值的 300%</td> </tr> <tr> <td>漏电流</td> <td>≦ 规格值</td> </tr> </tbody> </table> <p>*于 105°C 环境中供给容许纹波电流值与额定电压 2,000 / 5,000 小时后, 待制品回复至 20°C 的环境中进行量测时, 需满足上列要求。</p>   | 保证寿命时间 | $\phi D \leq 6.3\text{mm}, 8 \times 6.5\text{L}, 10 \phi \times 7.7\text{L}$ : 2,000 小时;<br>$\phi D \geq 8\text{mm}$ : 5,000 小时 | 静电容量化率 | ≦ 初始值的±30% | 损失角正切值 | ≦ 规格值的 300% | 漏电流  | ≦ 规格值 |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 保证寿命时间              | $\phi D \leq 6.3\text{mm}, 8 \times 6.5\text{L}, 10 \phi \times 7.7\text{L}$ : 2,000 小时;<br>$\phi D \geq 8\text{mm}$ : 5,000 小时  |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 静电容量化率              | ≦ 初始值的±30%   |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 损失角正切值              | ≦ 规格值的 300%  |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 漏电流                 | ≦ 规格值  |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 高温无负荷特性             | <table border="1"> <tbody> <tr> <td>保证寿命时间</td> <td>1,000 小时</td> </tr> <tr> <td>静电容量化率</td> <td>≦ 初始值的±30%</td> </tr> <tr> <td>损失角正切值</td> <td>≦ 规格值的 300%</td> </tr> <tr> <td>漏电流</td> <td>≦ 规格值</td> </tr> </tbody> </table> <p>*于 105°C 环境中不供给额定电压 1,000 小时后, 待制品回复至 20°C 的环境中进行量测时, 需满足上列要求。</p>  | 保证寿命时间 | 1,000 小时  | 静电容量化率 | ≦ 初始值的±30% | 损失角正切值 | ≦ 规格值的 300% | 漏电流  | ≦ 规格值 |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 保证寿命时间              | 1,000 小时   |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 静电容量化率              | ≦ 初始值的±30%   |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 损失角正切值              | ≦ 规格值的 300%  |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 漏电流                 | ≦ 规格值  |        |   |        |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 纹波电流与频率修正系数         | <table border="1"> <thead> <tr> <th>频率(Hz)</th> <th>50, 60</th> <th>120</th> <th>1k</th> <th>10k ≦</th> </tr> </thead> <tbody> <tr> <td>修正系数</td> <td>0.60</td> <td>0.70</td> <td>0.85</td> <td>1.0</td> </tr> </tbody> </table>   | 频率(Hz) | 50, 60  | 120    | 1k         | 10k ≦  | 修正系数        | 0.60 | 0.70  | 0.85 | 1.0 |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 频率(Hz)              | 50, 60   | 120    | 1k  | 10k ≦  |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |
| 修正系数                | 0.60   | 0.70   | 0.85  | 1.0    |            |        |             |      |       |      |     |              |                   |      |      |      |      |      |      |      |      |                   |   |   |   |   |   |   |   |   |

### 寸法图

图 1

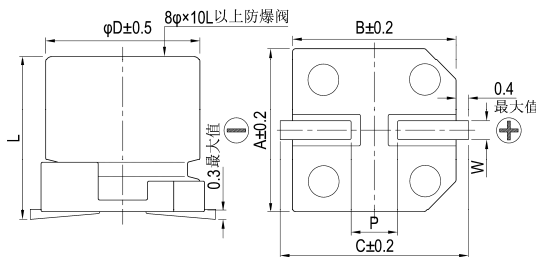
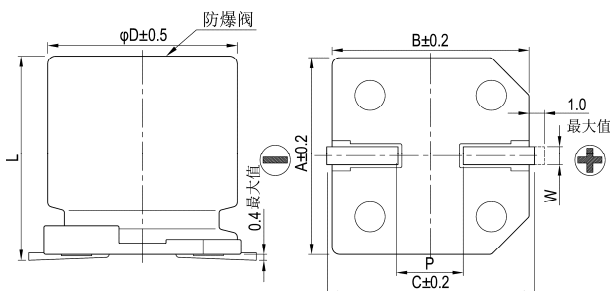


图 2



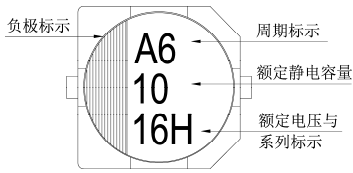
### 制品各项寸法

单位: 毫米

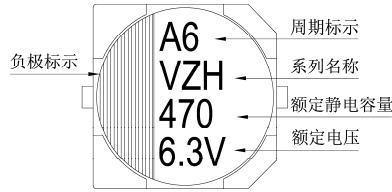
| φD   | L          | A    | B    | C    | W         | P ± 0.2 | 图号 |
|------|------------|------|------|------|-----------|---------|----|
| 4    | 5.7 ± 0.3  | 4.3  | 4.3  | 5.1  | 0.5 ~ 0.8 | 1.0     | 1  |
| 5    | 5.7 ± 0.3  | 5.3  | 5.3  | 5.9  | 0.5 ~ 0.8 | 1.5     | 1  |
| 6.3  | 5.7 ± 0.3  | 6.6  | 6.6  | 7.2  | 0.5 ~ 0.8 | 2.0     | 1  |
| 6.3  | 7.7 ± 0.3  | 6.6  | 6.6  | 7.2  | 0.5 ~ 0.8 | 2.0     | 1  |
| 8    | 6.5 ± 0.3  | 8.4  | 8.4  | 9.0  | 0.5 ~ 0.8 | 2.3     | 1  |
| 8    | 10 ± 0.5   | 8.4  | 8.4  | 9.0  | 0.7 ~ 1.1 | 3.1     | 1  |
| 10   | 7.7 ± 0.3  | 10.4 | 10.4 | 11.0 | 0.7 ~ 1.3 | 4.7     | 1  |
| 10   | 10 ± 0.5   | 10.4 | 10.4 | 11.0 | 0.7 ~ 1.3 | 4.7     | 1  |
| 12.5 | 13.5 ± 0.5 | 13.0 | 13.0 | 13.7 | 1.1 ~ 1.4 | 4.4     | 2  |
| 12.5 | 16 ± 0.5   | 13.0 | 13.0 | 13.7 | 1.1 ~ 1.4 | 4.4     | 2  |
| 16   | 16.5 ± 0.5 | 17.0 | 17.0 | 18.0 | 1.1 ~ 1.4 | 6.4     | 2  |
| 16   | 21.5 ± 0.5 | 17.0 | 17.0 | 18.0 | 1.1 ~ 1.4 | 6.4     | 2  |
| 18   | 16.5 ± 0.5 | 19.0 | 19.0 | 20.0 | 1.1 ~ 1.4 | 6.4     | 2  |
| 18   | 21.5 ± 0.5 | 19.0 | 19.0 | 20.0 | 1.1 ~ 1.4 | 6.4     | 2  |

标示

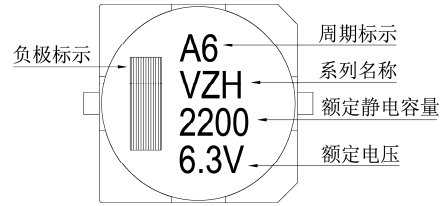
$\phi D \leq 6.3\text{mm}$



$\phi D = 8 \sim 10\text{mm}$



$\phi D \geq 12.5\text{mm}$



尺寸:  $\phi D \times L(\text{mm})$

容许纹波电流: mA/rms at 100k Hz, 105°C

阻抗值:  $\Omega/$  at 100k Hz, 20°C

制品尺寸与容许纹波电流一览表

| 额定<br>静电容量( $\mu\text{F}$ ) 内容 | V. DC | 6.3V (0J)         |       |       | 10V (1A)          |       |       | 16V (1C)          |       |       | 25V (1E)          |       |       | 35V (1V)          |       |       | 50V (1H)          |       |       |
|--------------------------------|-------|-------------------|-------|-------|-------------------|-------|-------|-------------------|-------|-------|-------------------|-------|-------|-------------------|-------|-------|-------------------|-------|-------|
|                                |       | $\phi D \times L$ | 阻抗值   | mA    | $\phi D \times L$ | 阻抗值   | mA    | $\phi D \times L$ | 阻抗值   | mA    | $\phi D \times L$ | 阻抗值   | mA    | $\phi D \times L$ | 阻抗值   | mA    | $\phi D \times L$ | 阻抗值   | mA    |
| 1                              | 010   |                   |       |       |                   |       |       |                   |       |       |                   |       |       |                   |       |       | 4x5.7             | 2.9   | 60    |
| 2.2                            | 2R2   |                   |       |       |                   |       |       |                   |       |       |                   |       |       |                   |       |       | 4x5.7             | 2.9   | 60    |
| 3.3                            | 3R3   |                   |       |       |                   |       |       |                   |       |       |                   |       |       |                   |       |       | 4x5.7             | 2.9   | 60    |
| 4.7                            | 4R7   |                   |       |       |                   |       |       |                   |       |       |                   |       | 4x5.7 | 1.35              | 80    | 5x5.7 | 1.52              | 85    |       |
| 10                             | 100   |                   |       |       |                   |       |       | 4x5.7             | 1.35  | 80    | 4x5.7             | 1.35  | 80    | 5x5.7             | 0.80  | 150   | 6.3x5.7           | 0.88  | 165   |
| 22                             | 220   | 4x5.7             | 1.35  | 80    | 4x5.7             | 1.35  | 80    | 5x5.7             | 0.80  | 150   | 5x5.7             | 0.80  | 150   | 6.3x5.7           | 0.44  | 230   | 6.3x5.7           | 0.88  | 165   |
| 33                             | 330   | 4x5.7             | 1.35  | 80    | 5x5.7             | 0.80  | 150   | 6.3x5.7           | 0.44  | 230   | 6.3x5.7           | 0.44  | 230   | 6.3x5.7           | 0.44  | 230   | 6.3x7.7           | 0.68  | 185   |
| 47                             | 470   | 5x5.7             | 0.80  | 150   | 6.3x5.7           | 0.44  | 230   | 6.3x5.7           | 0.44  | 230   | 6.3x5.7           | 0.44  | 230   | 6.3x5.7           | 0.44  | 230   | 6.3x7.7           | 0.68  | 185   |
| 68                             | 680   |                   |       |       |                   |       |       |                   |       |       |                   |       | 8x6.5 | 0.36              | 280   | 8x10  | 0.34              | 369   |       |
| 100                            | 101   | 6.3x5.7           | 0.44  | 230   | 6.3x5.7           | 0.44  | 230   | 6.3x5.7           | 0.44  | 230   | 6.3x7.7           | 0.36  | 280   | 8x10              | 0.17  | 450   | 8x10              | 0.34  | 369   |
| 150                            | 151   | 6.3x5.7           | 0.44  | 230   | 6.3x5.7           | 0.44  | 230   | 6.3x7.7           | 0.36  | 280   | 8x6.5             | 0.36  | 280   | 8x10              | 0.17  | 450   | 10x10             | 0.18  | 553   |
| 220                            | 221   | 6.3x7.7           | 0.36  | 280   | 6.3x7.7           | 0.36  | 280   | 6.3x7.7           | 0.36  | 280   | 8x10              | 0.17  | 450   | 10x7.7            | 0.17  | 450   | 10x10             | 0.18  | 553   |
| 330                            | 331   | 8x6.5             | 0.36  | 280   | 8x10              | 0.17  | 450   | 8x10              | 0.17  | 450   | 8x10              | 0.17  | 450   | 10x10             | 0.090 | 670   | 12.5x13.5         | 0.12  | 650   |
| 470                            | 471   | 8x10              | 0.17  | 450   | 8x10              | 0.17  | 450   | 8x10              | 0.17  | 450   | 8x10              | 0.17  | 450   | 10x10             | 0.070 | 820   | 12.5x13.5         | 0.12  | 650   |
| 680                            | 681   | 10x7.7            | 0.17  | 450   | 10x7.7            | 0.17  | 450   | 10x10             | 0.09  | 670   | 10x10             | 0.09  | 670   | 10x10             | 0.09  | 670   | 12.5x16           | 0.060 | 950   |
| 1,000                          | 102   | 8x10              | 0.17  | 450   | 10x10             | 0.09  | 670   | 10x10             | 0.09  | 670   | 12.5x13.5         | 0.070 | 820   | 12.5x16           | 0.060 | 950   | 16x16.5           | 0.073 | 1,000 |
| 1,500                          | 152   | 10x10             | 0.09  | 670   | 12.5x13.5         | 0.070 | 820   | 12.5x16           | 0.060 | 950   | 12.5x16           | 0.060 | 950   | 16x16.5           | 0.054 | 1,260 | 16x16.5           | 0.073 | 1,000 |
| 1,500                          | 152   | 10x10             | 0.09  | 670   | 12.5x13.5         | 0.070 | 820   | 12.5x16           | 0.060 | 950   | 12.5x16           | 0.060 | 950   | 16x16.5           | 0.054 | 1,260 | 18x16.5           | 0.048 | 1,500 |
| 2,200                          | 222   | 12.5x13.5         | 0.070 | 820   | 12.5x16           | 0.060 | 950   | 16x16.5           | 0.054 | 1,260 | 16x16.5           | 0.054 | 1,260 | 16x16.5           | 0.054 | 1,260 | 18x21.5           | 0.038 | 1,630 |
| 2,200                          | 222   | 12.5x13.5         | 0.070 | 820   | 12.5x16           | 0.060 | 950   | 16x16.5           | 0.054 | 1,260 | 16x16.5           | 0.054 | 1,260 | 18x21.5           | 0.038 | 1,750 |                   |       |       |
| 3,300                          | 332   | 12.5x16           | 0.060 | 950   | 16x16.5           | 0.054 | 1,260 | 16x16.5           | 0.054 | 1,260 | 16x16.5           | 0.054 | 1,260 | 18x16.5           | 0.048 | 1,500 |                   |       |       |
| 3,300                          | 332   | 12.5x16           | 0.060 | 950   | 16x16.5           | 0.054 | 1,260 | 16x16.5           | 0.054 | 1,260 | 16x16.5           | 0.054 | 1,260 | 18x16.5           | 0.048 | 1,500 |                   |       |       |
| 4,700                          | 472   | 16x16.5           | 0.054 | 1,260 | 16x16.5           | 0.054 | 1,260 | 18x16.5           | 0.048 | 1,500 | 16x21.5           | 0.038 | 1,630 |                   |       |       |                   |       |       |
| 4,700                          | 472   | 16x16.5           | 0.054 | 1,260 | 16x16.5           | 0.054 | 1,260 | 18x16.5           | 0.048 | 1,500 | 16x21.5           | 0.038 | 1,630 |                   |       |       |                   |       |       |
| 6,800                          | 682   | 18x16.5           | 0.048 | 1,500 | 18x16.5           | 0.048 | 1,500 |                   |       |       |                   |       |       |                   |       |       |                   |       |       |
| 6,800                          | 682   | 16x21.5           | 0.038 | 1,630 | 16x21.5           | 0.038 | 1,630 |                   |       |       |                   |       |       |                   |       |       |                   |       |       |
| 8,200                          | 822   | 18x16.5           | 0.048 | 1,500 | 18x21.5           | 0.038 | 1,750 |                   |       |       |                   |       |       |                   |       |       |                   |       |       |
| 8,200                          | 822   | 16x21.5           | 0.038 | 1,630 | 18x21.5           | 0.038 | 1,750 |                   |       |       |                   |       |       |                   |       |       |                   |       |       |

尺寸:  $\phi D \times L$ (mm)

容许纹波电流: mA/rms at 100k Hz, 105°C

阻抗值:  $\Omega$ / at 100k Hz, 20°C

制品尺寸与容许纹波电流一览表

| 额定<br>静电容量( $\mu$ F) 内容 | V. DC | 63V (1J)           |                |                | 80V (1K)          |      |     | 100V (2A)          |              |            |
|-------------------------|-------|--------------------|----------------|----------------|-------------------|------|-----|--------------------|--------------|------------|
|                         |       | $\phi D \times L$  | 阻抗值            | mA             | $\phi D \times L$ | 阻抗值  | mA  | $\phi D \times L$  | 阻抗值          | mA         |
| 4.7                     | 4R7   | 5x5.7              | 1.90           | 70             |                   |      |     |                    |              |            |
| 10                      | 100   | 6.3x5.7            | 1.20           | 130            |                   |      |     |                    |              |            |
| 22                      | 220   | 6.3x7.7            | 0.90           | 150            | 8x10              | 1.3  | 130 | 8x10               | 1.3          | 130        |
| 33                      | 330   | 8x10               | 0.50           | 280            | 8x10              | 1.3  | 130 | 10x10              | 0.7          | 200        |
| 47                      | 470   | 8x10               | 0.50           | 280            | 10x10             | 0.7  | 200 | 10x10              | 0.7          | 200        |
| 100                     | 101   | 10x10              | 0.25           | 450            | 10x10             | 0.7  | 200 | 12.5x13.5          | 0.32         | 450        |
| 150                     | 151   | 12.5x13.5          | 0.15           | 700            | 12.5x13.5         | 0.32 | 450 | 12.5x16            | 0.26         | 550        |
| 220                     | 221   | 12.5x13.5          | 0.15           | 700            | 12.5x16           | 0.26 | 550 | 16x16.5<br>18x21.5 | 0.17<br>0.15 | 650<br>950 |
| 330                     | 331   | 16x16.5            | 0.082          | 900            | 16x16.5           | 0.17 | 650 | 18x16.5<br>16x21.5 | 0.15<br>0.15 | 850<br>900 |
| 470                     | 471   | 16x16.5            | 0.082          | 900            | 16x21.5           | 0.15 | 900 | 18x21.5            | 0.15         | 950        |
| 680                     | 681   | 18x16.5<br>16x21.5 | 0.080<br>0.080 | 1,150<br>1,150 | 18x21.5           | 0.15 | 950 |                    |              |            |
| 1,000                   | 102   | 18x21.5            | 0.06           | 1,250          |                   |      |     |                    |              |            |

## 产品编码说明

VZH系列    470 $\mu$ F     $\pm$ 20%    6.3V    编带    8 $\phi$  x 10L    无铅引线与PET镀膜铝壳

**VZH**    **471**    **M**    **OJ**    **TR**    -    **0810**    制品引线与铝壳镀膜材质

系列名    额定静电容量    额定静电容量容许误差值    额定电压    包装型式    端子型式    制品尺寸

注: 如需了解更详细介绍, 请参阅目录第12页“贴片型产品编码说明”。

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