## C／宽温品 片式铝电解电容

Chip Type Aluminum Electrolytic Capacitors

## 产品特点 Features

适用 $-55^{\circ} \mathrm{C} \sim+105^{\circ} \mathrm{C}$ 温度范围，寿命 2,000 小时；性能稳定，可靠性高；产品直径：$\phi 4 \mathrm{~mm} \sim \phi 16.5 \mathrm{~mm}$ $-55^{\circ} \mathrm{C} \sim+105^{\circ} \mathrm{C}$ temperature range，life 2000 hours；stable performance，high reliability
The diameter of the product：$\phi 4 \mathrm{~mm} \sim \phi 12.5 \mathrm{~mm}$
－主要技术性能 Specifications

| 项目 Items | 特 性 Characteristics |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 工作温度范围 Category Temperature Range | $-55^{\circ} \mathrm{C} \sim+105^{\circ} \mathrm{C}$ |  |  |  |  |  |  |  |  |  |
| 额定电压范围 Rated Voltage Range | 4～100V．DC |  |  |  |  |  |  |  |  |  |
| 标称电容量范围 <br> NominalCapacitance Range | $1 \mu \mathrm{~F} \sim 2200 \mu \mathrm{~F}$ |  |  |  |  |  |  |  |  |  |
| 标称电容量允许偏差 NominalCapacitance Tolerance | $\pm 20 \%\left(120 \mathrm{~Hz},+20^{\circ} \mathrm{C}\right)$ |  |  |  |  |  |  |  |  |  |
| 泄漏电流范围 <br> Leakage Current（MAX） | $\begin{aligned} & \mathrm{I}=0.01 \mathrm{CV}(\mu \mathrm{~A}) \text { or } 3(\mu \mathrm{~A}) \text { after } 2 \text { minutes } \\ & \text { I=Leakage Current }(\mu \mathrm{A}) \quad \mathrm{C}=\text { Nominal Capacitance }(\mu \mathrm{F}) \quad \text { V=Roted Voltage(V) } \end{aligned}$ |  |  |  |  |  |  |  |  |  |
| 损耗角正切值 <br> Dissipation Factor（MAX） <br> Tan $\delta\left(20^{\circ} \mathrm{C}, 120 \mathrm{~Hz}\right)$ | Rated Voltage（V） | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
|  | Tan $\delta$ | 0.35 | 0.30 | 0.24 | 0.20 | 0.18 | 0.16 | 0.14 | 0.14 | 0.14 |

$+105^{\circ} \mathrm{C}$ 施加额定工作电压 2000 H 后，放置 16 H ，电容器应满足以下要求。
After applying rated voltage with max ripple current for 2000 hrs at $105^{\circ} \mathrm{C}$ ，and then resumed 16 hours， the capacitors shall meet the following requirements
耐久性 Load Life

| Capacitance Change | $\pm 30 \%$ 初始值以内 | Within $\pm 30 \%$ of the initial value |
| :---: | :--- | :--- |
| Dissipation Factor | $\leqslant 200 \%$ 初始值以内 | Not more than $200 \%$ of the specified value |
| Leakage Current | $\leqslant$ 初始规定值 | Not more than the specified value |

$+105^{\circ} \mathrm{C}$ ，贮存 1000 H 后，放置 16 H ，电容器应满足以下要求。
After storage for 1000 hrs at $105^{\circ} \mathrm{C}$ ，then resumed 16 hours，the capacitors shall meet the following requirements

| Capacitance Change | $\pm 30 \%$ 初始值以内 | Within $\pm 30 \%$ of the initial value |
| :---: | :--- | :--- |
| Dissipation Factor | $\leqslant 200 \%$ 初始值以内 | Not more than $200 \%$ of the specified value |
| Leakage Current | $\leqslant 300 \%$ 初始值以内 | Within $300 \%$ of initial specified value |

## 耐焊接热

Resistance to Soldering Heat

在 $250^{\circ} \mathrm{C}$ 的条件下，电容器在热板上保持 30 秒，然后从热板上取出电容器，让其在室温下恢复，电容器应满足以下要求。
The capacitors shall be kept on then hot plate maintained at $250^{\circ} \mathrm{C}$ for 30 seconds．After removing from the hot plate and restored at room temperature，they meet the following requirement：

| Capacitance Change | $\pm 10 \%$ 初始值以内 | Within $\pm 10 \%$ of the initial value |
| :---: | :--- | :--- |
| Dissipation Factor | $\leqslant$ 初始规定值 | Not more than the initial specified value |
| Leakage Current | $\leqslant$ 初始规定值 | Not more than the initial specified value |

## 低温特性及阻抗比

Low Temperature Stability Impedance Ratio（MAX） 120 Hz

| Roted Voltage（V） |  | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \mathrm{Z}-25^{\circ} \mathrm{C} / \mathrm{Z}+20^{\circ} \mathrm{C} \\ (120 \mathrm{~Hz}) \end{gathered}$ | ＜Ф8 | 7 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
|  | $\geqslant$ Ф8 | 7 | 5 | 4 | 3 | 2 | 2 | 2 | 2 | 2 |
| $\begin{gathered} \mathrm{Z}-40^{\circ} \mathrm{C} / \mathrm{Z}+20^{\circ} \mathrm{C} \\ (120 \mathrm{~Hz}) \end{gathered}$ | ＜Ф8 | 15 | 8 | 8 | 4 | 4 | 3 | 3 | 3 | 3 |
|  | $\geqslant$ Ф8 | 15 | 10 | 8 | 6 | 4 | 3 | 3 | 3 | 3 |

## ■ 尺寸图 Dimensions



Fig． 1 （Ф4～Ф10）


$+$

Fig． $2(\geqslant \Phi 16.5)$
单位： mm

| $\Phi \mathrm{D}$ | L | A | B | C | E | H | Fig．No． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4 | $5.4 \pm 0.3$ | 5.0 | 4.3 | 4.3 | 1.0 | $0.5 \sim 0.9$ | 1 |
| 5 | $5.4 \pm 0.3$ | 6.0 | 5.3 | 5.3 | 1.5 | $0.5 \sim 0.9$ | 1 |
| 6.3 | $5.4 \pm 0.3$ | 7.2 | 6.6 | 6.6 | 2.1 | $0.5 \sim 0.9$ | 1 |
| 6.3 | $7.7 \pm 0.3$ | 7.2 | 6.6 | 6.6 | 2.1 | $0.5 \sim 0.9$ | 1 |
| 8 | $6.5 \pm 0.5$ | 9.1 | 8.3 | 8.3 | 3.1 | $0.8 \sim 1.1$ | 1 |
| 8 | $10.2 \pm 0.5$ | 9.1 | 8.3 | 8.3 | 3.1 | $0.8 \sim 1.1$ | 1 |
| 10 | $10.2 \pm 0.5$ | 11.1 | 10.3 | 10.3 | 4.5 | $0.8 \sim 1.1$ | 1 |
| 12.5 | $13.5 \pm 0.5$ | 13.7 | 13.0 | 13.0 | 4.4 | $1.0 \sim 1.4$ | 2 |
| 16 | $16.5 \pm 0.5$ | 16.7 | 17 | 17 | 6.7 | $1.0 \sim 1.4$ | 2 |

－标准品一览表 Standard Size

| V | 6.3 |  | 10 |  | 16 |  | 25 |  | 35 |  | 50 |  | 63 |  | 100 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \mu F \\ 1 \end{gathered}$ | D×Lmm | mA | D×Lmm | mA | D×Lmm | mA | D×Lmm | mA | D×Lmm | mA | $\begin{array}{c\|} \hline \mathrm{D} \times \mathrm{Lmm} \\ 4 \times 5.4 \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline \mathrm{mA} \\ 8.0 \\ \hline \end{array}$ | $\begin{gathered} \mathrm{D} \times \mathrm{Lmm} \\ 4 \times 5.4 \\ \hline \end{gathered}$ | $\begin{gathered} \hline \mathrm{mA} \\ 7.2 \\ \hline \end{gathered}$ | $\begin{array}{\|c} \hline \mathrm{D} \times \mathrm{Lmm} \\ 4 \times 5.4 \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline \mathrm{mA} \\ 7.2 \\ \hline \end{array}$ |
| 2.2 |  |  |  |  |  |  |  |  |  |  | $4 \times 5.4$ | 12 | $4 \times 5.4$ | 12 | $6.3 \times 5.4$ | 15 |
| 3.3 |  |  |  |  |  |  |  |  | $4 \times 5.4$ | 14 | $4 \times 5.4$ | 14 | $5 \times 5.4$ | 14 | $6.3 \times 5.4$ |  |
| 4.7 |  |  |  |  |  |  | $4 \times 5.4$ | 14 | $4 \times 5.4$ | 15 | $4 \times 5.4$ | 14 | $5 \times 5.4$ | 17 | $6.3 \times 5.4$ | 23 |
|  |  |  |  |  |  |  |  |  |  |  | $5 \times 5.4$ | 17 | $6.3 \times 5.4$ | 22 | $6.3 \times 7.7$ | 38 |
| 10 |  |  |  |  | $4 \times 5.4$ |  | $4 \times 5.4$ | 15 | $4 \times 5.4$ | 15 | $5 \times 5.4$ | 23 | $6.3 \times 5.4$ | 41 | $6.3 \times 7.7$ | 38 |
|  |  |  |  |  |  |  | $5 \times 5.4$ | 21 | $5 \times 5.4$ | 22 | $6.3 \times 5.4$ | 25 | $6.3 \times 7.7$ | 26 |  |  |
| 22 | $4 \times 5.4$ | 22 | $4 \times 5.4$ | 21 | $4 \times 5.4$ | 21 | $5 \times 5.4$ | 26 | $5 \times 5.4$ | 30 | $6.3 \times 5.4$ | 43 | $\begin{gathered} 6.3 \times 7.7 \\ 8 \times 6.5 \\ \hline \end{gathered}$ | $\begin{aligned} & 53 \\ & 80 \end{aligned}$ | $8 \times 10.2$ | 90 |
|  |  |  | $5 \times 5.4$ | 26 | $5 \times 5.4$ | 28 | $6.3 \times 5.4$ | 37 | $6.3 \times 5.4$ | 40 |  |  |  |  |  |  |
| 33 | $4 \times 5.4$ | 23 | $4 \times 5.4$ | 23 | $5 \times 5.4$ | 29 | $5 \times 5.4$ | 30 | $6.3 \times 5.4$ | 45 | $6.3 \times 7.7$ | 63 | $8 \times 10.2$ | 116 | $10 \times 10.2$ | 136 |
|  | $5 \times 5.4$ | 28 | $5 \times 5.4$ | 34 |  |  | $6.3 \times 5.4$ | 45 | $8 \times 6.5$ | 86 |  |  |  |  |  |  |
| 47 | $4 \times 5.4$ | 26 | $4 \times 5.4$ | 27 | $5 \times 5.4$ | 33 | $5 \times 5.4$ | 30 | $6.3 \times 5.4$ | 54 | $6.3 \times 7.7$ | 66 | $8 \times 10.2$ | 125 | $10 \times 10.2$ | 148 |
|  |  |  |  |  |  |  | $6.3 \times 5.4$ | 49 |  |  |  |  |  |  |  |  |
|  | $5 \times 5.4$ | 34 | $5 \times 5.4$ | 31 | $6.3 \times 5.4$ | 48 | $8 \times 6.5$ | 93 | $6.3 \times 7.7$ | 75 | $8 \times 10.2$ | 120 | $10 \times 10.2$ | 168 |  |  |
| 100 | $5 \times 5.4$ | 40 | $5 \times 5.4$ | 40 | $6.3 \times 5.4$ | 63 | $6.3 \times 5.4$ | 49 | $6.3 \times 5.4$ | 45 | $8 \times 10.2$ | 146 | $10 \times 10.2$ | 200 | $12.5 \times 13.5$ | 276 |
|  |  |  |  |  |  |  | $8 \times 6.5$ | 93 | $6.3 \times 7.7$ | 87 |  |  |  |  |  |  |
|  | $6.3 \times 5.4$ | 52 | $6.3 \times 5.4$ | 55 | $6.3 \times 7.7$ | 72 | $6.3 \times 7.7$ | 93 | $8 \times 10.2$ | 125 | $10 \times 10.2$ | 178 |  |  |  |  |
| 150 | $6.3 \times 5.4$ | 70 | $6.3 \times 5.4$ | 78 | $6.3 \times 7.7$ | 116 | $8 \times 10.2$ | 210 | $8 \times 10.2$ | 210 | $8 \times 10.2$ | 238 | $12.5 \times 13.5$ | 330 |  |  |
| 220 | $6.3 \times 5.4$ | 69 | $6.3 \times 5.4$ | 78 | $6.3 \times 7.7$ | 110 | $6.3 \times 7.7$ | 93 | $8 \times 10.2$ | 195 | $10 \times 10.2$ | 230 | $12.5 \times 13.5$ | 380 |  |  |
|  | $6.3 \times 7.7$ | 108 | $6.3 \times 7.7$ | 110 | $8 \times 6.5$ | 110 | $8 \times 10.2$ | 183 | $10 \times 10.2$ | 230 |  |  |  |  | $16 \times 21.5$ | 9000 |
|  |  |  | $8 \times 6.5$ | 110 |  |  |  |  |  |  |  |  |  |  |  |  |
| 330 | $6.3 \times 7.7$ | 108 | $6.3 \times 7.7$ | 134 | $8 \times 10.2$ | 201 | $8 \times 10.2$ | 228 | $10 \times 10.2$ | 247 | $10 \times 10.2$ | 230 | $16 \times 16.5$ | 750 |  |  |
|  |  |  | $8 \times 10.2$ | 108 |  |  |  |  |  |  | $12.5 \times 13.5$ | 360 |  |  |  |  |
| 470 | $6.3 \times 7.7$ | 125 | $6.3 \times 7.7$ | 160 | $8 \times 10.2$ | 240 | $8 \times 10.2$ | 228 | $10 \times 10.2$ | 286 | $12.5 \times 13.5$ | 360 |  |  |  |  |
|  | $8 \times 10.2$ | 214 | $8 \times 10.2$ | 214 | $10 \times 10.2$ | 300 | $10 \times 10.2$ | 286 |  |  |  |  |  |  |  |  |
|  |  | 214 | $10 \times 10.2$ | 277 | $10 \times 10.2$ | 322 | $10 \times 13.5$ | 400 | $10 \times 13.5$ | 400 |  |  |  |  |  |  |
| 680 | $8 \times 10.2$ |  |  |  |  |  | $12.5 \times 13.5$ | 440 | $12.5 \times 13.5$ | 440 |  |  |  |  |  |  |
| 1000 | $8 \times 10.2$ | 235 | $8 \times 10.2$ | 230 | $10 \times 10.2$ | 347 | $12.5 \times 13.5$ | 500 |  |  | $16 \times 16.5$ | 1050 |  |  |  |  |
|  | $10 \times 10.2$ | 310 | $10 \times 10.2$ | 320 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1500 | $10 \times 10.2$ | 320 | $\begin{array}{\|c\|} \hline 10 \times 12.5 \\ 12.5 \times 13.5 \\ \hline \end{array}$ | $\begin{aligned} & 480 \\ & 540 \\ & \hline \end{aligned}$ | $12.5 \times 13.5$ | 540 |  |  |  |  |  |  |  |  |  |  |
| 2200 | $12.5 \times 13.5$ | 600 | $12.5 \times 13.5$ | 600 |  |  |  |  |  |  |  |  |  |  |  |  |

mA 额定纹波电流 Rated ripple current（mA， $105^{\circ} \mathrm{C}, 120 \mathrm{~Hz}$ ）
纹波电流补正系数／频率系数 Multiplier For Ripple Current／Frequency coefficient

| 频率 Frequency | 50 Hz | 120 Hz | 300 Hz | 1 kHz | $\geqslant 10 \mathrm{kHz}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 系数 Coefficient | 0.70 | 1.00 | 1.17 | 1.36 | 1.50 |

[^0]产品编码解析 Explanation of Part Number

| Series |  | RatedVoltage |  | Capacitance |  | Tol． | Case Size |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Series | R．W Voltage <br> （V） | Code | Capacitance <br> （ $\mu \mathrm{F}$ ） | Code | Cap．Tol | Code | Case Size | Code |
| $\begin{aligned} & \text { CK } \\ & \text { VT } \end{aligned}$ | 4 | OG | 0.1 | 0R1 | $\pm 5$ | J | $4 * 5.4$ | 0405 |
|  | 6.3 | 0 J | 0.22 | R22 | $\pm 10$ | K | $5 * 5.4$ | 0505 |
| RVT | 10 | 1A | 0.33 | R33 | $\pm 15$ | L | $6.3 * 5.4$ | 0605 |
| RVE | 16 | 1 C | 0.47 | R47 | $\pm 20$ | M | $6.3 * 7.7$ | 0607 |
| US | 25 | 1E | 1 | 1R0 | $\pm 30$ | N | 6．3＊10． 2 | 0610 |
| UZ | 35 | 1V | 1.5 | 1R5 | ＋20－10 | V | 8＊6．5 | 0806 |
| UN | 50 | 1H | 2.2 | 2R2 | ＋20－5 | H | 8＊10．2 | 0810 |
| UH | 63 | 1 J | 3.3 | 3R3 | ＋10－20 | C | $8 * 12.5$ | 0812 |
| UL | 80 | 1K | 4.7 | 4R7 | ＋ $100-0$ | P | 10＊10．2 | 1010 |
| UV | 100 | 2 A | 5.6 | 5R6 | ＋30－10 | Q | 10＊12．5 | 1012 |
| UD | 160 | 2 C | 6.8 | 6R8 | ＋20－0 | R | 10＊13．5 | 1013 |
| SF | 200 | 2D | 8.2 | 8R2 | ＋50－10 | T | $12.5 * 13.5$ | 1213 |
| SH | 250 | 2E | 10 | 100 | ＋75－10 | U | 12．5＊16 | 1216 |
| SL | 350 | 2 V | 12 | 120 | ＋40－20 | X | 16＊16．5 | 1616 |
| SR | 400 | 2G | 15 | 150 | ＋50－20 | S | 16＊21．5 | 1621 |
| SS | 450 | 2W | 22 | 220 | ＋80－20 | Z | $18 * 16.5$ | 1816 |
| ST | 500 | 2 H | 33 | 330 |  |  | 18＊21．5 | 1821 |
| SU |  |  | 47 | 470 |  |  | $20 * 16.5$ | 2016 |
| HS |  |  | 56 | 560 |  |  | 20＊21．5 | 2021 |
|  |  |  | 68 | 680 |  |  |  |  |
|  |  |  | 100 | 101 |  |  |  |  |
|  |  |  | 220 | 221 |  |  |  |  |
|  |  |  | 330 | 331 |  |  |  |  |
|  |  |  | 470 | 471 |  |  |  |  |
|  |  |  | 560 | 561 |  |  |  |  |
|  |  |  | 680 | 681 |  |  |  |  |
|  |  |  | 820 | 821 |  |  |  |  |
|  |  |  | 1000 | 102 |  |  |  |  |
|  |  |  | 1500 | 152 |  |  |  |  |
|  |  |  | 2200 | 222 |  |  |  |  |
|  |  |  | 3300 | 332 |  |  |  |  |
|  |  |  | 4700 | 472 |  |  |  |  |
|  |  |  | 6800 | 682 |  |  |  |  |

## 卷 筒 Taping Reel And Packing Quantity



| 规格 Specification | 卷装数量 Quantity／Reel |  | 盒装数量 Quantity／Bag |  | $\begin{gathered} \mathrm{A} \pm 0.3 \\ (\mathrm{MM}) \end{gathered}$ | $B \pm 2$ <br> （MM） |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Ф4＊5．4 | 2000 |  | 20000 |  | 14 | 382 |
| Ф5＊5．4 | 1000 |  | 10000 |  | 14 | 382 |
| Ф6．3＊5．4 | 1000 |  | 10000 |  | 18 | 382 |
| Ф6．3＊7．7 | 1000 |  | 10000 |  | 18 | 382 |
| $\Phi 6.3 * 10.2$ | 700 | pcs | 7000 |  | 18 | 382 |
| Ф8＊6．5 | 1000 |  | 10000 |  | 18 | 382 |
| Ф8＊10．2 | 500 | pcs | 5000 |  | 26 | 382 |
| Ф8＊12．5 | 400 | pcs | 4000 |  | 26 | 382 |
| Ф10＊10．2 | 500 | pcs | 5000 |  | 26 | 382 |
| Ф10＊12．5 | 400 | pcs | 4000 |  | 26 | 382 |
| Ф10＊13．5 | 300 | pcs | 3000 |  | 26 | 382 |
| Ф12．5＊13．5 | 200 | pcs | 1600 | pcs | 34 | 382 |
| Ф12．5＊16 | 200 | pcs | 1600 |  | 34 | 382 |
| Ф16＊16．5 | 125 | pcs | 250 | pcs | 46 | 332 |
| Ф16＊21．5 | 75 | pcs | 150 | pcs | 46 | 332 |
| Ф18＊16．5 | 125 | pcs | 250 | pcs | 46 | 332 |
| Ф18＊21．5 | 75 | pcs | 150 | pcs | 46 | 332 |
| Ф20＊16．5 | 100 | pcs | 200 | pcs | 46 | 332 |
| Ф20＊21．5 | 50 | pcs | 100 | pcs | 46 | 332 |

焊接方法和再流焊允许范围lodering method and allowable range of the reflow

| 焊接方式 <br> Soldering Method | 再流焊的允许范围 Allowable Range of Reflow |  |
| :---: | :---: | :---: |
| 热板再流焊 <br> Hot－Plate Reflow |  |  |
| 红外线再流焊 Infrared－Ray Reflow |  | 230 <br>  |




[^0]:    注：以上所提供的设计及特性参数仅供参考，任何修改不做预先通知，如在使用上有疑问，请在采购前与我们联络，以便提供技术上的协助。
    Note：all designs and specifications are for reference only and are subject to change without prior notice，if any doubt about safety for your application，please contact us immediately for technical assistance before purchase．

