



鋁 電 解 電 容 器

ALUMINIUM ELECTROLYTIC CAPACITORS

# 承 认 书

*SPECIFICATION FOR APPROVAL*

|                                  |                              |
|----------------------------------|------------------------------|
| 客 户:<br>CUSTOMER:                | 立创商城                         |
| 客 户 料 号:<br>CUSTOMER PARTNUMBER: |                              |
| 伯 鸿 料 号:<br>BORHURNG PARTNUMBER: | CX220MPC30BP                 |
| 型 号:<br>SERIES:                  | PHT                          |
| 规 格:<br>SPECIFICATION:           | 22 uF 450 V / $\Phi$ 13 * 30 |
| 日 期:<br>DATE:                    | 2025-9-11                    |

| 客 户 承 认 栏<br>APPROVAL COLUMN |  |  |  |
|------------------------------|--|--|--|
|                              |  |  |  |

| 承 制<br>SUPPLIER                                                                     |     |                                                                                       |
|-------------------------------------------------------------------------------------|-----|---------------------------------------------------------------------------------------|
|  | 黄永福 |  |

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承认内容  
FOR APPROVAL

|                                       |                                                                                                                                                                                                |                                                                 |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------|------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------|-----|------|------|---|------|---|-----|---|-----|---|-----|
| 客 户:<br>CUSTOMER:                     |                                                                                                                                                                                                | 立创商城                                                            |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 料号<br>P/N:                            |                                                                                                                                                                                                | 系列<br>Electrolytic Capacitors                                   |                                         |                                    |                                      | 规格<br>Specif.                                                                                                                                                                |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| CX220MPC30BP                          |                                                                                                                                                                                                | PHT                                                             |                                         |                                    |                                      | PHT/22uF450V/φ13*30                                                                                                                                                          |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 电性能Electric characteristics           |                                                                                                                                                                                                |                                                                 |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 工作电压<br>W. V.<br>(V-DC)               | 标称容量<br>Nom. Cap.<br>(μ F)                                                                                                                                                                     | 容量允差<br>Cap. Tol. (%)<br>At 100/120Hz/25℃                       | 外形尺寸<br>Case Size<br>D×H(mm)            | 漏电流<br>L. C. (μ A)<br>2minutes/25℃ | 损失角<br>D. F. (%)<br>At 100/120Hz/25℃ |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 450                                   | 22                                                                                                                                                                                             | ± 20 %                                                          | 13 * 30                                 | 208                                | 20                                   |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| ESR值<br>E. S. R. (Ω)<br>At 100kHz/25℃ | 浪涌电压<br>S. V.<br>(V-DC)                                                                                                                                                                        | 使用温度<br>Oper. Temp.<br>(℃)                                      | 纹波电流<br>Rip. Cur (mA)<br>At 100KHz/105℃ | 高温负荷<br>Load Life<br>(HRS/105℃)    | 高温贮存<br>Shelf Life<br>(HRS/105℃)     |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 8                                     | 495                                                                                                                                                                                            | -25℃~+105℃                                                      | 154                                     | 8000                               | 500                                  |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 高温负荷特性<br>Load Life                   | 在105℃环境中对电容器施加额定工作电压连续8000小时, 经恢复后于常温25℃测试, 其性能符合下表要求<br>After applying rated working voltage for 8000 hours at 105℃ and then being stabilized at +25℃, capacitors shall meet following limits |                                                                 |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
|                                       | 静电容量变化率<br>Capacitance change                                                                                                                                                                  | 初 测 值 的 ± 20 % 以 内<br>Within ±20% of the initial measured value |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
|                                       | 损失角正切值<br>Dissipation Factor                                                                                                                                                                   | 不 大 于 规 定 值 的 200 %<br>Less than 200% of the specified value    |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
|                                       | 漏 电 流<br>Leakage Current                                                                                                                                                                       | 不 大 于 规 定 值<br>Within specified value                           |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 高温贮存特性<br>Shelf Life                  | 在105℃环境中(不加电压)放置500小时, 经恢复后于常温25℃测试, 其性能符合下表要求<br>After storage for 500 hours at 105℃ With no voltage applied and then being stabilized at +25℃, capacitors shall meet following limits        |                                                                 |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
|                                       | 静电容量变化率<br>Capacitance change                                                                                                                                                                  | 初 测 值 的 ± 20 % 以 内<br>Within ±20% of the initial measured value |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
|                                       | 损失角正切值<br>Dissipation Factor                                                                                                                                                                   | 不 大 于 规 定 值 的 200 %<br>Less than 200% of the specified value    |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
|                                       | 漏 电 流<br>Leakage Current                                                                                                                                                                       | 不 大 于 规 定 值 的 200 %<br>Less than 200% of the specified value    |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 纹波电流修正系数<br>coefficient               | 频率系数Frequency coefficient                                                                                                                                                                      |                                                                 |                                         |                                    |                                      | 温度系数Temperature coefficient                                                                                                                                                  |                       |      |     |      |      |   |      |   |     |   |     |   |     |
|                                       | Freq(Hz)                                                                                                                                                                                       | 50<br>(60)                                                      | 100<br>(120)                            | 1K                                 | 10K                                  | 100K                                                                                                                                                                         | 温度 (℃)<br>Temperature | +105 | +85 | +65  |      |   |      |   |     |   |     |   |     |
|                                       | Cap.(uF)                                                                                                                                                                                       |                                                                 |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
|                                       | 4.7~330                                                                                                                                                                                        | 0.35                                                            | 0.50                                    | 0.75                               | 0.85                                 | 1                                                                                                                                                                            | 系数<br>Factor          | 1.0  | 1.6 | 1.85 |      |   |      |   |     |   |     |   |     |
|                                       | 470~1500                                                                                                                                                                                       | 0.45                                                            | 0.65                                    | 0.85                               | 0.90                                 | 1                                                                                                                                                                            |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 2200~10000                            | 0.55                                                                                                                                                                                           | 0.75                                                            | 0.90                                    | 0.95                               | 1                                    |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 尺寸<br>Diagram:<br>(Unit:mm)           |                                                                                                                                                                                                |                                                                 |                                         |                                    |                                      | <table><tr><td>D</td><td>13.0</td></tr><tr><td>H</td><td>30.0</td></tr><tr><td>F</td><td>5.0</td></tr><tr><td>d</td><td>0.6</td></tr><tr><td>a</td><td>2.0</td></tr></table> |                       |      |     | D    | 13.0 | H | 30.0 | F | 5.0 | d | 0.6 | a | 2.0 |
|                                       | D                                                                                                                                                                                              | 13.0                                                            |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| H                                     | 30.0                                                                                                                                                                                           |                                                                 |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| F                                     | 5.0                                                                                                                                                                                            |                                                                 |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| d                                     | 0.6                                                                                                                                                                                            |                                                                 |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| a                                     | 2.0                                                                                                                                                                                            |                                                                 |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |
| 作 成<br>Designer                       | 钟秋燕                                                                                                                                                                                            | 审 核<br>Auditor                                                  |                                         |                                    |                                      | 核 准<br>Approved                                                                                                                                                              | 黄永福                   |      |     |      |      |   |      |   |     |   |     |   |     |
| 客户承认<br>CUSTOMER<br>SIGNATURE         |                                                                                                                                                                                                |                                                                 |                                         |                                    |                                      |                                                                                                                                                                              |                       |      |     |      |      |   |      |   |     |   |     |   |     |

产 品 编 码 原 则 Coding Principle

例E. G: 电容Capacitor (PHR/4.7uF/400V/8×12 PET)

特殊编码Special

| 标准编码Standard     |            |              |            |                        |            |                     |            |                   |            |                |            |                 |            |                         |            |                             |   |            |  |    |  |    |  |
|------------------|------------|--------------|------------|------------------------|------------|---------------------|------------|-------------------|------------|----------------|------------|-----------------|------------|-------------------------|------------|-----------------------------|---|------------|--|----|--|----|--|
| 1                |            | 2            |            | 3                      |            | 4                   |            | 5                 |            | 6              |            | 7               |            | 8                       |            | 9                           |   | 10         |  | 11 |  | 12 |  |
| C                |            | V            |            | 4                      |            | R                   |            | 7                 |            | M              |            | 0               |            | 8                       |            | 1                           |   | 2          |  | B  |  | P  |  |
| 类别<br>Class<br>s | 代码<br>Code | 系列<br>Series | 代码<br>code | 电容器<br>Capacitance(uF) | 代码<br>Code | 允差<br>Tolerances(%) | 代码<br>Code | 电压<br>Voltage(WV) | 代码<br>Code | 直径<br>Diameter | 代码<br>Code | 长度<br>Length(L) | 代码<br>Code | 引线加工<br>Lead Tapping    | 代码<br>Code | 特殊编码<br>Special Coding      |   | 代码<br>Code |  |    |  |    |  |
| 电 容<br>Capacitor | C          | TRH          | A          | 0.1                    | 0R1        | +10                 | K          | 4                 | A          | 3              | 3          | 5.5             | 5          | 长脚<br>normal            | B          | 3KH                         | 3 |            |  |    |  |    |  |
|                  |            | SR           | B          | 0.22                   | R22        | -10                 |            | 6.3               | B          | 4              | 4          | 7.7             | 7          |                         |            | 三针盖板3 needle                | 3 |            |  |    |  |    |  |
|                  |            | SML          | 3          | 0.33                   | R33        | +20                 | M          | 10                | C          | 5              | 5          | 6.2             | 6          | 直切脚<br>Cutting          | C          | 四针盖板4 needle                | 4 |            |  |    |  |    |  |
|                  |            | SSR          | D          | 0.47                   | R47        | -20                 |            | 16                | D          | 6              | 6          | 10.5            | 10         |                         |            | 尼可乐Ni Ke Le                 | 7 |            |  |    |  |    |  |
|                  |            | SM           | F          | 0.68                   | R68        | +30                 | N          | 25                | E          | 6.3            | 7          | 100             | A0         | 编带<br>盒装<br>Tapping Box | T          | NP/85℃                      | 8 |            |  |    |  |    |  |
|                  |            | SMR          | G          | 1                      | 010        | -30                 |            | 35                | F          | 8              | 8          | 105             | A5         |                         |            | (GP)PET                     | 9 |            |  |    |  |    |  |
|                  |            | LL           | I          | 2.2                    | 2R2        | +30                 | Q          | 50                | G          | 10             | A          | 110             | B0         | K脚<br>K forming         | V          | A类切脚A cutting               | A |            |  |    |  |    |  |
|                  |            | PSR          | J          | 3.3                    | 3R3        | -10                 |            | 63                | H          | 12             | B          | 115             | B5         |                         |            | B类切脚B cutting               | B |            |  |    |  |    |  |
|                  |            | TRM          | K          | 4.7                    | 4R7        | +50                 | T          | 80                | I          | 13             | C          | 120             | C0         |                         |            | 短针盖板Short needle            | D |            |  |    |  |    |  |
|                  |            | TRR          | L          | 6.8                    | 6R8        | -10                 |            | 100               | J          | 16             | D          | 125             | C5         |                         |            | 软钛箔Soft titanium            | F |            |  |    |  |    |  |
|                  |            | NP           | M          | 10                     | 100        | +20                 | V          | 120               | Q          | 18             | E          | 130             | D0         |                         |            | PSR黑色胶管PSR with black cover | H |            |  |    |  |    |  |
|                  |            | BP           | N          | 22                     | 220        | -10                 |            | 125               | R          | 20             | F          | 135             | D5         |                         |            | 假套Cover                     | J |            |  |    |  |    |  |
|                  |            | PSH          | H          | 33                     | 330        | +0                  | W          | 160               | K          | 22             | G          | 140             | E0         |                         |            | 咖啡色Coffee                   | K |            |  |    |  |    |  |
|                  |            | PST          | T          | 47                     | 470        | -20                 |            | 180               | T          | 25             | H          | 145             | E5         |                         |            | 蓝色Blue                      | L |            |  |    |  |    |  |
|                  |            | TRB          | R          | 68                     | 680        | +5                  | J          | 200               | L          | 30             | I          | 150             | F0         |                         |            | PET                         | P |            |  |    |  |    |  |
|                  |            | TRP          | S          | 100                    | 101        | -5                  |            | 220               | X          | 35             | J          | 155             | F5         |                         |            | 加长号38/33                    | S |            |  |    |  |    |  |
|                  |            | PHR          | V          | 220                    | 221        | +20                 | Y          | 250               | M          | 40             | N          | 160             | G0         |                         |            | 贴箔Aluminum Foil             | T |            |  |    |  |    |  |
|                  |            | PHT          | X          | 330                    | 331        | 0                   |            | 275               | W          | 42             | V          | 165             | G5         |                         |            | K脚K forming                 | V |            |  |    |  |    |  |
|                  |            | SMF          | Y          | 470                    | 471        | +20                 | L          | 315               | S          | 50             | M          | 170             | H0         |                         |            | 弯切Bend cutting              | W |            |  |    |  |    |  |
|                  |            | SMT          | E          | 560                    | 561        | -5                  |            | 330               | Y          | 65             | T          | 175             | H5         |                         |            | 垫片Gasket                    | X |            |  |    |  |    |  |
|                  |            | PSL          | Z          | 680                    | 681        | +10                 | X          | 350               | N          | 76             | R          | 180             | I0         |                         |            | Y防爆Explosion-proof          | Y |            |  |    |  |    |  |
|                  |            | GRA          | 1          | 1000                   | 102        | -5                  |            | 400               | O          | 80             | S          | 185             | I5         |                         |            |                             |   |            |  |    |  |    |  |
|                  |            | GRB          | 2          | 2200                   | 222        | +20                 | S          | 420               | U          | 90             | P          | 190             | J0         |                         |            |                             |   |            |  |    |  |    |  |
|                  |            | GRT          | 5          | 3300                   | 332        | 5                   |            | 450               | P          | 100            | U          | 195             | J5         |                         |            |                             |   |            |  |    |  |    |  |
|                  |            | GRH          | 6          | 4700                   | 472        | +8                  | B          | 500               | V          |                |            |                 |            |                         |            |                             |   |            |  |    |  |    |  |
|                  |            | GRK          | 7          | 6800                   | 682        | -8                  |            | 550               | Z          |                |            |                 |            |                         |            |                             |   |            |  |    |  |    |  |
|                  |            | SP           | 8          | 8200                   | 822        | +0                  | Z          |                   |            |                |            |                 |            |                         |            |                             |   |            |  |    |  |    |  |
|                  |            |              |            | 10000                  | 103        | -10                 |            |                   |            |                |            |                 |            |                         |            |                             |   |            |  |    |  |    |  |
|                  |            |              |            |                        |            | -6.6                | E          |                   |            |                |            |                 |            |                         |            |                             |   |            |  |    |  |    |  |
|                  |            |              |            |                        |            | -14.7               |            |                   |            |                |            |                 |            |                         |            |                             |   |            |  |    |  |    |  |



伯 鸿 电 子 (肇 庆) 有 限 公 司

BOR HURNG ELECTRONIC (ZHAOQING) CO., LTD

## 品 质 说 明

## CONTENTS OF QUNLITY

### 一、电气特性:

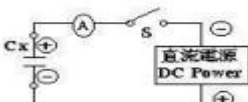
#### ELECTRICAL CHARACTERISTIC

| 项次<br>NO.  | 项目<br>ITEM                                                            | 规格值<br>SPECIFICATION                                                                                                                                                                                                                                        | 测试方法<br>TEST METHOD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |
|------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|----------------------|---|--------|------------|---|-----------------------------------------------------------------------|---------|---|--------|------------|---|----------------------------------------------------------------------|---------|
| 1.1        | 额定电压<br>Rated Voltage                                                 | 参考制品 (系列) 规格说明<br>See contents of the products                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |
| 1.2        | 静电容量<br>Capacitance                                                   |                                                                                                                                                                                                                                                             | 测定仪器: LCR 测试仪<br>Test Meter: LCR meter<br>测定频率: 100/120Hz<br>Measuring frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |
| 1.3        | 散逸因素 (损失角)<br>Dissipation Factor                                      |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |
| 1.4        | 泄漏电流<br>Leakage Current                                               |                                                                                                                                                                                                                                                             | 测定仪器: LC 测试仪Test Meter: LC meter<br>在 25℃施加额定工作电压 X 分钟后测定泄漏电流。<br>Dc leakage current shall be measured after X minutes application of the Dc rated working voltage.<br>X: 参考制品 (系列) 规格说明<br>See contents of the products                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |
| 1.5        | 浪涌试验<br>Surge test                                                    | (1) 静电容量变化: 初期值的±20% 以内Capacitance change: Within±20% of the initial measured value.<br>(2) 损失角: 不大于初期值的 ±200% Dissipation factor: Less than ±200% of the initial measured value.<br>(3) 泄漏电流: 不大于规定值<br>Leakage current: Within initial specify- ed value. | 电容器在常温下, 以每 6 分钟为一周期, 其中施加浪涌电压 30 秒, 放电 5 分 30 秒, 经过 1000 周期。<br>Applying rated surge voltage for 30 ± 5 seconds and then discharge for 5minutes 30seconds at room temperature. This cycle Shall be repeated for 1000 cycles. Duration Of one cycle is 6±0.5 minutes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |
| 1.6        | 温度特性<br>Temperature characteristics                                   | (1) 低温阻抗比: 低于规定值<br>Low temperature impedance stability: Less than specified value.<br>(2) 泄露电流: 不大于规定值 500%<br>Leakage current: less than 500% of the specified value.                                                                                     | <div>(1) 测定静电容量及阻抗 (   Z   , 25℃, 100/120Hz)<br/>Step1. Measure the capacitance and impedance.<br/>(2) 达到热平衡 2 小时后测定阻抗 (   Z   , -25℃, -40℃, 100/120Hz)<br/>Step2. Measure the impedance at thermal be lance after 2 hours.<br/>(3) 同(1)<br/>(4) 达到热平衡 2 小时后测定阻抗<br/>Step4. Measure the capacitance at thermal be lance after 2 hours.</div> <table><tr><th>步骤<br/>Step</th><th>温度<br/>Temperature</th><th>放置时间<br/>Storage time</th></tr><tr><td>1</td><td>25℃±2℃</td><td>30 minutes</td></tr><tr><td>2</td><td><input type="checkbox"/> -25℃±3℃/<br/><input type="checkbox"/> -40℃±3℃</td><td>2 hours</td></tr><tr><td>3</td><td>25℃±2℃</td><td>15 minutes</td></tr><tr><td>4</td><td><input type="checkbox"/> 85℃±2℃/<br/><input type="checkbox"/> 105℃±2℃</td><td>2 hours</td></tr></table> | 步骤<br>Step | 温度<br>Temperature | 放置时间<br>Storage time | 1 | 25℃±2℃ | 30 minutes | 2 | <input type="checkbox"/> -25℃±3℃/<br><input type="checkbox"/> -40℃±3℃ | 2 hours | 3 | 25℃±2℃ | 15 minutes | 4 | <input type="checkbox"/> 85℃±2℃/<br><input type="checkbox"/> 105℃±2℃ | 2 hours |
| 步骤<br>Step | 温度<br>Temperature                                                     | 放置时间<br>Storage time                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |
| 1          | 25℃±2℃                                                                | 30 minutes                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |
| 2          | <input type="checkbox"/> -25℃±3℃/<br><input type="checkbox"/> -40℃±3℃ | 2 hours                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |
| 3          | 25℃±2℃                                                                | 15 minutes                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |
| 4          | <input type="checkbox"/> 85℃±2℃/<br><input type="checkbox"/> 105℃±2℃  | 2 hours                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |                   |                      |   |        |            |   |                                                                       |         |   |        |            |   |                                                                      |         |

二、机械特性:

MECHANICAL CHARACTERISTICS

| 项次<br>NO.         | 项目<br>ITEM                | 规格值<br>SPECIFICATION                                                                                                                                                                                                                              | 测试方法<br>TEST METHOD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
|-------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-------|-----|-----------|---|----------|---|---------------|----------------|------|---|-------------------|-------------------|-------|------|-----------|-----|----------|---|
| 2.1               | 端子强度<br>Terminal strength | <p>(A)测量静电容量时，不能有接触不良，开路或短路。<br/>When the capacitance is measured, there shall be no intermittent contacts, or open- or short-circuiting.</p> <p>(B)不能有如端子受损之类的机械特性上的损伤。<br/>There shall be no such mechanical damage as terminal damage etc.</p> | <p>(A)拉力试验 Pull test<br/>将电容器本体垂直固定，于端子部加如下表所示之荷重，经 10 秒后，端子不可有断开，其他异状。</p> <p>①引线型</p> <table><tr><th>端子线直径<br/>d ( mm )</th><th>荷重 load<br/>( kg )</th></tr><tr><td>≤0.45</td><td>0.5</td></tr><tr><td>0.50~0.80</td><td>1</td></tr><tr><td>1.0~1.25</td><td>2</td></tr></table> <p>②焊针型</p> <table><tr><th>端子直径 d ( mm )</th><th>荷重 load ( kg )</th></tr><tr><td>焊针端子</td><td>2</td></tr></table> <p>The capacitor shall withstand the constant tensile fore specified between the body and each lead for 10 seconds without damage either mechanical or electrical.</p> <p>(B)弯曲度试验: Bending test</p> <table><tr><th>端子线直径 d<br/>( mm )</th><th>荷重 load<br/>( kg )</th></tr><tr><td>≤0.45</td><td>0.25</td></tr><tr><td>0.50~0.80</td><td>0.5</td></tr><tr><td>1.0~1.25</td><td>1</td></tr></table> <p>将电容器本体保持垂直状况，依下表规定荷重加于端子线，然后慢慢将本体向水平方向弯曲 90°，再回复原位，再朝反方向弯曲 90°，此为一周率，如此作两周率（每周率时间为 5 秒）端子线不可断开或其他异状。<br/>With the capacitor in a vertical position apply the load specified axially to each lead. The capacitor shall be rotated slowly from the vertical to the horizontal position, back to the vertical position, The 90° in the opposite direction and back the original position.</p> | 端子线直径<br>d ( mm ) | 荷重 load<br>( kg ) | ≤0.45 | 0.5 | 0.50~0.80 | 1 | 1.0~1.25 | 2 | 端子直径 d ( mm ) | 荷重 load ( kg ) | 焊针端子 | 2 | 端子线直径 d<br>( mm ) | 荷重 load<br>( kg ) | ≤0.45 | 0.25 | 0.50~0.80 | 0.5 | 1.0~1.25 | 1 |
| 端子线直径<br>d ( mm ) | 荷重 load<br>( kg )         |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| ≤0.45             | 0.5                       |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| 0.50~0.80         | 1                         |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| 1.0~1.25          | 2                         |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| 端子直径 d ( mm )     | 荷重 load ( kg )            |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| 焊针端子              | 2                         |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| 端子线直径 d<br>( mm ) | 荷重 load<br>( kg )         |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| ≤0.45             | 0.25                      |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| 0.50~0.80         | 0.5                       |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| 1.0~1.25          | 1                         |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| 2.2               | 耐振性<br>Vibration proof    | <p>(1)外观：无异常<br/>Appearance: No abnormal</p> <p>(2)静电容量：稳定<br/>Capacitance: No unsteady</p> <p>(3)容量变化：初始值的±5%之内<br/>Capacitance change: Within ±5% of the initial measured.</p>                                                                  | <p>(1) 将电容器Φ10 以下尺寸，端子线固定本体 4mm 处， Φ10 以上尺寸直接固定本体在机板振动器上。</p> <p>(2) 振动器以 60 秒为一周期，上半周期 30 秒由振动周率 10Hz 达到 55Hz，下半周期 30 秒由 55Hz 降到 10Hz，振幅 1.5mm，如此往复操作。</p> <p>(3) 振动时间应在彼此互相成垂直的方向，各振动 2 小时（共 6 小时）。</p> <p>(1) The capacitor under test shall be mounted by means of the mounting device specified in the individual standard of directly to the vibration table firmly.</p> <p>(2) Range of vibration frequency 10Hz to 55Hz total amplitude 15mm rate of frequency vibration to be such as to vary from 10Hz to 55Hz and return to 10Hz in about 60 seconds and thus repeated.</p> <p>(3) Test shall be conducted unless otherwise specified for 2 hours each (total 6 h).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |
| 2.3               | 焊锡性<br>Solder ability     | <p>浸入锡溶液部份至少应有 3/4 以上附着新锡。<br/>The liquid tin must at here to no less than 3/4 this section.</p>                                                                                                                                                  | <p>将电容器端子线浸入 230±5℃锡溶液至离本体 4±0.8mm 处，经 2±0.5秒后取出。</p> <p>The section from the base to 4±0.8mm of the capacitor terminal must be immersed in 230±5℃ liquid tin for 2+0.5 seconds.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |                   |       |     |           |   |          |   |               |                |      |   |                   |                   |       |      |           |     |          |   |

|     |                        |                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----|------------------------|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.4 | 防爆试验<br>Pressure proof | 防爆装置必须动作<br>The pressure relief device shall open in such a way. | <p>施加逆向额定电压、电流最大 1A。<br/>Applying the inverse rated voltage with electric ties 1 A max.</p> <p>注：1. 此要求适用于直径 8mm 或以上。<br/>2. 试验开始，经 30 分钟后防爆装置仍不动作，试验终止。</p> <p>Note: 1. This requirement applies to capacitors with a diameter of 8 mm or more.<br/>2. When the pressure relief device does not open even 30 minutes after commencement of the test, the test may be ended.</p> <p>试验回路 Test circuit</p>  <p>Cx: 试验电容器<br/>A : 直流电流表<br/>Dc current meter<br/>S : 开关 Switch</p> |
|-----|------------------------|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 三、信赖试验：

#### RELIABILITY PROOF

| 项次<br>NO. | 项目<br>ITEM                                    | 规格值<br>SPECIFICATION                                                                                                                                                                                                                                                                                           | 测试方法<br>TEST METHOD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1       | 焊锡耐热性<br>Solder heat resistance               | <p>(1)外观：不明显损伤和电解液漏出<br/>Appearance: no visible damage or leakage of electrolyte.</p> <p>(2)容量变化：初始值的±10%以内<br/>Capacitance change: within ±10% of the initial measured value.</p> <p>(3)损失角：低于规定值<br/>DF: less than specified value.</p> <p>(4)泄漏电流：低于规定值<br/>Leakage current: less than specified value.</p> | <p>将电容器端子线浸入 260℃±5℃锡溶液至离本体 4mm 处，经 10±1 秒后取出，于常温下放置，1 小时以上，2 小时以内，再测定其值。<br/>电容器过波峰焊所承受的温度为 150±5℃，时间为 20±5 秒。</p> <p>The section from the base to 4 mm of the capacitor terminal must be immersed in 260℃±5℃, liquid tin 10±1 seconds. then, after removing, The following specifications shall be satisfied when the capacitor terminal is restored to 25℃ within two hours or over an hour.<br/>The capacitor wave ridge has welded the temperature which withstands for 150±5℃, time for 20±5 second.</p> |
| 3.2       | 耐湿性(稳态)<br>Moisture resistance (steady state) | <p>(1)外观：无显著异状<br/>Appearance is good</p> <p>(2)容量变化：初始值之±2%以内<br/>Capacitance change: within ±2% of the initial measured value.</p> <p>(3)损失角：低于规定值<br/>DF: less than specified value.</p> <p>(4)泄漏电流：低于规定值<br/>Leakage current: less than specified value.</p>                                               | <p>电容器在 40℃±2℃，相对湿度 90~95%的条件下放置 120±6 小时。<br/>Subject the capacitors to 40℃±2℃ and 90% to 95% relative humidity for 120±6 hours.</p>                                                                                                                                                                                                                                                                                                                                                                          |
| 3.3       | 高温负荷<br>Load life                             | 判定标准依该制品(系列)规格说明<br>Standard of judgment is according to contents of the products.                                                                                                                                                                                                                             | <p>将电容器置于 □85℃或 □105℃ 或 □130℃±2℃的恒温空气循环室内，施加额定纹波电流 Y 小时后取出，置于常温 25℃16 小时后测定其值。<br/>After applying rated ripple current for Y hours at□85℃ or □105℃or □105℃±2℃, the measurements shall meet the contents of the products. Measurements shall be performed after exposed for 16 hours at room temperature after application of DC rated voltage to the capacitor for Z minutes.</p> <p>Y、Z: 见该制品（系列）规格值说明。<br/>See contents of the products</p>                                                                  |

|     |                                    |                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                      |
|-----|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.4 | 高温无负荷<br>Shelf life                | 判定标准依该制品规格说明<br>Standard of judgment is according to contents of the products.                                                                                                               | 在 □85℃或 □105℃ 或 □130℃±2℃环境中（不加电压）放置 500 小时后，按以下条件测试，测试在室温放置 16 小时，施加直流额定电压 K 分钟后进行。<br>After storage for y hours at □85℃ or □105℃ or □130℃±2℃ without voltage application, Measurements shall be preferment after exposed for 1 to 2 hours at room temperature after application of DC rated voltage to the capacitor of 2 minutes.<br>K: 见该制品（系列）规格值说明。See contents of the products |
| 3.5 | 低温储存<br>Storage at low temperature | (1)容量变化：初始值±10%以内<br>Capacitance change: within ±10% of the initial value.<br>(2)损失角：低于规定值<br>DF: Less than specified value.<br>(3)泄漏电流：低于规定值<br>Leakage current: less than specified value. | 电容器在 □-25℃或 □-40℃ ±3℃环境中(不加电压)储存 96±4 小时之后在标准大气压中放置 16 小时以上，然后进行测试。<br>The capacitor shall be storage at temperature of □-25℃ or □-40℃ ±3℃ for 96±4 hours, without voltage a placations. And then the capacitors shall be subjected conditions for 16 hours or more after which measurement shall be made.                                                                           |

#### 四、标识：

##### MARKING

电容器上的标识包括：

Marking on capacitors include

1.  商标  
 trademark

2. 标称静电容量  
Nominal capacitance

3. 工作电压  
Working voltage

4. 极性  
Polarity

5. 工作温度范围  
Operating temperature rage

6. 胶管颜色：□黑色 □墨绿色 □咖啡色 ■紫色 □宝石蓝 □桔红色  
Sleeving pipe basicc colour: □Black colour □Dark yellowish green colour □Coffee colour  
■Purple colour □Blue colour □orange colour

7. 胶管材质：■PET □PVC  
Hose material: ■PET □PVC



伯 鴻 電 子 (肇 慶) 有 限 公 司

BOR HURNG ELECTRONIC (ZHAOQING) CO., LTD

## 鋁 電 解 電 容 器 存 放 環 境 與 控 制

Storage Conditions and Control for Aluminum Electrolytic Capacitor

1. 環境溫度：5℃～35℃，環境相對濕度：75度以下。

Store the capacitor at a temperature of 5℃ to 35℃ and at a relative humidity of less than 75%.

2. 存放環境不應有陽光直射，不宜高溫。

Store the capacitor in low temperature places free from direct sun shine.

3. 存放環境不能有鹽分、油含量高的霧氣。

Store the capacitor in places free from oil vapor、salt water vapor.

4. 存放在遠離氯氣、氨氣、硫化氫、亞硫酸、硝酸等有害氣體含量高的地方。

Store the capacitor in places far from toxic gases (chlorine、ammonium、hydrogensulfide、sumptuous acid、nitric acid, etc).

5. 存放環境不能有臭氧、紫外線或輻射。

Store the capacitor in place free from Ozone、ultraviolet ray or radiation.



伯 鴻 電 子 (肇 慶) 有 限 公 司

BOR HURNG ELECTRONIC (ZHAOQING) CO., LTD

## 使 用 清 潔 劑 之 注 意 事 項

Ddetergents needing attention

鋁電解電容器會受含有碳化氫鹵素溶劑之侵蝕，下列為各種安全與不安全之清潔劑，為避免不必要的損失，您所使用有關印刷基板之清潔劑名稱請事先告知本公司。

Hydrogen carbide liquid and halogen liquid can cause Aluminium Electrolytic Capacitor to corrode. Some of Safe and Unsafe detergent are as follows.

| 安全Safe         | 不安全Unsafe                                |
|----------------|------------------------------------------|
| 二甲苯            | 1. 1. 2-三氯乙烷                             |
| Dimethybenxene | 1. 1. 2-trichloroethane                  |
| 甲醇             | 1. 1. 2-三氯乙烯                             |
| Methanol       | 1. 1. 2-trichloroethane                  |
| 乙醇             | 四氯化碳                                     |
| Ethanol        | Tetrachloroethylene                      |
| 丙醇             | 哥羅仿（無色揮發性液體）                             |
| Propanol       | Chloroform(colorlessvolatilizableliquid) |
| 丁醇             | 二氯甲烷                                     |
| Butanol        | Dichloromethane                          |
| 去垢劑            | 三氯甲烯                                     |
| Detergent      | Trichlorelethylene                       |