



## 深圳市凯琦佳科技股份有限公司

### 铝电解电容器

PE20400471M2H000

400V470 $\mu$ F

$\Phi$  30 X 50

## 纳入规格书

客户名称:

物料编码:

受领印栏



注：对此规格书确认后，在确认后签名，返传一份与敝公司



Snap-in Al-capacitors 铝电解电容器

PE20400471M2H000 400V 470 $\mu$ F  $\Phi$  30 X 50 85 $^{\circ}$ C 2000h

- Features:
- 标准系列Standard Series
  - 符合ROHS要求ROHS compatible
  - 高纹波电流High ripple current capability
  - 85 $^{\circ}$ C负载寿命达到2000小时Load life of 2000h at 85 $^{\circ}$ C

Aluminum Electrolytic Capacitors Specification

Capacitors with Snap-in

焊片式铝电解电容器规格书

Series/Type:

PE20

Ordering code:

PE20400471M2H000

Date:

April 13, 2016

Version:

1

拟定created:

张恋

审核checked :

宋向华

批准 approval:



### 1. 适用范围Adapt Range

本产品规格书适用于深圳市凯琦佳科技股份有限公司电解电容器产品系列:

PE20

The product specification is adapted to series Aluminum :

PE20

SHENZHEN CECTN TECHNOLOGY CO.,LTD

### 2. 部品编号Part Number System

|             |             |              |             |          |          |                |                  |
|-------------|-------------|--------------|-------------|----------|----------|----------------|------------------|
| <b>PE20</b> | <b>400</b>  | <b>471</b>   | <b>M</b>    | <b>2</b> | <b>H</b> | <b>0</b>       | <b>00</b>        |
| 系列          | 标称电压        | 额定容量         | 容量组别        | 焊针个数     | 直径       | 端子类型           | 按目录上标示要求         |
| Series      | Rated V (V) | Rated C (μF) | C Tolerance | terminal | D code   | Terminal style | Refer to catalog |
|             | 400         | 470          |             | 2个焊针     | 30       | 目录标示的标准长端子     |                  |

### 3. 电气特性Electrical characteristics (表1)

| 额定电压<br>Rated WV<br>(V. DC)  | 浪涌电压<br>Surge<br>(V. DC) | 额定容量<br>Rated C<br>(μ F) | 容量偏差<br>C Tol.<br>(%) | 损耗角<br>正切<br>TGD (MAX) | ESR典型值<br>Typical ESR<br>(mΩ) | 漏电流<br>IL<br>(mA , MAX,<br>5min) | 额定纹波电流<br>Rated ripple<br>current<br>(A) | 其它 others |
|--|--------------------------|--------------------------|-----------------------|------------------------|-------------------------------|----------------------------------|--|-----------|
| 400  | 440                      | 470                      | -20~+20               | 0.15                   | 203.3                         | 1.301                            | 2.10                                     |           |
| at 120Hz 20°C  |                          |                          |                       |                        |                               |                                  | 85°C 120Hz                               |           |
| 气候类别 Environmental Category : 25/085/56 (工作温度为-25°C至+85°C, 稳态湿热试验为56天) |                          |                          |                       |                        |                               |                                  |  |           |

### 4. 性能特性Specification

| No. | 项目Item   | 特性 Characteristics   |
|-----|--|--|
| 1   | 外观检查<br>Visual examination, marking<br>(Non-Destructive) | 外观: 无任何异常<br>Appearance: no remarkable abnormality   |
| 2   | 外形尺寸<br>Dimensions<br>(Non-Destructive)                  | 见外形图<br>See to dimensions  |
| 3   | 漏电流<br>Leakage current<br>(Non-Destructive)              | 见表1<br>See to table 1  |
| 4   | 容量<br>Capacitance<br>(Non-Destructive)                   | 见表1<br>See to table 1  |
| 5   | 损耗角正切<br>Tangent of the loss angle<br>(Non-Destructive)  | 见表1<br>See to table 1  |
| 6   | 端子强度<br>Robustness of terminations                       | 拉力: 端子应能承受不小于20N的拉力后, 端子无可见损伤, 端子的铆接处不松动。<br>Tension: The terminal is required to withstand the tension of no less than 20N without noticeable damages and loose of rivet joint.<br>扭力: 端子应能承受不小于15N的扭力并在180°方向上受力两次, 端子无可见损伤, 端子的铆接处不松动。<br>Torsion: The terminal is required to endure the torsion of no less than 15N and can bear force twice at an angle of 180° without noticeable damages and loose of rivet joint. |

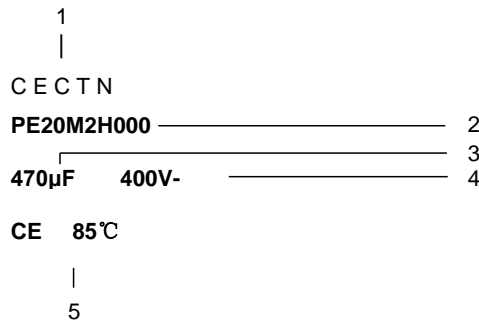


|    |                           |   |              |                      |               |
|----|---------------------------|---|--------------|----------------------|---------------|
| 7  | <p>振动<br/>Vibration</p>   | <p>频率范围Frequency range: 10—55Hz<br/>           振幅: 0.75mm<br/>           Total Amplitude: 0.75mm<br/>           条件: X.Y.Z 方向各2小时<br/>           Direction and duration of vibration: 3 orthogonal directions mutually each for 2 hours Total 6 hours<br/>           静电容量测试时无接触不良, 断线及短路, 端子无机械损伤<br/>           Capacitance: During the test, measured value to be stabilized (when measured several times within 30 min before completion of test)Appearance: No remarkable abnormality<br/>           静电容量变化: 初始值的-15~+15%以内<br/>           Capacitance change: Within -15~+15% of the initial value</p>  |              |                      |               |
| 8  | <p>稳态湿热<br/>Dump heat</p> | <p>温度: 40±2℃ 湿度: 90-95%Rh 时间: 56天<br/>           Test Temperature :40±2℃ Relative Hwmidity:90-95%Rh Test time: 56days<br/>           试验后常温放置1-2小时<br/>           To expose in the atmospheric condition for 1 to 2 hours after completion of test<br/>           漏电流: 不超过规定值<br/>           Leakage current: Not more than the specified value<br/>           静电容量变化: 初始值的-20~+20%以内<br/>           Capacitance change: Within -20~+20%of the initial value<br/>           损耗角正切: 不超过规定值<br/>           Dissipation Factor: Not more than the specified value<br/>           绝缘电阻 (使用金属箔法): 大于100MΩ<br/>           Insulation Resistance (Using metal foil): ≥100MΩ</p> |              |                      |               |
| 9  | <p>耐久性<br/>Endurance</p>  | <p>时间<br/>(Time)</p>  | <p>2000h</p> | <p>温度temperature</p> | <p>85℃</p>    |
|    |                           | <p>电压: 额定电压 (叠加规定纹波电流) 试验后常温放置16h测定<br/>           Applied Voltage:maximum value of DC voltage overlapped by an allowable ripple current.<br/>           The capacitors shall then be removed from the test chamber and stabilized at room temperature for 16 hrs. after.<br/>           漏电流: 不超过规定值<br/>           Leakage Current:Not more than the specified value<br/>           电容量变化: 初始值的-20~+20%以内<br/>           Capacitance change:within-20~+20% of the initial value<br/>           损耗角正切: 不超过规定值的1.75倍<br/>           Dissipation Factor:Not more than 175% of the specified value</p>   |              |                      |               |
| 10 | <p>浪涌<br/>Surge</p>       | <p>印加电压<br/>(VDC)</p>   | <p>440</p>   | <p>温度temperature</p> | <p>15~30℃</p> |
|    |                           | <p>周期: 6±0.5min 30±5sec充电<br/>           A period:6±0.5min(charging for 30±5sec)<br/>           充电电阻: 1000Ω 回数: 1000 times<br/>           Series protective resistance The number of times<br/>           漏电流: 不超过规定值<br/>           Leakage Current:Not more than the specified value<br/>           电容量变化: 初始值的15%以内<br/>           Capacitance change:within 15% of the initial value<br/>           损耗角正切: 不超过规定值的1.75倍<br/>           Dissipation Factor:Not more than 175% of the specified value</p>   |              |                      |               |



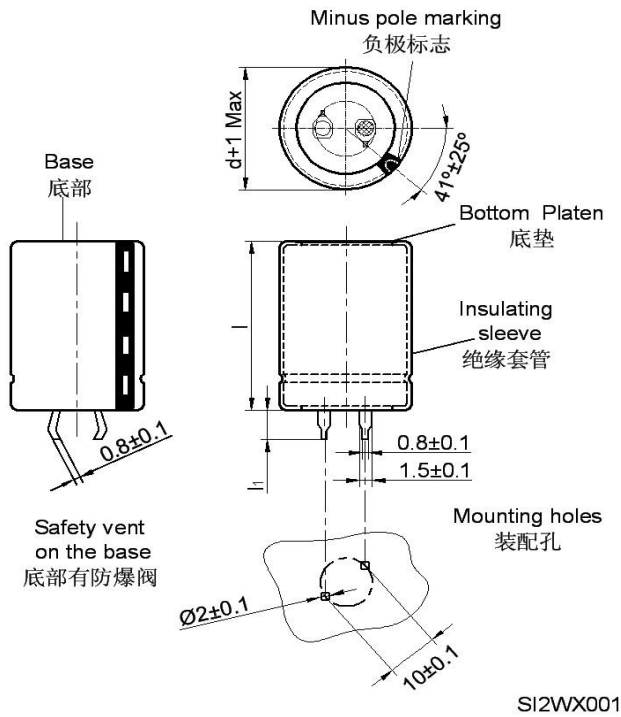
|    |   |   |     |
|----|---|---|-----|
| 11 | 压力释放<br>Pressure relief                       | <p>电容器上印加10A 逆向直流电，防爆阀正常动作，无金属片飞散，起火，爆炸。</p> <p>The capacitor is shall be connected in inverse polarity,and applied DC current at 10A constant, The pressure relief device shall open in such a way as to avoid any danger of fire or explosion of capacitor elements</p>   |     |
| 12 | 高温贮存<br>Storage at upper category temperature | 温度 (temperature)  | 85℃ |
|    |   | <p>时间(Time): 1000h</p> <p>电压处理: 常温下电容器串联保护电阻(1K), 加额定电压30分钟, 印加后放电, 常温放置24-48小时</p> <p>Condition:Following this period the capacitors shall be removed from the test chamber and be allowed to stabilize at room temperature. Next they shall be connected to a series limiting resistor (1K),with DC. Rated Voltage applied for 30 min.after which the capacitors shall be discharged.The capacitor shall be stored under room temperature for 24 -48 hours.</p> <p>漏电流: 不超过规定值</p> <p>Leakage Current:Not more than the specified value</p> <p>电容量变化: 初始值的20%以内</p> <p>Capacitance change:within 20% of the initial value</p> <p>损耗角正切: 不超过规定值的2倍</p> <p>Dissipation Factor:Not more than 200% of the specified value</p> |     |
| 13 | 绝缘耐压<br>insulation withstanding voltage       | <p>2000VAC施加于短路的端子和固定卡箍之间, 1分钟不破坏</p> <p>A voltage of 2000VAC is applied for one minute between the terminals shorted each other and the mounting clamp on insulating sleeve covering the case,there shall not be damaged</p>   |     |

5. 标识Marking



| No. | 项目Item                 | No. | 项目Item                |
|-----|------------------------|-----|-----------------------|
| 1   | 商标 Brand               | 4   | 额定电压 Rated voltage    |
| 2   | 产品系列编码 Products number | 5   | 温度类别 Climate category |
| 3   | 静电容量 Capacitance       |     |                       |

## 6. 外型图Dimensions



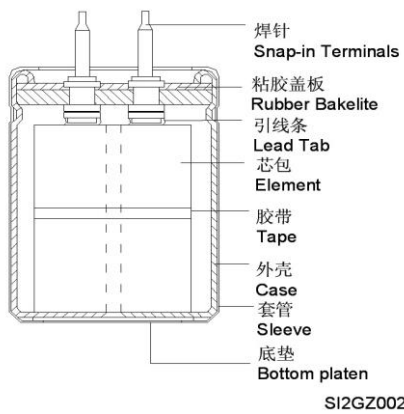
d: 30+1mm

l: 50±2mm

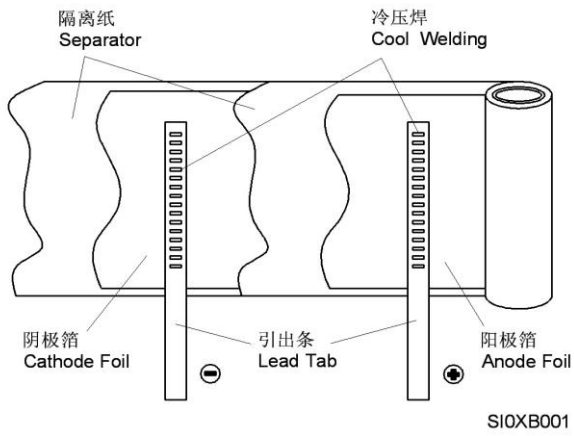
l<sub>1</sub>: 6.0±1mm

## 7. 构造图 Frame drawing

### 7-1 构造图(Frame drawing)



7-2 工艺芯包分解图 (Element drawing)





8. 纹波电流系数 Multiplier for ripple current

8-1 频率系数 Frequency Coefficient

|                  |             |      |      |      |      |            |
|------------------|-------------|------|------|------|------|------------|
| 频率 (Hz)<br>Freq. | $V_R$       | 50   | 120  | 300  | 1K   | $\geq 10K$ |
| 系数<br>Coe.       | $\leq 50V$  | 0.88 | 1.00 | 1.07 | 1.10 | 1.15       |
| 系数<br>Coe.       | 63...100V   | 0.90 | 1.00 | 1.10 | 1.16 | 1.30       |
| 系数<br>Coe.       | $\geq 160V$ | 0.70 | 1.00 | 1.13 | 1.30 | 1.40       |

8-2 温度系数 Temperature Coefficient

|                |             |      |      |      |      |
|----------------|-------------|------|------|------|------|
| 温度(°C)<br>Tem. | $V_R$       | +40  | +55  | +70  | +85  |
| 系数<br>Coe.     | $< 160V$    | 2.70 | 2.30 | 1.65 | 1.00 |
| 系数<br>Coe.     | $\geq 160V$ | 2.30 | 2.10 | 1.50 | 1.00 |

9. 包装 Packaging

9-1 包装数量 Packaging Quantity

|                |                |
|----------------|----------------|
| 电容器尺寸          | 装箱数量           |
| Capacitor Size | Qty per carton |
| $\Phi 30X50$   | 204 PCS        |

9-2 包装箱材质 Material of Packaging Inbox and Carton

瓦楞纸

Corrugated Cardboard

9-3 包装箱尺寸 Dimensions of Packaging Carton

|                          |                       |
|--------------------------|-----------------------|
| 外箱尺寸 Carton Dimensions : | 400mm X 300mm X 209mm |
|--------------------------|-----------------------|

10. 生产日期的表示方法 Production date code

YY.MM

例 EX: 11 08

2011 年 8 月份

Production date: produced in August.2011