



**SPECIFICATION FOR APPROVAL**

产品规格承认书

**SMD POWER INDUCTOR**

功率电感

CUSTOMER.

\_\_\_\_\_

MODEL NO.

**MPA4030S181M**

\_\_\_\_\_

CUSTOMER'S PART NO.

\_\_\_\_\_

LILE NO.

\_\_\_\_\_

DATE.

**2019.7.1**

\_\_\_\_\_

REVISION.

**A/0**

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|                         |                 |                    |
|-------------------------|-----------------|--------------------|
| <b>CUSTOMER APPROVE</b> |                 |                    |
|                         |                 |                    |
| <b>DATE:</b>            |                 |                    |
|                         |                 |                    |
| <b>DRAWING</b>          |                 |                    |
| <b>DRAWN BY</b>         | <b>CHECK BY</b> | <b>APPROVAL BY</b> |
|                         |                 |                    |
| <b>DATE:</b>            |                 |                    |
|                         |                 |                    |



**深圳市迈翔科技有限公司**

**SHENZHEN MOTTO TECHNOLOGY Co., Ltd**

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|          |  |           |              |          |          |
|----------|--|-----------|--------------|----------|----------|
| CUSTOMER |  | MODEL NO. | MPA4030S181M | REVISION | A/0      |
| FILE NO. |  | PART NO.  |              | DATE     | 2019.7.1 |

REVISIONS

| REW | PROJECT CHANGE | DESCRIPTION | Date |
|-----|----------------|-------------|------|
|     |                |             |      |
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|                     |  |         |         |
|---------------------|--|---------|---------|
| 1.PRODUCT DIMENSION |  | UNIT:mm |         |
|                     |  | A       | 4.0±0.2 |
|                     |  | B       | 4.0±0.2 |
|                     |  | C       | 3.0MAX  |
|                     |  | D       | 2.1±0.2 |
|                     |  |         |         |
|                     |  |         |         |
|                     |  |         |         |
|                     |  |         |         |
|                     |  |         |         |
|                     |  |         |         |

| 2.ELECTRICAL REQUIREMENTS |                    |           |                     |
|---------------------------|--------------------|-----------|---------------------|
| PARAMETER                 | SPECIFICATION      | CONDITION | TEST INSTRUMENTS    |
| L( uH)                    | 180±20%            | 1KHz/1.0V | MICROTEST 6377      |
| DCR(Ω)                    | 1.836MAX           | At 25℃    | TH2512A             |
| I sat(A)                  | 0.48A TYP L0A* 70% | 1KHz/1.0V | MICROTEST 6377+6220 |
| Irms(A)                   | 0.40A TYP ΔT≤40℃   | 1KHz/1.0V | MICROTEST 6377+6220 |
|                           |                    |           |                     |

|  |
|--|
| <p>3.CHARACTERISTICS</p> <p>(1). All test data is based on 25℃ ambient.</p> <p>(2). DC current(A)that will cause an approximate ΔT40℃</p> <p>(3). DC current(A)that will cause L0 to drop approximately 10%Typ</p> <p>(4). Operating temperature range: -55℃~+125℃</p> <p>(5).The part temperature (ambient + temp rise)should not exceed 125℃ under worst case operating conditions. circuit design, component.PWB trace size and thickness,airflow and other cooling provision all affect the part temperature. Part temperature should be verified in the den application</p> |
|--|

|  |
|--|
| <p>4.SPECIAL REQUEST</p> <p>(1)Lettering 181 on top of the body.</p> |
|--|

|          |  |           |              |          |          |
|----------|--|-----------|--------------|----------|----------|
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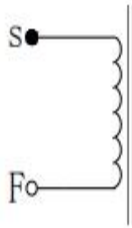
**5.PRODUCT IDENTIFICATION**

XX XXXX S XXX X

① ② ③ ④ ⑤

- ①、 Product Symbol ②、 Dimensions ③、 material class number  
 ④、 Inductance ⑤ 、 Tolerance: M±20%, N±30%.

**6.ELECTRICAL SCHEMATICS**



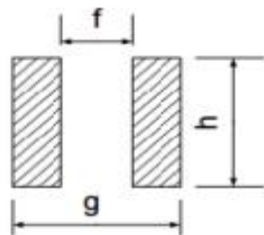
**7.APPLICATION**

- (1)Low profile,high current power supplies.
- (2)Battery powered devices.
- (3)DC/DC converters in distributed power systems.
- (5)DC/DC converters for field programmable gate array.

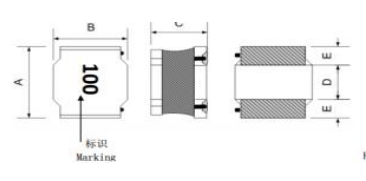
**8.FEATURES**

- (1)ROHS compliant.
- (2)Super low resistance,ultra high current rating.
- (3)high performance(l sat)realized by metal dust core.
- (4)Frequency Range:up to 1MHZ.

**9.RECOMMENDED PCB LAYOUT**



|   |        |
|---|--------|
| g | 3.1typ |
| f | 1.5typ |
| h | 2.7typ |
|   |        |
|   |        |

| CUSTOMER                  |      | MODEL NO. |          |                       |                     | MPA4030S181M  |  | REVISION |  | A/0      |  |
|---------------------------|------|-----------|----------|-----------------------|---------------------|---|--|----------|--|----------|--|
| FILE NO.                  |      | PART NO.  |          |                       |                     |   |  | DATE     |  | 2019.7.1 |  |
| SORT                      | ITEM | A         | B        | C                     | D                   |   |  |          |  |          |  |
| PRODUCT & DIMENSION       | SPEC | 4.0±0.2   | 4.0±0.2  | 3.0MAX                | 2.1±0.2             |   |  |          |  |          |  |
|                           | 1    | 4.13      | 4.03     | 2.84                  | 2.09                |   |  |          |  |          |  |
|                           | 2    | 4.01      | 4.00     | 2.86                  | 2.12                |   |  |          |  |          |  |
|                           | 3    | 4.04      | 4.03     | 2.86                  | 2.13                |   |  |          |  |          |  |
|                           | 4    | 4.05      | 4.03     | 2.82                  | 2.12                |   |  |          |  |          |  |
|                           | 5    | 4.13      | 4.02     | 2.84                  | 2.13                |   |  |          |  |          |  |
|                           | X    | 4.07      | 4.02     | 2.84                  | 2.12                |   |  |          |  |          |  |
|                           | R    | 0.12      | 0.03     | 0.04                  | 0.04                |   |  |          |  |          |  |
| ELECTRICAL & REQUIREMENTS | ITEM | L(uH)     | DCR (Ω)  | I sat(A)              | I rms(A)            | SHAPE:  |  |          |  |          |  |
|                           | SPEC | 180±20%   | 1.836MAX | 0.48A TYP<br>LOA* 70% | 0.40A TYP<br>ΔT≤40℃ |  |  |          |  |          |  |
|                           | 1    | 172.40    | 1.61     | 82.00                 | OK                  |   |  |          |  |          |  |
|                           | 2    | 177.30    | 1.62     | 81.00                 | OK                  |   |  |          |  |          |  |
|                           | 3    | 178.80    | 1.53     | 78.00                 | OK                  |   |  |          |  |          |  |
|                           | 4    | 168.90    | 1.53     | 83.00                 | OK                  |   |  |          |  |          |  |
|                           | 5    | 181.70    | 1.53     | 78.00                 | OK                  |   |  |          |  |          |  |
|                           | X    | 175.82    | 1.56     | 80.40                 |                     |   |  |          |  |          |  |
|                           | R    | 12.80     | 0.09     | 5.00                  |                     |   |  |          |  |          |  |

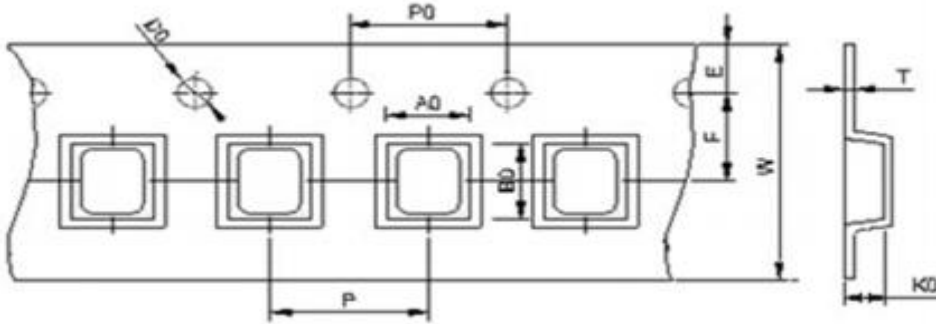
| CUSTOMER                             | MODEL NO.   | MPA4030S181M  | REVISION | A/0      |
|--------------------------------------|---|---|----------|----------|
| FILE NO.                             | PART NO.  |   | DATE     | 2019.7.1 |
| 3                                    |   |   |          |          |
| 项目Item                               | 规格与需求<br>Specification and Requirement  | 测试方法Test Method   |          |          |
| 可焊性<br>Solderability test            | 沾锡面积不得小于95%上锡面<br>Terminals area must have 95% min solder coverage                                  | 上锡升温曲线Solder heat proof:<br>(1) 预热: 160±10℃持续90s<br>Preheating: 160±10℃ for 90 seconds<br>(2) 恒温时段: 245±5℃持续2±0.5s<br>Retention time: 245±5℃ for 2±0.5 seconds  |          |          |
| 振动测试<br>Vibration test               | 感值变化: 不超过±5%<br>且无破裂等机械损伤产生<br>Inductance change: Within±5% Without mechanical damage such as break | (1) 振动频率(10Hz 55Hz 10Hz)60s为一个周期 Vibration frequency: (10Hz to 55Hz to 10Hz) in 60 seconds as a period<br>(2) 振动时间 Vibration time:<br>三维正交坐标系每个方向振动(周期)循环2小时 Period cycled for 2 hours in each of 3 mutual perpendicular directions<br>(3) 振幅 Amplitude: 1.5 mm Max   |          |          |
| 冲击测试<br>Shock test                   | 感值变化: 不超过±5%<br>且无破裂等机械损伤产生<br>Inductance change: Within±5% Without mechanical damage such as break | (1) 最大振幅 Peak value: 100G<br>(2) 脉冲波长 Duration of pulse: 11ms<br>(3) 三维正交坐标系每个方向正负方向冲击3次 Times in each positive and negative direction of 3 mutual perpendicular directions   |          |          |
| 冷热冲击<br>Thermal shock                | 感值变化: 不超过±5%<br>且无破裂等机械损伤产生<br>Inductance change: Within±5% Without mechanical damage such as break | (1)重复以上100个循环Repeat 100 cycle as follow<br>(-55±2℃,30±3分钟) 室温5分钟<br>(-55±2℃,30±3 minutes)<br>Room temperature,5 minutes<br>(+125±2℃,30±3分钟) 室温5分钟<br>(+125±2℃,30±3 minutes)<br>Room temperature,5 minutes<br>(2)恢复: 测试于标准条件下恢复48+4/-0小时(参考注释1)<br>Recovery:48+4/-0 hours of recovery under the standard condition after the test. (see Note1) |          |          |
| 耐高温测试<br>High temperature life test  | 感值变化: 不超过±5%<br>且无破裂等机械损伤产生<br>Inductance change: Within±5% Without mechanical damage such as break | (1)环境条件: 85±2℃<br>Environment condition : 85±2℃<br>应用电流: 额定电流<br>Applied current: Rated current<br>(2)持续时间: 1000+4/-0 小时(参考注释1)<br>Duration:1000+4/-0 hours (see Note1)   |          |          |
| 耐湿测试<br>Humidity Resistance          | 感值变化: 不超过±5%<br>且无破裂等机械损伤产生<br>Inductance change: Within±5% Without mechanical damage such as break | (1)环境条件: 60±2℃<br>Environment condition : 60±2℃<br>湿度: 90~95%<br>Humidity:90~95%<br>应用电流: 额定电流<br>Applied current: Rated current<br>(2)持续时间: 1000+4/-0 小时(参考注释1)<br>Duration:1000+4/-0 hours (see Note1)  |          |          |
| 低温存放测试<br>Low temperature life test  | 感值变化: 不超过±5%<br>且无破裂等机械损伤产生<br>Inductance change: Within±5% Without mechanical damage such as break | (1)存储温度 Store temperature<br>-55±2℃下存放 1000+4/-0 小时<br>-55±2℃for total 1000+4/-0 hours  |          |          |
| 高温存放测试<br>High temperature life test | 感值变化: 不超过±5%<br>且无破裂等机械损伤产生<br>Inductance change: Within±5% Without mechanical damage such as break | (1)存储温度 Store temperature<br>+125±2℃下存放 1000+4/-0 小时<br>+125±2℃for total 1000+4/-0 hours  |          |          |

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12、包装 Packaging

12.1、尺寸 Dimensions

12.1.1 包装料带尺寸 Tape packaging dimensions



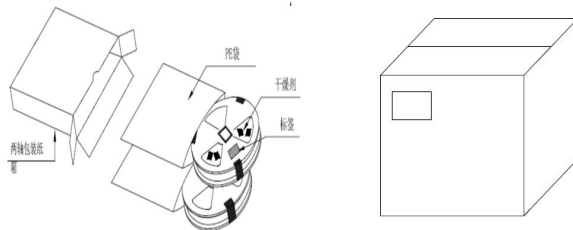
| W             | A0           | B0           | K0           | E             | F            | P            | D0           | P0           | T             |
|---------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|--------------|---------------|
| 8.00<br>±0.30 | 1.9<br>±0.10 | 2.3<br>±0.10 | 1.2<br>±0.10 | 1.75<br>±0.10 | 3.5<br>±0.05 | 4.0<br>±0.10 | 1.5<br>±0.10 | 4.0<br>±0.10 | 0.18<br>±0.03 |

12.1.2 卷轴尺寸 Reel dimensions



| 项目 | 尺寸(mm)     |
|----|------------|
| A  | 178 ± 2.0  |
| B  | 58 ± 1.0   |
| C  | 13.5 ± 0.2 |
| D  | 9.0 ± 1.5  |
|    |            |
|    |            |

12.1.3 外箱尺寸 Carton dimensions



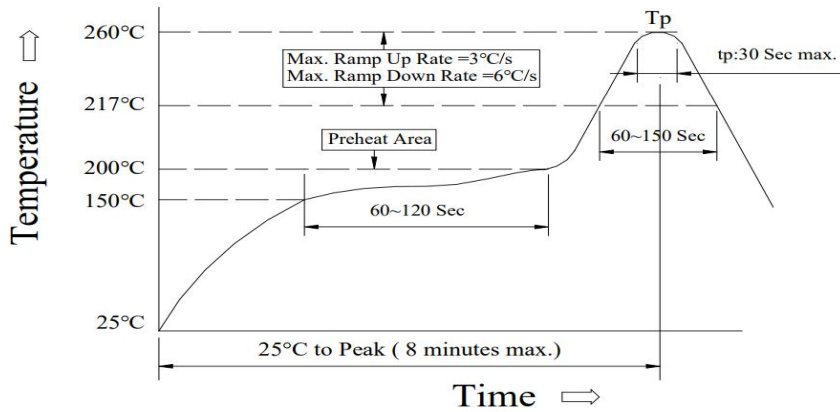
| 项目   | 数量 (PCS) |
|------|----------|
| 1 卷轴 | 2000     |
| 1 内箱 |          |
| 1 外箱 |          |

|          |  |           |              |          |          |
|----------|--|-----------|--------------|----------|----------|
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Reflow curve

※ Reflow Profile

Power Choke Coil Type



1. Reflow Soldering Method

|                               |                |                       |
|-------------------------------|----------------|-----------------------|
| Reflow Soldering              | Tp:255~260°C   | Max.30 seconds ( tp ) |
|                               | 217°C          | 60~150 seconds        |
| Pre-Heat                      | 150 ~ 200°C    | 60~120 seconds        |
| Time 25°C to peak temperature | 8 minutes max. |                       |

2. Soldering iron method : 350±5°C Max.3 seconds.



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