



**SPECIFICATION FOR APPROVAL**

产品规格承认书

**SMD POWER INDUCTOR**

功率电感

CUSTOMER.

\_\_\_\_\_

MODEL NO.

**MSA54-4R7M**

\_\_\_\_\_

CUSTOMER'S PART NO.

\_\_\_\_\_

LILE NO.

\_\_\_\_\_

DATE.

**2019.4.26**

\_\_\_\_\_

REVISION.

**A/0**

\_\_\_\_\_

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



IATF16949 / ISO9001 / ISO14000

**深圳市迈翔科技有限公司**

**SHENZHEN MOTTO TECHNOLOGY Co., Ltd**

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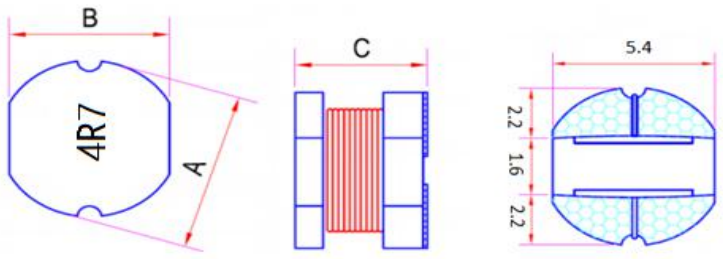
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|          |  |           |            |          |           |
|----------|--|-----------|------------|----------|-----------|
| CUSTOMER |  | MODEL NO. | MSA54-4R7M | REVISION | A/0       |
| FILE NO. |  | PART NO.  |            | DATE     | 2019.4.26 |

|  |         |         |
|--|---------|---------|
| <p><b>1.PRODUCT DIMENSION</b></p>  | UNIT:mm |         |
|  | A       | 5.8±0.3 |
|  | B       | 5.2±0.3 |
|  | C       | 4.5±0.3 |
|  |         |         |
|  |         |         |
|  |         |         |
|  |         |         |
|  |         |         |
|  |         |         |

| <b>2.ELECTRICAL REQUIREMENTS</b> |               |             |                     |
|----------------------------------|---------------|-------------|---------------------|
| PARAMETER                        | SPECIFICATION | CONDITION   | TEST INSTRUMENTS    |
| L( uH)                           | 4.7±20%       | 100KHz/1.0V | MICROTEST 6377      |
| DCR(mΩ)                          | 38MAX         | At 25℃      | TH2512A             |
| I sat(A)                         | 4.5A TYP 30%  | 100KHz/1.0V | MICROTEST 6377+6220 |
|                                  |               |             |                     |
|                                  |               |             |                     |

**3.CHARACTERISTICS**

(1). All test data is based on 25℃ ambient.

(2). DC current(A)that will cause an approximate ΔT40℃

(3). DC current(A)that will cause L0 to drop approximately 10%Typ

(4). Operating temperature range: -55℃~+125℃

(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

**4.SPECIAL REQUEST**

(1)Lettering 4R7 on top of the body.

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

XX XXXX - XXX X X

①      ②      ③      ④      ⑤

①、 Product Symbol    ②、 Dimensions    ③、 Inductance

④、 Tolerance: M±20%, N±30%.    ⑤、 Material

**6.ELECTRICAL SCHEMATICS**



**7.APPLICATION**

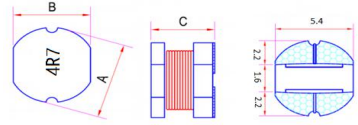
- (1)Low profile,high current power supplies.
- (2)Battery powered devices.
- (3)DC/DC converters in distributed power systems.
- (5)DC/DC converters for field programmable gate array.

**8.FEATURES**

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

**9.RECOMMENDED PCB LAYOUT**

|  |   |  |
|--|---|--|
|  | H |  |
|  | S |  |
|  | M |  |
|  |   |  |
|  |   |  |
|  |   |  |

| CUSTOMER                  |      | MODEL NO. |          |              | MSA54-4R7M |  | REVISION  |  | A/0       |  |
|---------------------------|------|-----------|----------|--------------|------------|--|---|--|-----------|--|
| FILE NO.                  |      | PART NO.  |          |              |            |  | DATE  |  | 2019.4.26 |  |
| SORT                      |      | ITEM      | A        | B            | C          |  |   |  |           |  |
| PRODUCT & DIMENSION       | SPEC | 5.8±0.3   | 5.2±0.3  | 4.5±0.3      |            |  |   |  |           |  |
|                           | 1    | 5.83      | 5.23     | 4.52         |            |  |   |  |           |  |
|                           | 2    | 5.82      | 5.22     | 4.54         |            |  |   |  |           |  |
|                           | 3    | 5.83      | 5.24     | 4.52         |            |  |   |  |           |  |
|                           | 4    | 5.81      | 5.23     | 4.53         |            |  |   |  |           |  |
|                           | 5    | 5.82      | 5.22     | 4.52         |            |  |   |  |           |  |
|                           | X    | 5.82      | 5.23     | 4.53         |            |  |   |  |           |  |
|                           | R    | 0.02      | 0.02     | 0.02         |            |  |   |  |           |  |
| ELECTRICAL & REQUIREMENTS | ITEM | L(uH)     | DCR (mΩ) | I sat(A)     |            |  | SHAPE:  |  |           |  |
|                           | SPEC | 4.7±20%   | 38MAX    | 4.5A TYP 30% |            |  |  |  |           |  |
|                           | 1    | 4.53      | 31.50    | 4.12         |            |  |   |  |           |  |
|                           | 2    | 4.56      | 31.20    | 4.13         |            |  |   |  |           |  |
|                           | 3    | 4.52      | 31.20    | 4.12         |            |  |   |  |           |  |
|                           | 4    | 4.52      | 31.00    | 4.13         |            |  |   |  |           |  |
|                           | 5    | 4.53      | 31.23    | 4.13         |            |  |   |  |           |  |
|                           | X    | 4.53      | 31.23    | 4.13         |            |  |   |  |           |  |
|                           | R    | 0.04      | 0.50     | 0.01         |            |  |   |  |           |  |

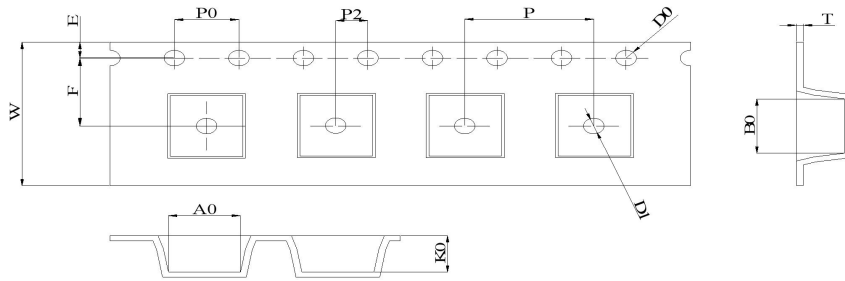
| CUSTOMER                             |   | MODEL NO.  | MSA54-4R7M | REVISION | A/0       |
|--------------------------------------|---|--|------------|----------|-----------|
| FILE NO.                             |   | PART NO.   |            | DATE     | 2019.4.26 |
| 3                                    |   |  |            |          |           |
| 项目Item                               | 规格与需求<br>Specification and Requirement  | 测试方法Test Method  |            |          |           |
| 可焊性<br>Solder ability 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



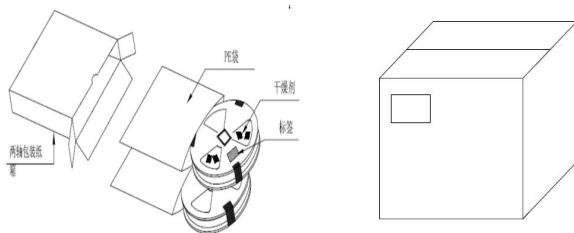
| W              | A0           | B0           | K0           | P            | F           | E             | D0            | P0           | T             |
|----------------|--------------|--------------|--------------|--------------|-------------|---------------|---------------|--------------|---------------|
| 12.00<br>±0.30 | 5.4<br>±0.10 | 6.0<br>±0.10 | 4.8<br>±0.10 | 8.0<br>±0.10 | 5.5<br>±0.1 | 1.75<br>±0.10 | 1.50<br>±0.10 | 4.0<br>±0.10 | 0.35<br>±0.05 |

12.1.2 卷轴尺寸 Reel dimensions



| 项目 | 尺寸(mm)      |
|----|-------------|
| A  | 330.0 ± 2.0 |
| B  | 100.0 ± 1.0 |
| C  | 13.0 ± 1.0  |
| D  | 1.9 ± 0.4   |
| W  | 17.5max     |
| W1 | 12.5max     |

12.1.3 外箱尺寸 Carton dimensions

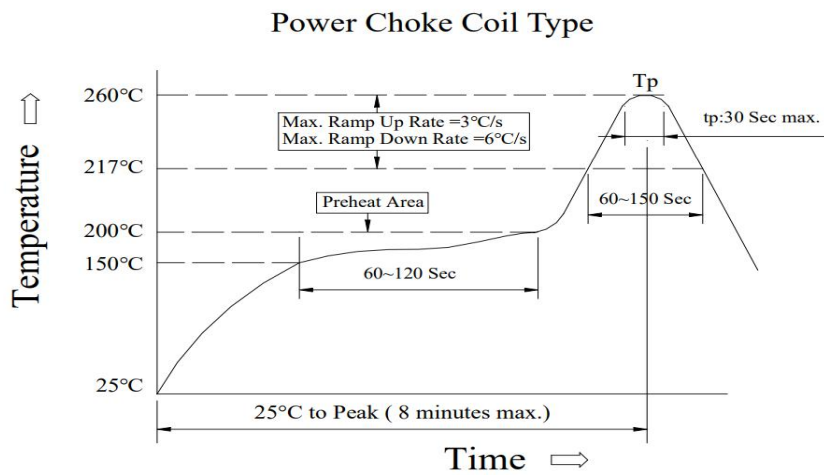


| 项目  | 数量(PCS) |
|-----|---------|
| 1卷轴 | 1500    |
| 1内箱 | 6000    |
| 1外箱 | 18000   |

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

※ Reflow Profile



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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[MLZ1608N1R5LT000](#) [B82432C1333K000](#) [PCMB053T-1R0MS](#) [PCMB053T-1R5MS](#) [PCMB104T-1R5MS](#) [CR32NP-100KC](#) [CR32NP-](#)

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