

# COILMX

## SPECIFICATION FOR APPROVAL

产品规格承认书

**Unibody Inductor**

一体成型功率电感

CUSTOMER.

MODEL NO.

MS0840-1R5M

CUSTOMER'S PART NO.

LILE NO.

DATE.

2020-6-18

REVISION.

A/0

CUSTOMER APPROVE

DATE:

DRAWING

DRAWN BY

CHECK BY

APPROVAL BY

DATE:



**sira**  
CERTIFICATION



IATF16949 / ISO9001 / ISO14000

深圳市迈翔科技有限公司

SHENZHEN MOTTO TECHNOLOGY Co., Ltd

香港瑞德科技有限公司 黄冈市迈翔电子有限公司

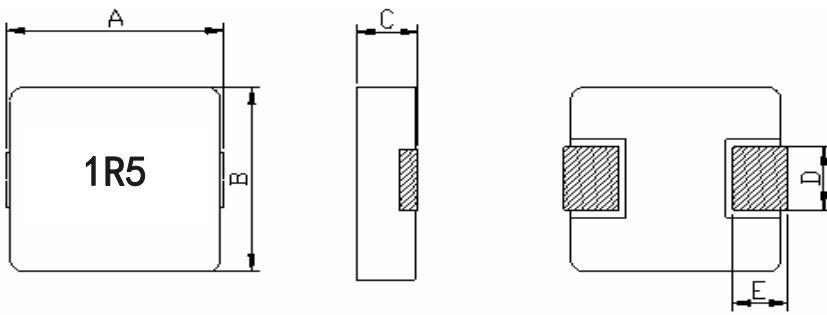
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|          |  |           |             |          |           |
|----------|--|-----------|-------------|----------|-----------|
| CUSTOMER |  | MODEL NO. | MS0840-1R5M | REVISION | A/0       |
| FILE NO. |  | PART NO.  |             | DATE     | 2020-6-18 |

|                                                                                                               |         |           |
|---------------------------------------------------------------------------------------------------------------|---------|-----------|
| <p>1.PRODUCT DIMENSION</p>  | UNIT:mm |           |
|                                                                                                               | A       | 8.60±0.50 |
|                                                                                                               | B       | 8.0±0.5   |
|                                                                                                               | C       | 4.0 Max   |
|                                                                                                               | D       | 3.0±0.5   |
|                                                                                                               | E       | 1.8±0.5   |
|                                                                                                               |         |           |
|                                                                                                               |         |           |
|                                                                                                               |         |           |
|                                                                                                               |         |           |

| 2.ELECTRICAL REQUIREMENTS |                   |             |                     |
|---------------------------|-------------------|-------------|---------------------|
| PARAMETER                 | SPECIFICATION     | CONDITION   | TEST INSTRUMENTS    |
| L(uH)                     | 1.5μH±20%         | 100KHz/1.0V | MICROTEST 6377      |
| DCR(mΩ)                   | 7.5mΩMAX          | At 25°C     | TH2512A             |
| I sat(A)                  | 15.0A TYP L0A*70% | 100KHz/1.0V | MICROTEST 6377+6220 |
| I rms(A)                  | 13.0A TYP ΔT≤40°C | 100KHz/1.0V | MICROTEST 6377+6220 |
|                           |                   |             |                     |

**3.CHARACTERISTICS**

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

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

(3). DC current(A)that will cause L0 to drop approximately 30%Typ

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

(5).The part temperature (ambient + temp rise)should not exceed 125°C 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 1R5 on top of the body.

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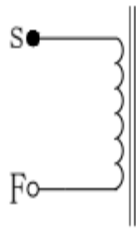
2020-6-18

**5.PRODUCT IDENTIFICATION**XX XXXX - XXX X X

① ② ③ ④ ⑤

①、 Product Symbol ②、 Dimensions ③、 Inductance

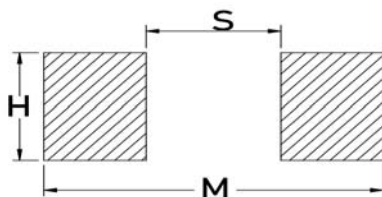
④、 Tolerance: M±20%, N±30%. ⑤、 Material

**6.ELECTRICAL SCHEMATICS****7.APPLICATION**

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

**8.FEATURES**

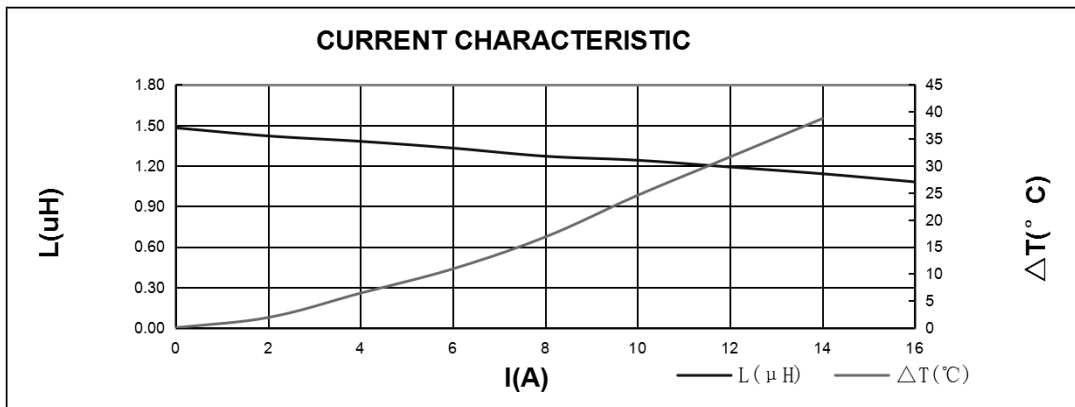
- (1)ROHS compliant.
- (2)Super low resistance,ultra high current rating.
- (3)high performance(I sat)realized by metal dust core.
- (4)Frequency Range:up to 1MHZ.

**9.RECOMMENDED PCB LAYOUT**

|   |     |
|---|-----|
| H | 3.5 |
| S | 3.7 |
| M | 8.7 |
|   |     |
|   |     |
|   |     |

|                     |      |           |             |         |          |           |  |
|---------------------|------|-----------|-------------|---------|----------|-----------|--|
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| FILE NO.            |      | PART NO.  |             |         | DATE     | 2020-6-18 |  |
| SORT                | ITEM | A         | B           | C       | D        | E         |  |
| PRODUCT & DIMENSION | SPEC | 8.60±0.50 | 8.0±0.5     | 4.0 Max | 3.0±0.5  | 1.8±0.5   |  |
|                     | 1    | 8.61      | 8.05        | 3.82    | 3.02     | 1.72      |  |
|                     | 2    | 8.65      | 8.05        | 3.81    | 3.01     | 1.71      |  |
|                     | 3    | 8.67      | 8.06        | 3.83    | 3.00     | 1.72      |  |
|                     | 4    | 8.66      | 8.06        | 3.82    | 3.01     | 1.73      |  |
|                     | 5    | 8.65      | 8.07        | 3.84    | 3.00     | 1.72      |  |
|                     | X    | 8.65      | 8.06        | 3.82    | 3.01     | 1.72      |  |
| R                   | 0.06 | 0.02      | 0.03        | 0.02    | 0.02     |           |  |

|                           |      |           |          |                      |         |                     |        |
|---------------------------|------|-----------|----------|----------------------|---------|---------------------|--------|
| ELECTRICAL & REQUIREMENTS | ITEM | L(μH)     | DCR (mΩ) | I sat(A)             | DC BIAS | Irms                | SHAPE: |
|                           | SPEC | 1.5μH±20% | 7.5mΩMAX | 15.0A TYP<br>L0A*70% |         | 13.0A TYP<br>ΔT≤40℃ |        |
|                           | 1    | 1.440     | 6.07     | 1.080                | -25.0%  | OK                  |        |
|                           | 2    | 1.420     | 6.05     | 1.060                | -25.4%  | OK                  |        |
|                           | 3    | 1.410     | 6.03     | 1.050                | -25.5%  | OK                  |        |
|                           | 4    | 1.450     | 6.05     | 1.080                | -25.5%  | OK                  |        |
|                           | 5    | 1.430     | 6.08     | 1.070                | -25.2%  | OK                  |        |
|                           | X    | 1.43      | 6.06     | 1.07                 | -25.3%  |                     |        |
|                           | R    | 0.04      | 0.05     | 0.03                 | 0.5%    |                     |        |



|        |       |      |       |      |       |      |       |      |       |
|--------|-------|------|-------|------|-------|------|-------|------|-------|
| I(A)   | 0     | 2    | 4     | 6    | 8     | 10   | 12    | 14   | 16    |
| L(μH)  | 1.480 | 1.42 | 1.380 | 1.33 | 1.270 | 1.24 | 1.190 | 1.14 | 1.080 |
| ΔT(°C) | 0     | 1.9  | 6.4   | 10.9 | 16.8  | 24.5 | 31.6  | 38.7 |       |

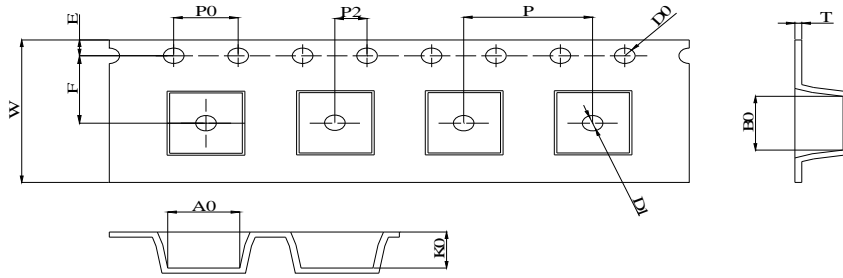
|                                     |                                                                                                     |                                                                                                                                                                                                                                                                                                                                               |             |          |           |
|-------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|-----------|
| CUSTOMER                            |                                                                                                     | MODEL NO.                                                                                                                                                                                                                                                                                                                                     | MS0840-1R5M | REVISION | A/0       |
| FILE NO.                            |                                                                                                     | PART NO.                                                                                                                                                                                                                                                                                                                                      |             | DATE     | 2020-6-18 |
| <b>11.可靠性Reliability</b>            |                                                                                                     |                                                                                                                                                                                                                                                                                                                                               |             |          |           |
| 项目Item                              | 规格与需求<br>Specification and Requirement                                                              | 测试方法Test Method                                                                                                                                                                                                                                                                                                                               |             |          |           |
| 可焊性<br>Solder a bility 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

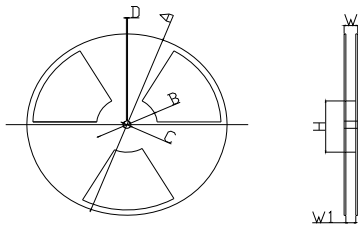
12.1、尺寸 Dimensions

12.1.1 包装料带尺寸 Tape packaging dimensions



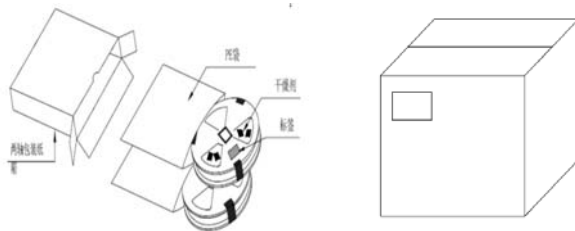
| W              | A0           | B0           | K0           | P           | F            | E             | D0            | P0           | T             |
|----------------|--------------|--------------|--------------|-------------|--------------|---------------|---------------|--------------|---------------|
| 16.00<br>±0.30 | 9.5<br>±0.10 | 8.5<br>±0.10 | 4.3<br>±0.10 | 12<br>±0.10 | 11.5<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  | 30.4 Max    |
| W1 | 24.4 ± 1.0  |

12.1.3 外箱尺寸 Carton dimensions



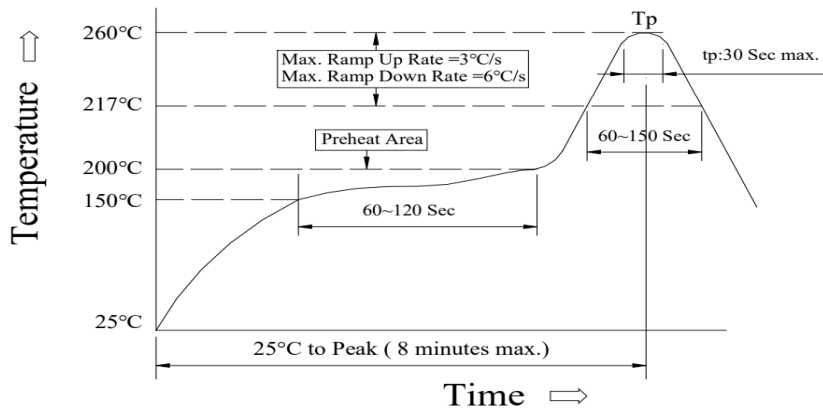
| 项目   | 数量(PCS) |
|------|---------|
| 1 卷轴 | 1000    |
| 1 内箱 | 3000    |
| 1 外箱 | 9000    |

|          |  |           |             |          |           |
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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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