



**SPECIFICATION FOR APPROVAL**

产品规格承认书

**Unibody Inductor**

一体成型功率电感

CUSTOMER.

\_\_\_\_\_

MODEL NO.

**MS0630-R22M**

\_\_\_\_\_

CUSTOMER'S PART NO.

\_\_\_\_\_

LILE NO.

\_\_\_\_\_

DATE.

**2019-3-27**

\_\_\_\_\_

REVISION.

**A/0**

\_\_\_\_\_

|                         |                 |                    |
|-------------------------|-----------------|--------------------|
| <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>            |                 |                    |



IATF16949 / ISO9001 / ISO14000

**深圳市迈翔科技有限公司**

**SHENZHEN MOTTO TECHNOLOGY Co., Ltd**

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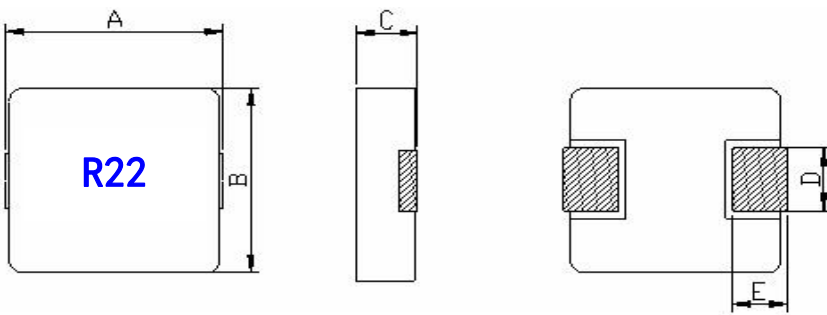
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|                 |  |                  |                    |                 |                  |
|-----------------|--|------------------|--------------------|-----------------|------------------|
| <b>CUSTOMER</b> |  | <b>MODEL NO.</b> | <b>MS0630-R22M</b> | <b>REVISION</b> | <b>A/0</b>       |
| <b>FILE NO.</b> |  | <b>PART NO.</b>  |                    | <b>DATE</b>     | <b>2019-3-27</b> |

|  |                |                  |
|--|----------------|------------------|
| <b>1.PRODUCT DIMENSION</b><br><br> | <b>UNIT:mm</b> |                  |
|  | <b>A</b>       | <b>7.15±0.35</b> |
|  | <b>B</b>       | <b>6.6±0.2</b>   |
|  | <b>C</b>       | <b>3.0 Max</b>   |
|  | <b>D</b>       | <b>3.0±0.5</b>   |
|  | <b>E</b>       | <b>1.5±0.5</b>   |
|  |                |                  |
|  |                |                  |
|  |                |                  |
|  |                |                  |

|                                  |                          |                    |                            |
|----------------------------------|--------------------------|--------------------|----------------------------|
| <b>2.ELECTRICAL REQUIREMENTS</b> |                          |                    |                            |
| <b>PARAMETER</b>                 | <b>SPECIFICATION</b>     | <b>CONDITION</b>   | <b>TEST INSTRUMENTS</b>    |
| <b>L(uH)</b>                     | <b>0.22µH±20%</b>        | <b>100KHz/1.0V</b> | <b>MICROTEST 6377</b>      |
| <b>DCR(mΩ)</b>                   | <b>3.0mΩMAX</b>          | <b>At 25°C</b>     | <b>TH2512A</b>             |
| <b>I sat(A)</b>                  | <b>28A TYP L0A*70%</b>   | <b>100KHz/1.0V</b> | <b>MICROTEST 6377+6220</b> |
| <b>I rms(A)</b>                  | <b>21.0A TYP ΔT≤40°C</b> | <b>100KHz/1.0V</b> | <b>MICROTEST 6377+6220</b> |
|                                  |                          |                    |                            |

**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 **R22** on top of the body.

|                 |  |                  |                    |                 |                  |
|-----------------|--|------------------|--------------------|-----------------|------------------|
| <b>CUSTOMER</b> |  | <b>MODEL NO.</b> | <b>MS0630-R22M</b> | <b>REVISION</b> | <b>A/0</b>       |
| <b>FILE NO.</b> |  | <b>PART NO.</b>  |                    | <b>DATE</b>     | <b>2019-3-27</b> |

**5.PRODUCT IDENTIFICATION**

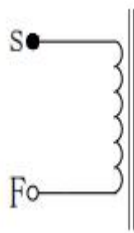
XX XXXX - XXX X X

①      ②      ③      ④      ⑤

①、 Product Symbol    ②、 Dimensions    ③、 Inductance

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

**6.ELECTRICAL SCHEMATICS**



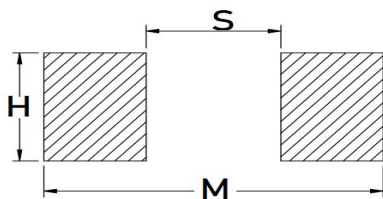
**7.APPLICATION**

- (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.

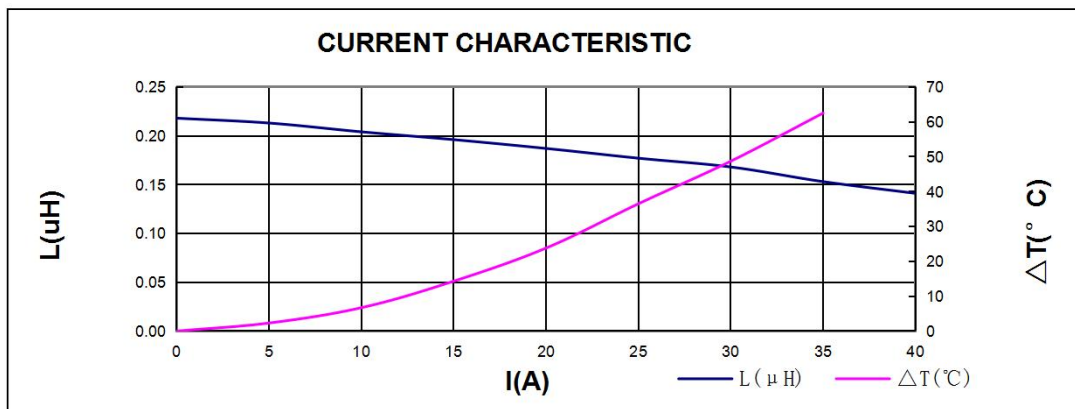
**9.RECOMMENDED PCB LAYOUT**



|          |            |
|----------|------------|
| <b>H</b> | <b>3.5</b> |
| <b>S</b> | <b>3.7</b> |
| <b>M</b> | <b>8.4</b> |
|          |            |
|          |            |
|          |            |

|                     |      |           |             |         |          |           |  |
|---------------------|------|-----------|-------------|---------|----------|-----------|--|
| CUSTOMER            |      | MODEL NO. | MS0630-R22M |         | REVISION | A/0       |  |
| FILE NO.            |      | PART NO.  |             |         | DATE     | 2019-3-27 |  |
| SORT                | ITEM | A         | B           | C       | D        | E         |  |
| PRODUCT & DIMENSION | SPEC | 7.15±0.35 | 6.6±0.2     | 3.0 Max | 3.0±0.5  | 1.5±0.5   |  |
|                     | 1    | 7.19      | 6.65        | 2.86    | 2.92     | 1.54      |  |
|                     | 2    | 7.20      | 6.65        | 2.87    | 2.93     | 1.56      |  |
|                     | 3    | 7.19      | 6.64        | 2.89    | 2.92     | 1.55      |  |
|                     | 4    | 7.18      | 6.65        | 2.87    | 2.92     | 1.57      |  |
|                     | 5    | 7.21      | 6.64        | 2.86    | 2.92     | 1.55      |  |
|                     | X    | 7.19      | 6.65        | 2.87    | 2.92     | 1.55      |  |
|                     | R    | 0.03      | 0.01        | 0.03    | 0.01     | 0.03      |  |

|                           |      |            |          |                    |         |                     |        |
|---------------------------|------|------------|----------|--------------------|---------|---------------------|--------|
| ELECTRICAL & REQUIREMENTS | ITEM | L(μH)      | DCR (mΩ) | I sat(A)           | DC BIAS | Irms                | SHAPE: |
|                           | SPEC | 0.22μH±20% | 3.0mΩMAX | 28A TYP<br>LOA*70% |         | 21.0A TYP<br>ΔT≤40℃ |        |
|                           | 1    | 0.212      | 2.33     | 0.159              | -25.0%  | OK                  |        |
|                           | 2    | 0.218      | 2.42     | 0.162              | -25.7%  | OK                  |        |
|                           | 3    | 0.209      | 2.41     | 0.158              | -24.4%  | OK                  |        |
|                           | 4    | 0.211      | 2.38     | 0.159              | -24.6%  | OK                  |        |
|                           | 5    | 0.214      | 2.36     | 0.159              | -25.7%  | OK                  |        |
|                           | X    | 0.21       | 2.38     | 0.16               | -25.1%  |                     |        |
|                           | R    | 0.01       | 0.09     | 0.00               | 1.3%    |                     |        |



|        |       |       |       |       |       |       |       |       |       |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| I(A)   | 0     | 5     | 10    | 15    | 20    | 25    | 30    | 35    | 40    |
| L(μH)  | 0.218 | 0.213 | 0.204 | 0.196 | 0.187 | 0.177 | 0.168 | 0.153 | 0.141 |
| ΔT(°C) | 0     | 2.3   | 6.7   | 14.3  | 23.8  | 36.5  | 48.7  | 62.5  |       |

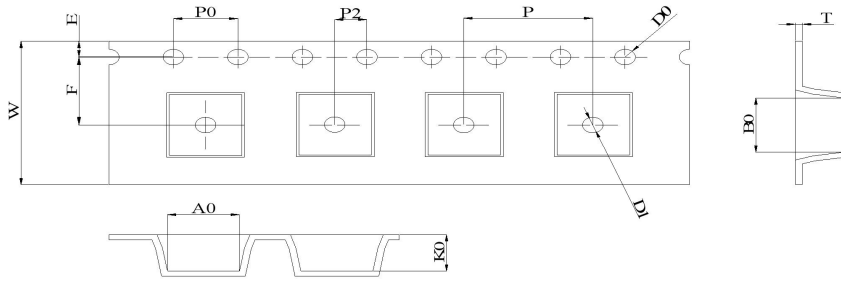
| CUSTOMER                             |   | MODEL NO.  | MS0630-R22M | REVISION | A/0       |
|--------------------------------------|---|--|-------------|----------|-----------|
| FILE NO.                             |   | PART NO.   |             | DATE     | 2019-3-27 |
| <b>11.可靠性Reliability</b>             |   |  |             |          |           |
| 项目Item                               | 规格与需求<br>Specification and Requirement  | 测试方法Test Method  |             |          |           |
| 可焊性<br>Solder 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  |             |          |           |

|          |  |           |             |          |           |
|----------|--|-----------|-------------|----------|-----------|
| CUSTOMER |  | MODEL NO. | MS0630-R22M | REVISION | A/0       |
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12、包装 Packaging

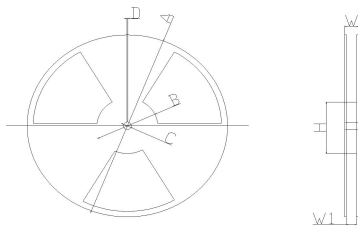
12.1、尺寸 Dimensions

12.1.1 包装料带尺寸 Tape packaging dimensions



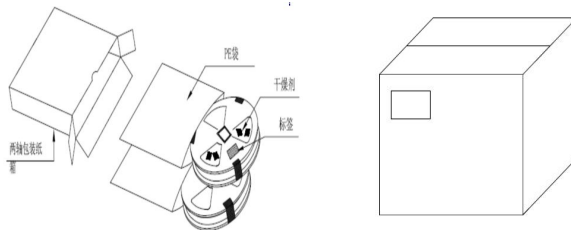
| W              | A0            | B0           | K0           | P           | F            | E             | D0            | P0           | T             |
|----------------|---------------|--------------|--------------|-------------|--------------|---------------|---------------|--------------|---------------|
| 16.00<br>±0.30 | 7.05<br>±0.10 | 7.2<br>±0.10 | 3.3<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



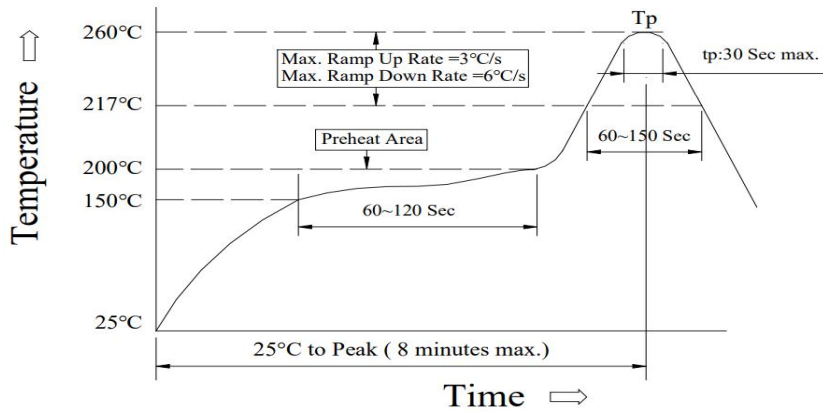
| 项目  | 数量 (PCS) |
|-----|----------|
| 1卷轴 | 1000     |
| 1内箱 | 3000     |
| 1外箱 | 9000     |

|          |  |           |             |          |           |
|----------|--|-----------|-------------|----------|-----------|
| CUSTOMER |  | MODEL NO. | MS0630-R22M | REVISION | A/0       |
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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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[MHQ1005P5N1S](#) [MHQ1005P8N2J](#) [PE-53601NL](#) [PE-53602NL](#) [PG0936.113NLT](#) [9220-20](#) [9310-16](#) [PM06-2N7](#) [PM06-39NJ](#) [A01TK](#)  
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