



## SPECIFICATION FOR APPROVAL

产品规格承认书

Unibody Inductor

一体成型功率电感

CUSTOMER.

MODEL NO.

MS0618-3R3M

CUSTOMER'S PART NO.

LILE NO.

DATE.

2019-3-27

REVISION.

A/0

CUSTOMER APPROVE

DATE:

DRAWING

DRAWN BY

CHECK BY

APPROVAL BY

DATE:



**sira**  
CERTIFICATION



IATF16949 / ISO9001 / ISO14000

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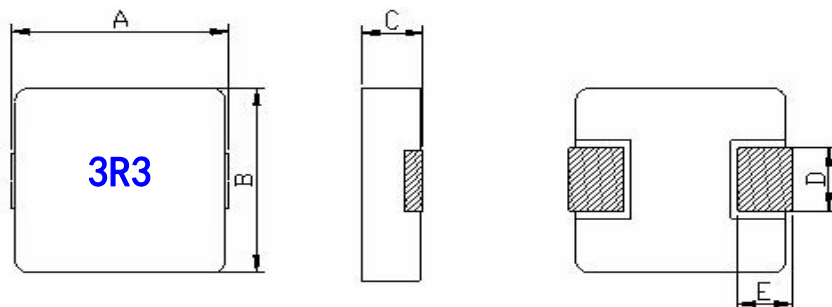
[Http://www.coilmx.com](http://www.coilmx.com) E-mail: [sales@mottotech.com](mailto:sales@mottotech.com)



|          |  |           |             |          |           |
|----------|--|-----------|-------------|----------|-----------|
| CUSTOMER |  | MODEL NO. | MS0618-3R3M | REVISION | A/0       |
| FILE NO. |  | PART NO.  |             | DATE     | 2019-3-27 |

## 1.PRODUCT DIMENSION

UNIT:mm



|   |           |
|---|-----------|
| A | 7.15±0.35 |
| B | 6.6±0.2   |
| C | 1.8 Max   |
| D | 3.0±0.5   |
| E | 1.5±0.5   |
|   |           |
|   |           |
|   |           |
|   |           |
|   |           |

## 2.ELECTRICAL REQUIREMENTS

| PARAMETER | SPECIFICATION    | CONDITION   | TEST INSTRUMENTS    |
|-----------|------------------|-------------|---------------------|
| L(uH)     | 3.3μH±20%        | 100KHz/1.0V | MICROTEST 6377      |
| DCR(mΩ)   | 50mΩMAX          | At 25℃      | TH2512A             |
| I sat(A)  | 6.0A TYP L0A*70% | 100KHz/1.0V | MICROTEST 6377+6220 |
| I rms(A)  | 3.5A TYP ΔT≤40℃  | 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  $\Delta T 40^{\circ}\text{C}$
- (3). DC current(A)that will cause L0 to drop approximately 30%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 3R3 on top of the body.

|          |  |           |             |          |           |
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## 5.PRODUCT IDENTIFICATION

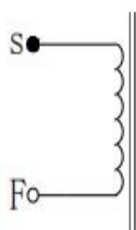
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① ② ③ ④ ⑤

①、 Product Symbol ②、 Dimensions ③、 Inductance

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

## 6.ELECTRICAL SCHEMATICS



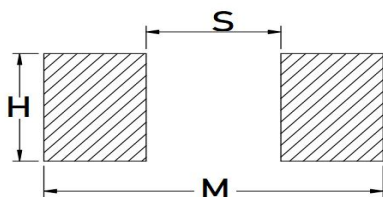
## 7.APPLICATION

- (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.

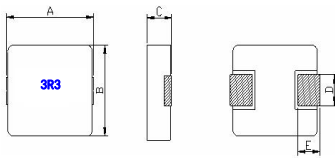
## 8.FEATURES

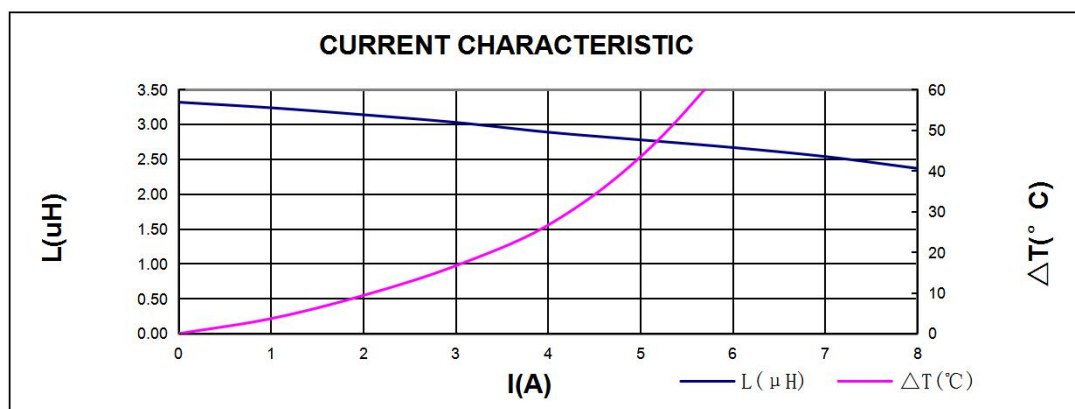
- (1)ROHS compliant.
- (2)Super low resistance,ultra high current rating.
- (3)high performance(I sat)realized by metal dust core.
- (4)Frequency Range:up to 1MHZ.

## 9.RECOMMENDED PCB LAYOUT



|   |     |
|---|-----|
| H | 3.5 |
| S | 3.7 |
| M | 8.4 |

|                           |      |           |          |                     |         |                    |                                                                                       |           |  |
|---------------------------|------|-----------|----------|---------------------|---------|--------------------|---------------------------------------------------------------------------------------|-----------|--|
| CUSTOMER                  |      | MODEL NO. |          | MS0618-3R3M         |         | 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  | 1.8 Max             | 3.0±0.5 | 1.5±0.5            |                                                                                       |           |  |
|                           | 1    | 7.18      | 6.65     | 1.75                | 2.92    | 1.54               |                                                                                       |           |  |
|                           | 2    | 7.22      | 6.65     | 1.73                | 2.93    | 1.56               |                                                                                       |           |  |
|                           | 3    | 7.21      | 6.64     | 1.72                | 2.92    | 1.55               |                                                                                       |           |  |
|                           | 4    | 7.20      | 6.65     | 1.72                | 2.92    | 1.57               |                                                                                       |           |  |
|                           | 5    | 7.19      | 6.64     | 1.73                | 2.92    | 1.55               |                                                                                       |           |  |
|                           | X    | 7.20      | 6.65     | 1.73                | 2.92    | 1.55               |                                                                                       |           |  |
|                           | R    | 0.04      | 0.01     | 0.03                | 0.01    | 0.03               |                                                                                       |           |  |
| ELECTRICAL & REQUIREMENTS | ITEM | L(μH)     | DCR (mΩ) | I sat(A)            | DC BIAS | I <sub>rms</sub>   | SHAPE:                                                                                |           |  |
|                           | SPEC | 3.3μH±20% | 50mΩMAX  | 6.0A TYP<br>L0A*70% |         | 3.5A TYP<br>ΔT≤40℃ |  |           |  |
|                           | 1    | 3.320     | 40.10    | 2.460               | -25.9%  | OK                 |                                                                                       |           |  |
|                           | 2    | 3.310     | 40.20    | 2.450               | -26.0%  | OK                 |                                                                                       |           |  |
|                           | 3    | 3.260     | 40.40    | 2.410               | -26.1%  | OK                 |                                                                                       |           |  |
|                           | 4    | 3.240     | 40.30    | 2.400               | -25.9%  | OK                 |                                                                                       |           |  |
|                           | 5    | 3.210     | 40.40    | 2.380               | -25.9%  | OK                 |                                                                                       |           |  |
|                           | X    | 3.27      | 40.28    | 2.42                | -25.9%  |                    |                                                                                       |           |  |
|                           | R    | 0.11      | 0.30     | 0.08                | 0.2%    |                    |                                                                                       |           |  |



|        |       |      |      |      |      |      |      |      |      |
|--------|-------|------|------|------|------|------|------|------|------|
| I(A)   | 0     | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |
| L(μH)  | 3.320 | 3.24 | 3.14 | 3.03 | 2.89 | 2.78 | 2.67 | 2.54 | 2.37 |
| ΔT(°C) | 0     | 3.7  | 9.4  | 16.7 | 26.7 | 43.5 | 67.8 |      |      |

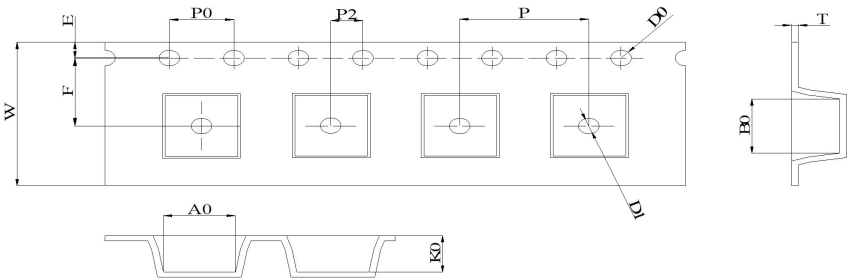
| CUSTOMER                            |                                                                                                     | MODEL NO.                                                                                                                                                                                                                                                                                                                                      | MS0618-3R3M | REVISION | A/0       |
|-------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|-----------|
| FILE NO.                            |                                                                                                     | PART NO.                                                                                                                                                                                                                                                                                                                                       |             | DATE     | 2019-3-27 |
| 11.可靠性Reliability                   |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                |             |          |           |
| 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

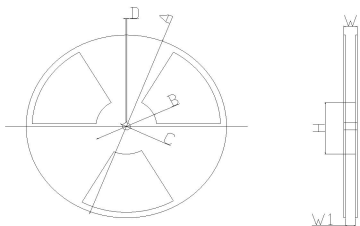
12.1、尺寸 Dimensions

12.1.1 包装料带尺寸 Tape packaging dimensions



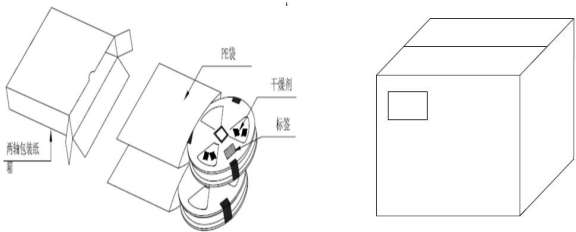
| W              | A0            | B0           | K0           | P           | F            | E             | D0            | P0           | T             |
|----------------|---------------|--------------|--------------|-------------|--------------|---------------|---------------|--------------|---------------|
| 16.00<br>±0.30 | 7.05<br>±0.10 | 7.2<br>±0.10 | 2.7<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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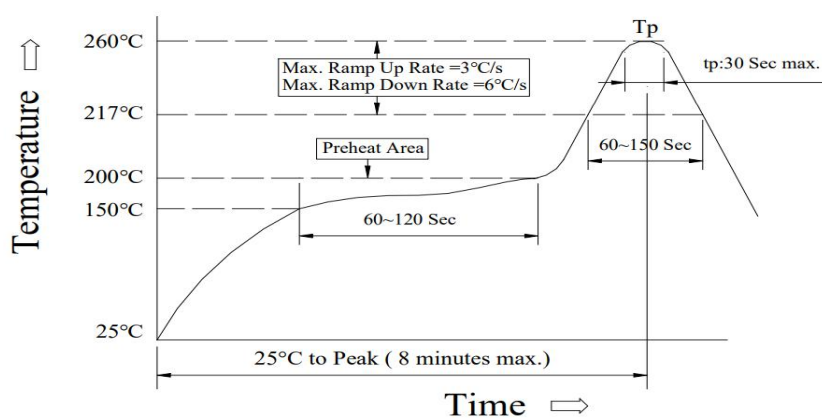
DATE

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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.