COILMX

# SPECIFICATION FOR APPROVAL

## 产品规格承认书

## High Current Power Inductor

## 大电流功率电感

| | |
|---|---|
| CUSTOMER. | |
| MODEL NO. | MTP2014S-6R8M |
| CUSTOMER'S PART NO. | |
| LILE NO. | |
| DATE. | 2022.12.20 |
| REVISION. | A/0 |

| CUSTOMER APPROVE | | |
|---|---|---|
| | | |
| DATE: | | |
| DRAWING | | |
| DRAWN BY | CHECK BY | APPROVAL BY |
| Sumi Lin | Mike Chen | Peter Zeng |
| DATE: 2022.12.20 | | |


COILMX
新能源光储充电子磁性元器件制造商

惠州市迈翔电子有限公司
深圳市迈翔科技有限公司
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|---|---|---|---|---|---|
| FILE NO. | | PART NO. | | DATE | 2022.12.20 |

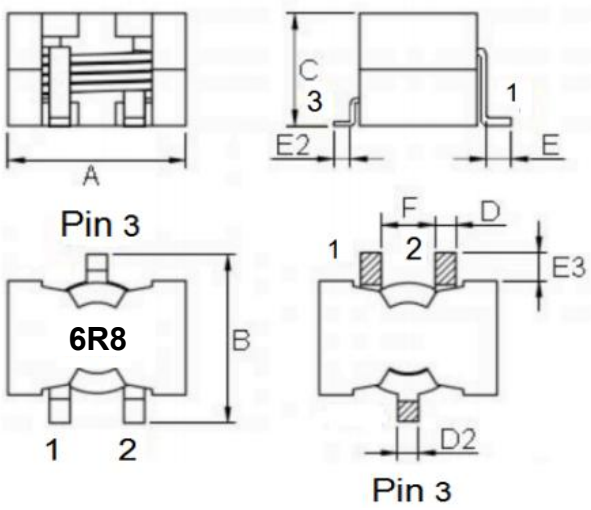
REVISIONS

| REW | PROJECT CHANGE | DESCRIPTION | Date |
|---|---|---|---|
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**1.PRODUCT DIMENSION** UNIT:mm




| | |
|---|---|
| A | 21.5MAX |
| B | 22.5MAX |
| C | 14.5MAX |
| D | 2.5±0.3 |
| D2 | 2.5±0.5 |
| E | 3.0±0.5 |
| E2 | 1.8±0.5 |
| E3 | 4.0-6.5 |
| F | 7.0±0.5 |
| | |
| | |
| | |

**2.ELECTRICAL REQUIREMENTS**

| PARAMETER | SPECIFICATION | CONDITION | TEST INSTRUMENTS |
|---|---|---|---|
| L(uH) | 6.8± 20% | 100KHz/0.25V | MICROTEST 6377 |
| DCR(mΩ) | 7.3MAX | At 25℃ | TH16502 |
| I sat(A) | 29A TYP L0A*80% | 100KHz/0.25V | MICROTEST 6377+6220 |
| I rms(A) | 23A TYP △T≤40℃ | 100KHz/0.25V | MICROTEST 6377+6220 |

**3.MATERIAL LIST**

| ITEM | MATERIAL | SUPPLIER |
|---|---|---|
| CORE | DR:(P44)2014*B8.8 | YUEFENG/DONGYANGGUANG/TIANTONG |
| WIRE | 2UEW ≥220/φ0.55*2.5*9.75TS | TAIYI-JIATENG-SONGYE |
| SOLDER | TIN-Sn99.95 | QIANDAO/HONGXINGWEI |

**4.CHARACTERISTICS**

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

(2). DC current(A)that will cause an approximate △T40℃

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

(4). Operating temperature range: -40℃~+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

**5.SPECIAL REQUEST**

(1)Lettering 6R8 on top of the body.

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**6.PRODUCT IDENTIFICATION**

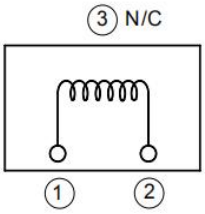
XX XXXX - XXX X X

① ② ③ ④ ⑤

①、 Product Symbol ②、 Dimensions ③、 Inductance

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

**7.ELECTRICAL SCHEMATICS**




**8.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.

**9.FEATURES**

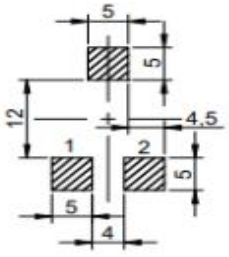
(1)Assemblage design, sturdy structure.

(2)High inductance, high current, low magnetic loss,low ESR, small parasitic capacitance.

(3)Flat wire winding, achieve a low D.C. Resistance.

(4)Temperature rise current and saturation current is less influenced by environment.

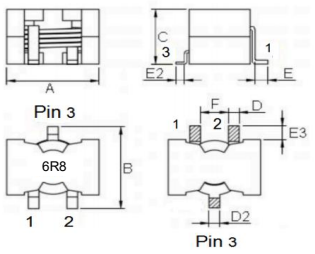
**10.RECOMMENDED PCB LAYOUT**

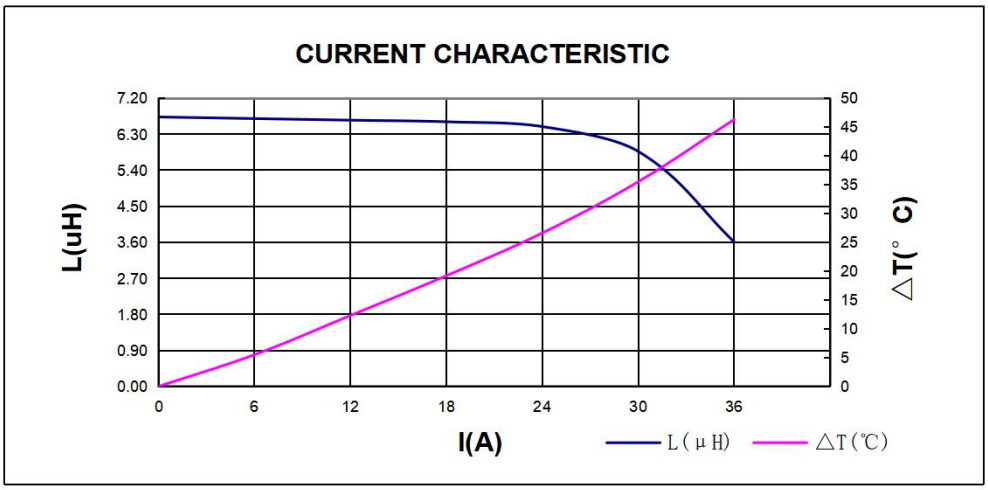


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|---|---|---|---|---|---|---|---|---|---|---|
| FILE NO. | | | PART NO. | | | | DATE | | 2022.12.20 | |
| SORT | ITEM | A | B | C | D | D2 | E | E2 | E3 | F |
| PRODUCT & DIMENSION | SPEC | 21.5MAX | 22.5MAX | 14.5MAX | 2.5±0.3 | 2.5±0.5 | 3.0±0.5 | 1.8±0.5 | 4.0-6.5 | 7.0±0.5 |
| | 1 | 20.52 | 22.15 | 14.26 | 2.51 | 2.51 | 2.96 | 1.61 | 5.42 | 6.95 |
| | 2 | 20.50 | 22.18 | 14.22 | 2.51 | 5.54 | 2.95 | 1.62 | 5.38 | 6.93 |
| | 3 | 20.55 | 22.16 | 14.29 | 2.50 | 2.52 | 2.90 | 1.61 | 5.38 | 6.94 |
| | 4 | 20.50 | 22.15 | 14.24 | 2.52 | 2.52 | 2.95 | 1.59 | 5.37 | 6.92 |
| | 5 | 20.51 | 22.17 | 14.30 | 2.52 | 2.51 | 2.92 | 1.59 | 5.32 | 6.96 |
| | X | 20.52 | 22.16 | 14.26 | 2.51 | 3.12 | 2.94 | 1.60 | 5.37 | 6.94 |
| | R | 0.05 | 0.03 | 0.08 | 0.02 | 3.03 | 0.06 | 0.03 | 0.10 | 0.04 |

| ELECTRICAL & REQUIREMENTS | ITEM | L(μH) | DCR ( mΩ) | I sat(A) | DC BIAS | Irms | SHAPE: |
|---|---|---|---|---|---|---|---|
| | SPEC | 6.8± 20% | 7.3MAX | 29A TYP L0A*80% | 降幅 % | 23A TYP △T≤40℃ | |
| | 1 | 6.78 | 4.97 | 6.27 | -7.5% | OK | |
| | 2 | 6.79 | 4.96 | 6.27 | -7.7% | OK | |
| | 3 | 6.78 | 5.01 | 6.29 | -7.2% | OK | |
| | 4 | 6.78 | 4.93 | 6.26 | -7.7% | OK | |
| | 5 | 6.77 | 5.03 | 6.24 | -7.8% | OK | |
| | X | 1.63 | 4.98 | 6.27 | -7.6% | | |
| | R | 0.02 | 0.10 | 0.05 | 0.6% | | |



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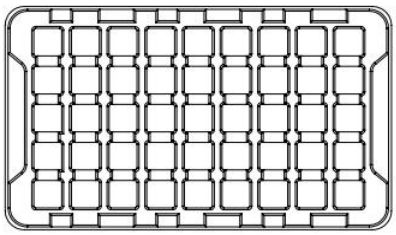
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**11.可靠性Reliability**

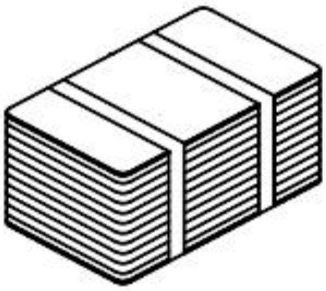
| 项目Item | 规格与需求 Specification and Requirement | 测试方法Test Method |
|---|---|---|
| 可焊性 Solder a bility test | 沾锡面积不得小于95%上锡面<br><br>Terminals area must have 95% min solder coverage | 上锡升温曲线Solder heat proof:<br>(1) 预热：160±10℃持续90s<br>Preheating: 160±10℃ for 90 seconds<br>(2) 恒温时段：245±5℃持续2±0.5s<br>Retention time: 245±5℃ for 2±0.5 seconds |
| 振动测试 Vibration test | 感值变化：不超过±5%<br>且无破裂等机械损伤产生<br><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 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 Thermal shock | 感值变化：不超过±5%<br>且无破裂等机械损伤产生<br><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>(-40±2℃,30±3分钟) 室温5分钟<br>(-40±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 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 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>-40±2℃下存放 1000+4/-0 小时<br>-40±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

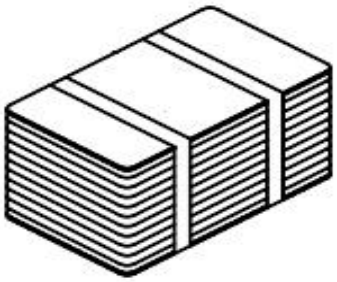


Tray × 10

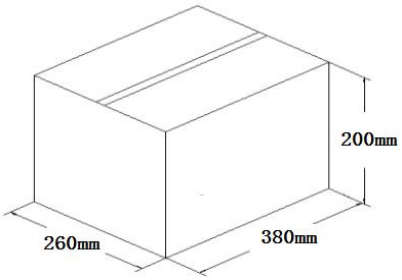


Quantity/Tray:75PCS

Quantity/Bundle:750PCS



Bundle × 1




Quantity/Bundle:750PCS

Quantity/Carton:750PCS

### 包装数量packing quantity

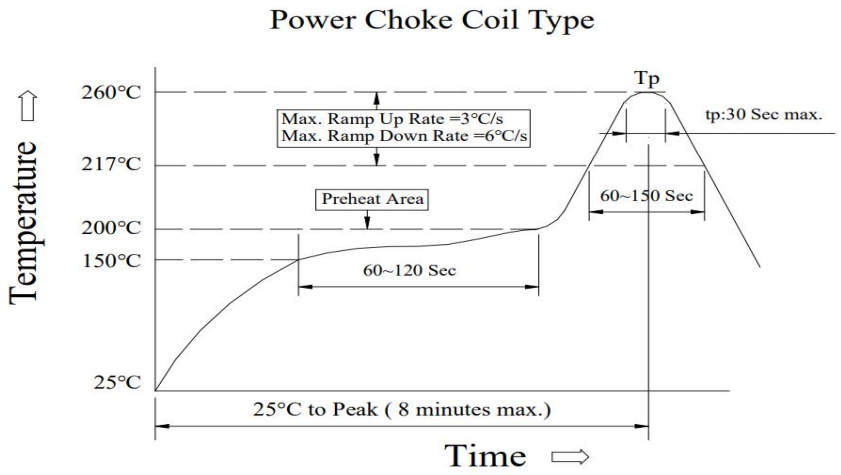
| Product Series<br>产品系列 | Quantity/Tray<br>数量/盘 | Quantity/Bundle<br>数量/捆 | Quantity/Carton<br>数量/箱 |
|---|---|---|---|
| MTP2014 | 75 | 750 | 750 |

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## Reflow curve

**※ Reflow Profile**




**1. Reflow Soldering Method**

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

**2. Soldering iron method： 350±5℃ Max.3 seconds.**