



SPECIFICATION FOR APPROVAL

产品规格承认书

High Current Power Inductor

大电流功率电感

CUSTOMER.

MODEL NO.

MTM1480-3R9M-L

CUSTOMER'S PART NO.

LILE NO.

DATE.

2023.07.03

REVISION.

A/0

CUSTOMER APPROVE

DATE:

DRAWING

| DRAWN BY | CHECK BY | APPROVAL BY |
|----------|----------|-------------|
| | | |

DATE:2023.07.03



IATF16949 / ISO9001 / ISO14000

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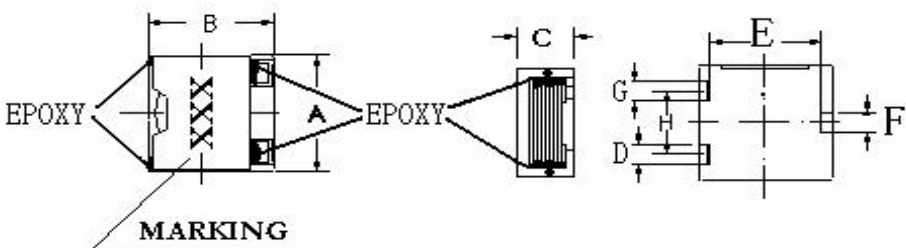



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|----------|--|-----------|----------------|----------|------------|
| CUSTOMER | | MODEL NO. | MTM1480-3R9M-L | REVISION | A/0 |
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| 1.PRODUCT DIMENSION | | UNIT:mm | |
|--|---|---------|---|
|     | A | 14.9MAX | 备注 线圈内部与磁芯内部点胶 110℃烘烤90分钟 激光印字 |
| | B | 15MAX | |
| | C | 8.1MAX | |
| | D | 2.8+0.2 | |
| | E | 10.5TYP | |
| | F | 2.3+0.2 | |
| | G | 2.8+0.2 | |
| | H | 9.0+0.5 | |

| 2.ELECTRICAL REQUIREMENTS | | | |
|---------------------------|---|--------------|---------------------|
| PARAMETER | SPECIFICATION | CONDITION | TEST INSTRUMENTS |
| L(uH) | 3.9± 20% | 100KHz/0.25V | MICROTEST 6377 |
| DCR(mΩ) | 7.5MAX | At 25℃ | TH16502 |
| I sat(A) | 22A TYP LOA*70% | 100KHz/0.25V | MICROTEST 6377+6220 |
| I rms(A) | 12A TYP ΔT≤40℃ | 100KHz/0.25V | MICROTEST 6377+6220 |
| WIRE | 0.4mmT*1.8mmW*7.2*7.75TS(扁线耐温等级: ≥220℃) 线圈需含浸 | | |

| 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 20%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 |

| 4.SPECIAL REQUEST |
|--------------------------------------|
| (1)Lettering 3R9 on top of the body. |

| | | | | | |
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5.PRODUCT IDENTIFICATION

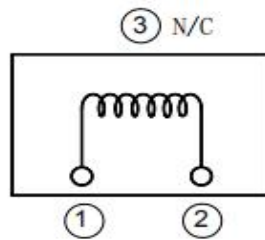
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① ② ③ ④ ⑤

①、 Product Symbol ②、 Dimensions ③、 Inductance

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

6.ELECTRICAL SCHEMATICS



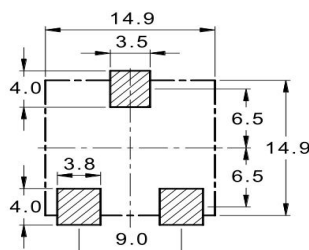
7.APPLICATION

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

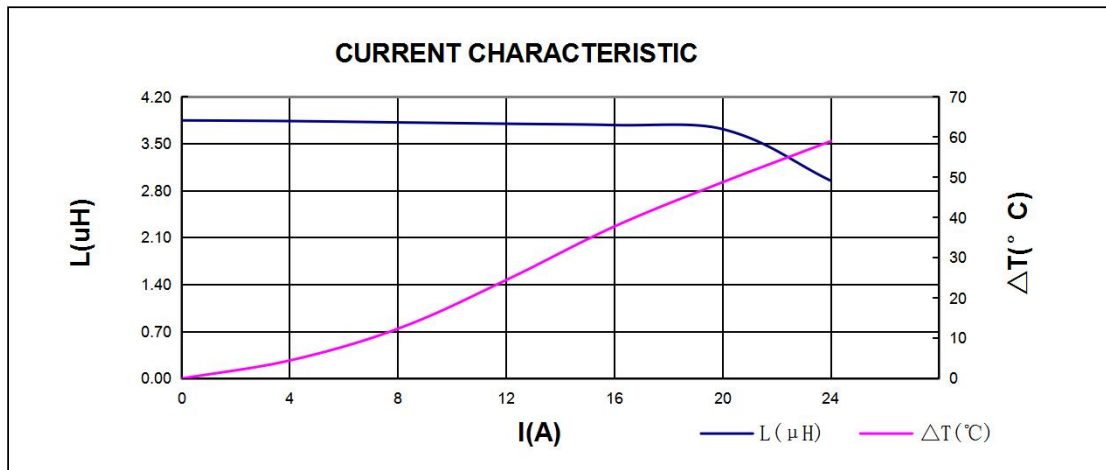
8.FEATURES

- (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.

9.RECOMMENDED PCB LAYOUT



| | | | | | | | | | | |
|---------------------------|------|-----------|----------|--------------------|----------------|---------------------|----------|---------|------------|--|
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| SORT | ITEM | A | B | C | D | E | F | H | | |
| PRODUCT & DIMENSION | SPEC | 14.9MAX | 15MAX | 8.1MAX | 2.8+0.2 | 10.5TYP | 2.3+0.2 | 9.0+0.5 | | |
| | 1 | 14.56 | 14.85 | 8.02 | 2.81 | 10.45 | 2.35 | 9.03 | | |
| | 2 | 14.58 | 14.88 | 8.02 | 2.82 | 10.45 | 2.35 | 9.01 | | |
| | 3 | 14.60 | 14.87 | 8.04 | 2.82 | 10.45 | 2.34 | 9.02 | | |
| | 4 | 14.53 | 14.86 | 8.03 | 2.81 | 10.50 | 2.36 | 9.06 | | |
| | 5 | 14.62 | 14.83 | 8.07 | 2.83 | 10.46 | 2.32 | 9.05 | | |
| | X | 14.58 | 14.86 | 8.04 | 2.82 | 10.46 | 2.34 | 9.03 | | |
| | R | 0.09 | 0.05 | 0.05 | 0.02 | 0.05 | 0.04 | 0.05 | | |
| ELECTRICAL & REQUIREMENTS | ITEM | L(μH) | DCR (mΩ) | I sat(A) | DC BIAS | I _{rms} | SHAPE: | | | |
| | SPEC | 3.9± 20% | 7.5MAX | 22A TYP L0A*70% | | 12A TYP Δ T≤40°C | | | | |
| | 1 | 3.85 | 6.58 | 3.73 | -3.1% | OK | | | | |
| | 2 | 3.88 | 6.58 | 3.75 | -3.4% | OK | | | | |
| | 3 | 3.86 | 6.56 | 3.74 | -3.1% | OK | | | | |
| | 4 | 3.87 | 6.57 | 3.72 | -3.9% | OK | | | | |
| | 5 | 3.88 | 6.56 | 3.75 | -3.4% | OK | | | | |
| | X | 3.87 | 6.57 | 3.74 | -3.4% | | | | | |
| | R | 0.03 | 0.02 | 0.03 | 0.8% | | | | | |

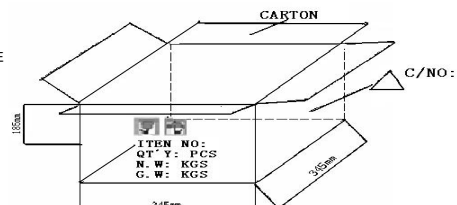
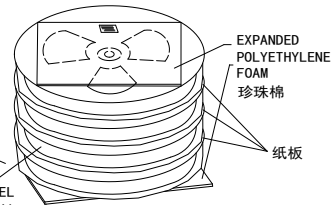
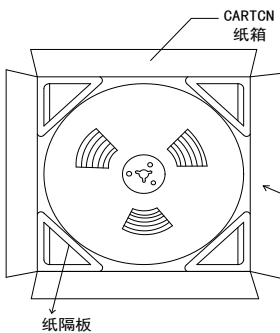
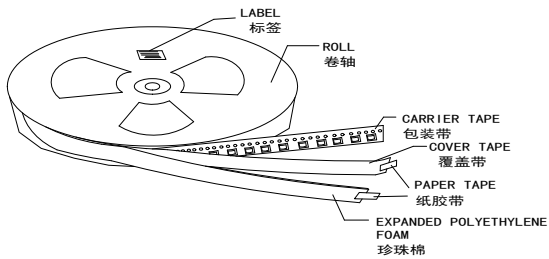
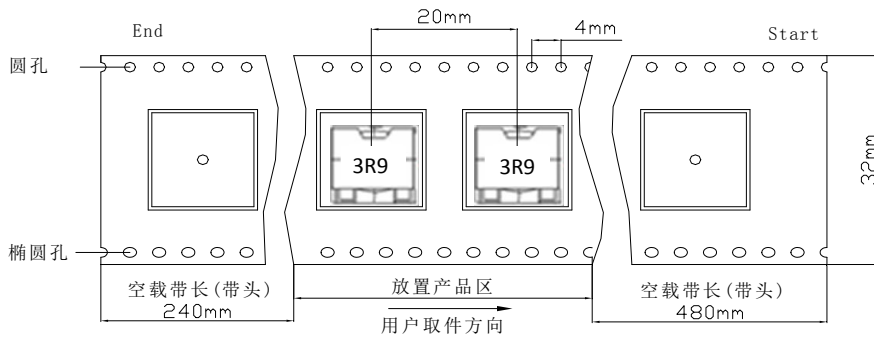


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| 11.可靠性Reliability | | | | | |
| 项目Item | 规格与需求 Specification and Requirement | 测试方法Test Method | | | |
| 可焊性 Solderability test | 沾锡面积不得小于95%上锡面 Terminals area must have 95% min solder coverage | 上锡升温曲线 Solder heat proof: (1) 预热: 160±10℃持续90s Preheating: 160±10℃ for 90 seconds (2) 恒温时段: 245±5℃持续2±0.5s Retention time: 245±5℃ for 2±0.5 seconds | | | |
| 振动测试 Vibration test | 感值变化: 不超过±5% 且无破裂等机械损伤产生 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 (2) 振动时间 Vibration time: 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 (3) 振幅 Amplitude: 1.5 mm Max | | | |
| 冲击测试 Shock test | 感值变化: 不超过±5% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break | (1) 最大振幅 Peak value: 100G (2) 脉冲波长 Duration of pulse: 11ms (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% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break | (1)重复以上100个循环Repeat 100 cycle as follow (-40±2℃,30±3分钟) 室温5分钟 (-40±2℃,30±3 minutes) Room temperature,5 minutes (+125±2℃,30±3分钟) 室温5分钟 (+125±2℃,30±3 minutes) Room temperature,5 minutes (2)恢复: 测试于标准条件下恢复48+4/-0小时(参考注释1) 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% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break | (1)环境条件: 85±2℃ Environment condition : 85±2℃ 应用电流: 额定电流 Applied current: Rated current (2)持续时间: 1000+4/-0 小时(参考注释1) Duration:1000+4/-0 hours (see Note1) | | | |
| 耐湿测试 Humidity Resistance | 感值变化: 不超过±5% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break | (1)环境条件: 60±2℃ Environment condition : 60±2℃ 湿度: 90~95% Humidity:90~95% 应用电流: 额定电流 Applied current: Rated current (2)持续时间: 1000+4/-0 小时(参考注释1) 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% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break | (1)存储温度 Store temperature -40±2℃下存放 1000+4/-0 小时 -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% 且无破裂等机械损伤产生 Inductance change: Within±5% Without mechanical damage such as break | (1)存储温度 Store temperature +125±2℃下存放 1000+4/-0 小时 +125±2℃for total 1000+4/-0 hours | | | |

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12、包装 Packaging

12.1 包装料带尺寸 Tape packaging dimensions



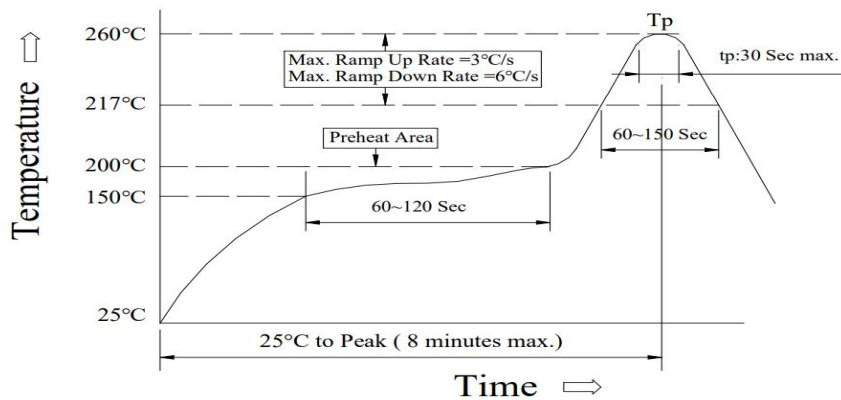
| | | |
|-------------|--------------------------|--------------------------|
| 内包装 (INNER) | REEL(卷轴+载带+自粘带+标签+美纹胶带) | 300 PCS/ROLL (300个/卷) |
| 外包装 (OUTER) | 4 ROLLS/CARTON (4卷/外箱) | 4 ROLLS/CARTON (4卷/外箱) |

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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.