

产品规格承认书
SPECIFICATION FOR APPROVAL
一体成型功率电感
Unibody Inductor

客 户 Customer: _____ C. 0352

产品型号 Part NO.: _____ MCW-0520-R22-S2 -M-SW-B

客户料号 Customer Part NO.: _____

承认书编号 Sample NO.: _____

说明Note:

1. 感谢贵司的支持！请贵司7个工作日内提出修改意见或确认签回, 批量生产交货时, 请按双方确认后的标准执行, 如未签回, 则视为默认。
Thank you for your support please propose amenomerits on confirm sign and The specification Approval should be sent back to the supplier with customer's chop on it within 7 days after receiving it, or we will take it as approved by customer.
2. 在使用产品前, 用户应自行确定本产品是否适用于自身设计, 仅保证产品符合产品规格书要求。
Before using these products, buyer agrees to determine suitability of the product for their intended use of application. only ensure our products compliance to this specification.
3. 本承认书的数据更改需经双方确认, 任何一方单独修改无效。
Any revision to the specification Approval must be confirmed by both the supplier and the customer otherwise the revision is invalid

拟制	审核	核准	客户承认
PrePared	Checked	Approved	Customer Approve
谷香	黄志胜	GaoRuby	Halogen Free
日期 Date: 2018-11-13			日期 Date:

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1、特性 Features:

使用粉质金属磁粉，具有优良饱和性能； High performance (Isat) realized by metal dust core
微小体积； Low profile
低功率耗，低DCR； Low power consumption and low DCR
可工作于（1MHz）高频通信环境下：
Capable of corresponding high frequency working environment (1MHz)
遵守欧盟ROHS标准 100%无铅（pb）； 100% lead(pb) free ,meet ROHS standard

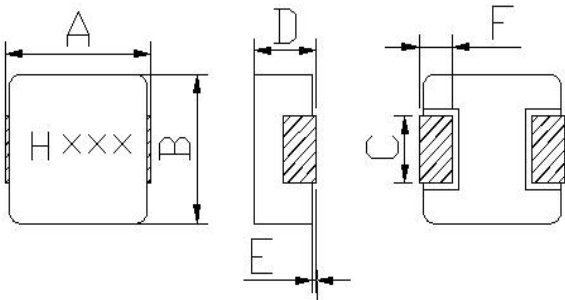
2、应用范围 Application:

笔记本计算机CPU的DC/DC转换器； DC/DC converter for CPU in Notebook PC
交换机的面板薄型电流供应模块； Thin type on-board power supply module for exchanger
服务器的VRM(CPU的电压调节组件)； VRM for server (the voltage regulation module for CPU)

3、产品名称 Model Name:

- (1) 产品类型 Product Type:
- (2) 外部尺寸 External Dimensions:
- (3) 感值 Electrical Code :
- (4) 材质 Material :

4、外型尺寸与简图 Outline Dimensions and Diagram:



代号 code	尺 寸 Dimensions
A	5.4±0.35
B	5.20 ± 0.20
C	2.30± 0.30
D	2.0Max
E	0.00 ~ 0.15
F	1.00 ± 0.30

5、标示与代码 Marking and Code:

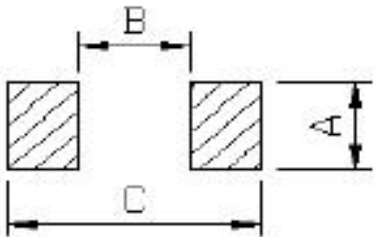
5.1 标示 Marking:

- ① 合泰盟方标示 Hotland Marking
- ② 电感（感值）由3位编码标示 The induct or is marked with a 3-digit code.

6、推荐刷锡面尺寸 Recommend Land Pattern Dimensions:

客户应确保刷锡面尺寸大于以下指数以保证上锡牢固。

The customer shall make sure the land dimensions shown should above confirmed to ensure safety



项目	尺寸(mm)
A	2.5
B	2.2
C	5.99

7、规格Specifications:

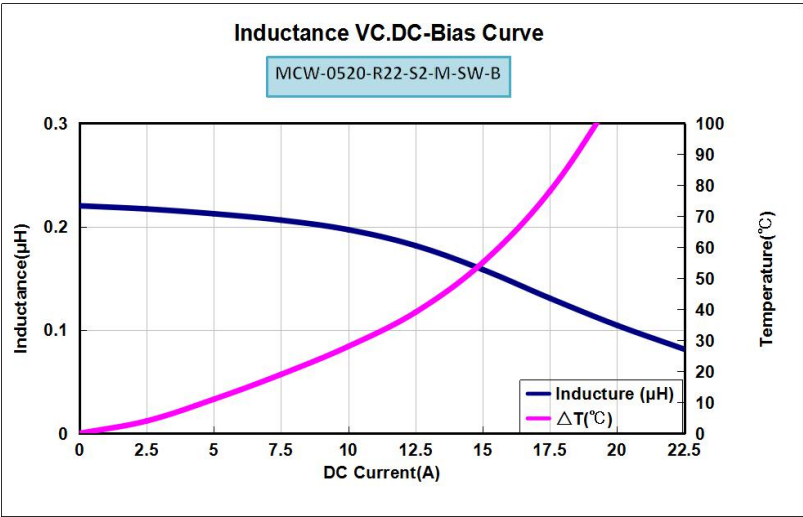
机种 Part Number	0A感值 L0(uH) Inductance(uH)	Rdc(mΩ)		温升直流电流Idc (A) Heat Rating current dc Amps ldc (A)	饱和直流电流Isat (A) Saturation Current DC Amps. Isat (A)
		典型 Typical	上限 Maximum		
R22	0.22±20%	3.80	4.50	15.00	18.70

(1)、如你需要其它机种，请与我们联系
If you require another part number please contact with us.

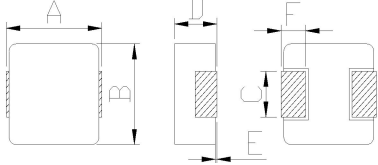
※ 注释 Note:

1. 所有测试数据于25℃室温测试. All test data is based on 25℃ ambient.
2. Idc:使产品温升△T约40℃时所加载的直流电流.
DC current(A)that will cause an approximate △T40℃
3. Isat:使产品感值降低约30%时所加载的直流电流.
DC current(A)that will cause L0 to drop approximately 30%Typ
4. 工作温度范围: -55℃到+125℃. Operating temperature range: -55℃~+125℃
5. 在恶性劣的工作环境下，产品局部温度（环境温度+工作温升）不可超过125℃. 线路设计组件布局印刷线路板（PWB）尺寸及厚度，气流及冷却供应均影响产品局部温度。产品局部温度应当在最终应用时再进行验证。
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

8、电气特性 Current Characteristics:



9、实测数据 Test Data:

TEST ITEM	L0A (uH)	L18.7A (uH)	DC BIAS	Q值	DCR (mΩ)	A (mm)	B (mm)	D (mm)
Test Condition	100KHz/1.0V		-	-				
Test Instrument	Chroma3302		-	-	Chroma 16502	Mitutoyo Caliper		
Specification	0.22 ±20%	30%Typ	-	-	4.5mΩ Max	5.75 Max	5.2±0.2	2.0 Max
1	0.19	0.15	21.1%	-	3.86	5.68	5.18	1.89
2	0.20	0.16	20.0%	-	3.89	5.70	5.15	1.87
3	0.20	0.15	25.0%	-	3.92	5.69	5.16	1.82
4	0.19	0.15	21.1%	-	3.96	5.68	5.16	1.88
5	0.21	0.16	23.8%	-	3.98	5.69	5.16	1.81
6	0.19	0.15	21.1%	-	4.06	5.68	5.17	1.89
7	0.19	0.15	21.1%	-	4.11	5.63	5.15	1.87
8	0.20	0.16	20.0%	-	4.16	5.67	5.19	1.82
9	0.21	0.16	23.8%	-	3.99	5.65	5.17	1.88
10	0.23	0.18	21.7%	-	0.37	5.68	5.17	1.81
Min	0.19	0.15	21.1%	-	0.37	5.63	5.15	1.81
AVERAGE	0.20	0.16	21.9%	-	3.63	5.68	5.17	1.85
Max	0.23	0.18	21.7%	-	4.16	5.7	5.19	1.89

10、可靠性Reliability:

10.1 机械性Mechanical

项目 Item	规格与需求 Specification and Requirement	测试方法 Test Method
可焊性 Solder ability 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: $160 \pm 10^{\circ}\text{C}$ 持续90s Preheating: $160 \pm 10^{\circ}\text{C}$ for 90 seconds (2) 恒温时段: $245 \pm 5^{\circ}\text{C}$ 持续 2 ± 0.5 s Retention time: $245 \pm 5^{\circ}\text{C}$ for 2 ± 0.5 seconds
振动测试 Vibration test	感值变化: 不超过 $\pm 5\%$ 且无破裂等机械损伤产生 Inductance change: Within $\pm 5\%$ 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 $\pm 5\%$ 且无破裂等机械损伤产生 Inductance change: Within $\pm 5\%$ 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

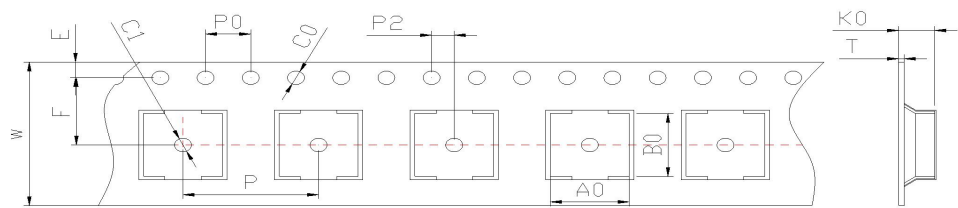
10.2 耐久性 Endurance

项目 Item	规格与需求 Specification and Requirement	测试方法 Test Method
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 (-55±2℃,30±3分钟)→ 室温5分钟 (-55±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 -55±2℃下存放 1000+4/-0 小时 -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% 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

11、包装 Packaging

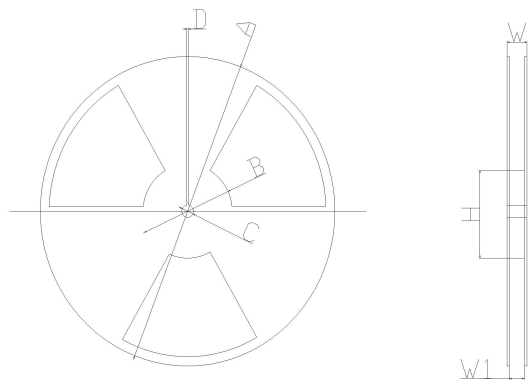
11.1、尺寸 Dimensions

11.1.1 包装料带尺寸 Tape packaging dimensions



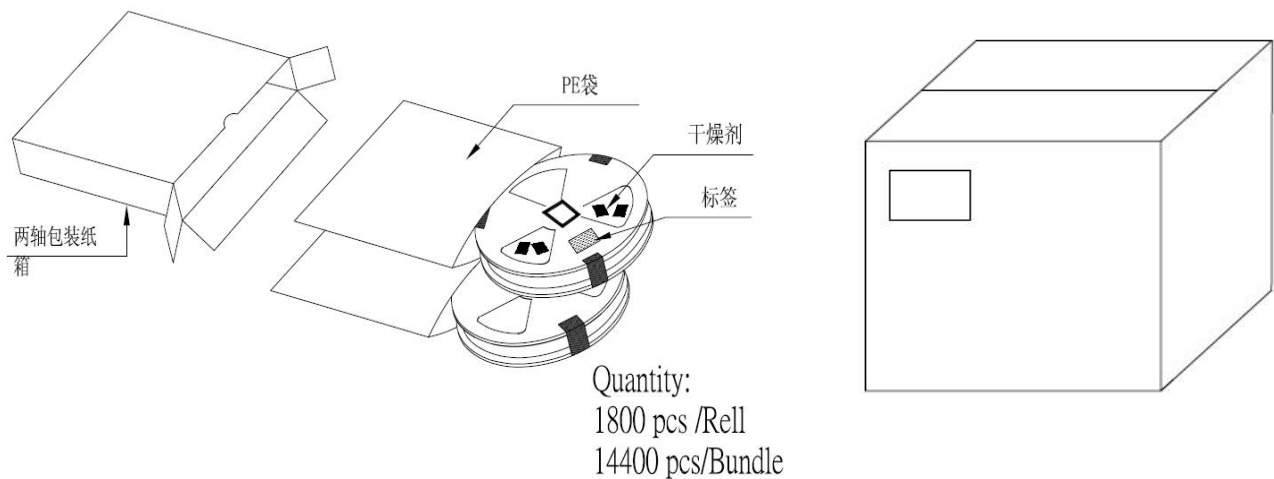
W	C0	P	P0	P2	T	A0	B0	K0
16.00 ±0.30	1.50 ±0.10	12.00 ±0.10	4.00 ±0.10	2.00 ±0.10	0.35 ±0.05	5.40 ±0.10	5.40 ±0.10	2.30 ±0.10

11.1.2 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	22.4 Max
W1	16.4 ± 1.0

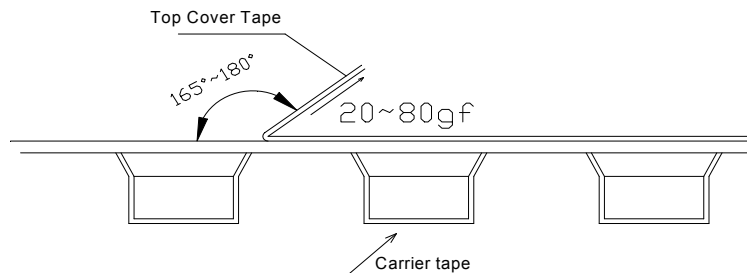
11.1.3 外箱尺寸Carton dimensions



11.2 上带剥离拉力 Peel force of top cover tape:

剥离速度应控制于300mm/分，上盖剥离拉力介于0.2~0.8N

The peel speed shall be about 300mm/minute, The peel force of top cover tape shall be Between 0.2 to 0.8N



11.3 标签标示 Label marking

以下项目需明确标示于料盘之产品卷标与运输卷标上

The following items shall be marked on the reel of production and shipping label.

11.3.1 产品卷标 Production label:

- (1) 产品机种: Part NO.
- (2) 数量: Quantity
- (3) 生产日期: Production date
- (4) 包装流水号: Lot No.

11.3.2 运输卷标 shipping label

- (1) 产品型号: Part No.
- (2) 数量: Quantity
- (3) 生产日期: Production date

12、验收规则 Inspection Rules

12.1 产品的验收按GB/T2828.1-2003规定进行,其检查水平: 外观、尺寸, II, AQL=0.4; L0A, L30DC, S-4, AQL=0.15; 绝缘电阻每批抽10只。

The inspection must be performed per GB/T2828.1-2003, with its examination level: Appearance and dimensions, II, AQL=0.4; L0A and L30DC, S-4, AQL: 0.15; Insulation resistance spot test 10 pieces every batch.

12.2 客户在接收到磁芯产品后一个月内须验收完毕,并将验收结果书面通知供货方,否则视为已验收合格。

Inspection will be completed and inspection result will be feedback to Hotland in written within one month after cores are received from Hotland or it will be considered approved by customer.

12.3 产品最佳有效使用期限6个月。

13、注意事项 Care Notes:

13.1 使用注意事项 Care Notes for use

(1) 存储条件 Storage Condition

温度:25~35℃, 湿度45~85%RH Temperature:25 to 35℃, Humidity:45% to 85%RH

(2) 使用温度: Working Temperature:

a. 最低温度: -55℃产品环境温度

Minimum Temperature:-55℃ Ambient temperature of power choke coil

b. 最高温度: +125度含环境温度及产品温升。

Maximum Temperature: +125 °C The value of temperature in duding ambient of the transformer and temperature rise of power choke coil

(3) 模式 Model:

当本产品用于相似或新的产品上时, 电性可能因使用条件的不同而与规格产生一定出入
When this power choke coil was used in a similar or new product to the on ginal one.

sometimes it might be unable to satisfy the specifications due to different condition of usage.

(4) 跌落 Drop:

本产品受到跌落等机械外力损伤时, 产品特性可能会变差(因为损伤到线圈等).
禁止使用以上外力损伤之电感。

The dropping or mechanical stress of power choke coil may decrease the charactenstics for the coil bobbin may be damaged Such damaged coils are not suggested to use

13.2 安全注意事项 Safety Caution:

(1) 预防不正常条件 Provision to Abnormal Condition:

在过载、短路、开路等不正常条件下, 本电感产品无任何自我保护功能。

This power choke coil itself does not have any protective function in abnormal condition such as overload short circuit open circuit conditions etc

(2) 温升 Temperature Rise:

电感的温升受成品结构影响, 因此, 强烈建议您于成品后再次确认电感温升是否符合规定温度等级要求。

Temperature rise of power choke coil depends on the installation condition on end products.

It shall be confirmed on the actual end pron duct that temperature rise of power choke coil is in the lime of specified temperature class.

(3) 绝缘能力 Dielectric Strength:

高电压绝缘测试会对本产品绝缘金属粉体造成损害, 并缩短产品寿命。

Dielectric withstanding test with higher voltage than specific value will damage in sutating Material and shorten its life

(4) 防水Waterproof:

本电感产品绝缘性会因工作环境潮湿而下降, 因此本产品禁止应用在有水, 咖啡及其它液体存在的潮湿环境中。

This power choke coil must not be sued in wet condition by water ,coffee or any liquid because insulation strength becomes very low in the very condition

备注: 所有中英文对照以中文为准, 英文仅供参考。