DMBJ东莞市振宝佳电子有限公司

承　认　书

APPROVAL SHEET

客　　户
CUSTOMER: _____

客 户 料 号
CUSTOMER P/N: _____

物 料 名 称
MODEL NO： 一体成型电感

料 号
P/N： SM系列

文 件 编 号
FILE NO： 26.02

客户 Customer		制造 Manufacturer	
检验 Check by		拟制 Draft by	LIAO CHUN LING
审核 Checked by		审核 Checked by	YUAN JIA HONG
批准 Approval by		确认 Approve by	HE SHAO LIN
签章/ SIGNATURES:		签章/ SIGNATURES:	

●Features

- High rated current
- Frequency up to 3 MHz
- 125℃ maximum total temperature operation
- Low core loss
- Ultra low buzz noise due to molding construction
- Halogen Free & ROHS compliant



●Applications

- Laptops and PCs
- Switch and servers
- Base stations
- DC/DC converters
- Battery powered devices
- SSD modules

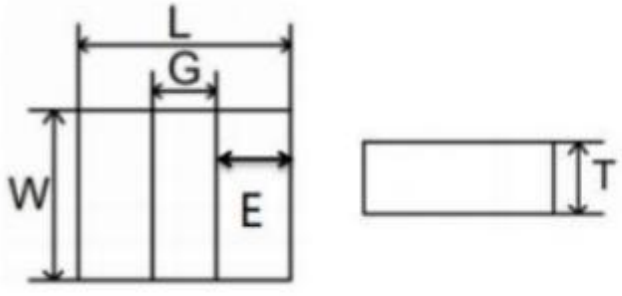
●Ordering Procedure

ZBJ	4040	10	S	1R0	M	B	C	A
①	②	③	④	⑤	⑥	⑦	⑧	⑨

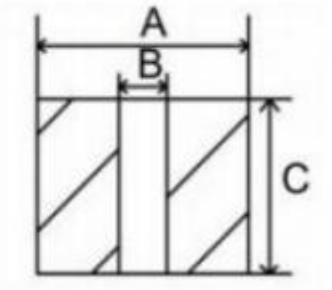
① Companyname:DongguanZhenbaojiaElectronicsCo.,Ltd.
② External Dimensions(L×W):4040=4.0*4.0 mm
③ External Dimensions(H):10=1.0mm
④ Size Tolerance: S=±0.2mm
⑤ Inductance value:1R0= 1.0uH
⑥ Tolerance:M=±20%
⑦ Coating color:B=Black G=Gray
⑧ Product type:C=Common
⑨ Special define:A=Routine
For special characteristics, please refer to the specific values in Item 5 "Specifications".

● Dimensions (unit:mm)

Outline Dimensions



PCB Pattem



Series	L	G/Typ	W	E	T	A/Typ	B/Typ	C/Typ
ZBJ404010S	4.1±0.2	1.4	4.1±0.2	1.35±0.2	1.00Max.	4.10	1.30	4.10

●Electrical characteristics

P/N	L0(μH) @(0A) 1MHz	Rdc(mΩ)		Heat rating current Irms(A)		Saturation current Isat(A)	
		Typical	Max	Typical	Max	Typical	Max
ZBJ404010S1R0MBCA	0.47	15	18	7.0	6.5	7.5	7.0
ZBJ404010S1R0MBCA	1.0	22	26	7.0	6.5	5.3	4.8
ZBJ404010S4R7MBCA	4.7	120	140	3.4	3.0	3.8	3.5
ZBJ404010S6R8MBCA	6.8	200	235	2.9	2.4	3.2	2.7
ZBJ404010S100MBCA	10	220	280	2.5	2.0	2.2	2.0

●Marking:No Marking

●Test remarks

1、All test data is referenced to 25 ℃ ambient.

2、Test Condition:1MHz, 1.0Vrms.

3、Irms（Max）:DC current (A) that will cause an approximate △T of 40 ℃ .

4、Isat(Max):DC current (A) that will cause L0 to drop approximately 30%.

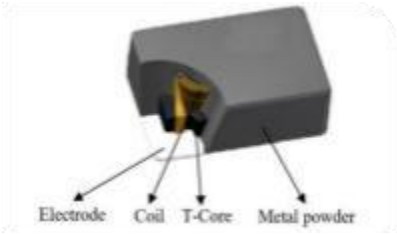
5、Operating Temperature Range -55℃ to + 125℃ .

6、The part temperature (ambient + temp rise) should not exceed 125 under ℃ the worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provision all affect the part temperature. Parttemperature should be verified in the end application.

7、The rated current as listed is either the saturation current or the heating current depending on which value is lower.

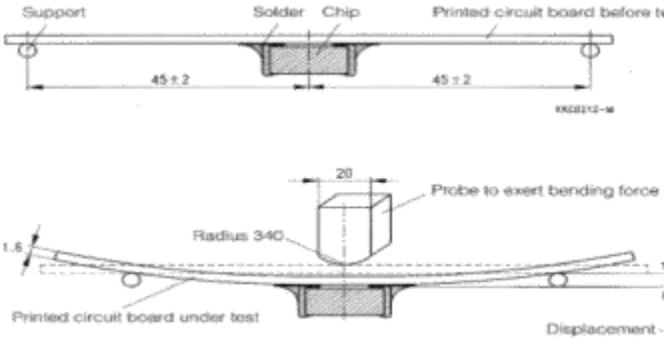
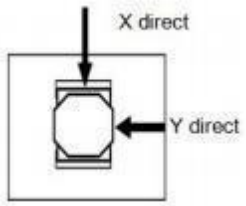
8、Maximum withstand voltage 30V

●Structure



●Reliability

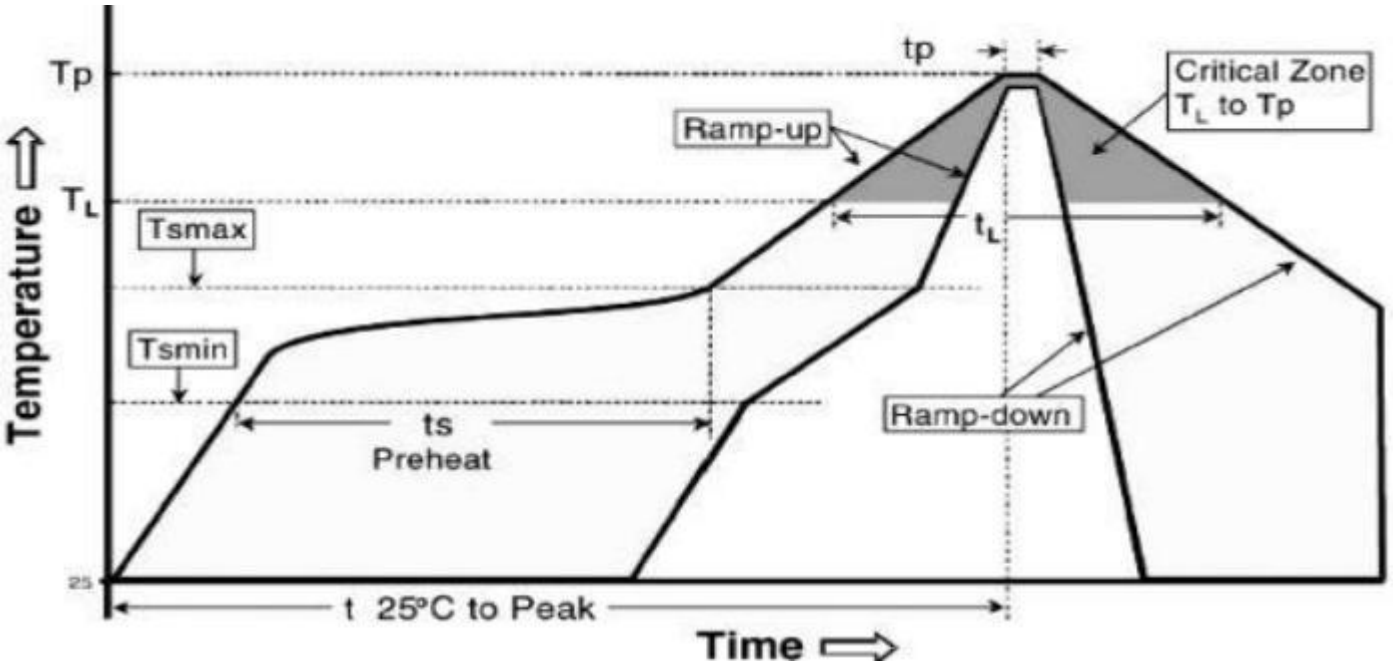
Item	Specification and Requirement	Test Method
Solderability	**1.** No case deformation or change in apperarance 2. New solder coverage More than 90%	1.Preheat：125℃±5℃ ， 60S±2S 2.Tin: lead-free. 3.Temperature:245℃±5℃, flux 3.0S±0.5S.
Mechanical shock	1. No case deformation or change in apperarance 2. △L/Lo≦±10%	1. Acceleration： 100G 2. Pulse time:：6ms 3. 3 times in each positive and negative direction of 3 mutual perpendicular directions
Mechanical vibration	1. No case deformation or change in apperarance 2. △L/Lo≦±10%	1. The test samples shall be soldered to the board. Then it shall be submitted to below test conditions. Fre. Range: 10~55Hz Total Amplitude: 1.5mm Sweeping Method: 10Hz to 55Hz to 10Hz Time: For 2 hours on each X,Y,Z axis. 2. Recovery: At least 2 hours of recovery under the standard condition after the test, followed by the measurement within 24 ±2 hours.
Thermal Shock	Inductance change: Within ± 10% Without distinct damage in appearance	1. First -55℃ for 30 minutes，last 125℃ for 30 minutes as 1 cycle. Go through 1000 cycles. 2. Max transfer time is 2 minutes. 3. Measured at room temperature after placing for 24 ±2 hours
Humidity Resistance	Inductance change: Within ± 10% Without distinct damage in appearance	1.Reflow 2 times, 2.85℃,85%RH, 1000 hours 3. Measured at room temperature after placing for 24 ±2 hours
Low temperature storage	Inductance change: Within ± 10% Without distinct damage in appearance	1. Temperature：-55 ± 2℃ 2. Time：1000 hours 3. Measured at room temperature after placing for 24 ±2 hours

High temperature storage	Inductance change: Within ± 10% Without distinct damage in appearance	1. Temperature：+125 ± 2℃ 2. Time：1000 hours 3. Measured at room temperature after placing for 24 ±2 hours
Board Flex	Inductance change: Within ± 10% Without distinct damage in appearance	1 、Run through IR reflow for 2 times； 2 、Place the 100 mm X 40 mm board into a fixture similar to the one shown in below Figure with the component facing down 3 、The apparatus shall consist of mechanical means to apply a force which will bend the board (D) x = 2 mm minimum. 4 、The duration of the applied forces shall be 60 ±5 sec. The force is to be applied only once to the board. 
Terminal Strength	No removal or split of the termination or other defects shall occur.	1 、The test samples shall be soldered to the board 2 、Push the product vertically from the side of the sample using the thrust tester. 3、Automotive electronics：17.7N，60S±1s，X ，Ydirect. 

● Soldering Condition

(This is for recommendation, please customer perform adjustment according to actual application)

Recommend Reflow Soldering Profile：(solder ： Sn96.5 / Ag3 / Cu0.5)



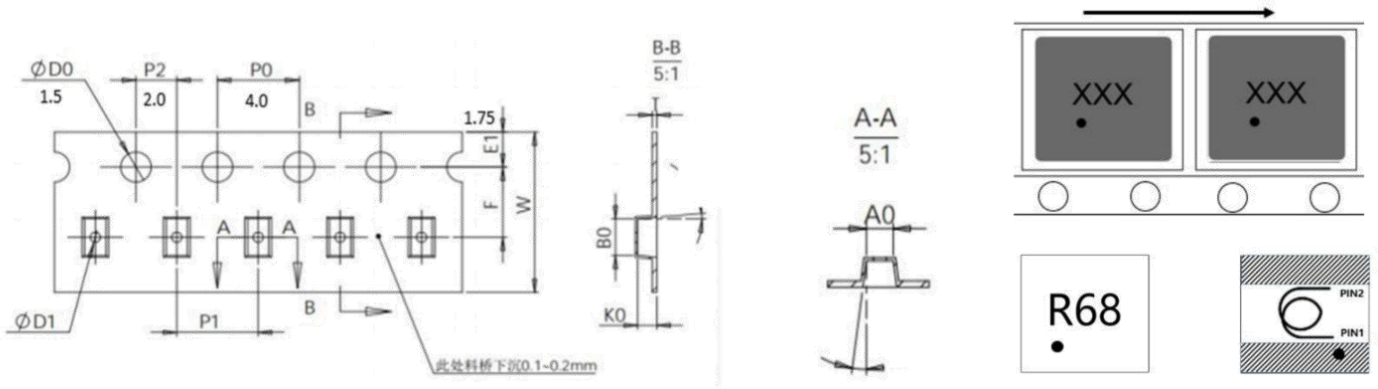
Profile Feature	Lead (Pb)-Free solder
Preheat： Temperature Min (T_{smin}) Temperature Max (T_{smax}) Time (T_{smin} to T_{smax}) (ts)	 150℃ 200℃ 60 - 120 seconds
Average ramp-up rate： (Ts max to Tp)	 3℃ / second max.
Time maintained above ： Temperature (T_L) Time (t_L)	 217℃ 60- 150 seconds
Peak Temperature (Tp)	260℃
Time within $^{+0}_{-5}$℃ of actual peak Temperature (tp)[2]	10 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8minutes max.

Allowed Re-flow times ：2 times
Remark ：To avoid discoloration phenomena of chip on terminal electrodes, please use N2 Re-flow furnace .

●Packing

● Dimension of plastic taping: (Unit: mm)

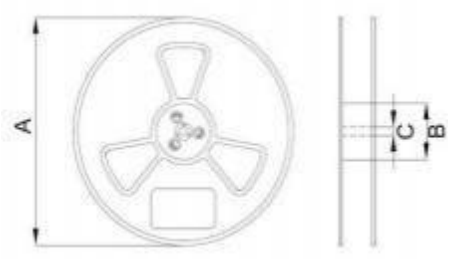
The ollowing dimensions are related to the actual fit of the machine， for reference only.



Series	W	A0	B0	D1	F	K0	P1	T	包装数量
公差	/	/	/	±0.20	±0.10	/	±0.10	±0.05	
404010	12.0±0.30	4.40±0.10	4.40±0.10	1.5	5.5	1.30±0.10	8.0	0.30	3K

● Dimension of Reel ： (Unit: mm)

Type	A ±2.0	B ±2.0	C ±2.0
All	330	100	13.0



● Note

（1）储存期限 Storage Period

为保证端子电极的焊接特性和包装材料处于良好状态，请于本公司发货后12个月内使用本产品。同时，由于端子电极的焊接特性会随时间发生变化，如果贮存时间超过12个月，请首先确认其焊接特性后再安装使用。

To maintain the solderability of terminal electrodes and to keep the packing material in good condition, product should be used within 12 months from the time of delivery. And the solderability of products electrodes may decrease as time passes, so in case of storage over 12 months, solderability shall be checked before actual usage.

（2）储存条件 Storage Conditions

①存放货物的仓库应满足以下条件：Store products in a warehouse in compliance with the following condition:

温度(Temperature): 电感(带包装产品)Inductors (product with taping) +15 to +35℃；相对湿度(Humidity): 25~70%RH.

②开封后 24H 未使用完的产品需在包装放置干燥剂并密封(建议真空保存)

If the product is not used up 24H after opening, desiccant should be placed in the package and sealed (Recommended vacuum storage)

（3）不要使产品遭受温度和湿度的快速变化。

Do not subject products to rapid changes in temperature and humidity.

（4）不要将产品存放在化学环境中，如硫酸气体或碱性气体中，否则会降低电极端子的焊接特性和使电感器腐蚀。

Do not store the products in chemical atmosphere such as one containing sulfurous acid gas or alkaline gas, that will causes poor solderability and corrosion of inductors.

（5）不要以散包装的形式存放产品以防止电感器间的相互碰撞造成磁芯破裂或断线。

Do not store products in bulk packaging to prevent collision among inductors which causes core chipping and wire breakage.

（6）为了避免受潮气、灰尘等物质的影响，产品应保管于货架上。

Store products on pallets to protect from humidity, dust, etc.

（7）产品应避免热冲击、振动以及直接光照等等。

Avoid heat shock, vibration, direct sunlight, etc.

（8）在设计 PCB 时, 请考虑非磁屏蔽元器件的安装位置,避免磁干扰引起的故障.

When designing the PCB, please consider the installation position of the non-magnetic shielded components to avoid failures caused by magnetic interference.

（9）请勿将本产品靠近磁铁或带有磁力的物体

Do not place this product near magnets or objects with magnetic force.

（10）产品会因通电而自我发热（温度上升），在热设计方面需留有充分余量.

The product will self-heat (temperature rise) due to power-on, and sufficient margin should be left in thermal design.

安装密度 Mounting density如果本产品放置在发热产品附近，请确保采取足够的散热措施。如果本产品受到其他产品的大量热量，这可能会对产品质量产生不利影响，导致电路故障或安装部分失效。此外，要确保产品的使用方式，使本产品受其他产品的热量不超过额定工作的上限产品的温度。

If this product is placed near heat-generating products, be sure to implement sufficient heat-dissipating measures. If this product is subjected to a significant amount of heat from other products, this could adversely affect product quality, resulting in a circuit malfunction or failure of the mounted section. Also, be sure that the product is used in a manner so that the heat that the product is subjected to from other products does not exceed the upper limit of the rated operating temperature for the product.

（12）由于人体所带的静电会传到接地线上，因此请使用防静电腕带.

Since the static electricity carried by the human body will be transmitted to the ground wire, please use an anti-static wrist strap.

（13）人体手上有油脂可能导致可焊性下降. 请避免手直接接触端子.

Grease on human hands may lead to decreased solderability. Please avoid direct contact with the terminals.

（14）本产品是指在通用标准上用于影音娱乐,家电,计算机,办公自动化,通讯, 电源模块,LED 照明,测量设备,机械工具,工业控制板等一般电子设备中. 并且该一般电子设备要在通常的操作和使用方法下使用。

This product refers to the general standard used in audio-visual entertainment, home appliances, computers, office automation, communications, power modules, LED lighting, measuring equipment.

Machine tools, industrial control panels and other general electronic equipment. And the general electronic equipment should be used under the usual operation and usage methods.

（15）当本产品使用在一般电子设备以外的场合,如:车载,交通工具控制设备,医疗设备,军用设备,航空航天设备,海底设备等,请务必联系本公司销售部门,本公司会配合客户需求，一起协商不同于本产品中所记载的使用用途.

When this product is used in occasions other than general electronic equipment, such as: Automotive Electronic products,medical equipment, military equipment, Aerospace equipment, submarine equipment, etc.,

please be sure to contact the company's sales department,the company will cooperate with customer needs, and negotiate different intended use described in this product.

（16）用烙铁返工 Reworking with soldering iron使用烙铁返工已焊产品必须满足以下要求。

The following requirements must be met to rework a soldered product using a soldering iron.

ITEM	Requirement
预热 Pre-heating	150°C /约，1 分钟 150°C/approx. 1 min
烙铁的尖端温度 Tip temperature of soldering iron	350°C max.
焊接时间 Soldering time	3 s (+1 s, -0 s)
返工操作次数 Number of reworking operations	1 times max.
*建议直接更换产品，返工可能会导致外观不良 It is recommended to replace the product directly, rework may cause poor appearance	

（17）如果贵司对我司产品的使用已超过了本测试规范所界定的产品功能，那么对于由此引发的失效，我司将不予保证

We cannot warrant against failure caused by any use of our product that deviates from the intended use as described in this product specification.

（18）请在订货前批复我们的产品规格或办理产品规格批复单

Please approve our product specifications or transact the approval sheet for product specifications before ordering.

（19）本承认书只保证我司产品作为一个单体时的质量情况，当我司产品被安装到贵司产品上时，请贵司对使用在贵司电路上的产品情况进行了有效评价和确认。

Our specification limits the quality of the component as a single unit. Please ensure the component is thoroughly evaluated in your application circuit.