

承 认 书

APPROVAL SHEET

客户名称:	
Customer Name:	
产品名称:	片式铁氧体电感（整体无铅）
Product Name:	Chip inductors (Free-Lead)
制造商料号:	CMI系列
Manufacturer P/N:	
客户料号:	
Customer P/N:	
版本号:	A-3
Version No.:	

制造厂商 Manufacturer	
拟制 Draft	审核 Check
林晓华	徐雪枫
日期 Date	2014-5-20

客户承认印章 Approval Signet	
日期 Date	

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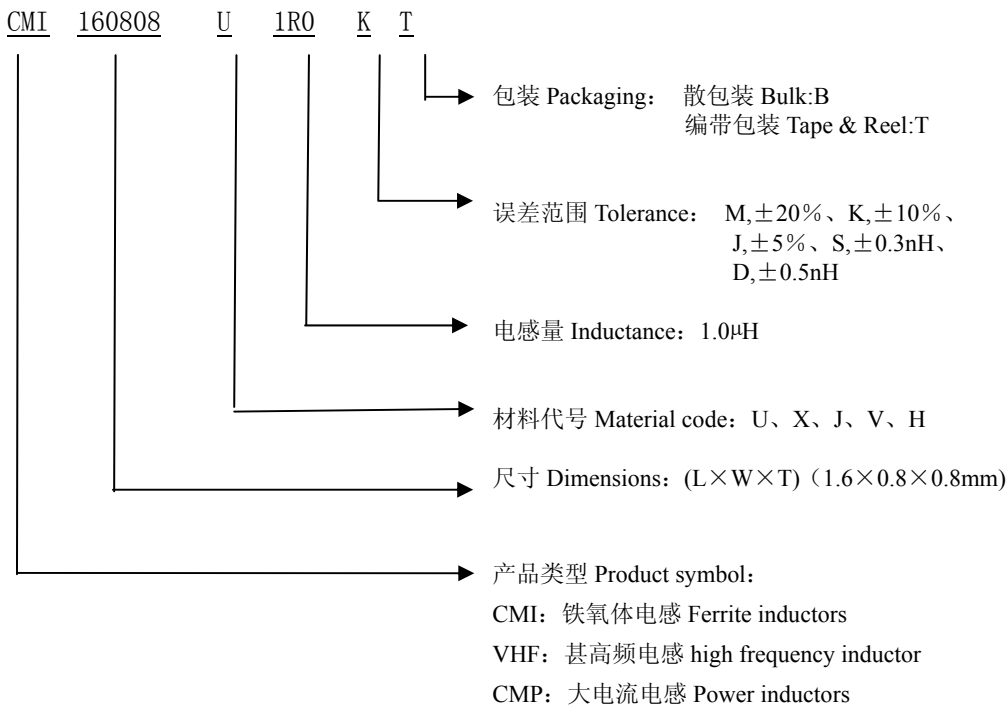
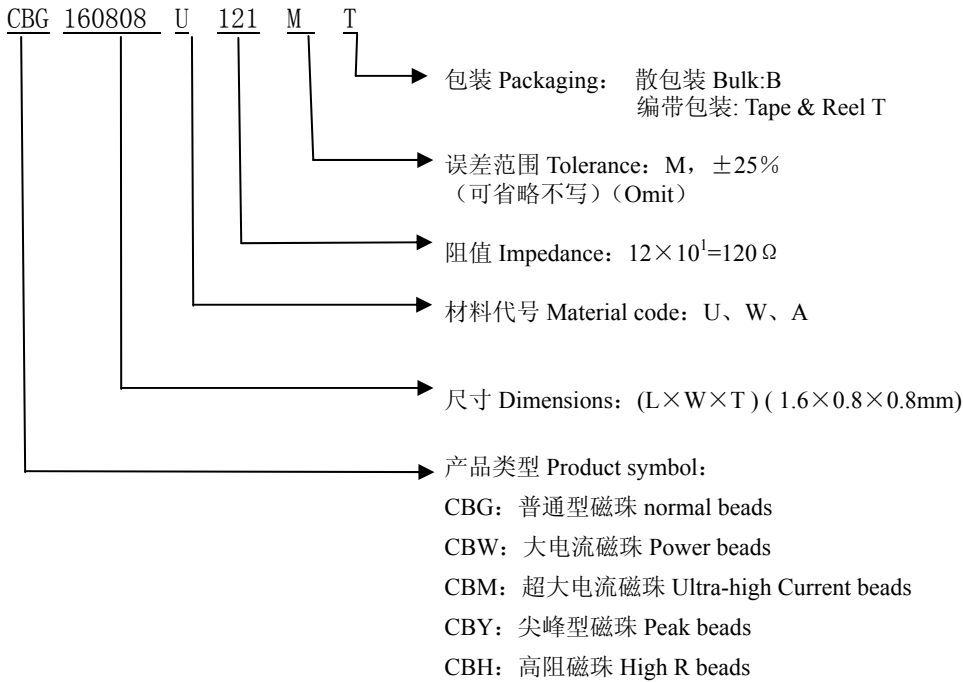


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2、产品品名构成 Product Spec. Model

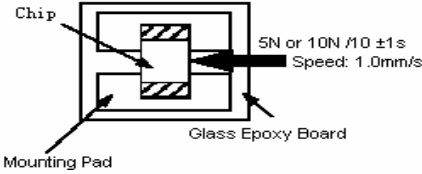
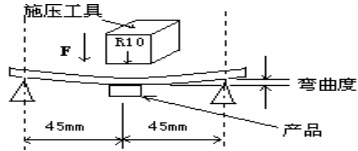


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3、电性能参数表 Electrical Characteristics List									
型号规格 Part NO.	客户料号 Customer P/N	误差范围 Tolerance	标称感量 Inductance (μH)	Q 值 (min)	直流电阻 RDC () max	测试频率 Test frequency (MHz)	测试电压 Test voltage (mV)	自谐振频率 SRF (MHz) min	额定电流 Rated current (mA)max
CMI201209V47NKT		±10%	0.047	15	0.15	50	50	320	300
CMI201209V56NKT		±10%	0.056	15	0.15	50	50	320	300
CMI201209V68NKT		±10%	0.068	15	0.20	50	50	280	300
CMI201209V82NKT		±10%	0.082	15	0.20	50	50	280	300
CMI201209VR10KT		±10%	0.10	20	0.20	25	50	235	250
CMI201209VR12KT		±10%	0.12	20	0.25	25	50	220	250
CMI201209VR15KT		±10%	0.15	20	0.25	25	50	200	250
CMI201209VR18KT		±10%	0.18	20	0.30	25	50	185	250
CMI201209VR22KT		±10%	0.22	20	0.30	25	50	170	250
CMI201209VR27KT		±10%	0.27	20	0.40	25	50	150	250
CMI201209VR33KT		±10%	0.33	20	0.40	25	50	145	250
CMI201209VR39KT		±10%	0.39	25	0.50	25	50	135	200
CMI201209VR47KT		±10%	0.47	25	0.50	25	50	125	200
CMI201209VR56KT		±10%	0.56	25	0.60	25	50	115	150
CMI201209VR68KT		±10%	0.68	25	0.65	25	50	105	150
CMI201209VR82KT		±10%	0.82	25	0.70	25	50	100	150
CMI201209U1R0KT		±10%	1.0	35	0.40	10	50	75	50
CMI201209U1R2KT		±10%	1.2	35	0.40	10	50	65	50
CMI201209U1R5KT		±10%	1.5	35	0.40	10	50	60	50
CMI201209U1R8KT		±10%	1.8	35	0.40	10	50	55	50
CMI201209U2R2KT		±10%	2.2	35	0.60	10	50	50	50
CMI201209U2R7KT		±10%	2.7	35	0.60	10	50	45	50
CMI201209U3R3KT		±10%	3.3	35	0.60	10	50	41	50
CMI201209U3R9KT		±10%	3.9	35	0.80	10	50	38	50
CMI201209U4R7KT		±10%	4.7	35	0.90	10	50	35	30
CMI201209X5R6KT		±10%	5.6	30	1.00	4	50	32	15
CMI201209X6R8KT		±10%	6.8	30	1.05	4	50	29	15
CMI201209X8R2KT		±10%	8.2	30	1.05	4	50	26	15
CMI201209X100KT		±10%	10	30	1.15	2	50	24	15
CMI201209X120KT		±10%	12	30	1.15	2	50	22	15
CMI201209J150KT		±10%	15	25	1.15	1	50	19	5
CMI201209J180KT		±10%	18	25	1.20	1	50	18	5
CMI201209J220KT		±10%	22	25	1.20	1	50	16	5
CMI201209J270KT		±10%	27	25	1.50	1	50	16	5
CMI201209J330MT		±20%	33	25	1.50	1	50	16	5
CMI201212J390MT		±20%	39	25	1.50	1	50	16	5
CMI201212J470MT		±20%	47	25	1.70	1	50	15	5

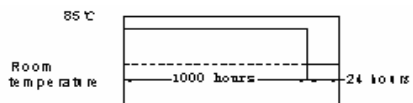
4、可靠性试验项目 Reliability Testing Items

序号 NO.	项目 Item	标准 Standard	测试方法 Test Method
1	工作温度范围 Operating Temperature Range	-40℃~+85℃	
1	可焊 Solder ability	至少 90%端电极表面被焊锡覆盖。 At least 90% of terminal electrode should be covered with solder	预热温度:120~150℃ 预热时间:60s 焊料: 锡铅产品使用 Sn/Pb=63/37 的焊料, 无铅产品使用纯锡焊料。 焊锡温度:230±5℃ 浸锡时间:4±1s 浸入松香助焊剂约 3~5s 浸入速度:25mm/sec Preheating temperature:120 to 150℃ Preheating time: 60s Solder Sn / Pb = 63/37, pure Sn product use 100% of the Sn solder. Solder temperature: 230±5℃ Duration : 4±1s Immersion into the colophony flux for 3 to 5 sec. Immersion speed: 25mm/sec
2	耐焊接热 Resistance to Soldering	至少 75%的焊锡覆盖在端电极表面, 无可见机械损伤。 电感量变化率如下: 陶瓷体电感 (H 料): ±10% 铁氧体电感 (V、U 料): ±20% 铁氧体电感 (X 料): ±25% 铁氧体电感 (J 料): ±30% 品质因素变化率(铁氧体)小于±30%, 品质因素变化率(陶瓷)小于±20%, 阻抗变化率小于±30%。 At least 75% of terminal electrode should be covered with solder. No mechanical damage. Inductance : H : change within ±10% V、U : change within ±20% X : change within ±25% J : change within ±30% Q value change(ferrite): within ±30% Q value change(ceramic): within ±20% Impedance change: within ±30%	预热温度:120~150℃ 预热时间:60s 焊料: 锡铅产品使用 Sn/Pb=63/37 的焊料, 无铅产品使用纯锡焊料。 浸锡温度:260±5℃ 浸锡时间:10±0.5s 浸入松香助焊剂约 3~5s 浸入速度:25mm/sec Preheating temperature: 120 to 150℃ Preheating time: 60s Solder Sn / Pb= 63/37, pure Sn product use 100% of the Sn solder. Solder temperature: 260±5℃ Duration : 10±0.5s Immersion into the colophony flux for 3 to 5 sec. Immersion speed: 25mm/sec

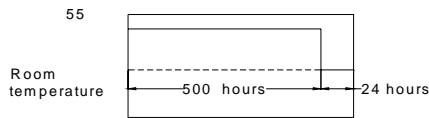
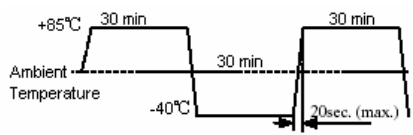
4、可靠性试验项目 Reliability Testing Items

序号 NO.	项目 Item	标准 Standard	测试方法 Test Method
4	端电极强度 Adhesion of electrode	端电极与磁体不应受损，无可见机械损伤。 The termination and body should be no damage.	施加力：1005 和 1608 系列为 5N；2012、3216、3225、4516、4532 系列为 10N。 保持时间：10±1S Applied force: 5N force for 1005 and 1608 series. 10N force for 2012、3216、3225、4516、4532 series. Keep time : 10±1S 
5	耐低温 Low temperature resistance	无可见机械损伤， 电感量变化率小于±10%， 品质因素变化率(铁氧体)小于±30%， 品质因素变化率(陶瓷)小于±20%， 阻抗变化率小于±30%。 No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30% Q value change(ceramic): within ±20% Impedance change: within ±30%	测试温度：-55±2℃ 测试时间：500 ⁺²⁴ ₋₀ h Temperature: -55±2℃ Testing time: 500 ⁺²⁴ ₋₀ h
6	抗弯强度 Bending strength	无可见机械损伤， 电感量变化率小于±10%， 品质因素变化率(铁氧体)小于±30%， 品质因素变化率(陶瓷)小于±20%， 阻抗变化率小于±30%。 No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30% Q value change(ceramic): within ±20% Impedance change: within ±30%	弯度：2mm 测试基板：玻璃环氧树脂基板 厚度：0.8mm Warp: 2mm Testing board: glass epoxy-resin substrate Thickness: 0.8mm 

4、可靠性试验项目 Reliability Testing Items

序号 NO.	项目 Item	标准 Standard	测试方法 Test Method
7	跌落 Drop	无可见机械损伤， 电感量变化率小于±10%， 品质因素变化率（铁氧体）小于±30%， 品质因素变化率（陶瓷）小于±20%， 阻抗变化率小于±30%。 No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30% Q value change(ceramic): within ±20% Impedance change: within ±30%	从高度为 1 米的空中自由落到混凝土地板重复 10 次。 Drop 10 times on a concrete floor from a high of 1m.
8	振动 Vibration	无可见机械损伤， 电感量变化率小于±10%， 品质因素变化率（铁氧体）小于±30%， 品质因素变化率（陶瓷）小于±20%， 阻抗变化率小于±30%。 No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30% Q value change(ceramic): within ±20% Impedance change: within ±30%	振幅: 1.5mm 测试时间: 沿三个垂直方向轴各做 2 小时 频率范围: 10Hz ~ 55Hz ~ 10Hz (1 分钟) Amplitude modulation: 1.5mm Test time: A period of 2h in each of 3 mutually perpendicular directions. Frequency range: 10Hz to 55Hz to 10Hz for 1min.
9	耐高温 High temperature resistance	无可见机械损伤， 电感量变化率小于±10%， 品质因素变化率（铁氧体）小于±30%， 品质因素变化率（陶瓷）小于±20%， 阻抗变化率小于±30%。 No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30% Q value change(ceramic): within ±20% Impedance change: within ±30%	施加额定电流(仅适用于大电流磁珠) 测试时间: 1000^{+24}_{-0} h 测试温度: $85 \pm 2^{\circ}\text{C}$  Applied current: rated current(CBW Series) Testing time: 1000^{+24}_{-0} h Temperature: $85 \pm 2^{\circ}\text{C}$

4、可靠性试验项目 Reliability Testing Items

序号 NO.	项目 Item	标准 Standard	测试方法 Test Method
10	耐潮湿 Humidity resistance	无可见机械损伤, 电感量变化率小于±10%, 品质因素变化率(铁氧体)小于±30%, 品质因素变化率(陶瓷)小于±20%, 阻抗变化率小于±30%。 No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30% Q value change(ceramic): within ±20% Impedance change: within ±30%	湿度:90~95% RH, 温度:55±2℃ 测试时间:500 ⁺²⁴ ₋₀ h Humidity: 90 to 95% RH Temperature: 55±2℃ Testing time: 500 ⁻⁰ h 
11	温度循环 Thermal Shock	无可见机械损伤, 电感量变化率小于±10%, 品质因素变化率(铁氧体)小于±30%, 品质因素变化率(陶瓷)小于±20%, 阻抗变化率小于±30%。 No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30% Q value change(ceramic): within ±20% Impedance change: within ±30%	温度: -40℃, 30±3 分钟 +85℃, 30±3 分钟 转换时间: 20 秒(最大) 循环次数: 32 Temperature: -40℃ for 30±3min +85℃ for 30±3min Transforming interval :max 20 sec Number of cycles: 32 

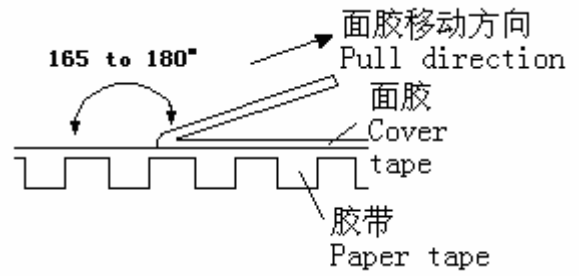
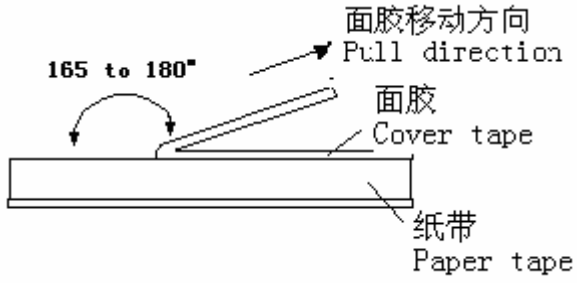
注: 以上要求测试电性能的项目, 应试验后在标准条件下放置 24 小时后测试。

Note:

When there are questions concerning, measurement shall be made after 24±2hrs of recovery under the standard condition.

5、产品包装 Packaging

1) 剥离力检验 Peeling off force



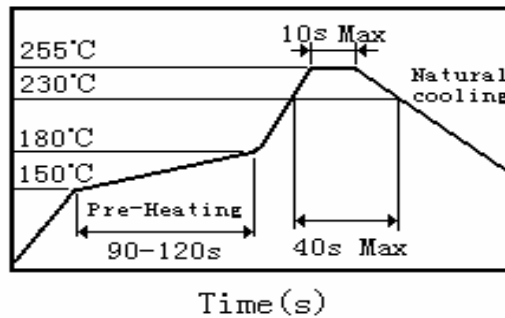
① 盖带的剥离力：沿面胶移动方向拉时要求剥离力为 0.1N~0.7N。

6、推荐焊接条件 Recommend Soldering Conditions

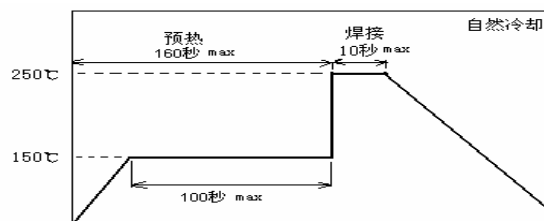
② 焊接要求 Soldering conditions

- 预热时，产品表温与焊料温度的温差最大不允许超出 150℃，焊接完冷却时，产品表温与溶剂温度之间的温差最大不超过 100℃。预热不足有可能引发产品表面裂纹，从而导致产品品质下降。
- Pre-heating should be in such a way that the temperature difference between solder and ferrite surface is limited to 150℃ max. Also cooling into solvent after soldering should be in such way that the temperature difference is limited to 100℃ max. Un-enough pre-heating may cause cracks on the ferrite, resulting in the deterioration of product quality.
- 产品要在以下画出的曲线允许的范围进行焊接。其它焊接条件可能引起产品电极的腐蚀。当焊接重复时，允许的时间为第一次做的累计时间。
- Products should be soldered within the following allowable range indicated by the slanted line. The excessive soldering conditions may cause the corrosion of the electrode. When soldering is repeated, allowable time is the accumulated time.

2) 回流焊曲线 Reflow soldering profile



3) 波峰焊曲线 Flow soldering profile

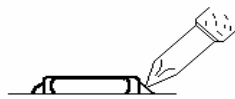


4) 手工焊接 Iron soldering

烙铁温度：350℃ Perform soldering at 350℃ on 30W max

功率：最大为 30W Time: < 5S

烙铁停留时间：< 5S（注意不要将烙铁碰到产品端电极）Take care not to apply the tip of the soldering iron to the terminal electrodes



5) 清洗条件 Cleaning Conditions

清洗温度：60℃（最高） Cleaning temperature : 60℃ max

清洗时间：1 分钟（最少） Cleaning time: 1 minute min.

超声波功率：最大为 200W Ultrasonic output power: 200W max

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7、存储条件 Storage Conditions

1) 存储期限 Storage period

距英达出厂检验时间 6 个月内，产品可以使用检验时间可以通过包装外侧标记的检验号确认。若时间超过 6 个月，应检查焊接性能后方可使用。

Products which inspected in YINGDA over 6 months ago should be examined and used, which can be Confirmed with inspection No. marked on the container. Solder ability should be checked if this period is exceeded.

2) 存储条件 Storage conditions

- (1) 存放货物的库房应满足以下条件：温度：-10 ~ +40℃，相对湿度：30 ~ 70%。
- (2) 禁止将产品保管在腐蚀性物质中，如硫磺、氯气或酸，否则将引起端头氧化，导致降低焊接性。
- (3) 为了避免受潮气、灰尘等物质的影响，产品应保管于货架上。
- (4) 产品保管在库房中，应避免热冲击、振动以及直接光照等等。
- (5) 产品应密封包装。

- (1) Products should be storage in the warehouse on the following conditions:

Temperature : -10~+40℃ Humidity: 30~70% relative humidity

- (2) Don't keep products in corrosive gases such as sulfur, chlorine gas or acid , or it may case oxidization of Electrodes resulting in poor solder ability.
- (3) Products should be stored on the palette for the prevention of the influence from humidity, dust and so on.
- (4) Products should be stored in the warehouse without heat shock, vibration, direct sunlight and so on.
- (5) Products should be stored under the airtight packaged condition.

8、ODS（消耗臭氧层物质）的使用情况 Usage Of ODS

- 1) 对于以下所列物质，我公司在生产过程中绝不使用。

ODS: CCl₄（四氯化碳）、HCFC 等。

- 1) For ODS listed below , we don't use in process.

ODS: CCl₄, HCFC, etc.

9、注意事项 Note

- (1) 若本次承认的为“整体无铅”产品，则表明该产品符合 RoHS 指令的要求。

(2) 本承认书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保证贵司的产品已根据贵司的规范进行了有效评价和确认。

- (3) 如果贵司对我司产品的试用已超过了本测试规范所界定的产品功能，对于此所引发的失效我司将不予保证。

(1) If the parcel label on product is "Unitary lead free" that indicate the products in accord with ROHS appointed requests.

(2) This product specification guarantees the quality of our product as a single unit, Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.

(3) We can't warrant against failure caused by any use of our product that deviates from the intended use as described in this product specification.

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10、样品承认信息反馈单 Sample's feedback list

尊敬的客户，您好！

感谢您对我公司的信任及支持，在我们合作的过程中，我们将尽最大努力满足您的各种需求，为您提供最满意的服务。

如果你在对我们的产品（样品）进行承认的过程中出现任何问题，请将问题反馈给我们，我们将对您提出的问题进行认真分析并在最短的时间内给您满意的答复及解决方案，在此过程中您只需填写这张信息反馈单并传真（邮寄）给我们即可。

预祝我们合作愉快！

Respect customer,

Thank you for your trust and support, In cooperation, we will do our best to meet your all of requests, and provide the best service to you.

If you have any problem, please feel free to contact us, we would earnestly analyze the question which you asked for, and reply to you as soon as possible. You only need fill in this form and fax or mail it to us.

Wishes cooperate happily!

以下是您对产品（样品）使用情况的简单描述 Problem Description

规格型号 Part NO.	
产品批号 LOT NO.	
送样日期 Sample Date	
出现问题 Problem description	
您的分析 (原因) Your analysis (for the reason)	
备注 Note	

您的联系方式（便于我们的交流）Your contact

您的姓名 Your Name		公司名称 Company	
职务 Business		地址 Address	
电话 Tel		邮编 Post	
传真 Fax		E-mail	

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备注 Note	为了我们更好的合作，请您及时填写并回传。Please fill in the form and feedback to us in time, thanks!		