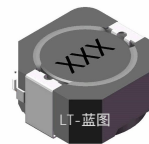


SDRH105R Series, Shielded SMD Power Inductors



◆特征:

- 高饱和电流, 低直流电阻
- 闭合磁路设计减少漏磁
- 自动贴装的高精度尺寸
- 多种封装尺寸和宽电感范围
- 符合 RoHS, 无卤和 REACH

Features:

- High saturation current, low DCR
- Close magnetic circuit design reduce leakage
- High accurate dimensions for automatic mounting
- Various package size and wide inductance range
- RoHS, Halogen Free and REACH Compliance

◆用途:

- 录影机
- 液晶电视
- 笔记本电脑
- 小型通信机器.
- DC/DC 转换器等

Applications:

- Power supply for VTRs
- LCD televisions
- Notebook PCs
- Portable communication equipment
- DC/DC converters, etc

◆环境:

- 工作温度: -40°C 至 $+125^{\circ}\text{C}$
(包括线圈自身温升)

Environmental Data:

- Operating Temperature: -40°C to $+125^{\circ}\text{C}$
(Including coils self-temperature rise)

◆试验设备:

- 电感值: HP4284A, HP4285A 或同等仪器
- 电流: HP4284+42841A
- 直流电阻: Chroma 16502 或同等仪器

Test Equipment:

- L: HP4284A or HP4285A LCR meter or equivalent
- Isat & Irms: HP4284+42841A
- DCR: Chroma 16502 or equivalent

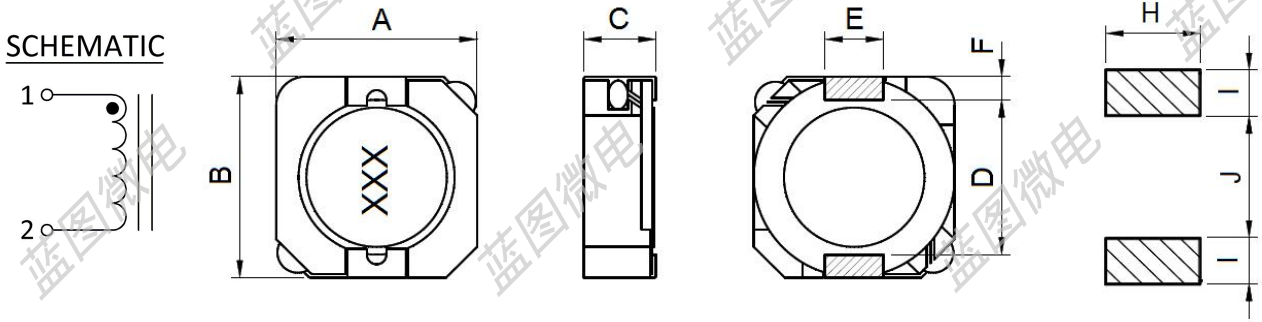
◆产品型号:

Product Identification:

<u>SDRH</u> ①	<u>105R</u> ②	<u>100</u> ③	<u>N</u> ④	<u>I</u> ⑤
①	②	②		③
类型 Type	外形尺寸(L×W×H) (mm) External Dimensions (L×W×H) (mm)	Inductance		
SDRH 闭磁路贴片电感 Shielded SMD Power Inductors	105R 10.3×10.5×5.0	10 uH		
④	⑤			
公差 Inductance Tolerance	包装 Packing			
J: ±5%, K: ±10%, L: ±15% M: ±20%, P: ±25%, N: ±30%	B 散装 Bulk Package T 编带 Tape & Reel			

◆外观尺寸:

Shape and Dimensions(dimensions are in mm):



Recommended
Land Pattern

Part No	ITEM								
	A	B	C	D	E	F	H	I	J
SDRH105R	10.3 Max	10.5 Max	5.0 Max	7.7	3.0	1.2	3.6	1.7	7.3

◆规格特性:

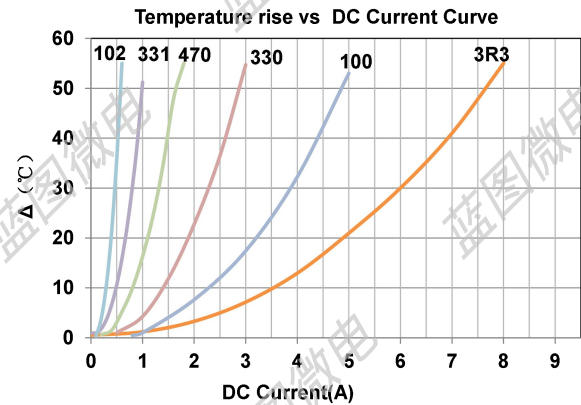
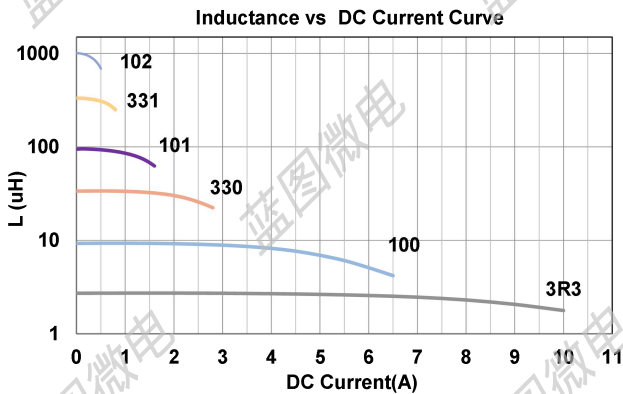
Specifications:

● SDRH105R Series Electrical Characteristics (Electrical specifications at 25°C)

Part No	Inductance			DCR	Saturation Current	Temperature Rise Current
	L(μH) @0A	Tole	Test Freq	(Ω) Max	(A) Max	(A) Max
SDRH105R-3R3N	3.3	±30%	100KHz	0.013	9.50	6.50
SDRH105R-4R7N	4.7	±30%	100KHz	0.016	9.20	6.30
SDRH105R-6R8N	6.8	±30%	100KHz	0.020	7.00	6.00
SDRH105R-8R2N	8.2	±30%	100KHz	0.023	5.50	5.00
SDRH105R-100N	10	±30%	100KHz	0.250	5.10	4.40
SDRH105R-120N	12	±30%	100KHz	0.032	4.90	4.00
SDRH105R-150N	15	±30%	100KHz	0.040	4.20	3.60
SDRH105R-180M	18	±20%	100KHz	0.046	3.70	3.40
SDRH105R-220M	22	±20%	100KHz	0.058	3.30	3.20
SDRH105R-270M	27	±20%	100KHz	0.650	3.20	3.00
SDRH105R-330M	33	±20%	100KHz	0.810	2.70	2.60
SDRH105R-390M	39	±20%	100KHz	0.103	2.48	2.50
SDRH105R-470M	47	±20%	100KHz	0.122	2.35	2.30
SDRH105R-560M	56	±20%	100KHz	0.144	2.30	2.10
SDRH105R-680M	68	±20%	100KHz	0.193	2.00	1.90

Part No	Inductance			DCR	Saturation Current	Temperature Rise Current
	L(μH) '@0A	Tole	Test Freq	(Ω) Max	(A) Max	(A) Max
SDRH105R-820M	82	±20%	100KHz	0.219	1.80	1.60
SDRH105R-101M	100	±20%	100KHz	0.247	1.50	1.35
SDRH105R-121M	120	±20%	100KHz	0.298	1.40	1.18
SDRH105R-151M	150	±20%	100KHz	0.355	1.30	1.10
SDRH105R-181M	180	±20%	100KHz	0.393	1.20	1.00
SDRH105R-221M	220	±20%	100KHz	0.483	1.08	0.94
SDRH105R-271M	270	±20%	100KHz	0.632	0.88	0.80
SDRH105R-331M	330	±20%	100KHz	0.780	0.85	0.73
SDRH105R-391M	390	±20%	100KHz	0.957	0.78	0.70
SDRH105R-471M	470	±20%	100KHz	1.220	0.71	0.54
SDRH105R-561M	560	±20%	100KHz	1.352	0.65	0.52
SDRH105R-681M	680	±20%	100KHz	1.519	0.59	0.51
SDRH105R-821M	820	±20%	100KHz	1.694	0.51	0.48
SDRH105R-102M	1000	±20%	100KHz	1.946	0.49	0.42

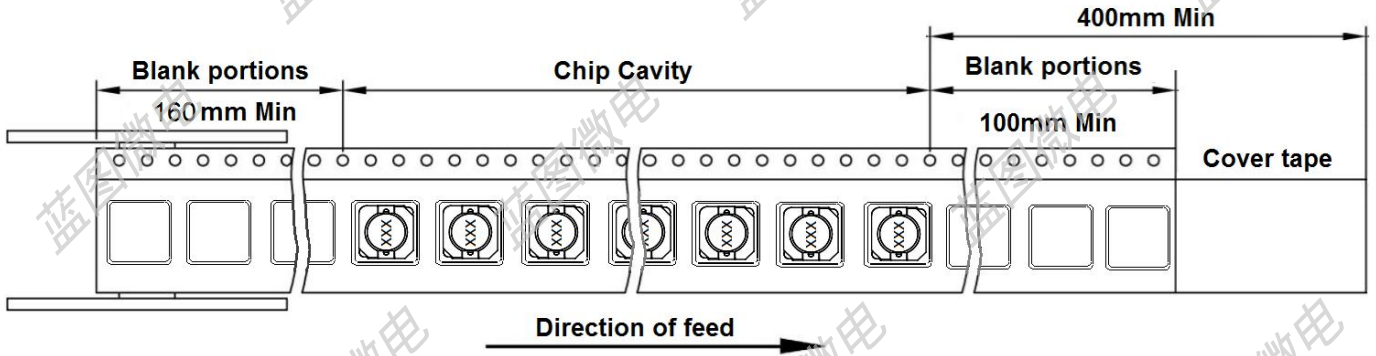
- Saturation Current: DC current at which inductance drops 30% from its value without current.
- Temperature Rise Current: the actual value of DC current when the temperature rise is ΔT 40°C ($T_a=25^\circ C$).
- Rated DC Current: The less value which is Isat or Irms.
- Special remind: Circuit design, component, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application
- Saturation current VS temperature rise current curve



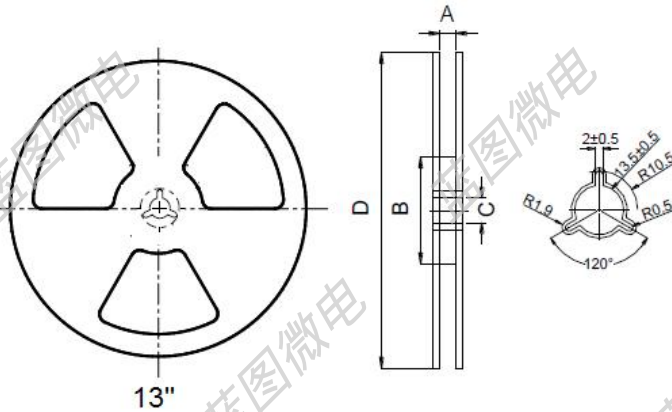
◆ 产品包装:

Packaging:

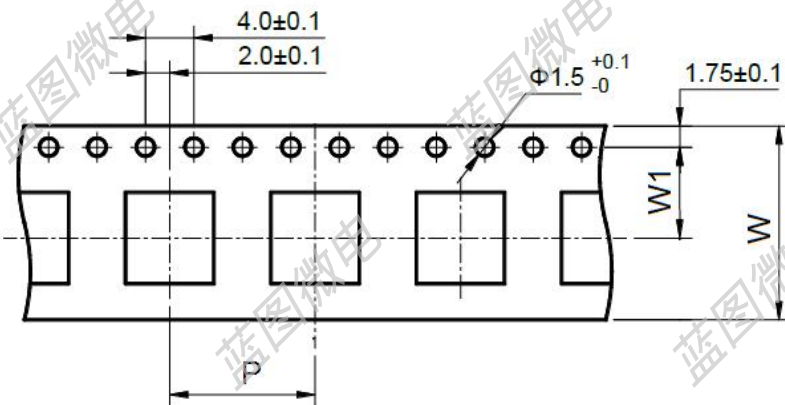
● Tape and Reel Specifications: (Dimensions are in mm)



● Reel Dimensions (mm)

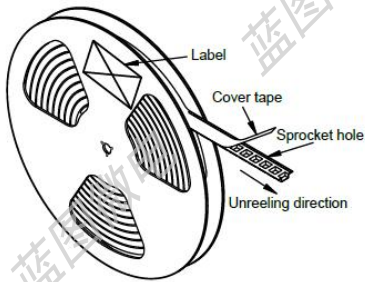


● Tape Dimension (mm)

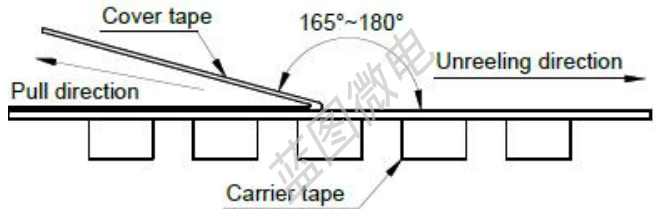


Part No.	Tape Dimension			Reel Dimensions				REEL (PCS)	Inside Box(PCS)	Outside Carton(PCS)
	W	P	W1	A	B	C	D			
SDRH105R	24	16	11.5	24.4	60	13	330	800	1600	6400

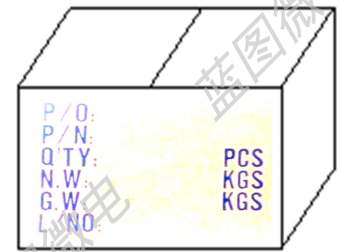
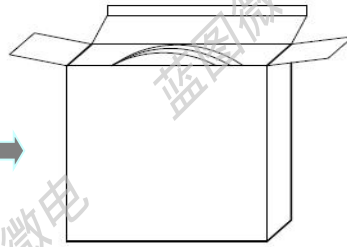
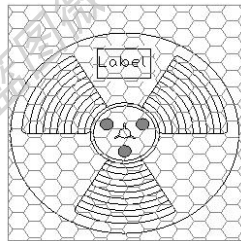
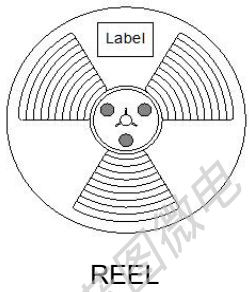
● Cover tape peel off condition



- a) Cover tape peel force shall be 10 to 120g
- b) Noodle strip peeling angle 165° to 180°



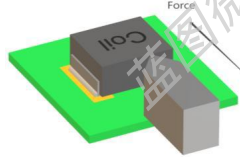

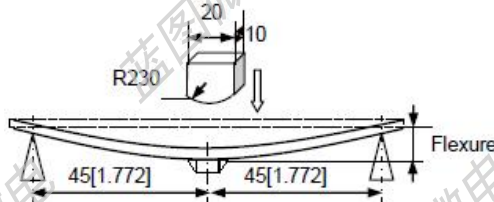
● Packing quantity



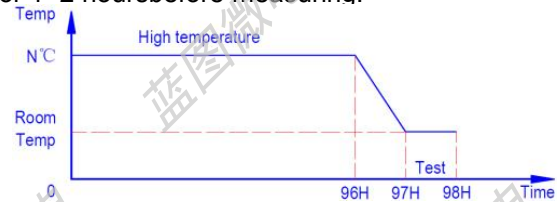
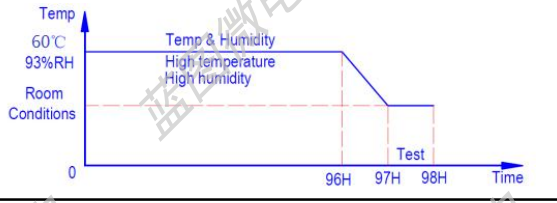
不足整箱用内盒或填充物装满

◆可靠性测试:

Reliability Testing:

Items	Requirements	Test Methods and Remarks
Terminal Strength Reference documents: GB/T 2423.60-2008 端子强度(SMT)	1. Pulling test: Define: A: sectional area of terminal $A \geq 8\text{mm}^2$ force $\geq 5\text{N}$ time: 30sec $8\text{mm}^2 < A \leq 20\text{mm}^2$ force $\geq 10\text{N}$ time: 10sec $20\text{mm}^2 < A$ force $\geq 20\text{N}$ time: 10sec 2. Solder paste thickness: 0.12mm 3. Meet the above requirements without any loose terminal	Solder the inductor to the testing jig using leadfree solder. Then apply a force in the Keep time: $10 \pm 1\text{s}$ Speed: 1.0mm/s. 
Terminal Strength Reference documents: GB/T 2423.60-2008 端子强度(DIP)	1. Terminal diameter(d) mm $0.35 < d \leq 0.50$ Applied force: 5N Duration: 10sec 2. Terminal diameter(d) mm $0.50 < d \leq 0.80$ Applied force: 10N Duration: 10sec 3. Terminal diameter(d) mm $0.80 < d \leq 1.25$ Applied force: 20N Duration: 10sec 4. Terminal diameter(d) mm $D > 1.25$ Applied force: 40N Duration: 10sec 5. Meet the above requirements without any loose terminal.	Pull Force: the force shall be applied gradually to the terminal and then maintained for 10 seconds. 
Resistance to Flexure JIS C 5321:1997 抗弯曲性试验	1. No visible mechanical damage.	1. Solder the inductor to the test jig (glass epoxy board) 2. shown in Using a leadfree solder. Then apply a force in the direction shown 3. Flexure: 2mm. 4. Pressurizing Speed: 0.5mm/sec. 5. Keep time: 30 sec. 
Dropping Reference documents: GB/T 2423.7-2018 落下试验	1. No case deformation or change in appearance. 2. No short and no open.	1. Drop the packaged products from 1m high in 1 angle, 3 ridges and 6 surfaces, twice in each direction.
Solderability Reference documents: GB/T 2423.28-2005 可焊性试验	1. No visible mechanical damage. 2. Wetting shall exceed 75% coverage for 3. Terminals must have 95% minimum solder coverage	1. Solder temperature: $240 \pm 2^\circ\text{C}$ 2. Duration: 3 sec. 3. Solder: Sn/3.0Ag/0.5Cu. 4. Flux: 25% Resin and 75% ethanol in weight

Items	Requirements	Test Methods and Remarks
<p>Vibration</p> <p>Reference documents: GB/T 2423.10-2019</p> <p>振動試驗</p>	<p>1.No visible mechanical damage.</p> <p>2. Inductance change: Within $\pm 10\%$.</p> <p>3.Q factor change: Within $\pm 20\%$.</p> 	<p>1.Solder the inductor to the testing jig (glass epoxy board shown in) using leadfree solder.</p> <p>2.The inductor shall be subjected to a simple harmonic motion having total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz.</p> <p>3.The frequency range from 10 to 55 Hz and return to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours).</p> 
<p>Thermal Shock</p> <p>Reference documents: GB/T 2423.22-2012</p> <p>Method Na</p> <p>冷热冲击试验</p>	<p>1.No visible mechanical damage.</p> <p>2. Inductance change: Within $\pm 10\%$. (Mn-Zn: Within $\cong 30\%$)</p> <p>3.Q factor change: Within $\pm 20\%$.</p>	<p>1.Start at (85~125°C) for T time, rush to (-55~-40°C) for T time as one cycle, go through 100 cycles.</p> <p>2.Transforming interval: Max. 20 sec.</p> <p>3.Tested cycle: 100 cycles.</p> <p>4.The chip shall be stabilized at normal condition for 1~2 hours</p> 
<p>Low temperature Storage</p> <p>Reference documents: GB/T 2423.1-2008</p> <p>Method Ab</p> <p>低温储存试验</p>	<p>1.No visible mechanical damage.</p> <p>2. Inductance change: Within $\pm 10\%$. (Mn-Zn: Within $\cong 30\%$)</p> <p>3.Q factor change: Within $\pm 20\%$.</p>	<p>1.Temperature: M(-55~-40$\pm 2^\circ\text{C}$)</p> <p>2.Duration: 96± 2 hours</p> <p>3.The chip shall be stabilized at normal condition for 1~2 hours before measuring.</p> 

Items	Requirements	Test Methods and Remarks
High temperature Storage Reference documents: GB/T 2423.2-2008 Method Bb 高温储存试验	1.No visible mechanical damage. 2. Inductance change: Within $\pm 10\%$.(Mn-Zn: Within $\leq 30\%$) 3.Q factor change: Within $\pm 20\%$.	1.Temperature:N($125\sim 85\pm 2^{\circ}\text{C}$). 2.Duration: 96 ± 2 hours 3.The chip shall be stabilized at normal condition for 1~2 hours before measuring. 
Damp Heat (Steady States) Reference documents: GB/T 2423.3-2016 恒定湿热试验	1.No visible mechanical damage. 2. Inductance change: Within $\pm 10\%$.(Mn-Zn: Within $\leq 30\%$) 3.Q factor change: Within $\pm 20\%$.	1.Temperature: $60\pm 2^{\circ}\text{C}$ 2.Humidity: 90% to 95% RH. 3.Duration: 96 ± 2 hours. 4.The chip shall be stabilized at normal condition for 1~2 hours before measuring. 
Heat endurance of Reflow soldering Reference documents: GJB 360B-2009 回流焊耐热性试验	1.No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ (Mn-Zn: $\Delta L/L \leq 30\%$) 3. $\Delta Q/Q \leq 30\%$ (SMD series only) 4. $\Delta DCR/DCR \leq 10\%$	1.Refer to the above reflow curve and go through the reflow for twice. 2.The peak temperature : $260\pm 0/-5^{\circ}\text{C}$
Resistance to solvent test Reference documents: IEC 68-2-45:1993 耐溶剂性试验	No case deformation or change in appearance or obliteration of marking	To dip parts into IPA solvent for 5 ± 0.5 Min, then drying them at room temp for 5Min, at last ,to brushing making 10 times.
Overload test Reference documents: JIS C5311-6.13 过负荷试验	1.During the test no smoke, no peculiar, smell, no fire 2.The characteristic is normal after test	Apply twice as rated current for 5 minutes.
voltage resistance test Reference documents: MIL-STD-202G Method 301 绝缘耐压测试	1.During the test no breakdown 2.The characteristic is normal after test	1. For parts with two coils 2. DC1000V, Current: 1mA, Time: 1Min. 3. Refer to catalogue of specific products

使用注意事项

REMINDERS FOR USING THESE PRODUCTS



- 保存时间为12个月以内，保存条件（温度5~40°C以下、湿度35 ~ 66%RH 以下），需充分注意。若超过保存时间，端子电极的可焊性将可能老化。

The storage period is within 12 months. Be sure to follow the storage conditions (temperature: 5~40°C, humidity: 35 to 65% RH or less). If the storage period elapses, the soldering of the terminal electrodes may deteriorate.

- 请勿在气体腐蚀环境（盐、酸、碱等）下使用和保存。

Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).

- 手上的油脂会导致可焊性降低，应避免用手直接接触端子。

Don't touch electrodes directly with bare hands as oil secretions may inhibit soldering. Always ensure optimum conditions for soldering.

- 请小心轻拿轻放，避免由于产品的跌落或取出不当而导致的损坏。

Please always handle products carefully to prevent any damage caused by dropping down or inappropriate removing.

- 端子过度弯曲会导致断线，请不要过度弯曲端子。

Don't bend the terminals with excessive stress in case of any wire fracture.

- 不要清洗产品，如需要清洗时请联系我司。

Don't rinse coils by yourself and please contact SXN if necessary.

- 请勿将本产品靠近磁铁或带有磁力的物体

Don't expose the products to magnets or magnetic fields

- 在实施焊接前，请务必进行预热。预热温度与焊接温度及芯片温度的温度差要在150°C 以内。

Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.

- 安装后的焊接修正应在规格书规定的条件范围内。若加热过度可能导致短路、性能降低、寿命减少。

Soldering corrections after mounting should be within the range of the conditions determined in the specifications. If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.

- 装置会因通电而自我发热（温度上升），因此在热设计方面需留有充分余地。

Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.

- 非磁屏蔽型在基板设计时需注意配置线圈，受到电磁干扰可能会导致误动作。

Carefully lay out the coil for the circuit board design of the non-magnetic shield type. A malfunction may occur due to magnetic interference.

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