

⊕ Feature

- Low profile very effective in space-conscious applications.
- Low resistance and high energy storage.

⊕ Applications

VTR, OA equipment, digital camera, LCD TV, notebook PC, portable communication equipments, DC/DC converters, power supply

⊕ Product Identification :

1

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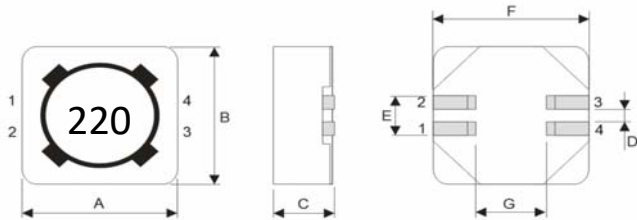
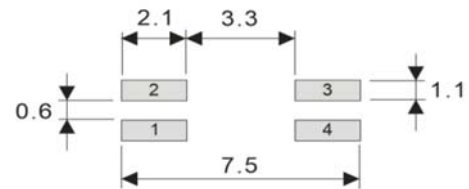
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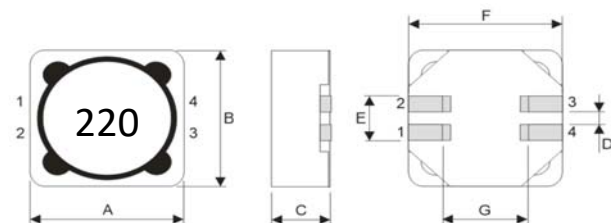
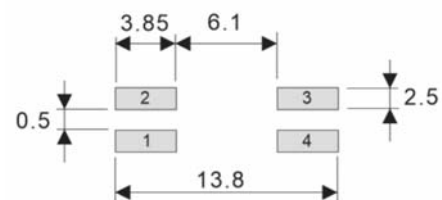
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Series name	Dimensions(LxWxH)	Internal code
SPB	073 7.3*7.3*3.5mm	P4P=4 Pad, Parallel
SPBM	129 12*12*10mm	P4S = 4 Pad, Stagger

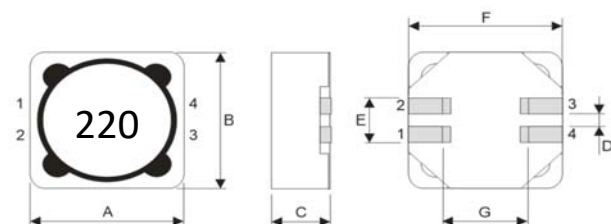
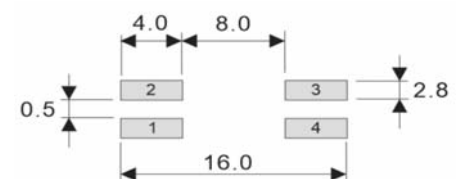
Inductance		Tolerance	
1R0	1 μ H	M	20%
101	100 μ H	N	30%

⊕ Shapes And Dimensions

⊕ Recommended PCB Pattern


Part No.	Dimensions(mm)							
	A	B	C	D	E	F	G	
SPB073P4	7.3 \pm 0.30	7.3 \pm 0.30	3.5 Max.	1.0 Typ	2.7 Typ	7.3 Typ	2.9 Typ	
SPB074P4	7.3 \pm 0.30	7.3 \pm 0.30	4.5 Max.	1.0 Typ	2.7 Typ	7.3 Typ	2.9 Typ	

⊕ Shapes And Dimensions

⊕ Recommended PCB Pattern


Part No.	Dimensions(mm)							
	A	B	C	D	E	F	G	
SPB125P4	12.0 \pm 0.30	12.0 \pm 0.30	6.5 Max.	1.5 Typ	5.0 Typ	12.0 Typ	6.5 Typ	
SPB127P4	12.0 \pm 0.30	12.0 \pm 0.30	8.0 Max.	1.5 Typ	5.0 Typ	12.0 Typ	6.5 Typ	
SPB129P4	12.0 \pm 0.30	12.0 \pm 0.30	10.0 Max.	1.5 Typ	5.0 Typ	12.0 Typ	6.5 Typ	

⊕ Shapes And Dimensions

⊕ Recommended PCB Pattern


Part No.	Dimensions(mm)							
	A	B	C	D	E	F	G	
SPBM1514P4	15.5 \pm 0.30	15.5 \pm 0.30	15.0 Max.	1.5 Typ	5.0 Typ	15.5 Typ	9.5 Typ	

⊕ Electrical Characteristics :

Part No.	Inductance (μH) (N1)=(N2)	DCR ($\text{m}\Omega$) (N1)=(N2),Max	Rated Current (A) (N1)=(N2),Max	Test Frequency
SPB073P4S(P)-2R2M	2.2 \pm 20%	50	5.50	100KHz/0.25V
SPB073P4S(P)-4R7M	4.7 \pm 20%	78	3.50	100KHz/0.25V
SPB073P4S(P)-100M	10 \pm 20%	240	2.50	100KHz/0.25V
SPB073P4S(P)-150M	15 \pm 20%	290	2.20	100KHz/0.25V
SPB073P4S(P)-330M	33 \pm 20%	635	1.50	100KHz/0.25V
SPB073P4S(P)-470M	47 \pm 20%	650	0.72	100KHz/0.25V
SPB073P4S(P)-471M	470 \pm 20%	8360	0.24	100KHz/0.25V

⊕ Electrical Characteristics :

Part No.	Inductance (μH) (N1)=(N2)	DCR ($\text{m}\Omega$) (N1)=(N2),Max	Rated Current (A) (N1)=(N2),Max	Test Frequency
SPB074P4S(P)-6R8M	6.8 \pm 20%	110	2.50	100KHz/0.25V
SPB074P4S(P)-100M	10 \pm 20%	110	1.84	100KHz/0.25V
SPB074P4S(P)-180M	18 \pm 20%	170	1.84	100KHz/0.25V
SPB074P4S(P)-220M	22 \pm 20%	250	1.23	100KHz/0.25V
SPB074P4S(P)-330M	33 \pm 20%	312	1.70	100KHz/0.25V
SPB074P4S(P)-101M	100 \pm 20%	450	1.00	100KHz/0.25V
SPB074P4S(P)-151M	150 \pm 20%	710	0.81	100KHz/0.25V
SPB074P4S(P)-221M	220 \pm 20%	3630	0.33	100KHz/0.25V
SPB074P4S(P)-471M	470 \pm 20%	4300	0.15	100KHz/0.25V

⊕ Electrical Characteristics :

Part No.	Inductance (μH) (N1)=(N2)	DCR ($\text{m}\Omega$) (N1)=(N2),Max	Rated Current (A) (N1)=(N2),Max	Test Frequency
SPB125P4S(P)-3R3M	3.3 \pm 30%	7.6	12.70	100KHz/0.25V
SPB125P4S(P)-100M	10 \pm 20%	50	3.00	100KHz/0.25V
SPB125P4S(P)-220M	22 \pm 20%	90	2.80	100KHz/0.25V
SPB125P4S(P)-470M	47 \pm 20%	174	3.25	100KHz/0.25V
SPB125P4S(P)-680M	68 \pm 20%	280	2.62	100KHz/0.25V
SPB125P4S(P)-820M	82 \pm 20%	300	2.05	100KHz/0.25V
SPB125P4S(P)-221M	220 \pm 20%	850	1.60	100KHz/0.25V
SPB125P4S(P)-821M	820 \pm 20%	770	1.49	100KHz/0.25V

⊕ Electrical Characteristics :

Part No.	Inductance (μH) (N1)=(N2)	DCR ($\text{m}\Omega$) (N1)=(N2),Max	Rated Current (A) (N1)=(N2),Max	Test Frequency
SPB127P4S(P)-100M	10 \pm 20%	17.2	11.20	100KHz/0.25V
SPB127P4S(P)-150M	15 \pm 20%	31.0	9.70	100KHz/0.25V
SPB127P4S(P)-220M	22 \pm 20%	92.0	6.20	100KHz/0.25V
SPB127P4S(P)-470M	47 \pm 20%	130.0	4.60	100KHz/0.25V
SPB127P4S(P)-900M	90 \pm 20%	180.0	3.00	100KHz/0.25V
SPB127P4S(P)-101M	100 \pm 20%	208.0	3.00	100KHz/0.25V
SPB127P4S(P)-151M	150 \pm 20%	430.0	1.70	100KHz/0.25V
SPB127P4S(P)-221M	220 \pm 20%	780.0	1.16	100KHz/0.25V
SPB127P4S(P)-301M	300 \pm 20%	1040.0	1.10	100KHz/0.25V
SPB127P4S(P)-821M	820 \pm 20%	3185.0	1.14	100KHz/0.25V
SPB127P4S(P)-102M	1000 \pm 20%	1820.0	0.55	100KHz/0.25V

⊕ Electrical Characteristics :

Part No.	Inductance (μH) (N1)=(N2)	DCR ($\text{m}\Omega$) (N1)=(N2),Max	Rated Current (A) (N1)=(N2),Max	Test Frequency
SPB129P4S(P)-100M	10 \pm 20%	60	6.00	100KHz/0.25V
SPB129P4S(P)-330M	33 \pm 20%	100	5.20	100KHz/0.25V

⊕ Electrical Characteristics :

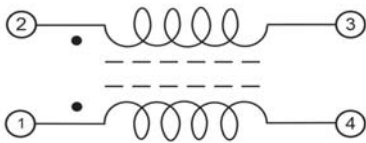
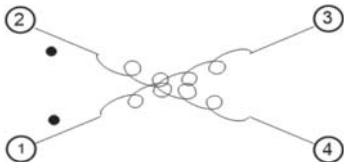
Part No.	Inductance (μH) (N1)=(N2)	DCR ($\text{m}\Omega$) (N1)=(N2),Max	Rated Current (A) (N1)=(N2),Max	Test Frequency
SPBM1514P4S(P)-220M	22 \pm 20%	55	6.00	100KHz/0.25V
SPBM1514P4S(P)-330M	33 \pm 20%	65	5.80	100KHz/0.25V

Note : Specifications which provide more details for the proper and safe use of the described product are available upon request. all specifications are subject to change without notice.

Isat : DC Saturation Current that will cause initial inductance to drop approximately 30% max.(at 20°C ambient.)

Irms : DC Current that will cause an approximate ΔT of 40 °C

Test Instrument : L (WK6500B), RDC(HIOKI RM3542A), Isat & Irms (WK3260B+WK3265B) or equivalent.

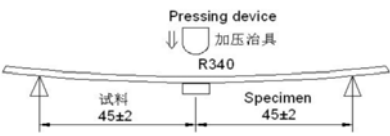
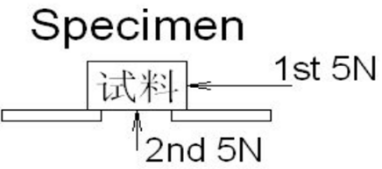
⊕ Electrical Characteristics :
SPB_P4P Type

SPB_P4S Type

⊕ Material List :

No.	Location	Material
1	Core	Ferrite Ni-Zn core
2	Wire	Grade1,P180
3	Base	SHS-DR9.8
4	Epoxy	G500HF
5	Solder	Sn99.3 Cu0.7
6	Ink	Black

1.Operating temperature -40°C ~ +125°C

2.Storage conditions -40°C ~ +125°C

⊕ General Characteristics

項目 Item	Conditions	Specification
温度特性 Temperature drift	在温度-40 ~ + 125°C之间测试。 To be measured in the range of -40°C to 125°C.	Inductance temperature coefficient 2000 ppm/°C or less
保存温度范围 Storage Temperature	在包装的状态下。 With taping.	- 40°C ~ + 125°C
使用温度范围 Operating Temperature	包括制品的发热温度。 Including self temperature rise.	- 40°C ~ + 125°C
弯曲测试 Bending test	<p>试件焊接在基板上，按箭头方向以大约0.5mm/秒的速度加压，直到基板变形幅度到3mm 保持30 秒。</p> <p>Apply pressure gradually in the direction of the arrow at a rate of about 0.5mm/s until bent depth reaches 3mm and hold for 30±5s.</p>  <p>基板Board: 40*100mm 厚Thickness: 1.0mm</p>	Change from an initial value L : within±10%
固着强度 Adhesion strength	<p>按箭头方向用R0.5 的加压棒在试件中施加一定的静力并保持60±5秒。</p> <p>A static load using a R0.5 pressing tool shall be applied the arrow and to the body of the specimen in the direction of the arrow and shall be hold for 60±5s. Measure after removing pressure.</p> 	Change from an initial value L : within±10%

耐振性 Vibration	<p>振动频率10~55~10Hz, 振幅1.5mm, 分X,Y,Z 方向各振动1 小时 (共3 小时) 。</p> <p>The specimen shall be subjected to a vibration of 1.5mm amplitude, sweep frequency 10~55Hz (10Hz to 55Hz to 10Hz in a period of one minute) for 1 h in each of 3(X,Y,Z) axes.</p>	Change from an initial value L : within±10%
耐冲击性 Mechanical shock	<p>利用橡胶块式落下冲击试验机，分别在3 个互相垂直的方向以981m/S² 的冲击加速度落下。</p> <p>Peak acceleration: 981 m/S² Duration of pulse: 6ms 3 times in each of 3(X,Y,Z)axes. The specimen must be fixed on test board. Three successive shock shall be applied in the perpendicular direction of each surface of the specimen.</p>	Change from an initial value L : within±10%
自然落下试验 Free fall test	<p>试件安装在基板上，并固定在重500 克的盒中，由1 米高自由落体，3 个互相垂直的方向各3 次。</p> <p>The specimen must be fixed on test board. It must be equipped with instruments of which weight is 500g. Then it shall be fallen freely from 1m height to rigid wood 3 times in each of three axes.</p>	Change from an initial value L : within±10%
焊锡附着性 Solder ability	<p>试验品的电极深布松香后，在5 ~ 10 秒内焊锡，焊锡槽温度245±5℃，时间：3±0.5 秒。</p> <p>Terminals shall be immersed for 5 to 10 seconds in flux at room temperature. Dip sample into solder bath containing molten solder at 245±5°C for 3±0.5 seconds.</p>	90%以上的面积要被覆盖。 New solder shall cover 90% minimum of the surface immersed.
耐电压 Dielectric strength	<p>在电极与磁材之间加入直流电压100V 通电时间1 分钟。</p> <p>100V DC shall be applied for 60s between the terminal and the core.</p>	没有损害。 Without damage.

焊锡耐热性 Resistance to soldering heat	<p>试验方法Test method 热风炉焊接Reflow soldering method 预热Preheat 150~180°C 90±30s 峰值温度Peak temp 250(+ 5,-0)°C (230°Cmin , 30±10s) 试验板的厚度0.8mm 上按上面条件通过两次热风炉。</p> <p>The specimen shall be subjected to the reflow process under the above condition 2 times.Test board shall be 0.8mm thick. Base material shall be glass epoxy resin.</p> <p>测定Measurement 常温常湿中放置于1 小时以上测试。 The specimen shall be stored at standard atmospheric conditions for 1 h in prior to the measurement.</p>	Change from an initial value L : within±10%
绝缘抵抗 Insulation resistance	<p>在电极与磁材之间加入直流电压100V。</p> <p>100V DC shall be applied between the terminal and the core.</p>	100mΩ 以上 100mΩ or more.
耐寒性 Low temperature	<p>在温度-40±3°C中放置500±12 小时后，常温常湿中放置1 小时以上2 小时以内测试。</p> <p>The specimen shall be stored at a temperature of -40 ±3°C for 500 ±12h. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement Measurement shall be made within 1h.</p>	Change from an initial value L : within±10%
耐热性 Dry heat	<p>在温度125±2°C中放置500±12 小时后，常温常湿中放置1 小时以上2 小时以内测试。</p> <p>The specimen shall be stored at a temperature of 125 ± 2°C for 500± 12h. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement. Measurement shall be made within 1h.</p>	Change from an initial value L : within±10%

耐湿性 Dump heat	<p>在温度$60\pm 2^{\circ}\text{C}$·湿度90~95%中放置500 ± 12小时后·常温常湿中放置1小时以上2小时以内测试。</p> <p>The specimen shall be stored at a temperature of $60\pm 2^{\circ}\text{C}$ with relative humidity of 90 ~ 95% for $500 \pm 2\text{h}$. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement. Measurement shall be made within 1h.</p>	Change from an initial value L : within $\pm 10\%$
温度循环 Temperature cycle	<p>以温度-40°C中放置30分钟·在125°C放置30分钟·中间转换时间不超过2分钟为一个循环·完成500个循环后·常温常湿中放置1小时以上2小时以内测试。</p> <p>The specimen shall be subjected to 500 continuous cycles of temperature change of -40°C for 30 min and 125°C for 30 min with the transit period of 2min or less. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement. Measurement shall be made within 1h.</p>	Change from an initial value L : within $\pm 10\%$

标准状态Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions in making measurements and test as follows;

Ambient temperature : 5°C to 35°C , Relative humidity: 45% to 85%, Air pressure: 86kPa to 106kPa

If more strict measurement is required, measurement shall be made within following limits;

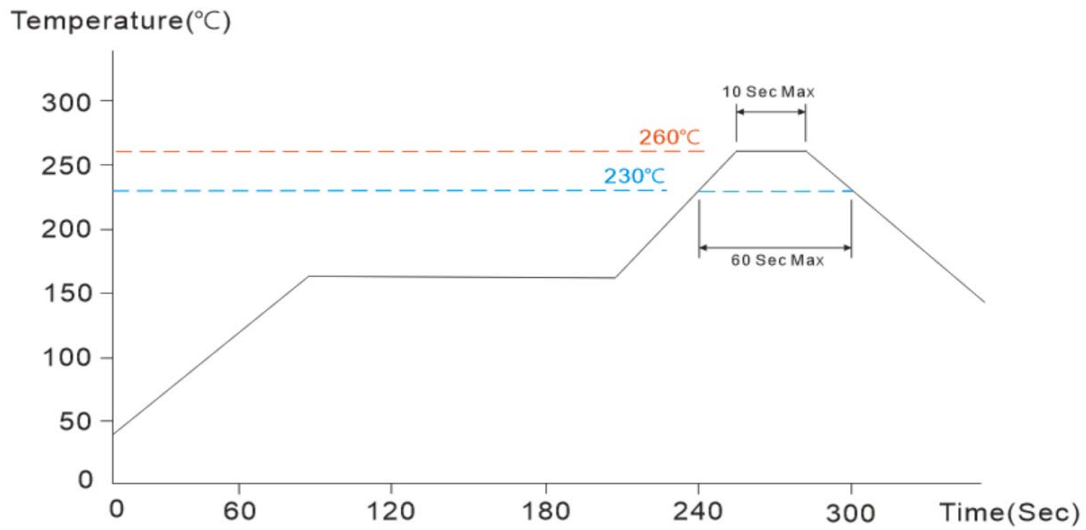
Ambient temperature : $20\pm 2^{\circ}\text{C}$, Relative humidity: $65\pm 5\%$, Air pressure: 86kPa to 106kPa

禁用物质Prohibited Substances

我公司保证我司的产品和生产过程符合“RoHS 规则”·所有产品中使用的材料均是化学物质生产规则中登记的材料。

We confirm that our products and our production process accord with "rule of RoHS". All materials used in this product are registered material under the law concerning the examination and Regulation of Manufacture of Chemical Substances.

⊕ Reflow Soldering Heat Endurance

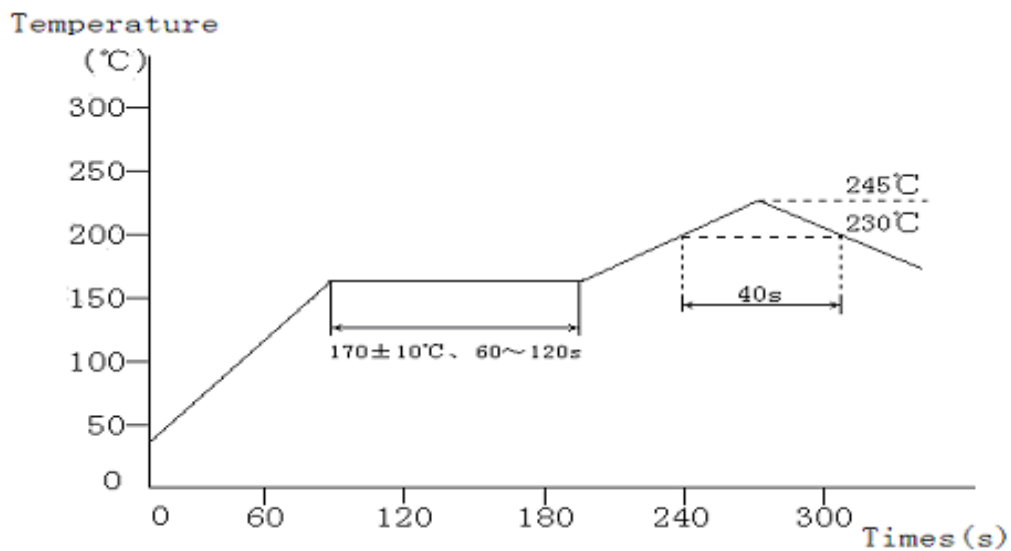


No mechanical and electrical defects are found after testing based on the above profile and keeping under the conditions of room temperature and humidity for 2 hours.

Twice reflow test is acceptable with the test interval remaining 1 hour under the normal conditions.

The reflow test profile may vary with the testing instruments.

⊕ Recommended Reflow Conditions

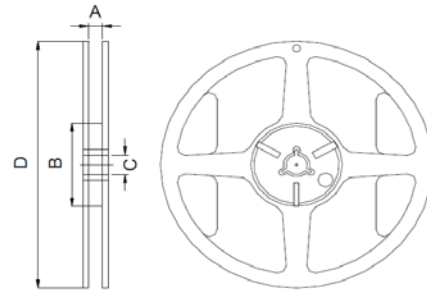
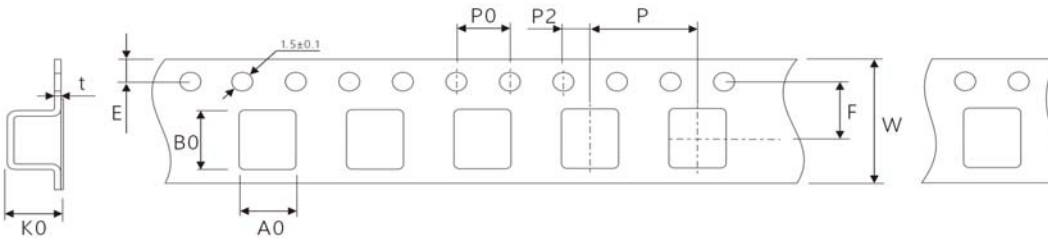


The recommended reflow profile is based on the testing instruments used. Solder ability will depend on the testing equipments, reflow conditions, testing method, etc. So it is necessary to make a confirmation of them when the reflow conditions are set up.

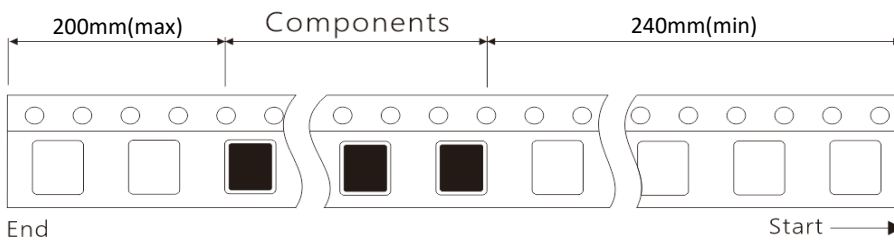
However halogen lamp shall be used, side heat will be beyond range of resistance heat, so we can't recommend it.

⊕Reel Dimension(m/m)

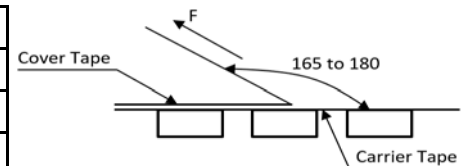
Item	A	B	C	D
SPB073	16.5±1	100±1	13±1	330±1
SPB074	16.5±1	100±1	13±1	330±1
SPB125	24.5±1	100±1	13±1	330±1
SPB127	24.5±1	100±1	13±1	330±1
SPB129	24.5±1	100±1	13±1	330±1
SPBM1514	32.5±1	100±1	13±1	330±1


⊕Taping Dimension(m/m)


Item	W	Ao	Bo	Ko	E	F	P	P0	P2	t
SPB073	16.0±0.3	7.7±0.1	7.7±0.1	4.0±0.1	1.75±0.1	7.5±0.1	12.0±0.1	4.0±0.1	2.0±0.1	0.3±0.05
SPB074	16.0±0.3	8.0±0.1	8.0±0.1	4.5±0.1	1.75±0.1	7.5±0.1	12.0±0.1	4.0±0.1	2.0±0.1	0.3±0.05
SPB125	24.0±0.3	12.5±0.1	12.5±0.1	6.0±0.1	1.75±0.1	11.5±0.1	16.0±0.1	4.0±0.1	2.0±0.1	0.4±0.05
SPB127	24.0±0.3	12.3±0.1	12.3±0.1	8.05±0.1	1.75±0.1	11.5±0.1	16.0±0.1	4.0±0.1	2.0±0.1	0.4±0.05
SPB129	24.0±0.3	12.3±0.1	12.4±0.1	10.0±0.1	1.75±0.1	11.5±0.1	16.0±0.1	4.0±0.1	2.0±0.1	0.4±0.05
SPBM1514	32.0±0.3	15.3±0.1	15.2±0.1	15.1±0.1	1.75±0.1	14.5±0.1	24.0±0.1	4.0±0.1	2.0±0.1	0.5±0.05

⊕Taping method

⊕Taping Off Force

in the arrow direction under the following conditio			
Room Temp	Room Humidity	Room atrn	Teaming Speed
(°C)	(%)	(hPa)	(mm/min)
5~35	45~85	860~1060	300


⊕ Packaging Carton

Item	Reel Packing	Inner Box Packing	Carton Packing
SPB073	1,000 PCS / Reel	3,000 PCS / Box	6,000 PCS / Box
SPB074	1,000 PCS / Reel	3,000 PCS / Box	6,000 PCS / Box
SPB125	500 PCS / Reel	1,000 PCS / Box	2,000 PCS / Box
SPB127	500 PCS / Reel	1,000 PCS / Box	2,000 PCS / Box
SPB129	250 PCS / Reel	500 PCS / Box	1,000 PCS / Box
SPBM1514	150 PCS / Reel	300 PCS / Box	600 PCS / Box

