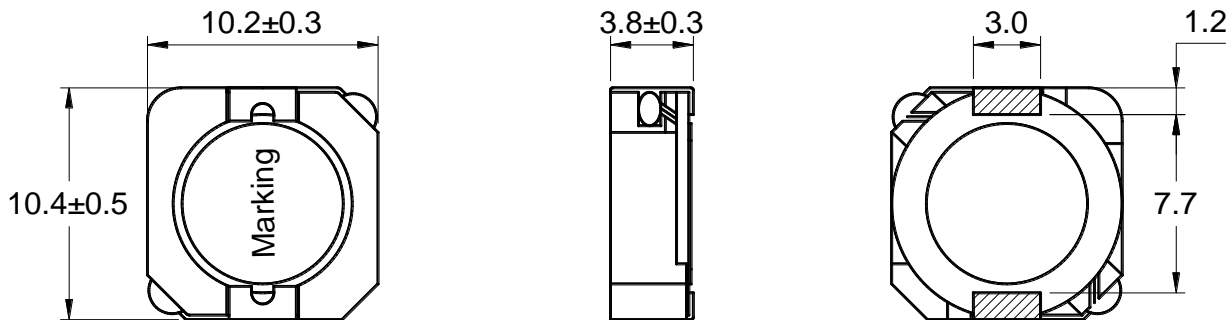


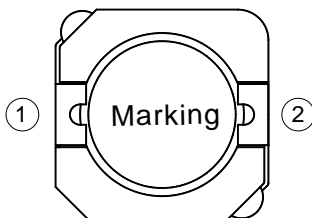
### Outline: 产品概要

- Low DCR, high rated current.  
低直流电阻, 耐大电流。
- Magnetic shielded structure  
磁性屏蔽结构
- Lead free product, RoHS compliant.  
无铅产品, 符合 RoHS 指令。
- Carrier tape packing, suitable for SMT process.  
载带包装, 适用于回流焊 SMT 工艺。
- Widely used in buck converter, laptop, displayer, network communication equipment, and etc.  
广泛应用于升降压转换器, 笔记本电脑, 显示器, 网络通信设备等。
- Operating temperature :  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$   
(Including coil's temperature rise)  
工作温度:  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$  (包含线圈发热)

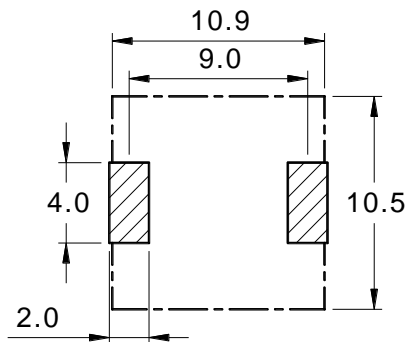
### 1 Appearance and dimensions (mm) 外形尺寸



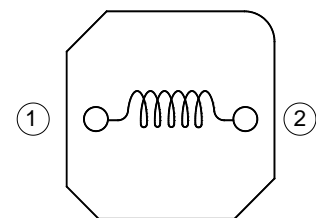
### 2 Marking 印字标识



### 3 Reference land pattern (mm) 参考基板尺寸



### 4 Schematic 原理图



## 5 Electrical characteristics

### 电气特性

Part No. 型号	Inductance (μH) 电感值 ※1	D.C.R. (mΩ) 直流电阻		Saturation current (A) 饱和电流 ※2		Temperature rise current (A) 温升电流 ※3
		Typical	Max	Typical	Max	Typical
SPQ104-1R2N	1.20 ± 30%	9.07	10.9	9.60	7.68	6.98
SPQ104-2R2N	2.20 ± 30%	11.1	13.3	7.50	6.00	6.32
SPQ104-3R3N	3.30 ± 30%	13.8	16.6	6.20	4.96	5.67
SPQ104-4R7N	4.70 ± 30%	16.0	19.2	5.50	4.40	5.26
SPQ104-5R6N	5.60 ± 30%	21.8	26.2	5.30	4.24	4.51
SPQ104-6R8N	6.80 ± 30%	25.1	30.1	4.70	3.76	4.20
SPQ104-100M	10.0 ± 20%	28.0	33.6	4.20	3.36	3.98
SPQ104-120M	12.0 ± 20%	40.3	48.4	3.50	2.80	3.32
SPQ104-150M	15.0 ± 20%	43.4	52.1	3.20	2.56	3.19
SPQ104-180M	18.0 ± 20%	47.6	57.1	2.90	2.32	3.05
SPQ104-220M	22.0 ± 20%	68.4	82.1	2.70	2.16	2.54
SPQ104-270M	27.0 ± 20%	78.8	94.6	2.45	1.96	2.37
SPQ104-330M	33.0 ± 20%	107	128	2.15	1.72	2.03
SPQ104-390M	39.0 ± 20%	130	156	2.05	1.64	1.85
SPQ104-470M	47.0 ± 20%	145	174	1.85	1.48	1.75
SPQ104-560M	56.0 ± 20%	159	191	1.70	1.36	1.67
SPQ104-680M	68.0 ± 20%	215	258	1.50	1.20	1.44
SPQ104-820M	82.0 ± 20%	244	293	1.40	1.12	1.35
SPQ104-101M	100 ± 20%	299	359	1.25	1.00	1.24
SPQ104-121M	120 ± 20%	355	426	1.15	0.92	1.12
SPQ104-151M	150 ± 20%	410	492	1.05	0.84	1.04
SPQ104-181M	180 ± 20%	538	646	0.95	0.76	0.91
SPQ104-221M	220 ± 20%	595	714	0.85	0.68	0.86
SPQ104-271M	270 ± 20%	737	884	0.75	0.60	0.78
SPQ104-331M	330 ± 20%	910	1,092	0.70	0.56	0.70
SPQ104-391M	390 ± 20%	1,120	1,344	0.65	0.52	0.63
SPQ104-471M	470 ± 20%	1,230	1,476	0.60	0.48	0.60
SPQ104-561M	560 ± 20%	1,550	1,860	0.55	0.44	0.53
SPQ104-681M	680 ± 20%	1,750	2,100	0.50	0.40	0.50
SPQ104-821M	820 ± 20%	2,620	3,144	0.45	0.36	0.41
SPQ104-102M	1,000 ± 20%	2,870	3,444	0.40	0.32	0.39

■ All data is tested based on 25°C ambient temperature.

所有数据基于环境温度 25°C 条件下测试。

※1 Inductance measure condition at 100kHz, 0.1V.

电感测试条件为 100kHz, 0.1V。

※2 Saturation current: the actual value of DC current when the inductance decrease 20% of its initial value.

饱和电流: 电感值下降其初始值的 20% 时所加载的实际直流电流值。

※3 Temperature rise current: the actual value of DC current when the temperature rise is ΔT40°C (Ta=25°C).

温升电流: 使产品温度上升到 ΔT40°C 时所加载的实际直流电流值 (Ta=25°C)。

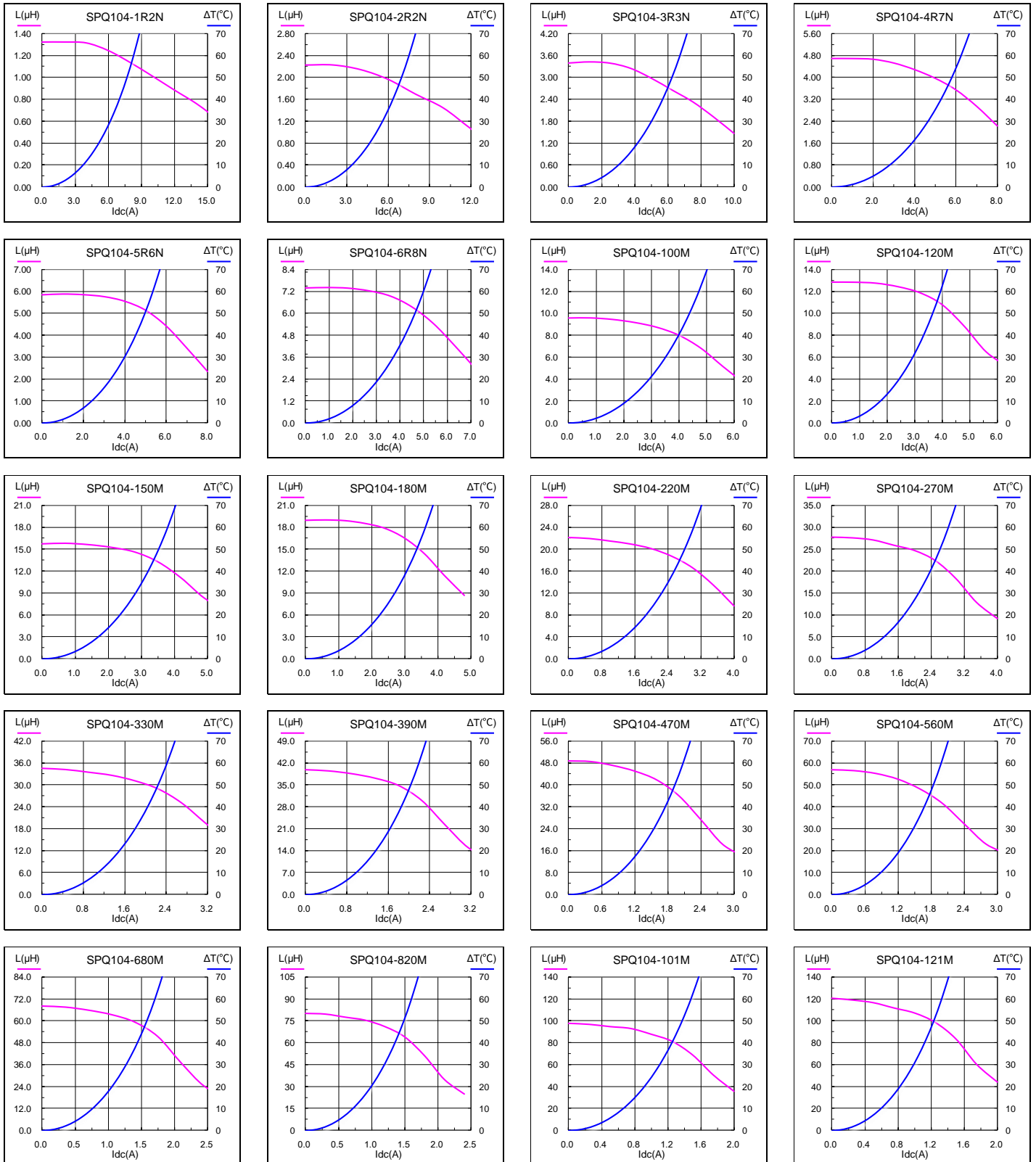
※ Special remind: Circuit design, component placement, PWB size and thickness, cooling system and etc.

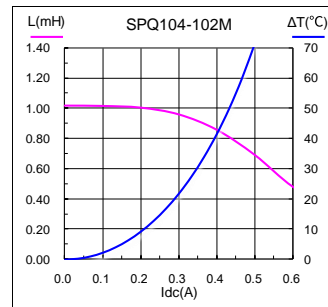
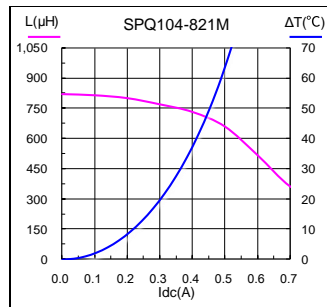
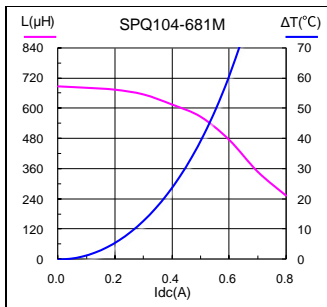
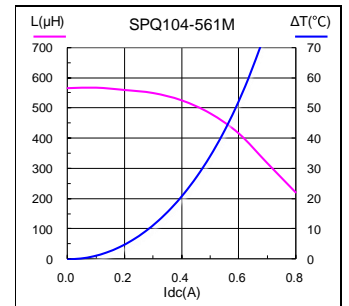
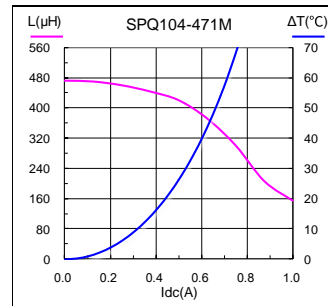
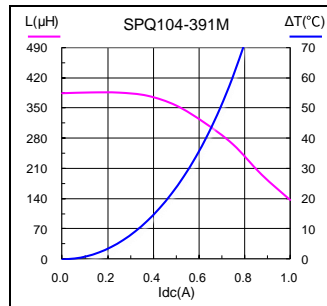
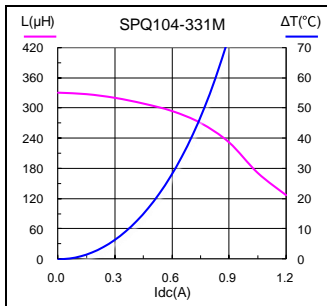
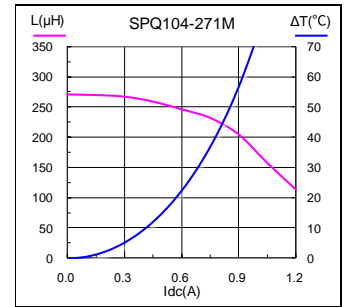
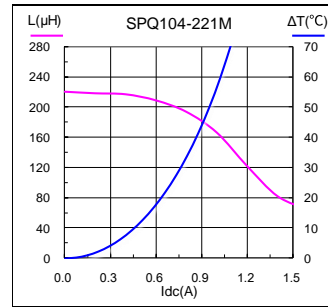
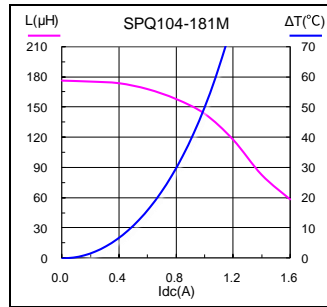
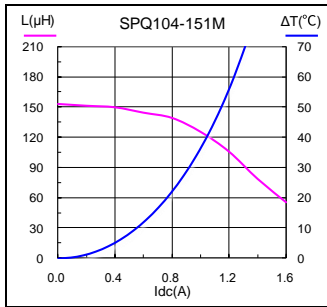
all will affect the product temperature. Please verify the product temperature in the final application.

特别提醒: 线路设计, 组件布局, 印刷线路板(PWB)尺寸及厚度, 散热系统等均会影响产品温度。

请务必在最终应用时, 验证产品发热状况。

## 6 Saturation current VS temperature rise current curve 饱和电流 VS 温升电流曲线



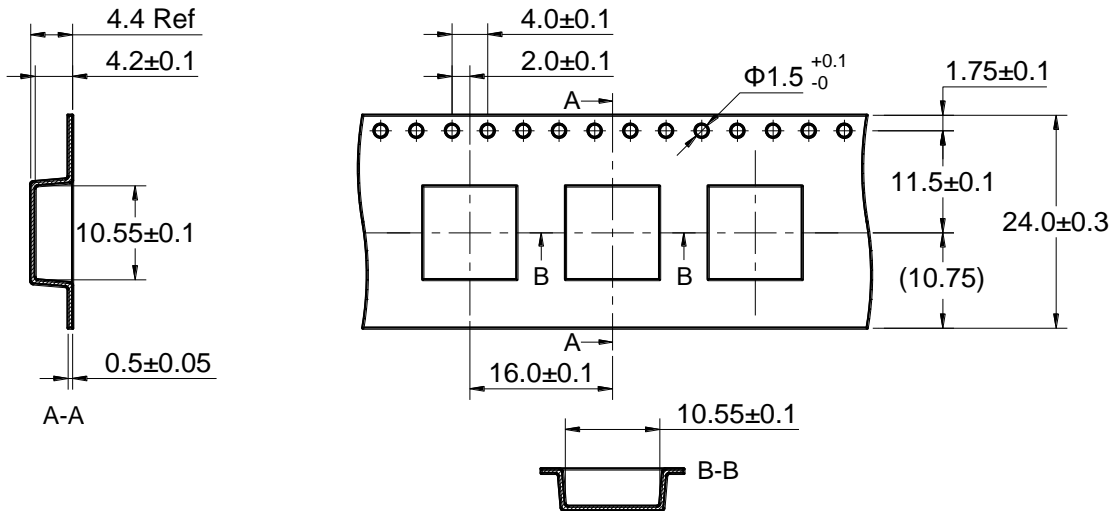


## 7 Packing specification

### 包装规格

#### 7.1 Carrier tape dimensions (mm)

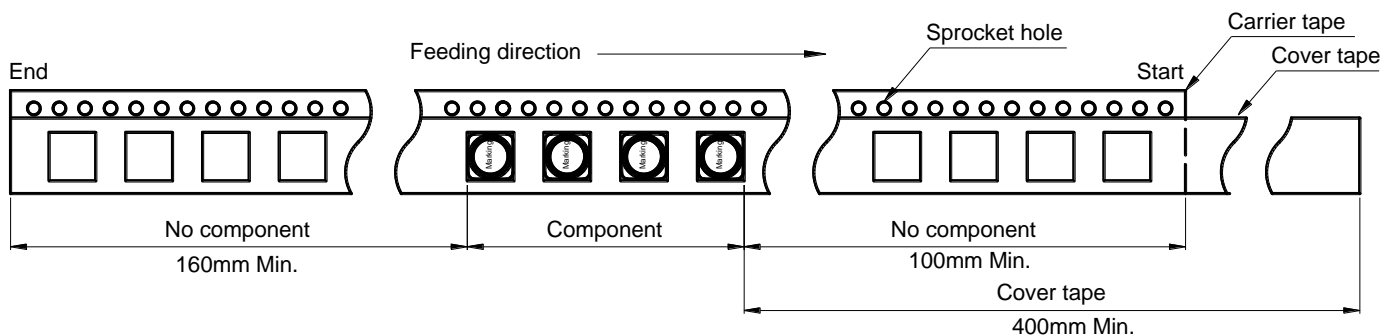
##### 载带尺寸



※ Packing is referred to the international standard IEC 60286-3.  
包装参照国际标准 IEC 60286-3。

#### 7.2 Tape direction

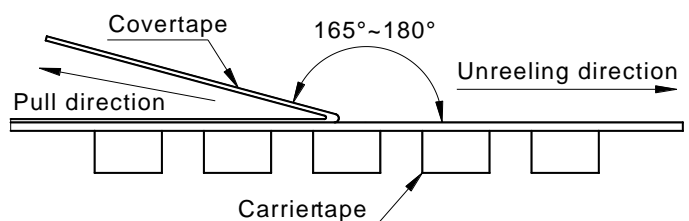
##### 捆包方向



#### 7.3 Cover tape peel off condition

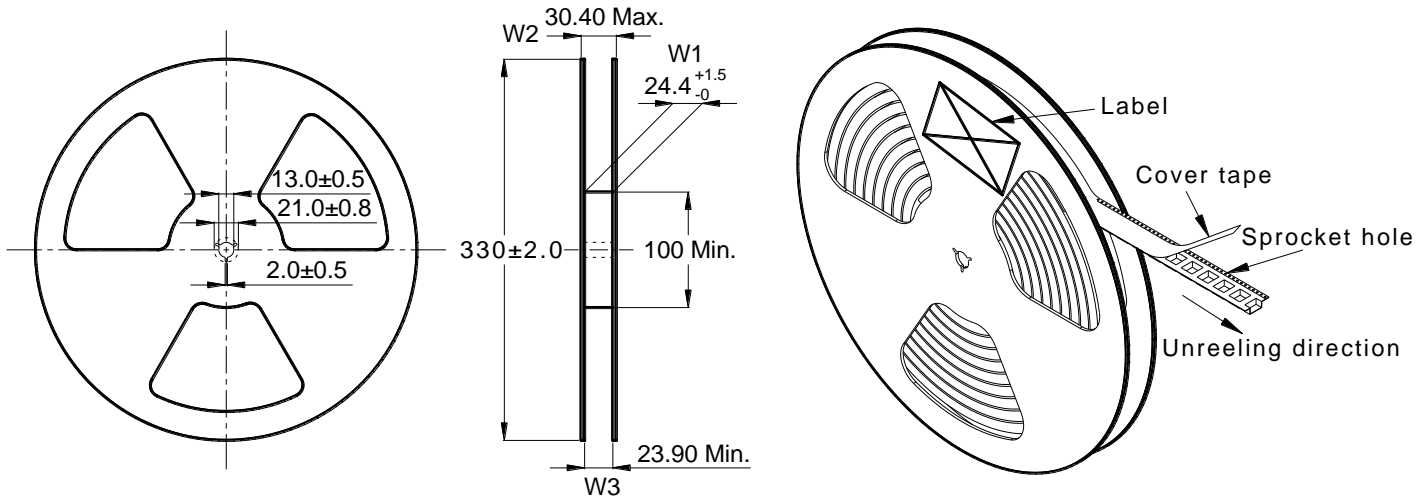
##### 盖带剥离条件

- Cover tape peel force shall be 0.1 to 1.3N.  
盖带剥离力度为 0.1~1.3N。
- Reference peel speed 300±10mm/min.  
参考剥离速度 300±10mm/分钟。



## 7.4 Reel dimensions (mm)

卷盘尺寸



## 7.5 Carton dimensions and packing quantity

包装箱尺寸和包装数量

■ Inner Carton: 365×345×105mm  
内包装盒

■ Out Carton : 385×365×245mm  
外包装箱

Product Series 产品系列	Quantity / Reel 数量 / 卷	Inner Carton Quantity 内盒 包装数量	Out Carton Quantity 外箱 包装总数量
SPQ104	1000pcs	(1000×3) = 3000pcs	(3000×2) = 6000pcs

## 7.6 Label making

标签标识

The following items will be marked on the reel of product label and shipping label.  
以下项目将明确标识于产品卷盘标签以及运输标签上。

Production Label 产品标签
■ Part No. 产品型号
■ Electrical Information 产品电性信息
■ Quantity 数量
■ Packing No. 包装流水号

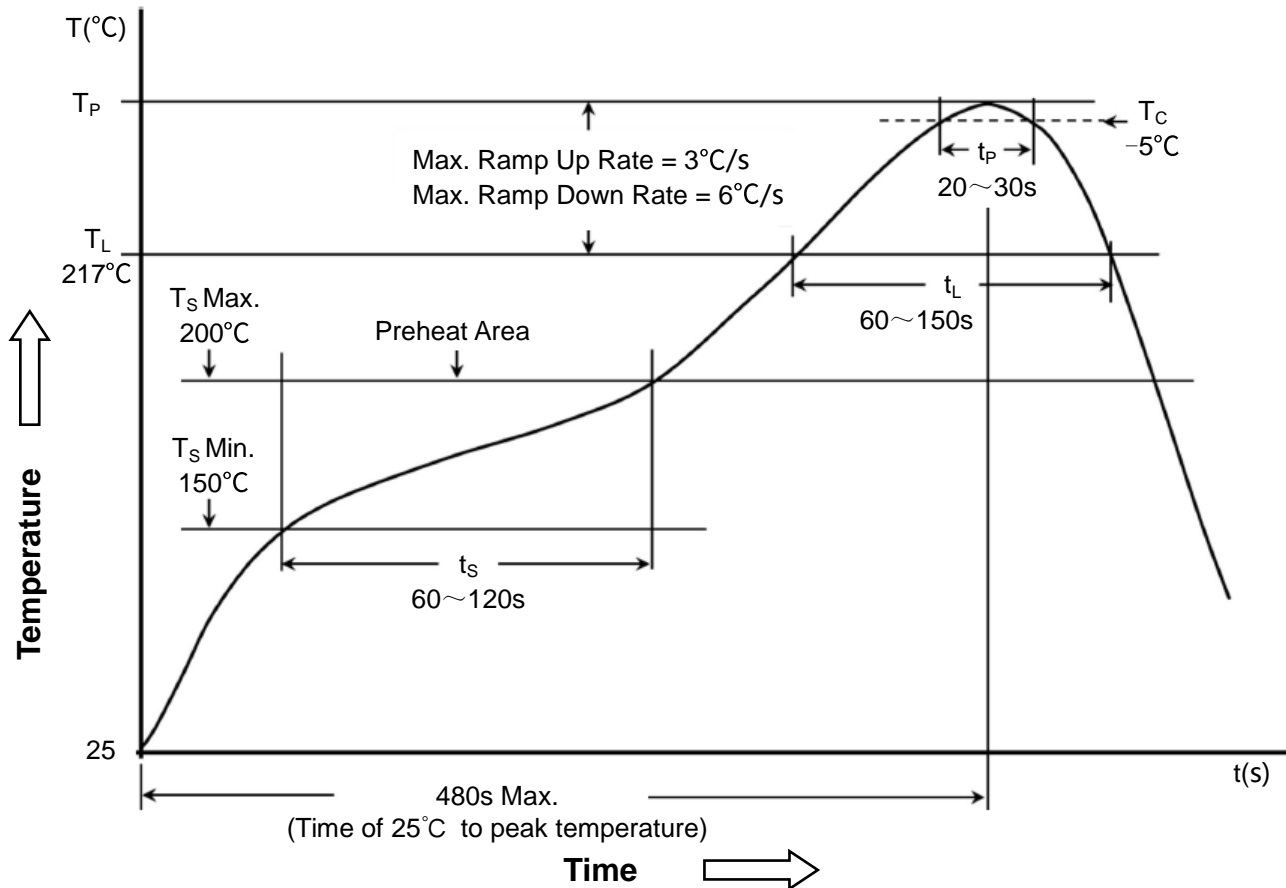
Shipping Label 运输标签
■ Customer Name 客户名称
■ Customer Part No. 客户型号
■ Supplier Part No. 供应商型号
■ Supplier Name 供应商名称
■ Country of origin 产品产地

## 8 Soldering specification

### 焊接规格

#### 8.1 Reflow profile for SMT components

SMT 回流焊温度曲线



#### 8.2 Classification of peak package body temperature (T<sub>P</sub>)

封装体峰值温度(T<sub>P</sub>)分类

	Package Thickness 封装厚度	Package Volume 封装体积		
		<350 mm <sup>3</sup>	350~2000 mm <sup>3</sup>	>2000 mm <sup>3</sup>
PB-Free Assembly 无铅装配	<1.6mm	260°C	260°C	260°C
	1.6~2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

※ Reflow is referred to standard IPC/JEDEC J-STD-020D.  
回流焊参照标准 IPC/JEDEC J-STD-020D.