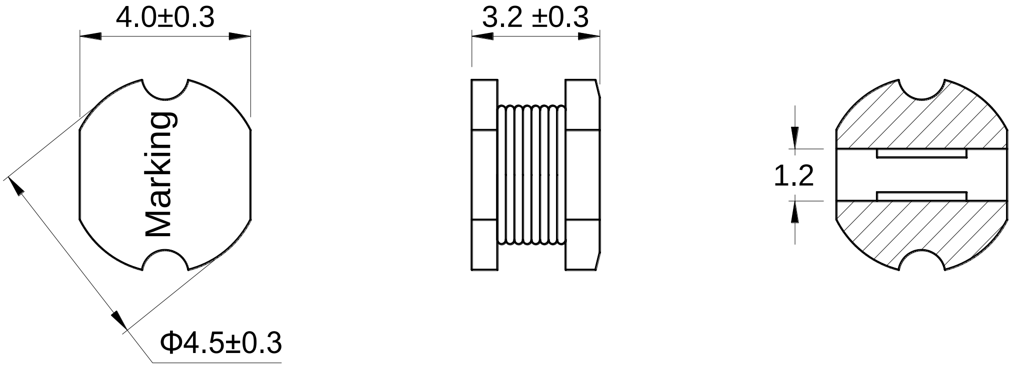
CODACA科达嘉

SMD Power Inductor
- SP43 Series

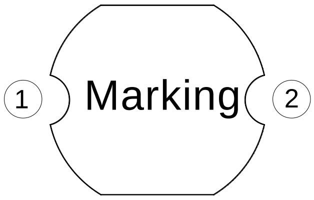
Outline:
产品概要

- Small size, high rated current, low DCR.
  小尺寸，耐大电流，低直流电阻。
- 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, displayer, laptop, network communication equipment, and etc.
  广泛应用于升降压转化器，显示器，笔记本电脑，网络通信设备等。
- Operating temperature : -40℃ ～ +125℃ (Including coil’s temperature rise)
  工作温度：-40℃ ～ +125℃ (包含线圈发热)

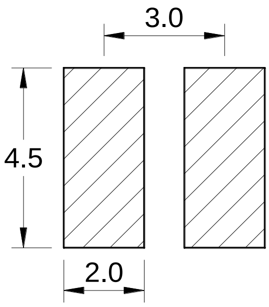
1 Appearance and dimensions (mm)
外形尺寸



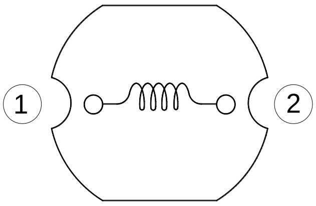
2 Marking
印字标识



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
SP43-1R0M	1.00 ±20%	12.8	15.4	5.30	4.24	5.18
SP43-2R2M	2.20 ±20%	24.6	29.5	3.30	2.64	3.81
SP43-3R3M	3.30 ±20%	34.3	41.2	2.60	2.08	3.19
SP43-4R7M	4.70 ±20%	44.0	52.8	2.20	1.76	2.82
SP43-6R8M	6.80 ±20%	64.0	76.8	1.92	1.54	2.34
SP43-8R2M	8.20 ±20%	72.0	86.4	1.70	1.36	2.20
SP43-100K	10.0 ±10%	100	120	1.60	1.28	1.87
SP43-120K	12.0 ±10%	109	131	1.38	1.10	1.79
SP43-150K	15.0 ±10%	128	154	1.30	1.04	1.51
SP43-180K	18.0 ±10%	150	180	1.20	0.96	1.39
SP43-220K	22.0 ±10%	186	223	1.08	0.86	1.25
SP43-270K	27.0 ±10%	221	265	0.95	0.76	1.15
SP43-330K	33.0 ±10%	290	348	0.88	0.70	1.00
SP43-390K	39.0 ±10%	340	408	0.82	0.66	0.93
SP43-470K	47.0 ±10%	385	462	0.74	0.59	0.88
SP43-560K	56.0 ±10%	490	588	0.68	0.54	0.77
SP43-680K	68.0 ±10%	660	792	0.63	0.50	0.66
SP43-820K	82.0 ±10%	750	900	0.56	0.45	0.62
SP43-101K	100 ±10%	940	1,128	0.54	0.43	0.56
SP43-121K	120 ±10%	1,000	1,200	0.47	0.38	0.54
SP43-151K	150 ±10%	1,160	1,392	0.43	0.34	0.50
SP43-181K	180 ±10%	1,440	1,728	0.39	0.31	0.45
SP43-221K	220 ±10%	1,930	2,316	0.36	0.29	0.39
SP43-271K	270 ±10%	2,150	2,580	0.31	0.25	0.37
SP43-331K	330 ±10%	2,850	3,420	0.30	0.24	0.32
SP43-391K	390 ±10%	3,200	3,840	0.26	0.21	0.30
SP43-471K	470 ±10%	3,660	4,392	0.24	0.19	0.28
SP43-561K	560 ±10%	4,990	5,988	0.21	0.17	0.24
SP43-681K	680 ±10%	5,560	6,672	0.20	0.16	0.23
SP43-821K	820 ±10%	7,200	8,640	0.19	0.15	0.20
SP43-102K	1,000 ±10%	8,500	10,200	0.16	0.13	0.18

■ All data is tested based on 25℃ ambient temperature.
所有数据基于环境温度 25℃条件下测试。

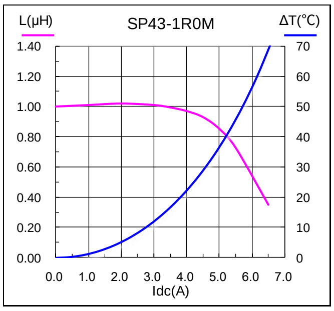
※1 Inductance measure condition at 1kHz, 0.25V.
电感测试条件为 1kHz, 0.25V。

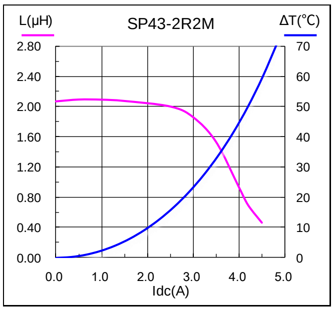
※2 Saturation current：the actual value of DC current when the inductance decrease 20% of its initial value.
饱和电流：电感值下降其初始值的 20%时所加载的实际直流电流值。

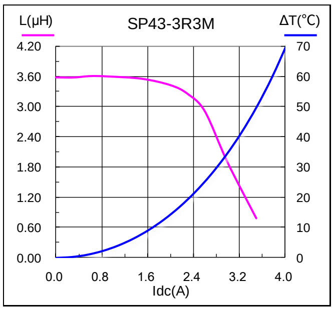
※3 Temperature rise current：the actual value of DC current when the temperature rise is ΔT40℃(Ta=25℃).
温升电流：使产品温度上升到 ΔT40℃时所加载的实际直流电流值(Ta=25℃)。

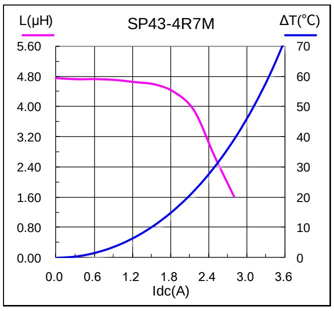
※ Special remind：Circuit design, component placement, PWB size and thickness, cooling system and etc. all will affect the product temperature. Please verify the product temperature in the final application.
特别提醒：线路设计，组件布局，印刷线路板(PWB)尺寸及厚度，散热系统等均会影响产品温度。
请务必在最终应用时，验证产品发热状况。

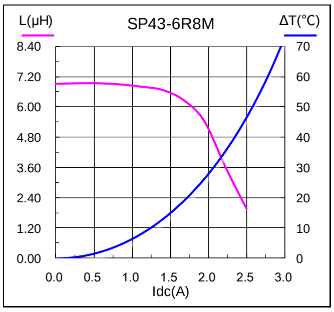
6 Saturation current VS temperature rise current curve
饱和电流 VS 温升电流曲线

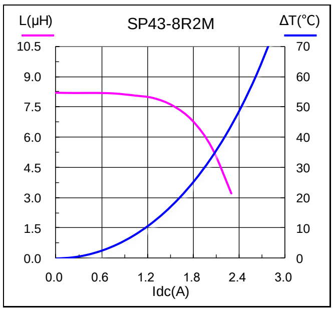


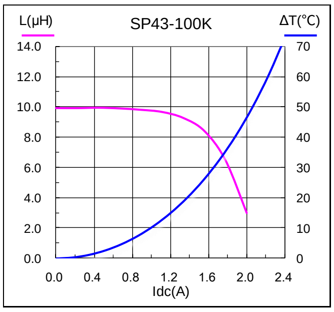


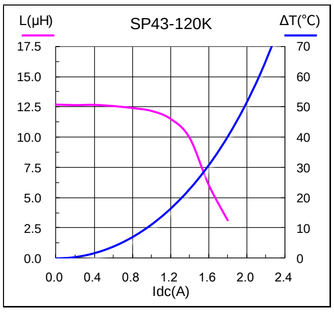


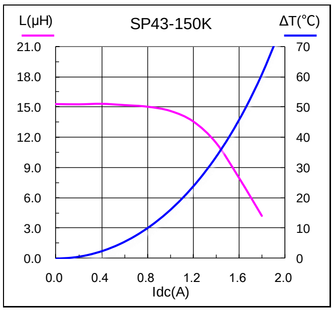


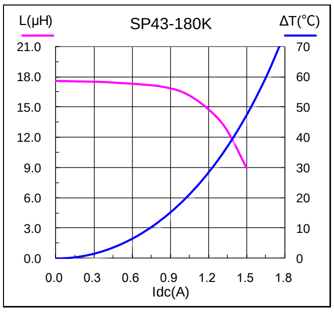


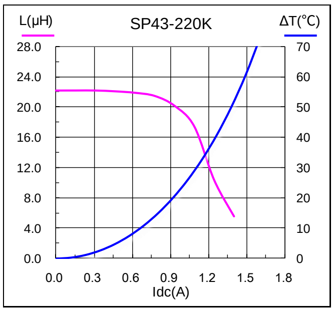


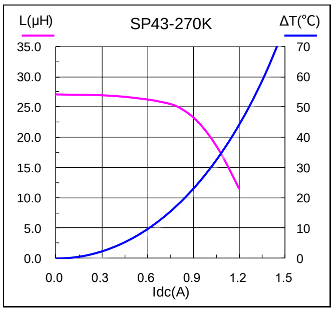


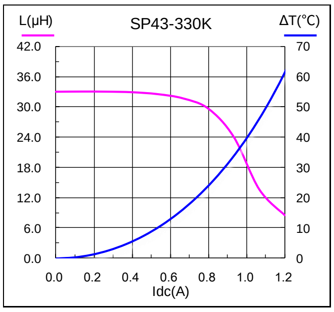


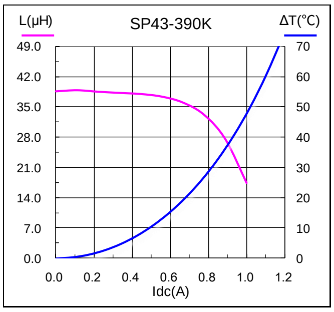


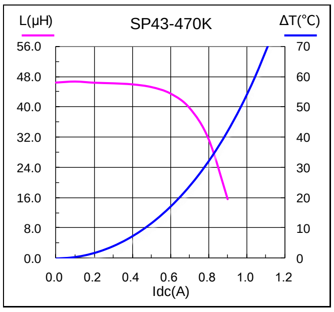


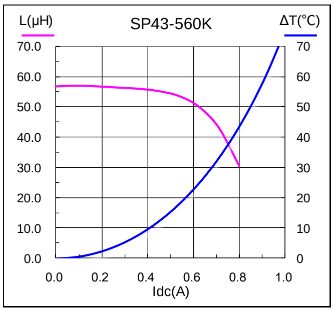


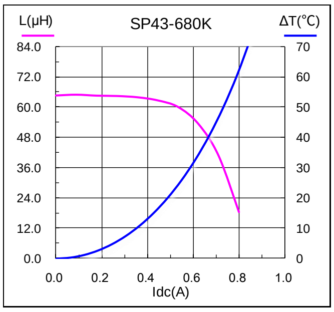


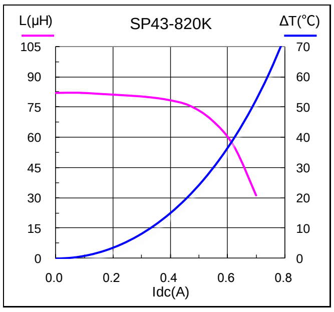


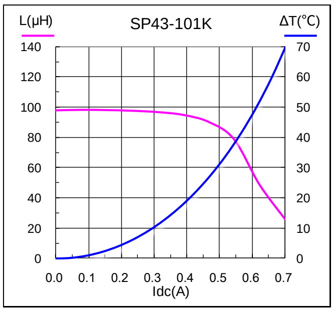


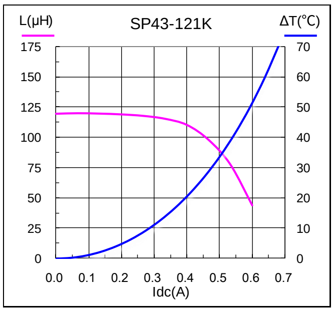


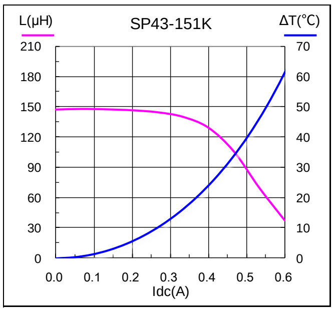


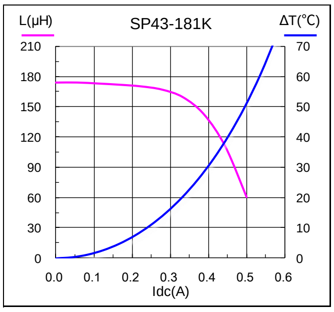









L(μH)
SP43-151K
ΔT(℃)
210
180
150
120
90
60
30
0
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
Idc(A)


L(μH)
SP43-181K
ΔT(℃)
210
180
150
120
90
60
30
0
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
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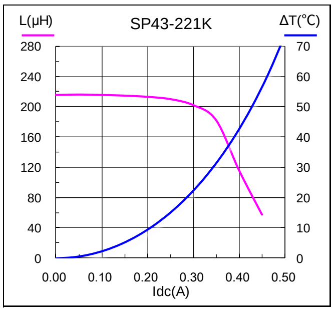
L(μH)
SP43-221K
ΔT(℃)
280
240
200
160
120
80
40
0
70
60
50
40
30
20
10
0
0.00
0.10
0.20
0.30
0.40
0.50
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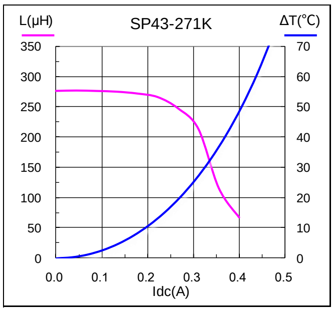
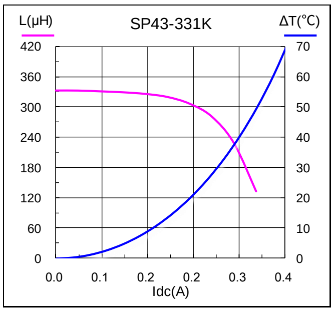

L(μH)
SP43-271K
ΔT(℃)
350
300
250
200
150
100
50
0
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.3
0.4
0.5
Idc(A)


L(μH)
SP43-331K
ΔT(℃)
420
360
300
240
180
120
60
0
70
60
50
40
30
20
10
0
0.0
0.1
0.2
0.2
0.3
0.4
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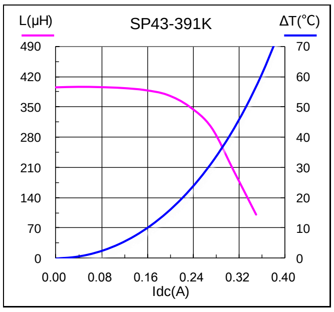
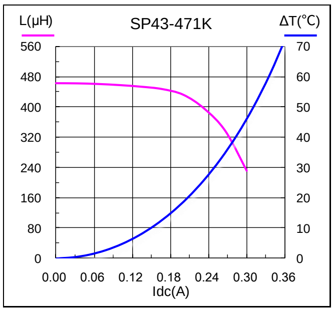
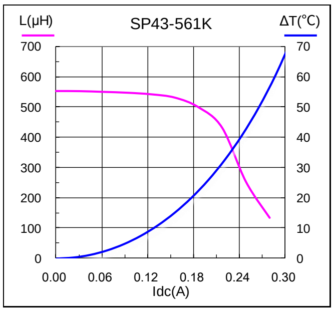
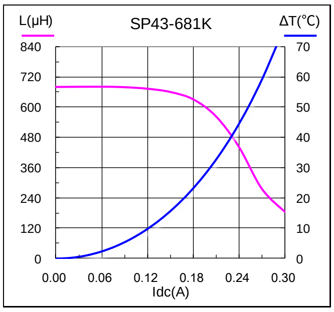
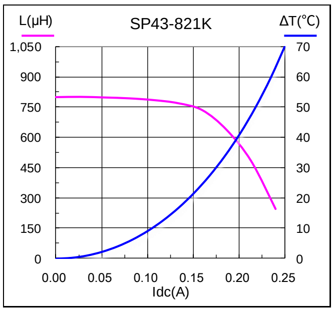
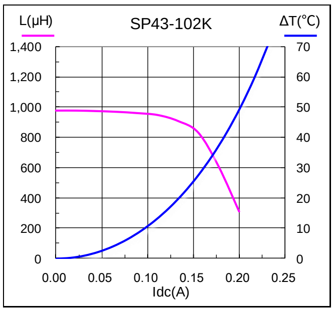

L(μH)
SP43-391K
ΔT(℃)
490
420
350
280
210
140
70
0
70
60
50
40
30
20
10
0
0.00
0.08
0.16
0.24
0.32
0.40
Idc(A)


L(μH)
SP43-471K
ΔT(℃)
560
480
400
320
240
160
80
0
70
60
50
40
30
20
10
0
0.00
0.06
0.12
0.18
0.24
0.30
0.36
Idc(A)


L(μH)
SP43-561K
ΔT(℃)
700
600
500
400
300
200
100
0
70
60
50
40
30
20
10
0
0.00
0.06
0.12
0.18
0.24
0.30
Idc(A)

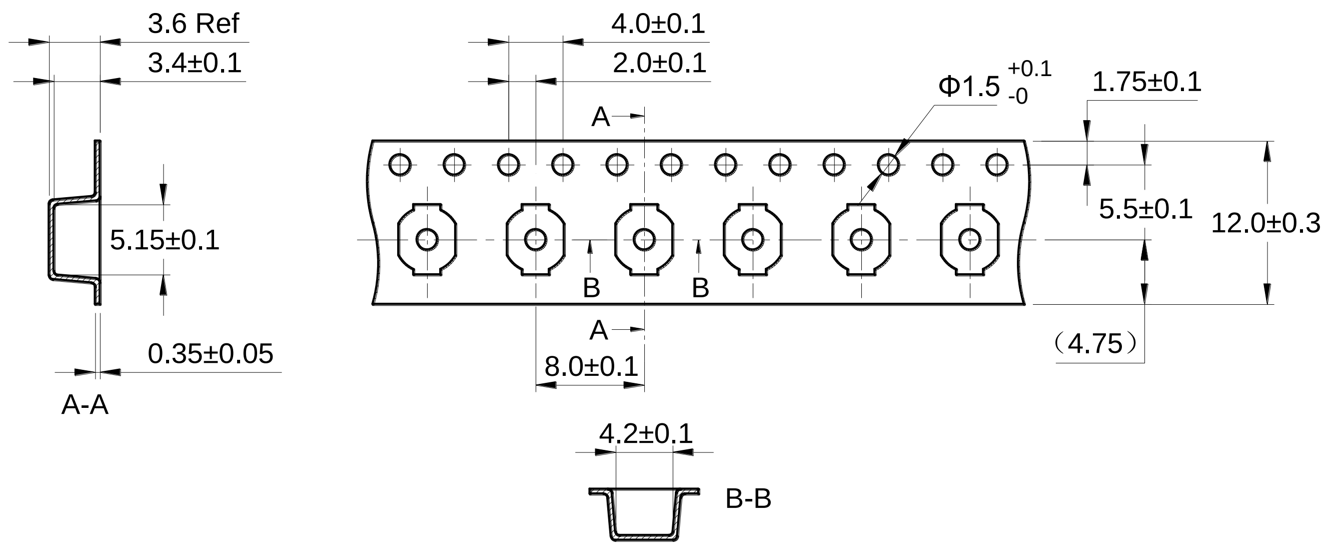

L(μH)
SP43-681K
ΔT(℃)
840
720
600
480
360
240
120
0
70
60
50
40
30
20
10
0
0.00
0.06
0.12
0.18
0.24
0.30
Idc(A)


L(μH)
SP43-821K
ΔT(℃)
1,050
900
750
600
450
300
150
0
70
60
50
40
30
20
10
0
0.00
0.05
0.10
0.15
0.20
0.25
Idc(A)


L(μH)
SP43-102K
ΔT(℃)
1,400
1,200
1,000
800
600
400
200
0
70
60
50
40
30
20
10
0
0.00
0.05
0.10
0.15
0.20
0.25
Idc(A)

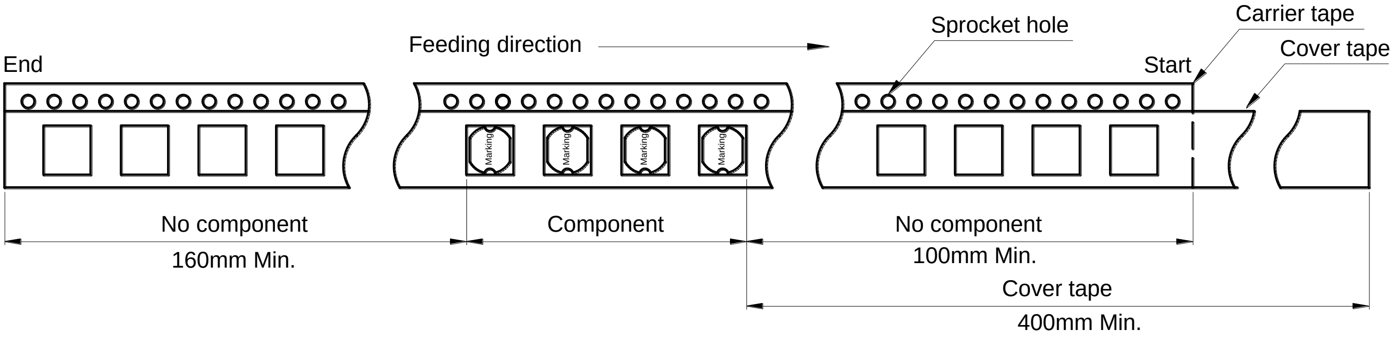
7 Packing specification
包装规格

7.1 Carrier tape dimensions (mm)
载带尺寸



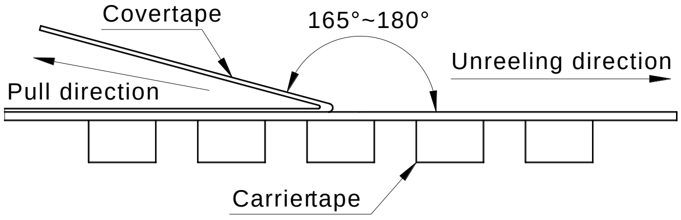
※ Packing is referred to the international standard IEC 60286-3.
包装参照国际标准 IEC 60286-3。

7.2 Tape direction
捆包方向

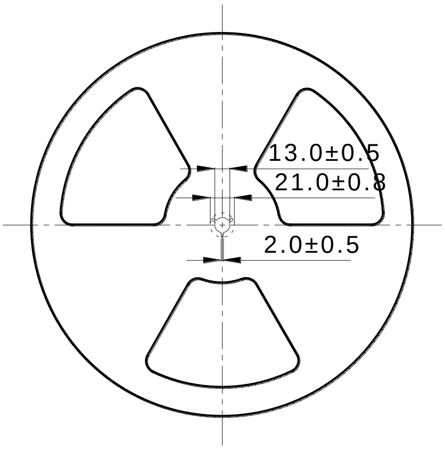


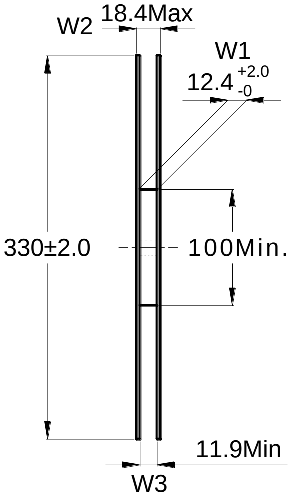
7.3 Cover tape peel off condition
盖带剥离条件

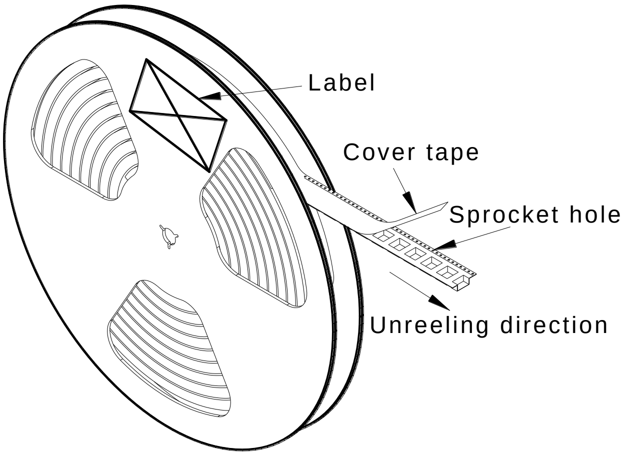
- ■ Cover tape peel force shall be 0.1 to 1.3N.
  盖带剥离力度为 0.1～1.3N。
- ■ Reference peel speed 300±10mm/min.
  参考剥离速度 300±10mm/分钟。



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
SP43	2000pcs	(2000×5) = 10000pcs	(10000×2) = 20000pcs

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

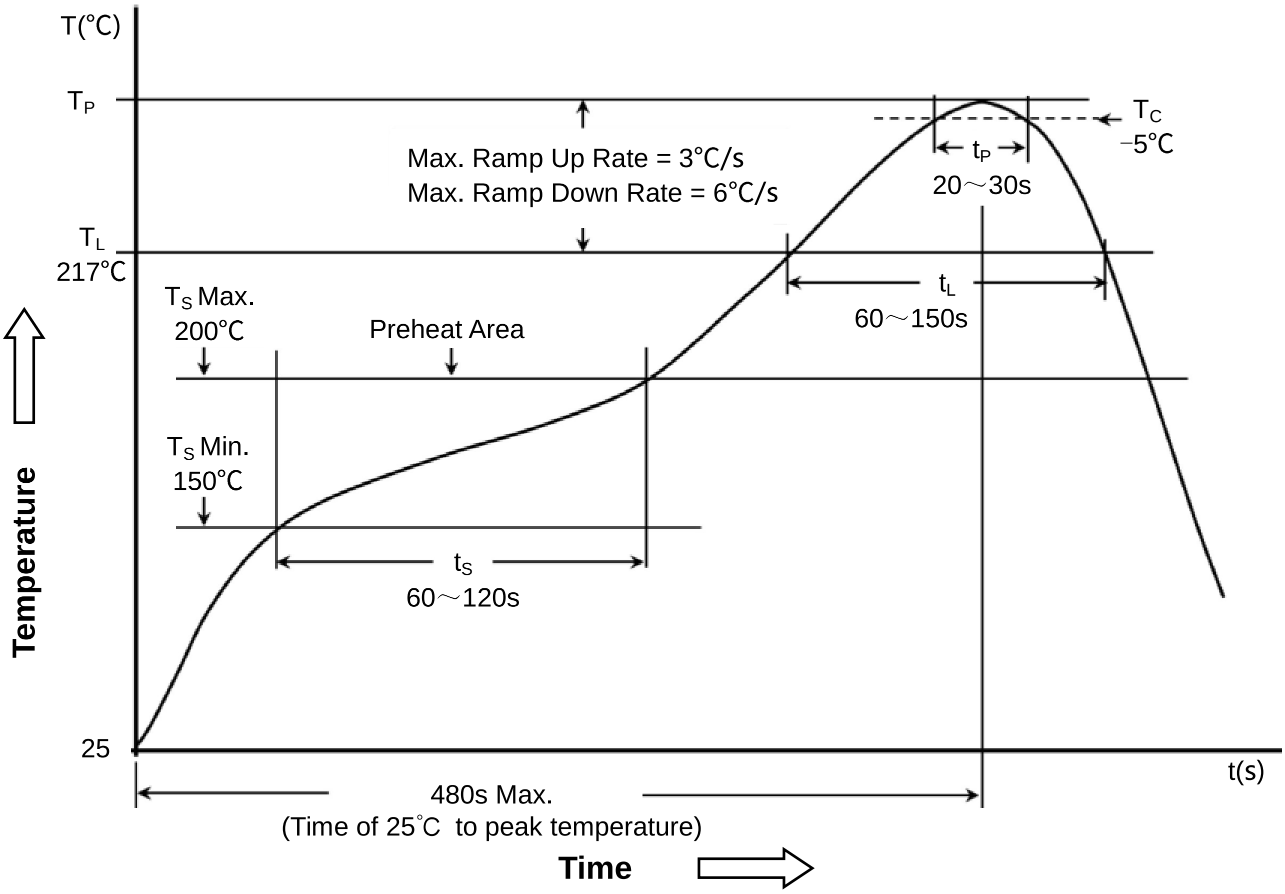
- ■ Part No.
  产品型号
- ■ Electrical Information
  产品电性信息
- ■ Quantity
  数　量
- ■ Packing No.
  包装流水号

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$_P$)
封装体峰值温度(T$_P$)分类

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

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