德砚电子
DE YAN DIAN ZI

一体成型功率电感

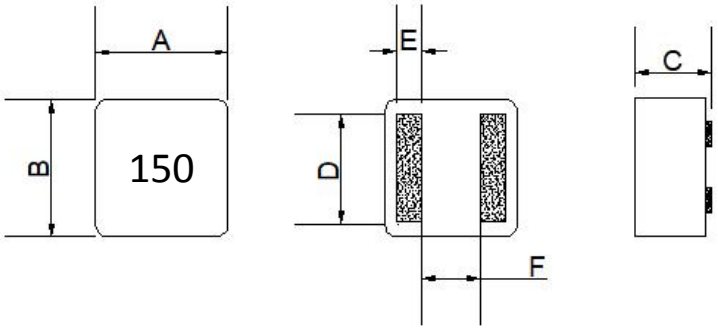
Data Sheet

RoHS ISO 9001 质量管理体系认证 ISO 14001 环境管理体系认证

Shenzhen Deyan Electronics Co., Ltd

PRODUCT	D10100HP-150MT	COIL SPECIFICATION	DATE	2024/8/22
SPEC.NO.	2024-0822-02B		REV	A0

EXTERNAL DIMENSIONS :



A : 10.5±0.3 m/m
B : 11.6±0.3 m/m
C : 9.8±0.3 m/m
D : 8.3±0.5 m/m
E : 2.2±0.3 m/m
F : 4.4 TYP m/m

ELECTRICAL CHARACTERISTIC :

L(μH) : 15.0±20% 100KHz 1.0V

DCR(mΩ) : 19.3 Max. 16.9 (Typ.) (@25℃)

Isat(A) : 15.5 Typ.(L 15.5A/L0A*100% ≈70%)

INDUCTANCE Drop Approximately: 30% .@ IDC 15.5A

Irms(A) : 13.8 Typ. 40℃ MAX (Δt)

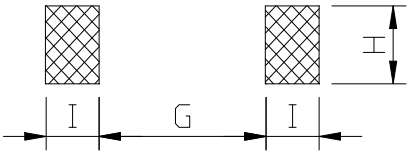
Use Frequency Range: 7.5 MHz (REF)

Operating Temperature Range: -55℃ ~+125℃

SCHEMATIC DRAWING :

Equivaient Circuit

PCB PATTERN :



G : 4.20 m/m (REF)
H : 9.00 m/m (REF)
I : 3.20 m/m (REF)

MATERIAL LIST :

NO	ITEM	MATERIAL	SUPPLIER OF THE MATERIAL
1	CORE		
2	BLAK		
3	COPPER		
4	COATING		
5	MARKING		

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TEST DATA

ELECTRICAL CHARACTERISTICS									
MEAS. ITEM	L(μH)	DCR(mΩ)	Isat(A)	A	B	C	D	E	F
TEST FREQ.	100KHz 1.0V	Max.	Typ.	m/m	m/m	m/m	m/m	m/m	m/m
YOUR									
SPEC.	15.0±20%	18.60	15.5A≈70%	10.5±0.3	11.6±0.3	9.8±0.3	8.3±0.5	2.2±0.3	4.4TYP
1	14.23	16.50	72.9%	10.45	11.63	9.77	8.32	2.14	4.43
2	14.11	16.70	73.8%	10.46	11.64	9.87	8.34	2.11	4.42
3	14.19	16.40	73.2%	10.43	11.62	9.84	8.33	2.19	4.45
4	14.05	16.50	72.5%	10.45	11.63	9.78	8.31	2.17	4.43
5	14.23	16.60	72.4%	10.42	11.64	9.83	8.32	2.18	4.42
6	14.18	16.40	73.6%	10.46	11.62	9.86	8.31	2.13	4.45
7	14.25	16.30	72.6%	10.44	11.65	9.94	8.34	2.19	4.44
8	14.19	16.20	73.1%	10.43	11.64	9.85	8.33	2.20	4.42
9	14.21	16.30	73.8%	10.45	11.66	9.79	8.31	2.22	4.43
10	14.11	16.40	73.5%	10.42	11.63	9.86	8.32	2.18	4.45
$\overline{X}$	14.175	16.430	73.14%	10.441	11.636	9.839	8.323	2.171	4.434
R	0.200	0.500	1.40%	0.040	0.040	0.170	0.030	0.110	0.030

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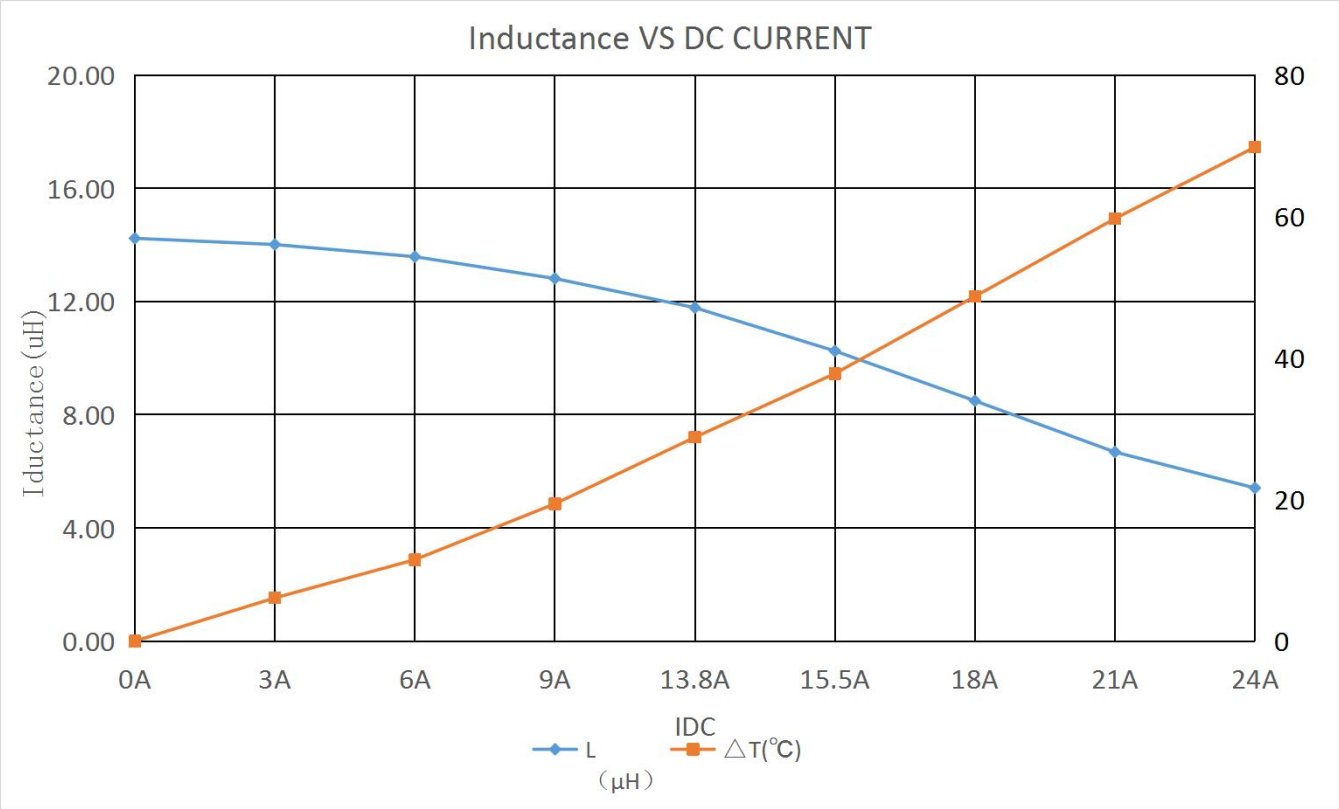
TYPICAL ELECTRICAL CHARACTERISTICS

IDUCTANCE VS CURRENT@100KHZ/1.0V

IDC	0A	3A	6A	9A	13.8A	15.5A	18A	21A	24A		
L (μH)	14.23	14.01	13.58	12.81	11.78	10.25	8.49	6.68	5.41		
△T(℃)	0	6.1	11.5	19.4	28.8	37.8	48.7	59.7	69.8		



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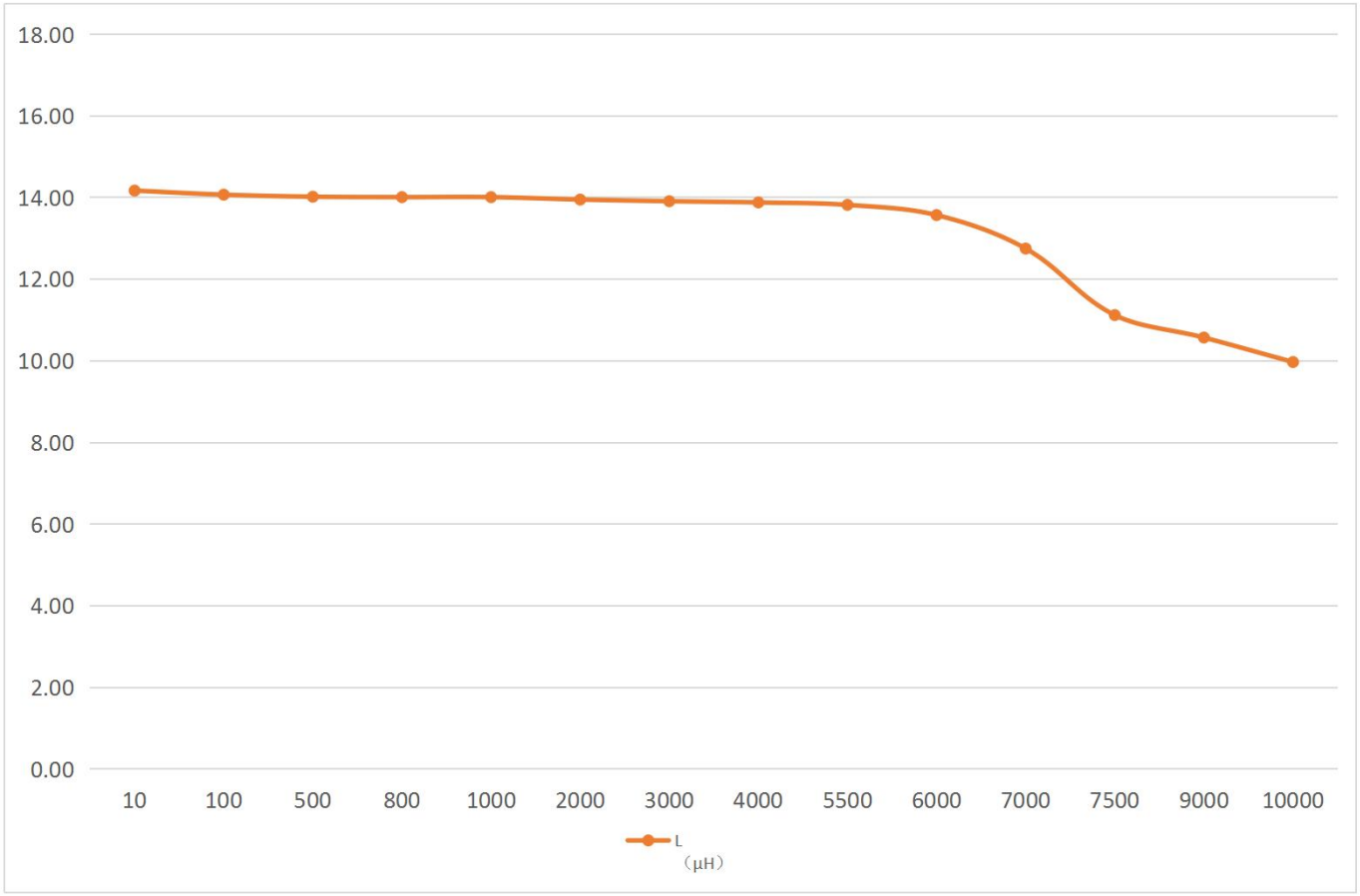
L Frequency characteristics

Hz(KHz)	10	100	500	800	1000	2000	3000	4000	5500	6000	7000	7500	9000	10000		
L (μH)	14.17	14.07	14.02	14.01	14.01	13.95	13.91	13.88	13.82	13.57	12.75	11.12	10.57	9.97		
		100.0%	99.6%	99.6%	99.6%	99.1%	98.9%	98.6%	98.2%	96.4%	90.6%	79.0%	75.1%	70.9%		



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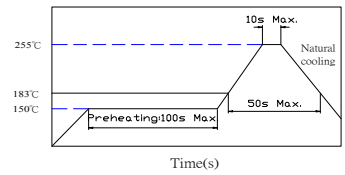
TEST ITEMS	SPECIFICATIONS	TEST CONDITIONS / TEST METHODS
ELECTRICAL PERFORMANCE TEST		
L	REFER TO STANDARD ELEC-TRICAL CHARACTERISTIC LIST.	MICROTEST6377
DCR		TH2511
RATED CURRENT		APPLIED THE CURRENT TO COILS THE IDUCTANCE CHANGE SHOULD BE LESS THAN 30% TO INITIAL VALUE AND TEMPERATURE RISE SHOULD NOT BE 40℃ TYPICAL
TEMPERATURERISE TEST	40℃ MAX (△t)	1. APPLIED THE ALLOWED DC CURRENT FOR 4 HOUR 2. TEMPERATURE MEASURE BY DIGTAL SURFACE THERMOMETER.
OVER LOAD TEST	NO EVIDENCE OF ELECTRICAL DAMAGE	APPLIED 1.5 TIMES OF RATED ALLOWED DC CURRENT TO INDUCTORS FOR A PERIOD OF 5 MINUTES.
MECHANICAL PERFORMANCE TEST		
SOLDER HEAT RESISTANCE	1. INDUCTORS SHOULD HAVE NO EVIDENCE OF ELEC- TRICAL AND MICHANICAL DAMAGE 2. INDUCTANCE SHOULD NOT HANGE MORE THAN±10%	PREHEAT:150℃ 100s Max. SOLDER TEMPERATURE: 255±5℃ DIP TIME:10s Max. 
VIBRATION TEST (LOW FREQUENCY)		1.AMPLITUDE: 1.5 mm 2.FREQUENCY: 10-55-10HZ / 1 MIN 3.DIRECTION: X, Y, Z 4.DURATION: 2 HRS/X, Y, Z
SHOCK TEST		INDUCTORS SHOULD BE DROPPED 10 TIMES FROM A HEIGHT OF 1m ONTO 3cm WOODEN BOARD.

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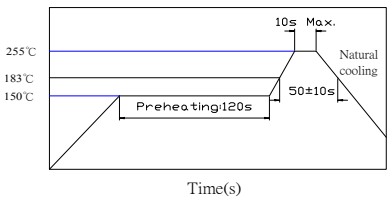
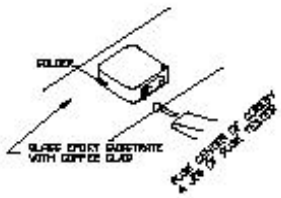
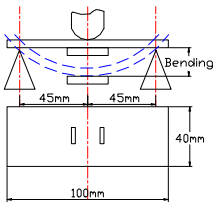
TEST ITEMS	SPECIFICATIONS	TEST CONDITIONS / TEST METHODS
MECHANICAL PERFORMANCE TEST		
SOLDERABILITY TEST	MORE THAN 90% OF TERMINAL ELECTRODE SHOULD BE COVERED WITH SOLDER.	PREHEAT:150℃ 120x SOLDER BATH AT 255±5℃ DIP TIME:10s Max. 
COMPONENT ADHESION (PUSH TEST)	1.5Kg Min	THE DEVICE SHOULD BE REFLOW SOLDERED (255±5℃ FOR 10 SECONDS) TO A TINNED COPPER SUBSTRATE. A DYNOMETER FORCE GAUGE SHOULD BE APPLIED TO THE SIDE OF THE COMPONENT. THE DEVICE MUST WITH- STAND A MINIMUM FORCE OF 1.5Kg WITHOUT AILURE OF THE TERMINATION . 
COMPONENT ADHESION (PULL TEST)	1.5Kg Min	1.INSERT 10cm WIRE INTO THE REMAINING OPEN EYE BEND THE ENDS OF EVEN WIRE LENGTHS UPWARD AND WIND TOGETHER 2. TERMINAL SHALL NOT BEREMARKABLY DAMAGED 
FLEXTURE STRENGTH	THE FORCES APPLIED SHOULD NOT DAMAGE THE DIELECTRIC.	SOLDER A CHIP ON A TEST SUBSTRATE, BEND THE SUBSTRATE BY 2mm AND RETURN. 
RESISTANCE TO SOLVENT TEST	THERE SHOULD BE NO CASEDEFORMATION, CHANGE IN APPEARANCE OR BITERATION OF MARKING	INDUCTERS SHALL WITHSTAND 6 MINTES OF ALCOHOL

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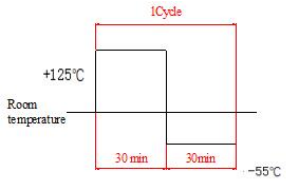
TEST ITEMS	SPECIFICATIONS	TEST CONDITIONS / TEST METHODS
CLIMATIC TEST		
TEMPERATURE CHARACTERISTIC	1.APPEARANCE:NO DAMAGE 2.INDUCTANCE:WITHIN ±10% OF INITIAL VALUE.	-55℃ ~ +125℃
HUMIDITY TEST		60℃±2℃ / 96±2 HOURS R.H:90-95%RH
LOW TEMPERATURE STORAGE		1.TEMPERATURE: -55℃±2℃ 2.TIME: 96±2 HOURS
THERMAL SHOCK TEST		1.-55±5℃ FOR 30 MINUTES. +125±5℃ FOR 30 MINUTES. 2.TOTAL: 10 CYCLES 
HIGH TEMPERATURE STORAGE		1.APPLIED CURRENT: MAX RATED CURRENT 2.TEMPERATURE:120℃±2℃
NOTE：INDUCTORS ARE TO BE TESTED AFTER 2 HOUR AT ROOM TEMPERATURE.		
LIFE TEST		
HIGH TEMPERATURE LOAD LIFE TEST	INDUCTORS SHOULD BE NO EVIDENCE OF SHORT OR OPEN CIRCUIT	1. TEMPERATURE: 125±2℃ 2. TIME: 500±12 HOURS 3. LOAD: ALLOWED DC CURREN
HUMIDITY LOAD LIFE TEST		1. TEMPERATURE: 60±2℃ 2. R.H.: 90-95% 3. TIME: 500±12 HOURS 4. LOAD: ALLOWED DC CURREN

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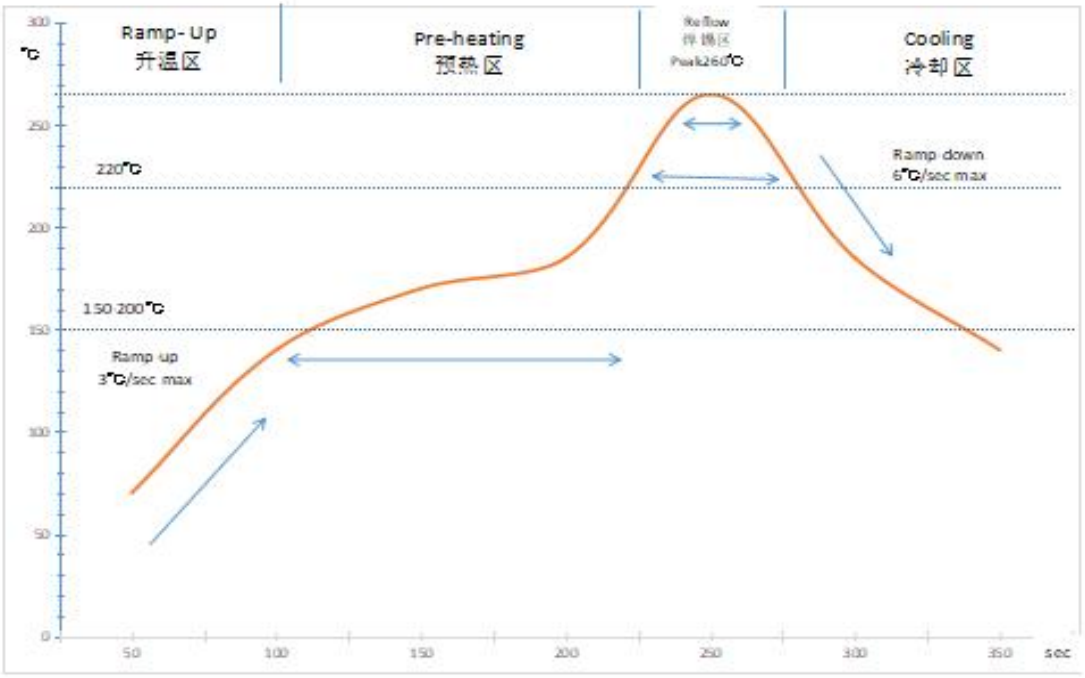
REFLOW PROFILE



Lead-Free(LF)标准温度分析范围

项目 Item	升温区 Ramp-up	预热区 Pre-heating	焊锡区 Reflow	PeakTemp	冷却区 Cooling
温度范围 TeamScope	R.T.-150℃	150-200℃	220℃	260±5℃	6℃/sec Max
标准时间 Time spec	-	60-180 sec	60-150 sec	20-40 sec	-

Note:

1. Re-flow possibe times:within 2 time
2. Nitroge adopted is recommended while in re-flow

Iron Soldering Profile

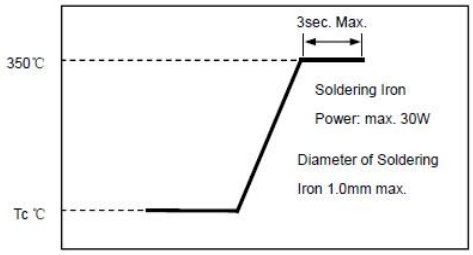
Iro soldering power:Max.30W

Pre-heating:150℃/60sec

Soldering time:3sec.Max.

Solder paste:Sn/3.0Ag/0.5Cu

Max.1 times for iron soldering



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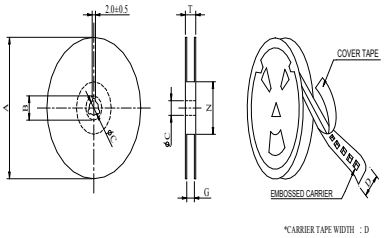
Packaging Specification：

卷轴尺寸

REEL DIMENSIONS

STYLE	REEL DIMENSIONS (m/m)						
	QTY(PCS)	A	B±0.8	C±0.5	G	N	T
10100	300	330	21	13	24	100	29

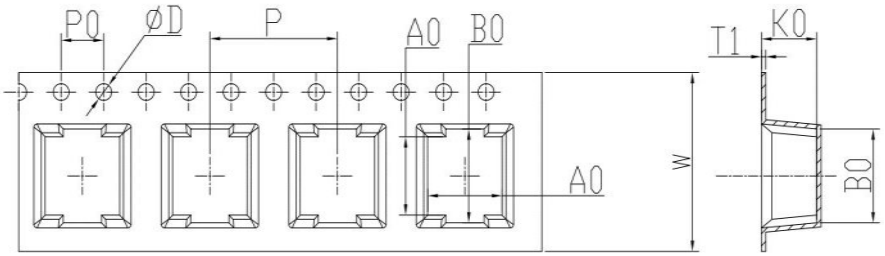


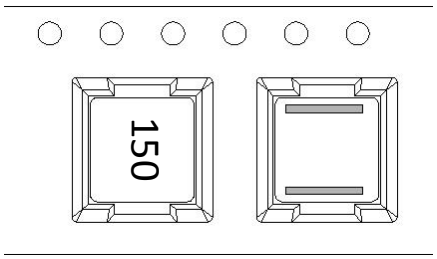
载带尺寸

Tape Dimension：

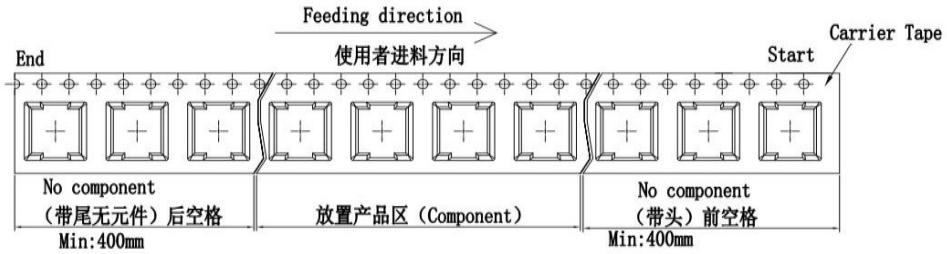
•载带尺寸，印字方向，印字内容的第一个字对定位孔(如图所示)

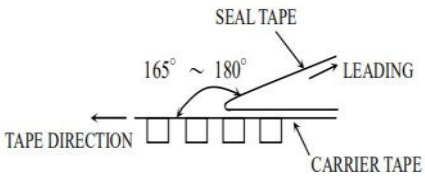
word pair orifice of printed content (as shown) . Tape size, printing direction, first





材质	下带颜色	上带颜色	后空格数(PCS)	前空格数(PCS)	封带方式(冷/热)	拉力(g)	W±0.3	A0±0.1	B0±0.1	K0±0.1	P±0.1	T1±0.1	ØD+0.1/-0	P0±0.1
透明 PS	透明	透明	25	25	冷	30-130	24	11.8	10.5	10.2	16	0.4	1.5	4





THE PEEL FORCE WITH A PEEL SPEED OF 300mm/MIN±10mm/MIN SHALL BE AS FOLLOWS:
0.1N TO 1.0N FOR AN 8mm TAPE WIDTH.
0.1N TO 1.3N FOR A 12mm～56mm TAPE WIDTH.

包装方法参照国际标准IEC 60286 -3：2013

Packaging is referred to the international standard IEC 60286 -3:2013

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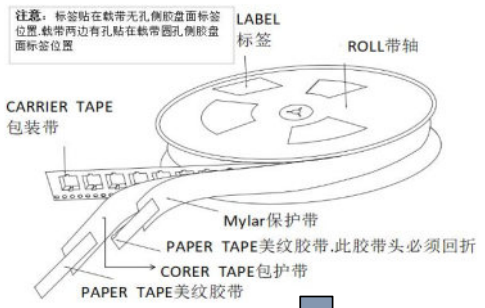
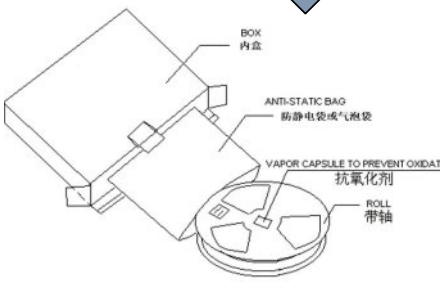
PACKAGE：

卷轴包装数量
每卷 300 PCS

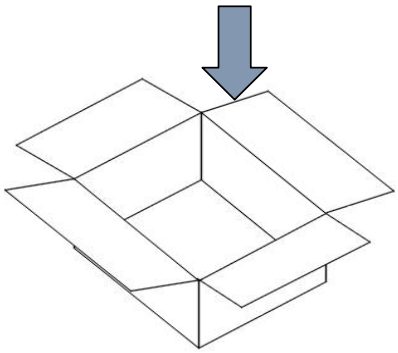


内盒包装数量
每盒 2 卷，共 600 PCS



Inner Box Dimension:34*34*6.5cm

外箱包装数量
每箱 2 盒 ，共 1200 PCS



Carton Dimension: 36.5*35.5*14.5cm

Storage Conditions

*Temperature and humidity conditions: Less than 40℃ and 70% RH.

*Recommended products should be used within 6 months form the time of delivery.

*The packaging material should be kept where no chlorine or sulfur exists in the air.

Transportation

*Products should be handled with care to avoid damage or contamination from perspiration and skin oils.

*The use of tweezer or vacuum pick up is strongly recommended for individual components.

*Bulk handing should ensure that abrasion and mechanical shock are minimized.